

Parameter	Limit MAC(mg/L)	Limit IMAC (mg/L)	Sample Result(s)	# Samples Exceeding Limit	
Arsenic	0.010		0.00045		* Results expressed as average values for communities or waterworks that fluoridate drinking water supplies or those with elevated concentrations of fluoride or nitrates.
Barium	1.0		0.00712		
Boron		5.0	0.656		
Bromate	0.01		<0.00150		
Cadmium	0.005		<0.000010		
Chlorate	1.0		0.724		
Chlorite	1.0		<0.050		
Chromium	0.05		<0.00010		
Fluoride (avg*)	1.5		<0.40		
Lead	0.01		<0.000112		
Nitrate (avg.*)	45.0		<0.40		
Selenium	0.01		<0.000102		
Uranium	0.02		0.000178		

Chemical – Trihalomethanes (THMs) and Haloacetic Acids (HAAs)

Parameter	THMs Limit (mg/L)	Sample Result (average)	# Samples Required	# Samples Submitted
Trihalomethanes	0.1	N/A	4 (1 every 3 months)	N/A
Haloacetic Acids	0.08	N/A	4 (1 every 3 months)	N/A

Note: Only water supplies derived from surface water or groundwater under the influence of surface water are required to monitor for THMs and HAAs. Waterworks using groundwater sources beyond the influence of surface water do not need to report THMs or HAAs since sampling/analysis will not likely have been performed unless otherwise noted in the waterworks permit to operate

General Chemical

Parameter	Aesthetic Objectives * (mg/L)	Sample Results (average)	# Samples Required	# Samples Submitted
Alkalinity	500	356	1	1
Bicarbonate	No Objective	434	1	1
Calcium	No Objective	103	1	1
Carbonate	No Objective	<1.0	1	1
Chloride	250	508	1	1
Conductivity	No Objective	3580	1	1
Hardness	800	460	1	1
Magnesium	200	50.0	1	1
PH	No Objective	8.13	1	1
Sodium	300	666	1	1
Sulphate	500	817	1	1
Total dissolved Solids	1500	2390	1	1

All waterworks serving less than 5000 persons are required to submit water samples for SE's General Chemical category once every two years if a ground water source and once per three months every second year if a surface water or blended surface/groundwater source. The General Chemical category includes analysis for alkalinity, bicarbonate, calcium, carbonate, chloride, conductivity, hardness (as CaCO₃), magnesium, sodium, sulphate and total dissolved solids.

The last sample for General Chemical analysis was required on (2020) and submitted on (May 12, 2021) Samples exceeded provincial aesthetic objectives for the General Chemical category for the following parameters: (Chloride, Sodium, Sulphate and TDS).



**Saskatchewan
Ministry of
Environment**



Drinking Water Quality and Compliance Town Short Form – A Template for Annual Notice to Consumers

(Note: This short form may be used for communities or waterworks serving a population of less than 5000).

Introduction

The Water Security Agency and the Ministry of Environment requires that at least once each year waterworks owners provide notification to consumers of the quality of water produced and supplied as well as information on the performance of the waterworks in submitting samples as required by a Minister's Order or Permit to Operate a waterworks. The following is a summary of the Town of Shellbrook water quality and sample submission compliance record for the 2019 time period. This report was completed on June 16, 2021. Readers should refer to Water Security Agency's Municipal Drinking Water Quality Monitoring Guidelines, June 2015, EPB 502 for more information on minimum sample submission requirements and the meaning of type of sample. Permit requirements for a specific waterworks may require more sampling than outlined in the department's monitoring guidelines. If consumers need more information on the nature and significance of specific water tests, for example, "what is the significance of Selenium in a water supply", more detailed information is available from: http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/index_e.html.

Water Quality Standards

Bacteriological Quality

Parameter/Location	Limit	Regular Samples Required	Regular Samples Submitted	# of Positive Regular Submitted (%)
Total Coliform	0 Organisms/100 mL	53	53	0
E. coli	0 Organisms/100 mL	53	53	0
Background Bacteria	Less than 200/100 mL	53	53	0

Water Disinfection –

Chlorine Residual in Distribution System for Test Results Submitted with Bacteriological Samples

Parameter	Minimum Limit	Total Chlorine Residual Range	Free Chlorine Residual Range	# Tests Required	# Tests Submitted	# Adequate Chlorine (%)
Chlorine Residual	0.1 mg/L free OR 0.5 mg/L total	0.70-2.16	0.24-1.40	53	53	100

Water Disinfection - Free Chlorine Residual for Water Entering Distribution System from Waterworks Records- From Water Treatment Plant Records

Parameter	Limit (mg/L)	Test Level Range	# Tests Performed	# Tests Not Meeting Requirements
Free Chlorine Residual	at least 0.1	0.35-2.96	732	0

A minimum of 0.1 milligrams per litre (mg/L) free chlorine residual is required for water entering the distribution system. Tests are normally performed on a daily basis by the waterworks operator and are to be recorded in operation records. This data includes the number of free chlorine residual tests performed, the overall range of free chlorine residual (highest and lowest recorded values) and the number of tests and percentage of results not meeting the minimum requirement of 0.1 mg/L free chlorine residual.

Turbidity – From Water Treatment Plant Records

Parameter	Limit (NTU)	Test Level Range	# Tests Not Meeting Requirements	Maximum Turbidity (NTU)	# Tests Required	# Tests Performed
Turbidity	1.0	0.12-0.33	0	0.33	365	468

Chemical – Health Category

All waterworks serving less than 5000 persons are required to submit water samples for SE's Chemical Health category once every 2 years. The Chemical Health category includes analysis for arsenic, barium, boron, cadmium, chromium, fluoride, lead, nitrate, selenium and uranium.

The last sample for Chemical Health analysis was submitted on (May 11, 2021). Sample results indicated that the provincial drinking water quality standards were not exceeded. (OR) Samples exceeded provincial water quality standards for the following parameters: (None)



**Saskatchewan
Ministry of
Environment**



*Objectives apply to certain characteristics of or substances found in water for human consumptive or hygienic use. The presence of these substances will affect the acceptance of water by consumers and/or interfere with the practice of supplying good quality water. Compliance with drinking water aesthetic objectives is not mandatory as these objectives are in the range where they do not constitute a health hazards. The aesthetic objectives for several parameters (including hardness as CaCO_3 , magnesium, sodium and total dissolved solids) consider regional differences in drinking water sources and quality.

More information on water quality and sample submission performance may be obtained from:

Town/Village/Hamlet/Rural Municipality/Owner Name and Title

Postal Address

Telephone Number / Facsimile Number (if available)

E-mail address (if available)

June 2015 EPB 536D



Saskatchewan
Ministry of
Environment



Water Security
Agency

BACTERIOLOGICAL SAMPLES 2020

JAN	2	6	13	20	27
FEB	3	10	18	24	
MAR	4	9	16	23	
APR	1	6	14	20	28
MAY	5	11	19	25	
JUN	1	8	15	22	29
JUL	6	13	20	27	
AUG	4	10	18	24	
SEP	1	8	15	21	28
OCT	5	13	19	26	
NOV	2	10	18	23	30
DEC	7	17	21	30	



Canada Toll Free: 1 800 668 9878

Environmental Division
Saskatoon
Work Order Reference
SK2101369



Telephone : +1 308 668 5370

ARC CODE LABEL HERE
(LS use only)

[illegible]

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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

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Project : Waterworks- Gen chem/Health and toxicity



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 Work Order : SK2101369
 Client : Town of Shellbrook
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Sub-Matrix: Water

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
Total Metals (QCLot: 196676) - continued										
SK2101372-001	Anonymous	phosphorus, total	7723-14-0	E420	11.6 mg/L	10 mg/L	116	70.0	130	---
		potassium, total	7440-09-7	E420	ND mg/L	4 mg/L	ND	70.0	130	---
		rubidium, total	7440-17-7	E420	0.0200 mg/L	0.02 mg/L	99.9	70.0	130	---
		selenium, total	7782-49-2	E420	0.0410 mg/L	0.04 mg/L	102	70.0	130	---
		silicon, total	7440-21-3	E420	10.1 mg/L	10 mg/L	101	70.0	130	---
		silver, total	7440-22-4	E420	0.00388 mg/L	0.004 mg/L	97.1	70.0	130	---
		sodium, total	17341-25-2	E420	ND mg/L	2 mg/L	ND	70.0	130	---
		strontium, total	7440-24-6	E420	ND mg/L	0.02 mg/L	ND	70.0	130	---
		sulfur, total	7704-34-9	E420	ND mg/L	20 mg/L	ND	70.0	130	---
		tellurium, total	13494-80-9	E420	0.0417 mg/L	0.04 mg/L	104	70.0	130	---
		thallium, total	7440-28-0	E420	0.00382 mg/L	0.004 mg/L	95.4	70.0	130	---
		thorium, total	7440-29-1	E420	0.0216 mg/L	0.02 mg/L	108	70.0	130	---
		tin, total	7440-31-5	E420	0.0202 mg/L	0.02 mg/L	101	70.0	130	---
		titanium, total	7440-32-6	E420	0.0420 mg/L	0.04 mg/L	105	70.0	130	---
		tungsten, total	7440-33-7	E420	0.0218 mg/L	0.02 mg/L	109	70.0	130	---
		uranium, total	7440-51-1	E420	0.00408 mg/L	0.004 mg/L	102	70.0	130	---
		vanadium, total	7440-62-2	E420	0.106 mg/L	0.1 mg/L	106	70.0	130	---
		zinc, total	7440-66-6	E420	0.357 mg/L	0.4 mg/L	89.2	70.0	130	---
		zirconium, total	7440-67-7	E420	0.0454 mg/L	0.04 mg/L	113	70.0	130	---
Dissolved Metals (QCLot: 196913)										
SK2101357-001	Anonymous	calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	---
		iron, dissolved	7439-89-6	E421	1.92 mg/L	2 mg/L	96.1	70.0	130	---
		magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	---
		manganese, dissolved	7439-96-5	E421	ND mg/L	0.02 mg/L	ND	70.0	130	---
		potassium, dissolved	7440-09-7	E421	ND mg/L	4 mg/L	ND	70.0	130	---
		sodium, dissolved	17341-25-2	E421	ND mg/L	2 mg/L	ND	70.0	130	---
Disinfectant By-Products (QCLot: 209176)										
CG2101639-002	Anonymous	bromate	15541-45-4	E722A	3.91 µg/L	4 µg/L	97.8	70.0	130	---
Disinfectant By-Products (QCLot: 210482)										
GP2100285-002	Anonymous	chlorite	14998-27-7	E409.CLO2	1.06 mg/L	1 mg/L	106	75.0	125	---
Disinfectant By-Products (QCLot: 210483)										
GP2100285-002	Anonymous	chlorate	14866-58-3	E409.CLO3	ND mg/L	1 mg/L	ND	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 $\geq 1 \times$ 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: 196311)										
SK2101371-001	Anonymous	chloride	16867-00-6	E235.Cl	ND mg/L	100 mg/L	ND	75.0	125	----
Anions and Nutrients (QCLot: 196312)										
SK2101371-001	Anonymous	sulfate (as SO ₄)	14808-79-8	E235.SO4	ND mg/L	100 mg/L	ND	90.0	110	----
Anions and Nutrients (QCLot: 196313)										
SK2101371-001	Anonymous	fluoride	16984-48-8	E235.F	0.766 mg/L	1 mg/L	76.6	75.0	125	---
Anions and Nutrients (QCLot: 196314)										
SK2101371-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO2	0.375 mg/L	0.5 mg/L	75.1	75.0	125	---
Anions and Nutrients (QCLot: 196315)										
SK2101371-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO3	2.43 mg/L	2.5 mg/L	97.3	75.0	125	---
Total Metals (QCLot: 196676)										
SK2101372-001	Anonymous	aluminum, total	7429-90-5	E420	0.212 mg/L	0.2 mg/L	106	70.0	130	----
		antimony, total	7440-36-0	E420	0.0208 mg/L	0.02 mg/L	104	70.0	130	----
		arsenic, total	7440-38-2	E420	0.0203 mg/L	0.02 mg/L	101	70.0	130	----
		barium, total	7440-39-3	E420	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		beryllium, total	7440-41-7	E420	0.0384 mg/L	0.04 mg/L	96.1	70.0	130	----
		bismuth, total	7440-69-9	E420	0.00981 mg/L	0.01 mg/L	98.1	70.0	130	----
		boron, total	7440-42-8	E420	ND mg/L	0.1 mg/L	ND	70.0	130	----
		cadmium, total	7440-43-9	E420	0.00371 mg/L	0.004 mg/L	92.9	70.0	130	----
		calcium, total	7440-70-2	E420	ND mg/L	4 mg/L	ND	70.0	130	----
		cesium, total	7440-46-2	E420	0.0107 mg/L	0.01 mg/L	107	70.0	130	----
		chromium, total	7440-47-3	E420	0.0392 mg/L	0.04 mg/L	98.1	70.0	130	----
		cobalt, total	7440-48-4	E420	0.0198 mg/L	0.02 mg/L	98.9	70.0	130	----
		copper, total	7440-50-8	E420	0.0183 mg/L	0.02 mg/L	91.6	70.0	130	----
		iron, total	7439-89-6	E420	ND mg/L	2 mg/L	ND	70.0	130	----
		lead, total	7439-92-1	E420	0.0192 mg/L	0.02 mg/L	95.9	70.0	130	----
		lithium, total	7439-93-2	E420	ND mg/L	0.1 mg/L	ND	70.0	130	----
		magnesium, total	7439-95-4	E420	ND mg/L	1 mg/L	ND	70.0	130	----
		manganese, total	7439-96-5	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		molybdenum, total	7439-98-7	E420	0.0216 mg/L	0.02 mg/L	108	70.0	130	----
		nickel, total	7440-02-0	E420	0.0373 mg/L	0.04 mg/L	93.3	70.0	130	----

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Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Disinfectant By-Products (QCLot: 210483) - continued									
chlorate	14866-68-3	E409.CLO3	0.01	mg/L	1 mg/L	99.0	85.0	115	---

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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
Physical Tests (QCLot: 196272)									
pH	---	E108	---	pH units	6.86 pH units	99.8	98.0	102	---
Physical Tests (QCLot: 196273)									
conductivity	---	E100	1	µS/cm	1000 µS/cm	98.8	90.0	110	---
Physical Tests (QCLot: 196274)									
alkalinity, total (as CaCO ₃)	---	E290	1	mg/L	500 mg/L	101	85.0	115	---
Anions and Nutrients (QCLot: 196311)									
chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	99.8	90.0	110	---
Anions and Nutrients (QCLot: 196312)									
sulfate (as SO ₄)	14808-79-8	E235.SO ₄	0.3	mg/L	100 mg/L	102	90.0	110	---
Anions and Nutrients (QCLot: 196313)									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	99.1	90.0	110	---
Anions and Nutrients (QCLot: 196314)									
nitrite (as N)	14797-65-0	E235.NO ₂	0.01	mg/L	0.5 mg/L	102	90.0	110	---
Anions and Nutrients (QCLot: 196315)									
nitrate (as N)	14797-55-8	E235.NO ₃	0.02	mg/L	2.5 mg/L	99.1	90.0	110	---
Total Metals (QCLot: 196676)									
aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	104	80.0	120	---
antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	104	80.0	120	---
arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	105	80.0	120	---
barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	109	80.0	120	---
beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	95.0	80.0	120	---
bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	104	80.0	120	---
boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	86.2	80.0	120	---
cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	100	80.0	120	---
calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	97.1	80.0	120	---
cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	102	80.0	120	---
chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	102	80.0	120	---
cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120	---
copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	98.6	80.0	120	---
iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	108	80.0	120	---
lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	101	80.0	120	---
lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	89.6	80.0	120	---

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Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 196676) - continued						
nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	---
phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	---
potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	---
rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	---
selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	---
silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	---
silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	---
sodium, total	17341-25-2	E420	0.05	mg/L	<0.050	---
strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	---
sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	---
tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	---
thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	---
thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	---
tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	---
titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	---
tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	---
uranium, total	7440-51-1	E420	0.00001	mg/L	<0.000010	---
vanadium, total	7440-52-2	E420	0.0005	mg/L	<0.00050	---
zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	---
zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	---
Dissolved Metals (QCLot: 196913)						
calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	---
iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	---
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	---
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	---
potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	---
sodium, dissolved	17341-25-2	E421	0.05	mg/L	<0.050	---
Disinfectant By-Products (QCLot: 209176)						
bromate	15541-45-4	E722A	0.3	µg/L	<0.30	---
Disinfectant By-Products (QCLot: 210482)						
chlorite	14998-27-7	E409.CLO2	0.01	mg/L	<0.010	---
Disinfectant By-Products (QCLot: 210483)						
chlorate	14866-68-3	E409.CLO3	0.01	mg/L	<0.010	---



Method Blank (MB) Report

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

Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 196273)						
conductivity	---	E100	1	µS/cm	<1.0	---
Physical Tests (QCLot: 196274)						
alkalinity, total (as CaCO ₃)	---	E290	1	mg/L	<1.0	---
Anions and Nutrients (QCLot: 196311)						
chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	---
Anions and Nutrients (QCLot: 196312)						
sulfate (as SO ₄)	14808-79-8	E235.SO ₄	0.3	mg/L	<0.30	---
Anions and Nutrients (QCLot: 196313)						
fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	---
Anions and Nutrients (QCLot: 196314)						
nitrite (as N)	14797-65-0	E235.NO ₂	0.01	mg/L	<0.010	---
Anions and Nutrients (QCLot: 196315)						
nitrate (as N)	14797-55-8	E235.NO ₃	0.02	mg/L	<0.020	---
Total Metals (QCLot: 196676)						
aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	---
antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	---
arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	---
barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	---
beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	---
bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	---
boron, total	7440-42-8	E420	0.01	mg/L	<0.010	---
cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	---
calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	---
cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	---
chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	---
cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	---
copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	---
iron, total	7439-89-6	E420	0.01	mg/L	<0.010	---
lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	---
lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	---
magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	---
manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	---
molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	---

Page : 5 of 14
 Work Order : SK2101369
 Client : Town of Shellbrook
 Project : Waterworks- Gen chem/Health and toxicity



Sub-Matrix: Water

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
Disinfectant By-Products (QC Lot: 210483)											
GP2100285-002	Anonymous	chlorate	14866-68-3	E409.CLO3	0.010	mg/L	4.84	4.82	0.381%	20%	—

Page : 4 of 14
 Work Order : SK2101369
 Client : Town of Shellbrook
 Project : Waterworks- Gen chem/Health and toxicity



Sub-Matrix: Water

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
Total Metals (QC Lot: 196676) - continued											
SK2101368-002	Anonymous	lithium, total	7439-93-2	E420	0.0100	mg/L	0.478	0.503	5.06%	20%	---
		magnesium, total	7439-95-4	E420	0.0500	mg/L	334	329	1.47%	20%	---
		manganese, total	7439-96-5	E420	0.00100	mg/L	0.0682	0.0672	1.42%	20%	---
		molybdenum, total	7439-98-7	E420	0.000500	mg/L	0.00118	0.00123	0.000046	Diff <2x LOR	---
		nickel, total	7440-02-0	E420	0.00500	mg/L	0.0134	0.0130	0.00033	Diff <2x LOR	---
		phosphorus, total	7723-14-0	E420	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	---
		potassium, total	7440-09-7	E420	0.500	mg/L	23.9	24.0	0.377%	20%	---
		rubidium, total	7440-17-7	E420	0.00200	mg/L	0.0229	0.0237	3.14%	20%	---
		selenium, total	7782-49-2	E420	0.000500	mg/L	0.000634	0.000756	0.000121	Diff <2x LOR	---
		silicon, total	7440-21-3	E420	1.00	mg/L	8.04	7.54	0.50	Diff <2x LOR	---
		silver, total	7440-22-4	E420	0.000100	mg/L	<0.000100	0.000111	0.000011	Diff <2x LOR	---
		sodium, total	17341-25-2	E420	0.500	mg/L	2490	2490	0.219%	20%	---
		strontium, total	7440-24-6	E420	0.00200	mg/L	7.56	7.71	1.88%	20%	---
		sulfur, total	7704-34-9	E420	5.00	mg/L	2300	2370	2.85%	20%	---
		tellurium, total	13494-80-9	E420	0.00200	mg/L	<0.00200	<0.00200	0	Diff <2x LOR	---
		thallium, total	7440-28-0	E420	0.000100	mg/L	0.000196	0.000206	0.000010	Diff <2x LOR	---
		thorium, total	7440-29-1	E420	0.00100	mg/L	<0.00100	0.00106	0.00006	Diff <2x LOR	---
		tin, total	7440-31-5	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	---
		titanium, total	7440-32-6	E420	0.00300	mg/L	0.0602	0.0590	2.05%	20%	---
		tungsten, total	7440-33-7	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	---
		uranium, total	7440-61-1	E420	0.000100	mg/L	0.0252	0.0261	3.48%	20%	---
		vanadium, total	7440-62-2	E420	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	---
		zinc, total	7440-66-6	E420	0.0300	mg/L	<0.0300	<0.0300	0	Diff <2x LOR	---
		zirconium, total	7440-67-7	E420	0.00200	mg/L	0.00265	0.00539	0.00274	Diff <2x LOR	---
Dissolved Metals (QC Lot: 196913)											
SK2101356-001	Anonymous	calcium, dissolved	7440-70-2	E421	0.100	mg/L	150	146	2.11%	20%	---
		iron, dissolved	7439-89-6	E421	0.060	mg/L	0.096	0.096	0.0006	Diff <2x LOR	---
		magnesium, dissolved	7439-95-4	E421	0.0100	mg/L	100	98.9	1.70%	20%	---
		manganese, dissolved	7439-96-5	E421	0.0100	mg/L	0.124	0.121	2.47%	20%	---
		potassium, dissolved	7440-09-7	E421	0.100	mg/L	20.7	21.3	2.72%	20%	---
		sodium, dissolved	17341-25-2	E421	0.100	mg/L	523	525	0.415%	20%	---
Disinfectant By-Products (QC Lot: 209176)											
CG2101639-002	Anonymous	bromate	15541-45-4	E722A	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	---
Disinfectant By-Products (QC Lot: 210482)											
GP2100285-002	Anonymous	chlorite	14998-27-7	E409.CLO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	---

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 Work Order : SK2101369
 Client : Town of Shellbrook
 Project : Waterworks- Gen chem/Health and toxicity



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
Physical Tests (QC Lot: 196272)											
SK2101370-004	Anonymous	pH	---	E108	0.10	pH units	7.95	7.94	0.111%	3%	---
Physical Tests (QC Lot: 196273)											
SK2101370-004	Anonymous	conductivity	---	E100	2.0	µS/cm	1300	1300	0.692%	10%	---
Physical Tests (QC Lot: 196274)											
SK2101370-004	Anonymous	alkalinity, total (as CaCO ₃)	---	E290	2.0	mg/L	432	433	0.0454%	20%	---
Anions and Nutrients (QC Lot: 196311)											
SK2101380-001	Anonymous	chloride	16887-00-6	E235.Cl	0.50	mg/L	1.77	1.78	0.007	Diff <2x LOR	---
Anions and Nutrients (QC Lot: 196312)											
SK2101380-001	Anonymous	sulfate (as SO ₄)	14808-79-8	E235.SO4	0.30	mg/L	23.0	22.5	2.43%	20%	---
Anions and Nutrients (QC Lot: 196313)											
SK2101380-001	Anonymous	fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	---
Anions and Nutrients (QC Lot: 196314)											
SK2101380-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	---
Anions and Nutrients (QC Lot: 196315)											
SK2101380-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	0.390	0.380	2.61%	20%	---
Total Metals (QC Lot: 196676)											
SK2101368-002	Anonymous	aluminum, total	7429-90-5	E420	0.0300	mg/L	1.79	1.88	5.07%	20%	---
		antimony, total	7440-36-0	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	---
		arsenic, total	7440-38-2	E420	0.00100	mg/L	0.00238	0.00217	0.00021	Diff <2x LOR	---
		barium, total	7440-39-3	E420	0.00100	mg/L	0.0427	0.0424	0.721%	20%	---
		beryllium, total	7440-41-7	E420	0.000200	mg/L	<0.000200	<0.000200	0	Diff <2x LOR	---
		bismuth, total	7440-69-9	E420	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	---
		boron, total	7440-42-8	E420	0.100	mg/L	2.04	2.04	0.0193%	20%	---
		cadmium, total	7440-43-9	E420	0.0000500	mg/L	0.000311	0.000290	0.0000211	Diff <2x LOR	---
		calcium, total	7440-70-2	E420	0.500	mg/L	402	408	1.31%	20%	---
		cesium, total	7440-46-2	E420	0.000100	mg/L	0.000833	0.000800	0.000033	Diff <2x LOR	---
		chromium, total	7440-47-3	E420	0.00500	mg/L	0.00509	0.00527	0.00018	Diff <2x LOR	---
		cobalt, total	7440-48-4	E420	0.00100	mg/L	0.00130	0.00130	0.000004	Diff <2x LOR	---
		copper, total	7440-50-8	E420	0.00500	mg/L	0.00737	0.00688	0.00048	Diff <2x LOR	---
		iron, total	7439-89-6	E420	0.100	mg/L	3.86	3.93	1.80%	20%	---
		lead, total	7439-92-1	E420	0.000500	mg/L	0.00268	0.00274	0.000066	Diff <2x LOR	---



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 Services number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percentage Difference

= Indicates a QC result that did not meet the ALS DQO.



Environmental

QUALITY CONTROL REPORT

Work Order : SK2101369

Page : 1 of 14

Client : Town of Shellbrook
Contact : Shalene Gieselman
Address : 71 Main Street PO Box 40
Shellbrook SK Canada S0J 2E0
Telephone : 306-747-4900
Project : Waterworks- Gen chem/Health and toxicity
PO : ---
C-O-C number : ---
Sampler : Client
Site : ---
Quote number : ---
No. of samples received : 1
No. of samples analysed : 1

Laboratory : Saskatoon - Environmental
Account Manager : Kimberley Head
Address : 819 58 Street East
Saskatoon, Saskatchewan Canada S7K 6X5
Telephone : +1 306 668 8370
Date Samples Received : 12-May-2021 08:10
Date Analysis Commenced : 12-May-2021
Issue Date : 02-Jun-2021 18:20

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 Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

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
Colby Bingham	Quality Systems Coordinator	Inorganics, Saskatoon, Saskatchewan
Colby Bingham	Quality Systems Coordinator	Metals, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Jon Fisher	Department Manager - Inorganics	Inorganics, Waterloo, Ontario
Lian Nesbitt	Laboratory Analyst	Metals, Saskatoon, Saskatchewan
Melissa Houseman	Team Leader - Inorganics	Metals, Saskatoon, Saskatchewan
Sandra Cummings	Department Manager - LCMS	LCMS, Waterloo, Ontario

Page : 5 of 5
 Work Order : SK2101369
 Client : Town of Shellbrook
 Project : Waterworks- Gen chem/Health and toxicity



Analytical Results

Sub-Matrix: Water

Client sample ID

SK05GF0003

Distribution

(Matrix: Water)

Client sampling date / time

11-May-2021
10:30

Analyte	CAS Number	Method	LOR	Unit	SK2101369-001				
					Result				
Total Metals									
vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00100 ^{DLDS}				
zinc, total	7440-66-6	E420	0.0030	mg/L	0.0140				
zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00040 ^{DLDS}				
Dissolved Metals									
calcium, dissolved	7440-70-2	E421	0.050	mg/L	102				
iron, dissolved	7439-89-6	E421	0.030	mg/L	<0.060 ^{DLDS}				
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	50.0				
manganese, dissolved	7439-96-5	E421	0.00500	mg/L	<0.0100 ^{DLDS}				
potassium, dissolved	7440-09-7	E421	0.050	mg/L	14.9				
sodium, dissolved	17341-25-2	E421	0.050	mg/L	666				
dissolved metals filtration location		EP421	-	-	Laboratory ^{SEP}				

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

Page : 4 of 5
 Work Order : SK2101369
 Client : Town of Shellbrook
 Project : Waterworks- Gen chem/Health and toxicity



Analytical Results

Sub-Matrix: Water

Client sample ID

SK05GF0003

(Matrix: Water)

Distribution

Client sampling date / time

11-May-2021
10:30

Analyte	CAS Number	Method	LOR	Unit	SK2101369-001	Result				
Total Metals										
bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000100	DLDS	----	----	----	----
boron, total	7440-42-8	E420	0.010	mg/L	0.656		----	----	----	----
cadmium, total	7440-43-9	E420	0.000050	mg/L	<0.0000100	DLDS	----	----	----	----
calcium, total	7440-70-2	E420	0.050	mg/L	103		----	----	----	----
cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000020	DLDS	----	----	----	----
chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00100	DLDS	----	----	----	----
cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00028		----	----	----	----
copper, total	7440-50-8	E420	0.00050	mg/L	0.0496		----	----	----	----
iron, total	7439-89-6	E420	0.010	mg/L	0.065		----	----	----	----
lead, total	7439-92-1	E420	0.000050	mg/L	0.000112		----	----	----	----
lithium, total	7439-93-2	E420	0.0010	mg/L	0.168		----	----	----	----
magnesium, total	7439-95-4	E420	0.0050	mg/L	50.7		----	----	----	----
manganese, total	7439-96-5	E420	0.00010	mg/L	0.0140		----	----	----	----
molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.0136		----	----	----	----
nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00100	DLDS	----	----	----	----
phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.100	DLDS	----	----	----	----
potassium, total	7440-09-7	E420	0.050	mg/L	15.0		----	----	----	----
rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00415		----	----	----	----
selenium, total	7782-49-2	E420	0.000050	mg/L	0.000102		----	----	----	----
silicon, total	7440-21-3	E420	0.10	mg/L	8.51		----	----	----	----
silver, total	7440-22-4	E420	0.000010	mg/L	<0.000020	DLDS	----	----	----	----
sodium, total	17341-25-2	E420	0.050	mg/L	678		----	----	----	----
strontium, total	7440-24-6	E420	0.00020	mg/L	1.12		----	----	----	----
sulfur, total	7704-34-9	E420	0.50	mg/L	318		----	----	----	----
tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00040	DLDS	----	----	----	----
thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000020	DLDS	----	----	----	----
thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00020	DLDS	----	----	----	----
tin, total	7440-31-5	E420	0.00010	mg/L	<0.00020	DLDS	----	----	----	----
titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00060	DLDS	----	----	----	----
tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00020	DLDS	----	----	----	----
uranium, total	7440-61-1	E420	0.000010	mg/L	0.000178		----	----	----	----



Analytical Results

Sub-Matrix: Water

Client sample ID

(Matrix: Water)

					SK05GF0003				
					Distribution				
					11-May-2021				
					10:30				
Analyte	CAS Number	Method	LOR	Unit	SK2101369-001				
					Result				
Physical Tests									
hardness (as CaCO ₃), dissolved	---	EC100	0.50	mg/L	460				
conductivity	---	E100	2.0	µS/cm	3580				
pH	---	E108	0.10	pH units	8.13				
alkalinity, bicarbonate (as HCO ₃)	71-52-3	E290	1.0	mg/L	434				
alkalinity, carbonate (as CO ₃)	3812-32-6	E290	1.0	mg/L	<1.0				
alkalinity, hydroxide (as OH)	14280-30-9	E290	1.0	mg/L	<1.0				
alkalinity, total (as CaCO ₃)	---	E290	2.0	mg/L	356				
solids, total dissolved [TDS], calculated	---	EC103	1.0	mg/L	2390				
Anions and Nutrients									
bromate	15541-45-4	E722A	0.30	µg/L	<1.50 ^{DL}				
chloride	16887-00-6	E235.Cl	0.50	mg/L	508				
fluoride	16984-48-8	E235.F	0.020	mg/L	<0.400 ^{DLDS}				
nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	<0.400 ^{DLDS}				
nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.200 ^{DLDS}				
sulfate (as SO ₄)	14808-79-8	E235.SO4	0.30	mg/L	817				
nitrate + nitrite (as N)	---	EC235.N+N	0.0500	mg/L	<0.447				
Inorganic Parameters									
chlorate	14866-68-3	E409.CLO3	0.010	mg/L	0.742 ^{DLDS, SP}				
chlorite	14998-27-7	E409.CLO2	0.010	mg/L	<0.050 ^{DLDS, SP}				
Ion Balance									
anion sum	---	EC101	0.10	meq/L	38.4				
cation sum	---	EC101	0.10	meq/L	38.6				
ion balance (cation-anion difference)	---	EC101	0.010	%	0.260				
ion balance (cations/anions ratio)	---	EC101	0.010	%	100				
Total Metals									
aluminum, total	7429-90-5	E420	0.0030	mg/L	<0.0060 ^{DLDS}				
antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00020 ^{DLDS}				
arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00045				
barium, total	7440-39-3	E420	0.00010	mg/L	0.00712				
beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000040 ^{DLDS}				



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 Unit
%	percent
µg/L	micrograms per litre
µS/cm	Microsiemens per centimetre
meq/L	milliequivalents per litre
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.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
SFP	Sample was filtered and preserved at the laboratory.
SP	Sample was preserved at the laboratory.



CERTIFICATE OF ANALYSIS

Work Order : **SK2101369**
Client : **Town of Shellbrook**
Contact : **Shalene Gieselman**
Address : **71 Main Street PO Box 40**
Shellbrook SK Canada S0J 2E0
Telephone : **306-747-4900**
Project : **Waterworks- Gen chem/Health and toxicity**
PO : **----**
C-O-C number : **----**
Sampler : **Client**
Site : **----**
Quote number : **----**
No. of samples received : **1**
No. of samples analysed : **1**

Page : **1 of 5**
Laboratory : **Saskatoon - Environmental**
Account Manager : **Kimberley Head**
Address : **819 58 Street East**
Saskatoon SK Canada S7K 6X5
Telephone : **+1 306 668 8370**
Date Samples Received : **12-May-2021 08:10**
Date Analysis Commenced : **12-May-2021**
Issue Date : **02-Jun-2021 18:20**

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
Colby Bingham	Quality Systems Coordinator	Inorganics, Saskatoon, Saskatchewan
Colby Bingham	Quality Systems Coordinator	Metals, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Jon Fisher	Department Manager - Inorganics	Inorganics, Waterloo, Ontario
Lian Nesbitt	Laboratory Analyst	Metals, Saskatoon, Saskatchewan
Melissa Houseman	Team Leader - Inorganics	Metals, Saskatoon, Saskatchewan
Sandra Cummings	Department Manager - LCMS	LCMS, Waterloo, Ontario



COC Number: 20-

Canada Toll Free: 1 800 668 9878

Environmental Division
Saskatoon
Work Order Reference
SK2101372



Telephone : 1 305 688 0370

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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.

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Client : Town of Shellbrook
Project : Waterworks- Gen chem/Health and toxicity



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 Work Order : SK2101372
 Client : Town of Shellbrook
 Project : Waterworks- Gen chem/Health and toxicity



Sub-Matrix: Water

Sub-Matrix: Water					Matrix Spike (MS) Report					
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Spike		Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	Target	MS	Low	High	
Total Metals (QCLot: 196676) - continued										
SK2101372-001	SK05GF0109 Well # 11	phosphorus, total	7723-14-0	E420	11.6 mg/L	10 mg/L	116	70.0	130	---
		potassium, total	7440-09-7	E420	ND mg/L	4 mg/L	ND	70.0	130	---
		rubidium, total	7440-17-7	E420	0.0200 mg/L	0.02 mg/L	99.9	70.0	130	---
		selenium, total	7782-49-2	E420	0.0410 mg/L	0.04 mg/L	102	70.0	130	---
		silicon, total	7440-21-3	E420	10.1 mg/L	10 mg/L	101	70.0	130	---
		silver, total	7440-22-4	E420	0.00388 mg/L	0.004 mg/L	97.1	70.0	130	---
		sodium, total	17341-25-2	E420	ND mg/L	2 mg/L	ND	70.0	130	---
		strontium, total	7440-24-6	E420	ND mg/L	0.02 mg/L	ND	70.0	130	---
		sulfur, total	7704-34-9	E420	ND mg/L	20 mg/L	ND	70.0	130	---
		tellurium, total	13494-80-9	E420	0.0417 mg/L	0.04 mg/L	104	70.0	130	---
		thallium, total	7440-28-0	E420	0.00382 mg/L	0.004 mg/L	95.4	70.0	130	---
		thorium, total	7440-29-1	E420	0.0216 mg/L	0.02 mg/L	108	70.0	130	---
		tin, total	7440-31-5	E420	0.0202 mg/L	0.02 mg/L	101	70.0	130	---
		titanium, total	7440-32-6	E420	0.0420 mg/L	0.04 mg/L	105	70.0	130	---
		tungsten, total	7440-33-7	E420	0.0218 mg/L	0.02 mg/L	109	70.0	130	---
		uranium, total	7440-61-1	E420	0.00408 mg/L	0.004 mg/L	102	70.0	130	---
		vanadium, total	7440-62-2	E420	0.106 mg/L	0.1 mg/L	106	70.0	130	---
		zinc, total	7440-66-6	E420	0.357 mg/L	0.4 mg/L	89.2	70.0	130	---
		zirconium, total	7440-67-7	E420	0.0454 mg/L	0.04 mg/L	113	70.0	130	---
Dissolved Metals (QCLot: 197603)										
RG2100141-008	Anonymous	calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	---
		iron, dissolved	7439-89-6	E421	2.26 mg/L	2 mg/L	113	70.0	130	---
		magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	---
		manganese, dissolved	7439-96-5	E421	ND mg/L	0.02 mg/L	ND	70.0	130	---
		potassium, dissolved	7440-09-7	E421	ND mg/L	4 mg/L	ND	70.0	130	---
		sodium, dissolved	17341-25-2	E421	ND mg/L	2 mg/L	ND	70.0	130	---
Disinfectant By-Products (QCLot: 209176)										
CG2101639-002	Anonymous	bromate	15541-45-4	E722A	3.91 µg/L	4 µg/L	97.6	70.0	130	---
Disinfectant By-Products (QCLot: 210482)										
GP2100285-002	Anonymous	chlorite	14998-27-7	E409.CLO2	1.06 mg/L	1 mg/L	106	75.0	125	---
Disinfectant By-Products (QCLot: 210483)										
GP2100285-002	Anonymous	chlorate	14868-68-3	E409.CLO3	ND mg/L	1 mg/L	ND	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 $\geq 1 \times$ 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: 196311)										
SK2101371-001	Anonymous	chloride	16887-00-6	E235.Cl	ND mg/L	100 mg/L	ND	75.0	125	---
Anions and Nutrients (QCLot: 196312)										
SK2101371-001	Anonymous	sulfate (as SO ₄)	14808-79-8	E235 SO ₄	ND mg/L	100 mg/L	ND	90.0	110	---
Anions and Nutrients (QCLot: 196313)										
SK2101371-001	Anonymous	fluoride	16984-48-8	E235.F	0.766 mg/L	1 mg/L	76.6	75.0	125	---
Anions and Nutrients (QCLot: 196314)										
SK2101371-001	Anonymous	nitrite (as N)	14797-65-0	E235 NO ₂	0.375 mg/L	0.5 mg/L	75.1	75.0	125	---
Anions and Nutrients (QCLot: 196315)										
SK2101371-001	Anonymous	nitrate (as N)	14797-55-8	E235 NO ₃	2.43 mg/L	2.5 mg/L	97.3	75.0	125	---
Total Metals (QCLot: 196676)										
SK2101372-001	SK05GF0109 Well # 11	aluminum, total	7429-90-5	E420	0.212 mg/L	0.2 mg/L	106	70.0	130	---
		antimony, total	7440-36-0	E420	0.0208 mg/L	0.02 mg/L	104	70.0	130	---
		arsenic, total	7440-38-2	E420	0.0203 mg/L	0.02 mg/L	101	70.0	130	---
		barium, total	7440-39-3	E420	0.0204 mg/L	0.02 mg/L	102	70.0	130	---
		beryllium, total	7440-41-7	E420	0.0384 mg/L	0.04 mg/L	96.1	70.0	130	---
		bismuth, total	7440-69-9	E420	0.00981 mg/L	0.01 mg/L	98.1	70.0	130	---
		boron, total	7440-42-8	E420	ND mg/L	0.1 mg/L	ND	70.0	130	---
		cadmium, total	7440-43-9	E420	0.00371 mg/L	0.004 mg/L	92.9	70.0	130	---
		calcium, total	7440-70-2	E420	ND mg/L	4 mg/L	ND	70.0	130	---
		cesium, total	7440-46-2	E420	0.0107 mg/L	0.01 mg/L	107	70.0	130	---
		chromium, total	7440-47-3	E420	0.0392 mg/L	0.04 mg/L	98.1	70.0	130	---
		cobalt, total	7440-48-4	E420	0.0198 mg/L	0.02 mg/L	98.9	70.0	130	---
		copper, total	7440-50-8	E420	0.0183 mg/L	0.02 mg/L	91.6	70.0	130	---
		iron, total	7439-89-6	E420	ND mg/L	2 mg/L	ND	70.0	130	---
		lead, total	7439-92-1	E420	0.0192 mg/L	0.02 mg/L	95.9	70.0	130	---
		lithium, total	7439-93-2	E420	ND mg/L	0.1 mg/L	ND	70.0	130	---
		magnesium, total	7439-95-4	E420	ND mg/L	1 mg/L	ND	70.0	130	---
		manganese, total	7439-96-5	E420	ND mg/L	0.02 mg/L	ND	70.0	130	---
		molybdenum, total	7439-98-7	E420	0.0216 mg/L	0.02 mg/L	108	70.0	130	---
		nickel, total	7440-02-0	E420	0.0373 mg/L	0.04 mg/L	93.3	70.0	130	---

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Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Disinfectant By-Products (QCLot: 210483) - continued									
chlorate	14866-68-3	E409.CLO3	0.01	mg/L	1 mg/L	99.0	85.0	115	—

Laboratory Control Sample (LCS) Report

Analyte	CAS Number	Method	LOR	Unit	Spike	Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	LCS	Low	High	
Total Metals (QCLot: 196676) - continued									
magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	103	80.0	120	---
manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	99.7	80.0	120	---
molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	101	80.0	120	---
nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	100	80.0	120	---
phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	108	80.0	120	---
potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	101	80.0	120	---
rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	102	80.0	120	---
selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	100	80.0	120	---
silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	100	80.0	120	---
silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	101	80.0	120	---
sodium, total	17341-25-2	E420	0.05	mg/L	50 mg/L	104	80.0	120	---
strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	102	80.0	120	---
sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	97.4	80.0	120	---
tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	105	80.0	120	---
thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	98.4	80.0	120	---
thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	96.1	80.0	120	---
tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	96.4	80.0	120	---
titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	99.8	80.0	120	---
tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	99.3	80.0	120	---
uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	97.2	80.0	120	---
vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	101	80.0	120	---
zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	99.5	80.0	120	---
zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	103	80.0	120	---
Dissolved Metals (QCLot: 197603)									
calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	108	80.0	120	---
iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	112	80.0	120	---
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	102	80.0	120	---
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	97.7	80.0	120	---
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	102	80.0	120	---
sodium, dissolved	17341-25-2	E421	0.05	mg/L	50 mg/L	104	80.0	120	---
Disinfectant By-Products (QCLot: 209176)									
bromate	15541-45-4	E722A	0.3	µg/L	4 µg/L	95.2	70.0	130	---
Disinfectant By-Products (QCLot: 210482)									
chlorite	14998-27-7	E409.CLO2	0.01	mg/L	1 mg/L	106	85.0	115	---
Disinfectant By-Products (QCLot: 210483)									

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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
Physical Tests (QCLot: 196272)									
pH	—	E108	—	pH units	6.86 pH units	99.8	98.0	102	—
Physical Tests (QCLot: 196273)									
conductivity	—	E100	1	µS/cm	1000 µS/cm	98.8	90.0	110	—
Physical Tests (QCLot: 196274)									
alkalinity, total (as CaCO ₃)	—	E290	1	mg/L	500 mg/L	101	85.0	115	—
Anions and Nutrients (QCLot: 196311)									
chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	99.8	90.0	110	—
Anions and Nutrients (QCLot: 196312)									
sulfate (as SO ₄)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	—
Anions and Nutrients (QCLot: 196313)									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	99.1	90.0	110	—
Anions and Nutrients (QCLot: 196314)									
nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	102	90.0	110	—
Anions and Nutrients (QCLot: 196315)									
nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	99.1	90.0	110	—
Total Metals (QCLot: 196676)									
aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	104	80.0	120	—
antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	104	80.0	120	—
arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	105	80.0	120	—
barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	109	80.0	120	—
beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	95.0	80.0	120	—
bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	104	80.0	120	—
boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	86.2	80.0	120	—
cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	100	80.0	120	—
calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	97.1	80.0	120	—
cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	102	80.0	120	—
chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	102	80.0	120	—
cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120	—
copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	98.6	80.0	120	—
iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	108	80.0	120	—
lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	101	80.0	120	—
lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	89.6	80.0	120	—

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Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 196676) - continued						
nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	—
phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	—
potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	—
rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	—
selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	—
silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	—
silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	—
sodium, total	17341-25-2	E420	0.05	mg/L	<0.050	—
strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	—
sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	—
tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	—
thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	—
thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	—
tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	—
titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	—
tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	—
uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	—
vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	—
zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	—
zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	—
Dissolved Metals (QCLot: 197603)						
calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	—
iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	—
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	—
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	—
potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	—
sodium, dissolved	17341-25-2	E421	0.05	mg/L	<0.050	—
Disinfectant By-Products (QCLot: 209176)						
bromate	15541-45-4	E722A	0.3	µg/L	<0.30	—
Disinfectant By-Products (QCLot: 210482)						
chlorite	14998-27-7	E409.CLO2	0.01	mg/L	<0.010	—
Disinfectant By-Products (QCLot: 210483)						
chlorate	14866-68-3	E409.CLO3	0.01	mg/L	<0.010	—



Method Blank (MB) Report

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

Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 196273)						
conductivity	---	E100	1	µS/cm	<1.0	---
Physical Tests (QCLot: 196274)						
alkalinity, total (as CaCO ₃)	---	E290	1	mg/L	<1.0	---
Anions and Nutrients (QCLot: 196311)						
chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	---
Anions and Nutrients (QCLot: 196312)						
sulfate (as SO ₄)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	---
Anions and Nutrients (QCLot: 196313)						
fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	---
Anions and Nutrients (QCLot: 196314)						
nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	---
Anions and Nutrients (QCLot: 196315)						
nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	---
Total Metals (QCLot: 196676)						
aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	---
antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	---
arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	---
barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	---
beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	---
bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	---
boron, total	7440-42-8	E420	0.01	mg/L	<0.010	---
cadmium, total	7440-43-8	E420	0.000005	mg/L	<0.0000050	---
calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	---
cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	---
chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	---
cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	---
copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	---
iron, total	7439-89-6	E420	0.01	mg/L	<0.010	---
lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	---
lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	---
magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	---
manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	---
molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	---

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 Work Order : SK2101372
 Client : Town of Shellbrook
 Project : Waterworks- Gen chem/Health and toxicity



Sub-Matrix: Water

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
Disinfectant By-Products (QC Lot: 210483)											
GP2100285-002	Anonymous	chlorate	14866-68-3	E409.CLO3	0.010	mg/L	4.84	4.82	0.381%	20%	---

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 Work Order : SK2101372
 Client : Town of Shellbrook
 Project : Waterworks- Gen chem/Health and toxicity



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
Total Metals (QC Lot: 196676) - continued											
SK2101368-002	Anonymous	lithium, total	7439-93-2	E420	0.0100	mg/L	0.478	0.503	5.06%	20%	---
		magnesium, total	7439-95-4	E420	0.0500	mg/L	334	329	1.47%	20%	---
		manganese, total	7439-96-5	E420	0.00100	mg/L	0.0682	0.0672	1.42%	20%	---
		molybdenum, total	7439-98-7	E420	0.000500	mg/L	0.00118	0.00123	0.000046	Diff <2x LOR	---
		nickel, total	7440-02-0	E420	0.00500	mg/L	0.0134	0.0130	0.00033	Diff <2x LOR	---
		phosphorus, total	7723-14-0	E420	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	---
		potassium, total	7440-09-7	E420	0.500	mg/L	23.9	24.0	0.377%	20%	---
		rubidium, total	7440-17-7	E420	0.00200	mg/L	0.0229	0.0237	3.14%	20%	---
		selenium, total	7782-49-2	E420	0.000500	mg/L	0.000634	0.000756	0.000121	Diff <2x LOR	---
		silicon, total	7440-21-3	E420	1.00	mg/L	8.04	7.54	0.50	Diff <2x LOR	---
		silver, total	7440-22-4	E420	0.000100	mg/L	<0.000100	0.000111	0.000011	Diff <2x LOR	---
		sodium, total	17341-25-2	E420	0.500	mg/L	2490	2490	0.219%	20%	---
		strontium, total	7440-24-6	E420	0.00200	mg/L	7.56	7.71	1.88%	20%	---
		sulfur, total	7704-34-9	E420	5.00	mg/L	2300	2370	2.85%	20%	---
		tellurium, total	13494-80-9	E420	0.00200	mg/L	<0.00200	<0.00200	0	Diff <2x LOR	---
		thallium, total	7440-28-0	E420	0.000100	mg/L	0.000196	0.000206	0.000010	Diff <2x LOR	---
		thorium, total	7440-29-1	E420	0.00100	mg/L	<0.00100	0.00106	0.00006	Diff <2x LOR	---
		tin, total	7440-31-5	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	---
		titanium, total	7440-32-6	E420	0.00300	mg/L	0.0602	0.0590	2.05%	20%	---
		tungsten, total	7440-33-7	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	---
		uranium, total	7440-61-1	E420	0.000100	mg/L	0.0252	0.0251	3.48%	20%	---
		vanadium, total	7440-62-2	E420	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	---
		zinc, total	7440-66-6	E420	0.0300	mg/L	<0.0300	<0.0300	0	Diff <2x LOR	---
		zirconium, total	7440-67-7	E420	0.00200	mg/L	0.00265	0.00539	0.00274	Diff <2x LOR	---
Dissolved Metals (QC Lot: 197603)											
SK2101371-001	Anonymous	calcium, dissolved	7440-70-2	E421	0.100	mg/L	102	105	2.87%	20%	---
		iron, dissolved	7439-89-6	E421	0.060	mg/L	<0.060	<0.060	0	Diff <2x LOR	---
		magnesium, dissolved	7439-95-4	E421	0.0100	mg/L	48.1	49.5	2.91%	20%	---
		manganese, dissolved	7439-96-5	E421	0.0100	mg/L	0.0422	0.0430	0.00079	Diff <2x LOR	---
		potassium, dissolved	7440-09-7	E421	0.100	mg/L	14.8	15.3	3.59%	20%	---
		sodium, dissolved	17341-25-2	E421	0.100	mg/L	609	633	3.73%	20%	---
Disinfectant By-Products (QC Lot: 209176)											
CG2101639-002	Anonymous	bromate	15541-45-4	E722A	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	---
Disinfectant By-Products (QC Lot: 210482)											
GP2100285-002	Anonymous	chlorite	14998-27-7	E409.CLO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	---

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 Work Order : SK2101372
 Client : Town of Shellbrook
 Project : Waterworks- Gen chem/Health and toxicity



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
Physical Tests (QC Lot: 196272)											
SK2101370-004	Anonymous	pH	—	E108	0.10	pH units	7.95	7.94	0.111%	3%	—
Physical Tests (QC Lot: 196273)											
SK2101370-004	Anonymous	conductivity	—	E100	2.0	µS/cm	1300	1300	0.692%	10%	—
Physical Tests (QC Lot: 196274)											
SK2101370-004	Anonymous	alkalinity, total (as CaCO ₃)	—	E290	2.0	mg/L	432	433	0.0454%	20%	—
Anions and Nutrients (QC Lot: 196311)											
SK2101380-001	Anonymous	chloride	16887-00-6	E235.Cl	0.50	mg/L	1.77	1.78	0.007	Diff <2x LOR	—
Anions and Nutrients (QC Lot: 196312)											
SK2101380-001	Anonymous	sulfate (as SO ₄)	14808-79-8	E235.SO ₄	0.30	mg/L	23.0	22.5	2.43%	20%	—
Anions and Nutrients (QC Lot: 196313)											
SK2101380-001	Anonymous	fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	—
Anions and Nutrients (QC Lot: 196314)											
SK2101380-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO ₂	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	—
Anions and Nutrients (QC Lot: 196315)											
SK2101380-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO ₃	0.020	mg/L	0.390	0.380	2.61%	20%	—
Total Metals (QC Lot: 196676)											
SK2101368-002	Anonymous	aluminum, total	7429-90-5	E420	0.0300	mg/L	1.79	1.88	5.07%	20%	—
		antimony, total	7440-36-0	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	—
		arsenic, total	7440-38-2	E420	0.00100	mg/L	0.00238	0.00217	0.00021	Diff <2x LOR	—
		barium, total	7440-39-3	E420	0.00100	mg/L	0.0427	0.0424	0.721%	20%	—
		beryllium, total	7440-41-7	E420	0.000200	mg/L	<0.000200	<0.000200	0	Diff <2x LOR	—
		bismuth, total	7440-69-9	E420	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	—
		boron, total	7440-42-8	E420	0.100	mg/L	2.04	2.04	0.0193%	20%	—
		cadmium, total	7440-43-9	E420	0.0000500	mg/L	0.000311	0.000290	0.0000211	Diff <2x LOR	—
		calcium, total	7440-70-2	E420	0.500	mg/L	402	408	1.31%	20%	—
		cesium, total	7440-46-2	E420	0.000100	mg/L	0.000833	0.000800	0.000033	Diff <2x LOR	—
		chromium, total	7440-47-3	E420	0.00500	mg/L	0.00509	0.00527	0.00018	Diff <2x LOR	—
		cobalt, total	7440-48-4	E420	0.00100	mg/L	0.00130	0.00130	0.000004	Diff <2x LOR	—
		copper, total	7440-50-8	E420	0.00500	mg/L	0.00737	0.00688	0.00048	Diff <2x LOR	—
		iron, total	7439-89-6	E420	0.100	mg/L	3.86	3.93	1.80%	20%	—
		lead, total	7439-92-1	E420	0.000500	mg/L	0.00268	0.00274	0.000066	Diff <2x LOR	—

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Work Order : SK2101372
Client : Town of Shellbrook
Project : Waterworks- Gen chem/Health and toxicity



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 Services number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percentage Difference

= Indicates a QC result that did not meet the ALS DQO.



Environmental

QUALITY CONTROL REPORT

Work Order : **SK2101372**

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Client : Town of Shellbrook
Contact : Shalene Gieselman
Address : 71 Main Street PO Box 40
Shellbrook SK Canada S0J 2E0
Telephone : 306-747-4900
Project : Waterworks- Gen chem/Health and toxicity
PO : —
C-O-C number : —
Sampler : Client
Site : —
Quote number : —
No. of samples received : 1
No. of samples analysed : 1

Laboratory : Saskatoon - Environmental
Account Manager : Kimberley Head
Address : 819 58 Street East
Saskatoon, Saskatchewan Canada S7K 6X5
Telephone : +1 306 668 8370
Date Samples Received : 12-May-2021 08:10
Date Analysis Commenced : 12-May-2021
Issue Date : 02-Jun-2021 18:21

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 Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

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
Colby Bingham	Quality Systems Coordinator	Inorganics, Saskatoon, Saskatchewan
Colby Bingham	Quality Systems Coordinator	Metals, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Jon Fisher	Department Manager - Inorganics	Inorganics, Waterloo, Ontario
Melissa Houseman	Team Leader - Inorganics	Metals, Saskatoon, Saskatchewan
Sandra Cummings	Department Manager - LCMS	LCMS, Waterloo, Ontario

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 Work Order : SK2101372
 Client : Town of Shellbrook
 Project : Waterworks- Gen chem/Health and toxicity



Analytical Results

Sub-Matrix: Water					Client sample ID	SK05GF0109	----	----	----	----
(Matrix: Water)						Well # 11				
					Client sampling date / time	11-May-2021 10:30	----	----	----	----
Analyte	CAS Number	Method	LOR	Unit	SK2101372-001	Result	-----	-----	-----	-----
Total Metals										
vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00100	OLD*	----	----	----	----
zinc, total	7440-66-6	E420	0.0030	mg/L	0.0318		----	----	----	----
zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00040	OLDS	----	----	----	----
Dissolved Metals										
calcium, dissolved	7440-70-2	E421	0.050	mg/L	112		----	----	----	----
iron, dissolved	7439-89-6	E421	0.030	mg/L	<0.060	OLDS	----	----	----	----
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	53.0		----	----	----	----
manganese, dissolved	7439-96-5	E421	0.00500	mg/L	0.0532		----	----	----	----
potassium, dissolved	7440-09-7	E421	0.050	mg/L	16.2		----	----	----	----
sodium, dissolved	17341-25-2	E421	0.050	mg/L	682		----	----	----	----
dissolved metals filtration location	----	EP421	-	-	Laboratory	SFP	----	----	----	----

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

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 Work Order : SK2101372
 Client : Town of Shellbrook
 Project : Waterworks- Gen chem/Health and toxicity



Analytical Results

Sub-Matrix: Water

Client sample ID

SK05GF0109
Well # 11

Client sampling date / time

11-May-2021
10:30

Analyte	CAS Number	Method	LOR	Unit	SK2101372-001				
					Result				
Total Metals									
bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000100 ^{DLDS}	---	---	---	---
boron, total	7440-42-8	E420	0.010	mg/L	0.657	---	---	---	---
cadmium, total	7440-43-9	E420	0.000050	mg/L	<0.0000100 ^{DLDS}	---	---	---	---
calcium, total	7440-70-2	E420	0.050	mg/L	103	---	---	---	---
cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000020 ^{DLDS}	---	---	---	---
chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00100 ^{DLDS}	---	---	---	---
cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00026	---	---	---	---
copper, total	7440-50-8	E420	0.00050	mg/L	<0.00100 ^{DLDS}	---	---	---	---
iron, total	7439-89-6	E420	0.010	mg/L	2.06	---	---	---	---
lead, total	7439-92-1	E420	0.000050	mg/L	<0.000100 ^{DLDS}	---	---	---	---
lithium, total	7439-93-2	E420	0.0010	mg/L	0.183	---	---	---	---
magnesium, total	7439-95-4	E420	0.0050	mg/L	49.2	---	---	---	---
manganese, total	7439-96-5	E420	0.00010	mg/L	0.0540	---	---	---	---
molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.0136	---	---	---	---
nickel, total	7440-02-0	E420	0.00050	mg/L	0.00112	---	---	---	---
phosphorus, total	7723-14-0	E420	0.050	mg/L	0.332	---	---	---	---
potassium, total	7440-09-7	E420	0.050	mg/L	15.4	---	---	---	---
rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00399	---	---	---	---
selenium, total	7782-49-2	E420	0.000050	mg/L	<0.000100 ^{DLDS}	---	---	---	---
silicon, total	7440-21-3	E420	0.10	mg/L	8.39	---	---	---	---
silver, total	7440-22-4	E420	0.000010	mg/L	<0.000020 ^{DLDS}	---	---	---	---
sodium, total	17341-25-2	E420	0.050	mg/L	635	---	---	---	---
strontium, total	7440-24-6	E420	0.00020	mg/L	1.15	---	---	---	---
sulfur, total	7704-34-9	E420	0.50	mg/L	311	---	---	---	---
tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00040 ^{DLDS}	---	---	---	---
thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000020 ^{DLDS}	---	---	---	---
thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00020 ^{DLDS}	---	---	---	---
tin, total	7440-31-5	E420	0.00010	mg/L	<0.00020 ^{DLDS}	---	---	---	---
titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00060 ^{DLDS}	---	---	---	---
tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00020 ^{DLDS}	---	---	---	---
uranium, total	7440-61-1	E420	0.000010	mg/L	0.000183	---	---	---	---

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 Work Order : SK2101372
 Client : Town of Shellbrook
 Project : Waterworks- Gen chem/Health and toxicity



Analytical Results

Sub-Matrix: Water

(Matrix: Water)

Client sample ID

SK05GF0109

Well # 11

Client sampling date / time

11-May-2021
10:30

Analyte	CAS Number	Method	LOR	Unit	SK2101372-001				
					Result				
Physical Tests									
hardness (as CaCO ₃), dissolved	---	EC100	0.50	mg/L	498	---	---	---	---
conductivity	---	E100	2.0	µS/cm	3560	---	---	---	---
pH	---	E108	0.10	pH units	8.14	---	---	---	---
alkalinity, bicarbonate (as HCO ₃)	71-52-3	E290	1.0	mg/L	450	---	---	---	---
alkalinity, carbonate (as CO ₃)	3812-32-6	E290	1.0	mg/L	<1.0	---	---	---	---
alkalinity, hydroxide (as OH)	14280-30-9	E290	1.0	mg/L	<1.0	---	---	---	---
alkalinity, total (as CaCO ₃)	---	E290	2.0	mg/L	369	---	---	---	---
solids, total dissolved [TDS], calculated	---	EC103	1.0	mg/L	2400	---	---	---	---
Anions and Nutrients									
bromate	15541-45-4	E722A	0.30	µg/L	<0.30	---	---	---	---
chloride	16887-00-6	E235.Cl	0.50	mg/L	471	---	---	---	---
fluoride	16984-48-8	E235.F	0.020	mg/L	<0.400 DLDS	---	---	---	---
nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	<0.400 DLDS	---	---	---	---
nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.200 DLDS	---	---	---	---
sulfate (as SO ₄)	14808-79-8	E235.SO4	0.30	mg/L	825	---	---	---	---
nitrate + nitrite (as N)	---	EC235.N+N	0.0500	mg/L	<0.447	---	---	---	---
Inorganic Parameters									
chlorate	14866-68-3	E409.CLO3	0.010	mg/L	0.084 DLDS, SP	---	---	---	---
chlorite	14998-27-7	E409.CLO2	0.010	mg/L	<0.050 DLDS, SP	---	---	---	---
Ion Balance									
anion sum	---	EC101	0.10	meq/L	37.8	---	---	---	---
cation sum	---	EC101	0.10	meq/L	40.0	---	---	---	---
ion balance (cation-anion difference)	---	EC101	0.010	%	2.83	---	---	---	---
ion balance (cations/anions ratio)	---	EC101	0.010	%	106	---	---	---	---
Total Metals									
aluminum, total	7429-90-5	E420	0.0030	mg/L	<0.0060 DLDS	---	---	---	---
antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00020 DLDS	---	---	---	---
arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00248	---	---	---	---
barium, total	7440-39-3	E420	0.00010	mg/L	0.0108	---	---	---	---
beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000040 DLDS	---	---	---	---

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Work Order : SK2101372
Client : Town of Shellbrook
Project : Waterworks- Gen chem/Health and toxicity



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 Unit
%	percent
µg/L	micrograms per litre
µS/cm	Microsiemens per centimetre
meq/L	milliequivalents per litre
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.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
SFP	Sample was filtered and preserved at the laboratory.
SP	Sample was preserved at the laboratory.



Environmental

CERTIFICATE OF ANALYSIS

Work Order : **SK2101372**
Client : **Town of Shellbrook**
Contact : **Shalene Gieselman**
Address : **71 Main Street PO Box 40**
Shellbrook SK Canada S0J 2E0
Telephone : **306-747-4900**
Project : **Waterworks- Gen chem/Health and toxicity**
PO : **---**
C-O-C number : **---**
Sampler : **Client**
Site : **---**
Quote number : **---**
No. of samples received : **1**
No. of samples analysed : **1**

Page : **1 of 5**
Laboratory : **Saskatoon - Environmental**
Account Manager : **Kimberley Head**
Address : **819 58 Street East**
Saskatoon SK Canada S7K 6X5
Telephone : **+1 306 668 8370**
Date Samples Received : **12-May-2021 08:10**
Date Analysis Commenced : **12-May-2021**
Issue Date : **02-Jun-2021 18:21**

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
Colby Bingham	Quality Systems Coordinator	Inorganics, Saskatoon, Saskatchewan
Colby Bingham	Quality Systems Coordinator	Metals, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Jon Fisher	Department Manager - Inorganics	Inorganics, Waterloo, Ontario
Melissa Houseman	Team Leader - Inorganics	Metals, Saskatoon, Saskatchewan
Sandra Cummings	Department Manager - LCMS	LCMS, Waterloo, Ontario



Canada Toll Free: 1 800 668 9878

Work Order Reference

SK2101371

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

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.

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 Work Order : SK2101371
 Client : Town of Shellbrook
 Project : Waterworks- Gen chem/Health and toxicity



Sub-Matrix: Water

Sub-Matrix: Water					Matrix Spike (MS) Report					
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Spike		Recovery (%)	Recovery Limits (%)		Qualifier
					Concentration	Target	MS	Low	High	
Total Metals (QCLot: 196676) - continued										
SK2101372-001	Anonymous	phosphorus, total	7723-14-0	E420	11.6 mg/L	10 mg/L	116	70.0	130	---
		potassium, total	7440-09-7	E420	ND mg/L	4 mg/L	ND	70.0	130	---
		rubidium, total	7440-17-7	E420	0.0200 mg/L	0.02 mg/L	99.9	70.0	130	---
		selenium, total	7782-49-2	E420	0.0410 mg/L	0.04 mg/L	102	70.0	130	---
		silicon, total	7440-21-3	E420	10.1 mg/L	10 mg/L	101	70.0	130	---
		silver, total	7440-22-4	E420	0.00388 mg/L	0.004 mg/L	97.1	70.0	130	---
		sodium, total	17341-25-2	E420	ND mg/L	2 mg/L	ND	70.0	130	---
		strontium, total	7440-24-6	E420	ND mg/L	0.02 mg/L	ND	70.0	130	---
		sulfur, total	7704-34-9	E420	ND mg/L	20 mg/L	ND	70.0	130	---
		tellurium, total	13494-80-9	E420	0.0417 mg/L	0.04 mg/L	104	70.0	130	---
		thallium, total	7440-28-0	E420	0.00382 mg/L	0.004 mg/L	95.4	70.0	130	---
		thorium, total	7440-29-1	E420	0.0216 mg/L	0.02 mg/L	108	70.0	130	---
		tin, total	7440-31-5	E420	0.0202 mg/L	0.02 mg/L	101	70.0	130	---
		titanium, total	7440-32-6	E420	0.0420 mg/L	0.04 mg/L	105	70.0	130	---
		tungsten, total	7440-33-7	E420	0.0218 mg/L	0.02 mg/L	109	70.0	130	---
		uranium, total	7440-61-1	E420	0.00408 mg/L	0.004 mg/L	102	70.0	130	---
		vanadium, total	7440-62-2	E420	0.106 mg/L	0.1 mg/L	106	70.0	130	---
		zinc, total	7440-66-6	E420	0.357 mg/L	0.4 mg/L	89.2	70.0	130	---
		zirconium, total	7440-67-7	E420	0.0454 mg/L	0.04 mg/L	113	70.0	130	---
Dissolved Metals (QCLot: 197603)										
RG2100141-008	Anonymous	calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	---
		iron, dissolved	7439-89-6	E421	2.26 mg/L	2 mg/L	113	70.0	130	---
		magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	---
		manganese, dissolved	7439-96-5	E421	ND mg/L	0.02 mg/L	ND	70.0	130	---
		potassium, dissolved	7440-09-7	E421	ND mg/L	4 mg/L	ND	70.0	130	---
		sodium, dissolved	17341-25-2	E421	ND mg/L	2 mg/L	ND	70.0	130	---
Disinfectant By-Products (QCLot: 209176)										
CG2101639-002	Anonymous	bromate	15541-45-4	E722A	3.91 µg/L	4 µg/L	97.8	70.0	130	---
Disinfectant By-Products (QCLot: 210482)										
GP2100285-002	Anonymous	chlorite	14998-27-7	E409.CLO2	1.06 mg/L	1 mg/L	106	75.0	125	---
Disinfectant By-Products (QCLot: 210483)										
GP2100285-002	Anonymous	chlorate	14866-68-3	E409.CLO3	ND mg/L	1 mg/L	ND	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 $\geq 1 \times$ 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: 196311)										
SK2101371-001	SK05GF0085 Well # 10	chloride	16887-00-6	E235.Cl	ND mg/L	100 mg/L	ND	75.0	125	—
Anions and Nutrients (QCLot: 196312)										
SK2101371-001	SK05GF0085 Well # 10	sulfate (as SO ₄)	14808-79-8	E235.SO4	ND mg/L	100 mg/L	ND	80.0	110	—
Anions and Nutrients (QCLot: 196313)										
SK2101371-001	SK05GF0085 Well # 10	fluoride	16984-48-8	E235.F	0.766 mg/L	1 mg/L	76.6	75.0	125	—
Anions and Nutrients (QCLot: 196314)										
SK2101371-001	SK05GF0085 Well # 10	nitrite (as N)	14797-65-0	E235.NO2	0.375 mg/L	0.5 mg/L	75.1	75.0	125	—
Anions and Nutrients (QCLot: 196315)										
SK2101371-001	SK05GF0085 Well # 10	nitrate (as N)	14797-55-8	E235.NO3	2.43 mg/L	2.5 mg/L	97.3	75.0	125	—
Total Metals (QCLot: 196676)										
SK2101372-001	Anonymous	aluminum, total	7429-90-5	E420	0.212 mg/L	0.2 mg/L	106	70.0	130	—
		antimony, total	7440-36-0	E420	0.0208 mg/L	0.02 mg/L	104	70.0	130	—
		arsenic, total	7440-38-2	E420	0.0203 mg/L	0.02 mg/L	101	70.0	130	—
		barium, total	7440-39-3	E420	0.0204 mg/L	0.02 mg/L	102	70.0	130	—
		beryllium, total	7440-41-7	E420	0.0384 mg/L	0.04 mg/L	96.1	70.0	130	—
		bismuth, total	7440-69-9	E420	0.00981 mg/L	0.01 mg/L	98.1	70.0	130	—
		boron, total	7440-42-8	E420	ND mg/L	0.1 mg/L	ND	70.0	130	—
		cadmium, total	7440-43-9	E420	0.00371 mg/L	0.004 mg/L	92.9	70.0	130	—
		calcium, total	7440-70-2	E420	ND mg/L	4 mg/L	ND	70.0	130	—
		cesium, total	7440-46-2	E420	0.0107 mg/L	0.01 mg/L	107	70.0	130	—
		chromium, total	7440-47-3	E420	0.0392 mg/L	0.04 mg/L	98.1	70.0	130	—
		cobalt, total	7440-48-4	E420	0.0198 mg/L	0.02 mg/L	98.9	70.0	130	—
		copper, total	7440-50-8	E420	0.0183 mg/L	0.02 mg/L	91.6	70.0	130	—
		iron, total	7439-89-6	E420	ND mg/L	2 mg/L	ND	70.0	130	—
		lead, total	7439-92-1	E420	0.0192 mg/L	0.02 mg/L	95.9	70.0	130	—
		lithium, total	7439-93-2	E420	ND mg/L	0.1 mg/L	ND	70.0	130	—
		magnesium, total	7439-95-4	E420	ND mg/L	1 mg/L	ND	70.0	130	—
		manganese, total	7439-96-5	E420	ND mg/L	0.02 mg/L	ND	70.0	130	—
		molybdenum, total	7439-98-7	E420	0.0216 mg/L	0.02 mg/L	108	70.0	130	—
		nickel, total	7440-02-0	E420	0.0373 mg/L	0.04 mg/L	93.3	70.0	130	—

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Sub-Matrix: Water

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Disinfectant By-Products (QCLot: 210483) - continued									
chlorate	14866-68-3	E409.CLO3	0.01	mg/L	1 mg/L	99.0	85.0	115	—

Laboratory Control Sample (LCS) Report

Sample Matrix: Water					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 196676) - continued									
magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	103	80.0	120	---
manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	99.7	80.0	120	---
molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	101	80.0	120	---
nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	100	80.0	120	---
phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	108	80.0	120	---
potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	101	80.0	120	---
rubidium, total	7440-17-7	E420	0.0002	mg/L	0.1 mg/L	102	80.0	120	---
selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	100	80.0	120	---
silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	100	80.0	120	---
silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	101	80.0	120	---
sodium, total	17341-25-2	E420	0.05	mg/L	50 mg/L	104	80.0	120	---
strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	102	80.0	120	---
sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	97.4	80.0	120	---
tellurium, total	13494-80-9	E420	0.0002	mg/L	0.1 mg/L	105	80.0	120	---
thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	98.4	80.0	120	---
thorium, total	7440-29-1	E420	0.0001	mg/L	0.1 mg/L	96.1	80.0	120	---
tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	96.4	80.0	120	---
titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	99.8	80.0	120	---
tungsten, total	7440-33-7	E420	0.0001	mg/L	0.1 mg/L	99.3	80.0	120	---
uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	97.2	80.0	120	---
vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	101	80.0	120	---
zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	99.5	80.0	120	---
zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	103	80.0	120	---
Dissolved Metals (QCLot: 197603)									
calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	108	80.0	120	---
iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	112	80.0	120	---
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	102	80.0	120	---
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	97.7	80.0	120	---
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	102	80.0	120	---
sodium, dissolved	17341-25-2	E421	0.05	mg/L	50 mg/L	104	80.0	120	---
Disinfectant By-Products (QCLot: 209176)									
bromate	15541-45-4	E722A	0.3	µg/L	4 µg/L	95.2	70.0	130	---
Disinfectant By-Products (QCLot: 210482)									
chlorite	14998-27-7	E409.CLO2	0.01	mg/L	1 mg/L	106	85.0	115	---
Disinfectant By-Products (QCLot: 210483)									

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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
Physical Tests (QCLot: 196272)									
pH	---	E108	---	pH units	6.86 pH units	99.8	98.0	102	---
Physical Tests (QCLot: 196273)									
conductivity	---	E100	1	µS/cm	1000 µS/cm	98.8	90.0	110	---
Physical Tests (QCLot: 196274)									
alkalinity, total (as CaCO ₃)	---	E290	1	mg/L	500 mg/L	101	85.0	115	---
Anions and Nutrients (QCLot: 196311)									
chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	99.8	90.0	110	---
Anions and Nutrients (QCLot: 196312)									
sulfate (as SO ₄)	14808-79-8	E235.SO ₄	0.3	mg/L	100 mg/L	102	90.0	110	---
Anions and Nutrients (QCLot: 196313)									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	99.1	90.0	110	---
Anions and Nutrients (QCLot: 196314)									
nitrite (as N)	14797-65-0	E235.NO ₂	0.01	mg/L	0.5 mg/L	102	90.0	110	---
Anions and Nutrients (QCLot: 196315)									
nitrate (as N)	14797-55-8	E235.NO ₃	0.02	mg/L	2.5 mg/L	99.1	90.0	110	---
Total Metals (QCLot: 196676)									
aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	104	80.0	120	---
antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	104	80.0	120	---
arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	105	80.0	120	---
barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	109	80.0	120	---
beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	95.0	80.0	120	---
bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	104	80.0	120	---
boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	86.2	80.0	120	---
cadmium, total	7440-43-9	E420	0.00005	mg/L	0.1 mg/L	100	80.0	120	---
calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	97.1	80.0	120	---
cesium, total	7440-46-2	E420	0.00001	mg/L	0.05 mg/L	102	80.0	120	---
chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	102	80.0	120	---
cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120	---
copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	98.6	80.0	120	---
iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	108	80.0	120	---
lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	101	80.0	120	---
lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	89.6	80.0	120	---

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Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 196676) - continued						
nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	—
phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	—
potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	—
rubidium, total	7440-17-7	E420	0.0002	mg/L	<0.00020	—
selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	—
silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	—
silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	—
sodium, total	17341-25-2	E420	0.05	mg/L	<0.050	—
strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	—
sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	—
tellurium, total	13494-80-9	E420	0.0002	mg/L	<0.00020	—
thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	—
thorium, total	7440-29-1	E420	0.0001	mg/L	<0.00010	—
tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	—
titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	—
tungsten, total	7440-33-7	E420	0.0001	mg/L	<0.00010	—
uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	—
vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	—
zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	—
zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	—
Dissolved Metals (QCLot: 197603)						
calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	—
iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	—
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	—
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	—
potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	—
sodium, dissolved	17341-25-2	E421	0.05	mg/L	<0.050	—
Disinfectant By-Products (QCLot: 209176)						
bromate	15541-45-4	E722A	0.3	µg/L	<0.30	—
Disinfectant By-Products (QCLot: 210482)						
chlorite	14998-27-7	E409.CLO2	0.01	mg/L	<0.010	—
Disinfectant By-Products (QCLot: 210483)						
chlorate	14866-68-3	E409.CLO3	0.01	mg/L	<0.010	—

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Method Blank (MB) Report

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

Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 196273)						
conductivity	—	E100	1	µS/cm	<1.0	—
Physical Tests (QCLot: 196274)						
alkalinity, total (as CaCO ₃)	—	E290	1	mg/L	<1.0	—
Anions and Nutrients (QCLot: 196311)						
chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	—
Anions and Nutrients (QCLot: 196312)						
sulfate (as SO ₄)	14808-79-8	E235.SO ₄	0.3	mg/L	<0.30	—
Anions and Nutrients (QCLot: 196313)						
fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	—
Anions and Nutrients (QCLot: 196314)						
nitrite (as N)	14797-65-0	E235.NO ₂	0.01	mg/L	<0.010	—
Anions and Nutrients (QCLot: 196315)						
nitrate (as N)	14797-55-8	E235.NO ₃	0.02	mg/L	<0.020	—
Total Metals (QCLot: 196676)						
aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	—
antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	—
arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	—
barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	—
beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	—
bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	—
boron, total	7440-42-8	E420	0.01	mg/L	<0.010	—
cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	—
calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	—
cesium, total	7440-46-2	E420	0.00001	mg/L	<0.000010	—
chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	—
cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	—
copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	—
iron, total	7439-89-6	E420	0.01	mg/L	<0.010	—
lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	—
lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	—
magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	—
manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	—
molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	—

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 Work Order : SK2101371
 Client : Town of Shellbrook
 Project : Waterworks- Gen chem/Health and toxicity



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
Disinfectant By-Products (QC Lot: 210483)											
GP2100285-002	Anonymous	chlorate	14866-68-3	E409.CLO3	0.010	mg/L	4.84	4.82	0.381%	20%	—

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 Work Order : SK2101371
 Client : Town of Shellbrook
 Project : Waterworks- Gen chem/Health and toxicity



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
Total Metals (QC Lot: 196676) - continued											
SK2101368-002	Anonymous	lithium, total	7439-93-2	E420	0.0100	mg/L	0.478	0.503	5.06%	20%	---
		magnesium, total	7439-95-4	E420	0.0500	mg/L	334	329	1.47%	20%	---
		manganese, total	7439-96-5	E420	0.00100	mg/L	0.0682	0.0672	1.42%	20%	---
		molybdenum, total	7439-98-7	E420	0.000500	mg/L	0.00118	0.00123	0.000046	Diff <2x LOR	---
		nickel, total	7440-02-0	E420	0.00500	mg/L	0.0134	0.0130	0.00033	Diff <2x LOR	---
		phosphorus, total	7723-14-0	E420	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	---
		potassium, total	7440-09-7	E420	0.500	mg/L	23.9	24.0	0.377%	20%	---
		rubidium, total	7440-17-7	E420	0.00200	mg/L	0.0229	0.0237	3.14%	20%	---
		selenium, total	7782-49-2	E420	0.000500	mg/L	0.000634	0.000756	0.000121	Diff <2x LOR	---
		silicon, total	7440-21-3	E420	1.00	mg/L	8.04	7.54	0.50	Diff <2x LOR	---
		silver, total	7440-22-4	E420	0.000100	mg/L	<0.000100	0.000111	0.000011	Diff <2x LOR	---
		sodium, total	17341-25-2	E420	0.500	mg/L	2490	2490	0.219%	20%	---
		strontium, total	7440-24-6	E420	0.00200	mg/L	7.56	7.71	1.88%	20%	---
		sulfur, total	7704-34-9	E420	5.00	mg/L	2300	2370	2.85%	20%	---
		tellurium, total	13494-80-9	E420	0.00200	mg/L	<0.00200	<0.00200	0	Diff <2x LOR	---
		thallium, total	7440-28-0	E420	0.000100	mg/L	0.000196	0.000206	0.000010	Diff <2x LOR	---
		thorium, total	7440-29-1	E420	0.00100	mg/L	<0.00100	0.00106	0.00006	Diff <2x LOR	---
		tin, total	7440-31-5	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	---
		titanium, total	7440-32-6	E420	0.00300	mg/L	0.0602	0.0590	2.05%	20%	---
		tungsten, total	7440-33-7	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	---
		uranium, total	7440-61-1	E420	0.000100	mg/L	0.0252	0.0261	3.48%	20%	---
		vanadium, total	7440-62-2	E420	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	---
		zinc, total	7440-66-6	E420	0.0300	mg/L	<0.0300	<0.0300	0	Diff <2x LOR	---
		zirconium, total	7440-67-7	E420	0.00200	mg/L	0.00265	0.00539	0.00274	Diff <2x LOR	---
Dissolved Metals (QC Lot: 197603)											
SK2101371-001	SK05GF0085 Well # 10	calcium, dissolved	7440-70-2	E421	0.100	mg/L	102	105	2.87%	20%	---
		iron, dissolved	7439-89-6	E421	0.060	mg/L	<0.060	<0.060	0	Diff <2x LOR	---
		magnesium, dissolved	7439-95-4	E421	0.0100	mg/L	48.1	49.5	2.91%	20%	---
		manganese, dissolved	7439-96-5	E421	0.0100	mg/L	0.0422	0.0430	0.00079	Diff <2x LOR	---
		potassium, dissolved	7440-09-7	E421	0.100	mg/L	14.8	15.3	3.59%	20%	---
		sodium, dissolved	17341-25-2	E421	0.100	mg/L	609	633	3.73%	20%	---
Disinfectant By-Products (QC Lot: 209176)											
CG2101639-002	Anonymous	bromate	15541-45-4	E722A	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	---
Disinfectant By-Products (QC Lot: 210482)											
GP2100285-002	Anonymous	chlorite	14998-27-7	E409.CLO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	---

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 Project : Waterworks- Gen chem/Health and toxicity



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
Physical Tests (QC Lot: 196272)											
SK2101370-004	Anonymous	pH	---	E108	0.10	pH units	7.95	7.94	0.111%	3%	---
Physical Tests (QC Lot: 196273)											
SK2101370-004	Anonymous	conductivity	---	E100	2.0	µS/cm	1300	1300	0.692%	10%	---
Physical Tests (QC Lot: 196274)											
SK2101370-004	Anonymous	alkalinity, total (as CaCO ₃)	---	E290	2.0	mg/L	432	433	0.0454%	20%	---
Anions and Nutrients (QC Lot: 196311)											
SK2101380-001	Anonymous	chloride	16887-00-6	E235.Cl	0.50	mg/L	1.77	1.78	0.007	Diff <2x LOR	---
Anions and Nutrients (QC Lot: 196312)											
SK2101380-001	Anonymous	sulfate (as SO ₄)	14808-79-8	E235.SO4	0.30	mg/L	23.0	22.5	2.43%	20%	---
Anions and Nutrients (QC Lot: 196313)											
SK2101380-001	Anonymous	fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	---
Anions and Nutrients (QC Lot: 196314)											
SK2101380-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	---
Anions and Nutrients (QC Lot: 196315)											
SK2101380-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	0.390	0.380	2.61%	20%	---
Total Metals (QC Lot: 196676)											
SK2101368-002	Anonymous	aluminum, total	7429-90-5	E420	0.0300	mg/L	1.79	1.88	5.07%	20%	---
		antimony, total	7440-36-0	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	---
		arsenic, total	7440-38-2	E420	0.00100	mg/L	0.00238	0.00217	0.00021	Diff <2x LOR	---
		barium, total	7440-39-3	E420	0.00100	mg/L	0.0427	0.0424	0.721%	20%	---
		beryllium, total	7440-41-7	E420	0.000200	mg/L	<0.000200	<0.000200	0	Diff <2x LOR	---
		bismuth, total	7440-49-9	E420	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	---
		boron, total	7440-42-8	E420	0.100	mg/L	2.04	2.04	0.0193%	20%	---
		cadmium, total	7440-43-9	E420	0.0000500	mg/L	0.000311	0.000290	0.0000211	Diff <2x LOR	---
		calcium, total	7440-70-2	E420	0.500	mg/L	402	408	1.31%	20%	---
		cesium, total	7440-46-2	E420	0.000100	mg/L	0.000833	0.000800	0.000033	Diff <2x LOR	---
		chromium, total	7440-47-3	E420	0.00500	mg/L	0.00509	0.00527	0.00018	Diff <2x LOR	---
		cobalt, total	7440-48-4	E420	0.00100	mg/L	0.00130	0.00130	0.000004	Diff <2x LOR	---
		copper, total	7440-50-8	E420	0.00500	mg/L	0.00737	0.00688	0.00046	Diff <2x LOR	---
		iron, total	7439-89-6	E420	0.100	mg/L	3.86	3.93	1.80%	20%	---
		lead, total	7439-92-1	E420	0.000500	mg/L	0.00268	0.00274	0.000066	Diff <2x LOR	---

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Work Order : SK2101371
Client : Town of Shellbrook
Project : Waterworks- Gen chem/Health and toxicity



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 Services number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percentage Difference

= Indicates a QC result that did not meet the ALS DQO.



Environmental

QUALITY CONTROL REPORT

Work Order : SK2101371

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Client : Town of Shellbrook
Contact : Shalene Gieselman
Address : 71 Main Street PO Box 40
Shellbrook SK Canada S0J 2E0
Telephone : 306-747-4900
Project : Waterworks- Gen chem/Health and toxicity
PO :
C-O-C number :
Sampler : Client
Site :
Quote number :
No. of samples received : 1
No. of samples analysed : 1

Laboratory : Saskatoon - Environmental
Account Manager : Kimberley Head
Address : 819 58 Street East
Saskatoon, Saskatchewan Canada S7K 6X5
Telephone : +1 306 668 8370
Date Samples Received : 12-May-2021 08:10
Date Analysis Commenced : 12-May-2021
Issue Date : 02-Jun-2021 18:20

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 Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

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
Colby Bingham	Quality Systems Coordinator	Inorganics, Saskatoon, Saskatchewan
Colby Bingham	Quality Systems Coordinator	Metals, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Jon Fisher	Department Manager - Inorganics	Inorganics, Waterloo, Ontario
Melissa Houseman	Team Leader - Inorganics	Metals, Saskatoon, Saskatchewan
Sandra Cummings	Department Manager - LCMS	LCMS, Waterloo, Ontario

Page : 5 of 5
 Work Order : SK2101371
 Client : Town of Shellbrook
 Project : Waterworks- Gen chem/Health and toxicity



Analytical Results

Sub-Matrix: Water					Client sample ID	SK05GF0085	----	----	----	----
(Matrix: Water)						Well # 10				
					Client sampling date / time	11-May-2021 10:30	----	----	----	----
Analyte	CAS Number	Method	LOR	Unit	SK2101371-001	Result	-----	-----	-----	-----
Total Metals										
vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00100	DLDS	----	----	----	----
zinc, total	7440-66-6	E420	0.0030	mg/L	0.0101		----	----	----	----
zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00040	DLDS	----	----	----	----
Dissolved Metals										
calcium, dissolved	7440-70-2	E421	0.050	mg/L	102		----	----	----	----
iron, dissolved	7439-89-6	E421	0.030	mg/L	<0.060	DLDS	----	----	----	----
magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	48.1		----	----	----	----
manganese, dissolved	7439-96-5	E421	0.00500	mg/L	0.0422		----	----	----	----
potassium, dissolved	7440-09-7	E421	0.050	mg/L	14.8		----	----	----	----
sodium, dissolved	17341-25-2	E421	0.050	mg/L	609		----	----	----	----
dissolved metals filtration location	----	EP421	-	-	Laboratory	SFP	----	----	----	----

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

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 Work Order : SK2101371
 Client : Town of Shellbrook
 Project : Waterworks- Gen chem/Health and toxicity



Analytical Results

Sub-Matrix: Water

Client sample ID

SK05GF0085
Well # 10

Client sampling date / time

11-May-2021
10:30

Analyte

CAS Number

Method

LOR

Unit

SK2101371-001

Result

Total Metals

bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000100 ^{OLD}
boron, total	7440-42-8	E420	0.010	mg/L	0.634
cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0000100 ^{OLD}
calcium, total	7440-70-2	E420	0.050	mg/L	103
cesium, total	7440-46-2	E420	0.000010	mg/L	<0.000020 ^{OLD}
chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00100 ^{OLD}
cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00027
copper, total	7440-50-8	E420	0.00050	mg/L	<0.00100 ^{OLD}
iron, total	7439-89-6	E420	0.010	mg/L	1.92
lead, total	7439-92-1	E420	0.000050	mg/L	0.000191
lithium, total	7439-93-2	E420	0.0010	mg/L	0.171
magnesium, total	7439-95-4	E420	0.0050	mg/L	49.7
manganese, total	7439-96-5	E420	0.00010	mg/L	0.0470
molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.0140
nickel, total	7440-02-0	E420	0.00050	mg/L	0.00528
phosphorus, total	7723-14-0	E420	0.050	mg/L	0.316
potassium, total	7440-09-7	E420	0.050	mg/L	15.4
rubidium, total	7440-17-7	E420	0.00020	mg/L	0.00399
selenium, total	7782-49-2	E420	0.000050	mg/L	<0.000100 ^{OLD}
silicon, total	7440-21-3	E420	0.10	mg/L	8.61
silver, total	7440-22-4	E420	0.000010	mg/L	<0.000020 ^{OLD}
sodium, total	17341-25-2	E420	0.050	mg/L	638
strontium, total	7440-24-6	E420	0.00020	mg/L	1.11
sulfur, total	7704-34-9	E420	0.50	mg/L	303
tellurium, total	13494-80-9	E420	0.00020	mg/L	<0.00040 ^{OLD}
thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000020 ^{OLD}
thorium, total	7440-29-1	E420	0.00010	mg/L	<0.00020 ^{OLD}
tin, total	7440-31-5	E420	0.00010	mg/L	<0.00020 ^{OLD}
titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00060 ^{OLD}
tungsten, total	7440-33-7	E420	0.00010	mg/L	<0.00020 ^{OLD}
uranium, total	7440-61-1	E420	0.000010	mg/L	0.000162

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 Work Order : SK2101371
 Client : Town of Shellbrook
 Project : Waterworks- Gen chem/Health and toxicity



Analytical Results

Sub-Matrix: Water

Client sample ID

SK05GF0085

Well # 10

(Matrix: Water)

Client sampling date / time

11-May-2021
10:30

Analyte	CAS Number	Method	LOR	Unit	SK2101371-001	Result				
Physical Tests										
hardness (as CaCO ₃), dissolved	---	EC100	0.50	mg/L	453	---	---	---	---	---
conductivity	---	E100	2.0	µS/cm	3360	---	---	---	---	---
pH	---	E108	0.10	pH units	8.21	---	---	---	---	---
alkalinity, bicarbonate (as HCO ₃)	71-52-3	E290	1.0	mg/L	450	---	---	---	---	---
alkalinity, carbonate (as CO ₃)	3812-32-6	E290	1.0	mg/L	<1.0	---	---	---	---	---
alkalinity, hydroxide (as OH)	14280-30-9	E290	1.0	mg/L	<1.0	---	---	---	---	---
alkalinity, total (as CaCO ₃)	---	E290	2.0	mg/L	369	---	---	---	---	---
solids, total dissolved [TDS], calculated	---	EC103	1.0	mg/L	2160	---	---	---	---	---
Anions and Nutrients										
bromate	15541-45-4	E722A	0.30	µg/L	<0.30	---	---	---	---	---
chloride	16887-00-6	E235.Cl	0.50	mg/L	416	---	---	---	---	---
fluoride	16984-48-8	E235.F	0.020	mg/L	<0.400 DLDS	---	---	---	---	---
nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	<0.400 DLDS	---	---	---	---	---
nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.200 DLDS	---	---	---	---	---
sulfate (as SO ₄)	14808-79-8	E235.SO4	0.30	mg/L	727	---	---	---	---	---
nitrate + nitrite (as N)	---	EC235.N+N	0.0500	mg/L	<0.447	---	---	---	---	---
Inorganic Parameters										
chlorate	14866-68-3	E409.CLO3	0.010	mg/L	0.087 DLDS, SP	---	---	---	---	---
chlorite	14998-27-7	E409.CLO2	0.010	mg/L	<0.050 DLDS, SP	---	---	---	---	---
Ion Balance										
anion sum	---	EC101	0.10	meq/L	34.2	---	---	---	---	---
cation sum	---	EC101	0.10	meq/L	35.9	---	---	---	---	---
ion balance (cation-anion difference)	---	EC101	0.010	%	2.42	---	---	---	---	---
ion balance (cations/anions ratio)	---	EC101	0.010	%	105	---	---	---	---	---
Total Metals										
aluminum, total	7429-90-5	E420	0.0030	mg/L	<0.0060 DLDS	---	---	---	---	---
antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00020 DLDS	---	---	---	---	---
arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00209	---	---	---	---	---
barium, total	7440-39-3	E420	0.00010	mg/L	0.00988	---	---	---	---	---
beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000040 DLDS	---	---	---	---	---

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Work Order : SK2101371
Client : Town of Shellbrook
Project : Waterworks- Gen chem/Health and toxicity



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 Unit
%	percent
µg/L	micrograms per litre
µS/cm	Microsiemens per centimetre
meq/L	milliequivalents per litre
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.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
SFP	Sample was filtered and preserved at the laboratory.
SP	Sample was preserved at the laboratory.



CERTIFICATE OF ANALYSIS

Work Order : **SK2101371**
Client : **Town of Shellbrook**
Contact : **Shalene Gieselman**
Address : **71 Main Street PO Box 40**
Shellbrook SK Canada S0J 2E0
Telephone : **306-747-4900**
Project : **Waterworks- Gen chem/Health and toxicity**
PO : **---**
C-O-C number : **---**
Sampler : **Client**
Site : **---**
Quote number : **---**
No. of samples received : **1**
No. of samples analysed : **1**

Page : **1 of 5**
Laboratory : **Saskatoon - Environmental**
Account Manager : **Kimberley Head**
Address : **819 58 Street East**
Saskatoon SK Canada S7K 6X5
Telephone : **+1 306 668 8370**
Date Samples Received : **12-May-2021 08:10**
Date Analysis Commenced : **12-May-2021**
Issue Date : **02-Jun-2021 18:20**

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>
Colby Bingham	Quality Systems Coordinator	Inorganics, Saskatoon, Saskatchewan
Colby Bingham	Quality Systems Coordinator	Metals, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Jon Fisher	Department Manager - Inorganics	Inorganics, Waterloo, Ontario
Melissa Houseman	Team Leader - Inorganics	Metals, Saskatoon, Saskatchewan
Sandra Cummings	Department Manager - LCMS	LCMS, Waterloo, Ontario