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 *February 18, 2020* 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	52	52	0
E. coli	0 Organisms/100 mL	52	52	0
Background Bacteria	Less than 200/100 mL	52	52	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	0.46-2.08	0.18-1.51	52	52	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	0.16-2.60	716	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	0.09-0.37	0	0.37	365	391

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 (*Jan. 3, 2020*). 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*)

Parameter	Limit MAC(mg/L)	Limit IMAC (mg/L)	Sample Result(s)	# Samples Exceeding Limit
Arsenic	0.010		0.00054	
Barium	1.0		0.00773	
Boron		5.0	0.0716	
Bromate	0.01		0.0045	
Cadmium	0.005		<0.000010	
Chlorate	1.0		0.835	
Chlorite	1.0		<0.050	
Chromium	0.05		<0.00020	
Fluoride (avg*)	1.5		<0.40	
Lead	0.01		<0.00010	
Nitrate (avg.*)	45.0		<0.40	
Seleniuum	0.01		<0.00010	
Uranium	0.02		0.000175	

* Results expressed as average values for communities or waterworks that fluoridate drinking water supplies or those with elevated concentrations of fluoride or nitrates.

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	357	1	1
Bicarbonate	No Objective	436	1	1
Calcium	No Objective	99.2	1	1
Carbonate	No Objective	<5.0	1	1
Chloride	250	497	1	1
Conductivity	No Objective	3510	1	1
Hardness	800	435	1	1
Magnesium	200	45.6	1	1
PH	No Objective	7.97	1	1
Sodium	300	629	1	1
Sulphate	500	806	1	1
Total dissolved Solids	1500	2310	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 $CaCO_3$), magnesium, sodium, sulphate and total dissolved solids.

The last sample for General Chemical analysis was required on (2020) and submitted on *(Jan. 3, 2020)* Samples exceeded provincial aesthetic objectives for the General Chemical category for the following parameters: *(Chloride, Sodium, Sulphate and TDS).*

*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*

BACTERIOLOGICAL TESTING 2020

Jan	2	7	14	24	30
Feb	4	11	19	25	
Mar	4	11	18	25	
Apr	1	8	15	22	29
May	6	13	21	27	
June	3	11	19	24	
July	3	8	15	22	29
Aug	6	12	19	28	
Sep	3	11	16	23	30
Oct	7	15	21	28	
Nov	4	12	18	25	
Dec	2	9	16	23	

TOTAL : 52

TOWN OF SHELLBROOK
ATTN: Shalene Boyko
71 Main Street
PO Box 40
Shellbrook SK S0J 2E0

Date Received: 18-DEC-19
Report Date: 03-JAN-20 13:13 (MT)
Version: FINAL

Client Phone: 306-747-4900

Certificate of Analysis

Lab Work Order #: L2397937
Project P.O. #: NOT SUBMITTED
Job Reference: SEWAGE WORKS EFFLUENT, MONTHLY
C of C Numbers:
Legal Site Desc: STATION #: SK05GF0100

Kimberley Head, B.Sc.
Account Manager

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ADDRESS: #819-58th St E., Saskatoon, SK S7K 6X5 Canada | Phone: +1 306 668 8370 | Fax: +1 306 668 8383
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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2397937-1 WELL #10 SK05GF0085							
Sampled By: CLIENT on 17-DEC-19 @ 09:30							
Matrix: WATER							
General Chemical							
Alkalinity by Auto. Titration							
Bicarbonate (HCO3)	442.		6.1	mg/L		18-DEC-19	R4946057
Hydroxide (OH)	<5.0		5.0	mg/L		18-DEC-19	R4946057
Carbonate (CO3)	<5.0		5.0	mg/L		18-DEC-19	R4946057
Alkalinity, Total (as CaCO3)	363		5.0	mg/L		18-DEC-19	R4946057
Cations by ICP-OES							
Calcium (Ca)	96.8	DLDS	5.0	mg/L	23-DEC-19	23-DEC-19	R4958320
Dissolved Metals Filtration Location	LAB	SFP				23-DEC-19	R4952945
Potassium (K)	14.8	DLDS	5.0	mg/L	23-DEC-19	23-DEC-19	R4958320
Magnesium (Mg)	43.9	DLDS	5.0	mg/L	23-DEC-19	23-DEC-19	R4958320
Sodium (Na)	589	DLDS	10	mg/L	23-DEC-19	23-DEC-19	R4958320
Chloride in Water by IC							
Chloride (Cl)	434	DLDS	10	mg/L		18-DEC-19	R4951148
Conductivity (Automated)							
Conductivity	3260		5.0	uS/cm		18-DEC-19	R4946057
Fluoride in Water by IC							
Fluoride (F)	<0.40	DLDS	0.40	mg/L		18-DEC-19	R4951148
Ion Balance Calculation							
Ion Balance	97.4			%		03-JAN-20	
Cation - Anion Balance	-1.3			%		03-JAN-20	
Computed Conductivity	2950			uS/cm		03-JAN-20	
Conductivity % Difference	-10.1			%		03-JAN-20	
TDS (Calculated)	2160			mg/L		03-JAN-20	
Anion Sum	35.4			me/L		03-JAN-20	
Cation Sum	34.4			me/L		03-JAN-20	
Saturation pH	7.10			pH		03-JAN-20	
Langelier Index	0.9					03-JAN-20	
Hardness (as CaCO3)	422			mg/L		03-JAN-20	
Nitrate in Water by IC							
Nitrate (as N)	<0.40	DLDS	0.40	mg/L		18-DEC-19	R4951148
Nitrite in Water by IC							
Nitrite (as N)	<0.20	DLDS	0.20	mg/L		18-DEC-19	R4951148
Sulfate in Water by IC							
Sulfate (SO4)	763	DLDS	6.0	mg/L		18-DEC-19	R4951148
Total Dissolved Solids							
Total Dissolved Solids	2040		20	mg/L		18-DEC-19	R4952826
pH by Meter (Automated)							
pH	8.02		0.10	pH		18-DEC-19	R4946057
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	<0.0060	DLDS	0.0060	mg/L		02-JAN-20	R4958761
Antimony (Sb)-Total	<0.00020	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Arsenic (As)-Total	0.00213	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Barium (Ba)-Total	0.00907	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Beryllium (Be)-Total	<0.00020	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Bismuth (Bi)-Total	<0.00010	DLDS	0.00010	mg/L		02-JAN-20	R4958761
Boron (B)-Total	0.693	DLDS	0.020	mg/L		02-JAN-20	R4958761
Cadmium (Cd)-Total	0.000018	DLDS	0.000010	mg/L		02-JAN-20	R4958761
Calcium (Ca)-Total	90.5	DLDS	0.10	mg/L		02-JAN-20	R4958761
Cesium (Cs)-Total	<0.000020	DLDS	0.000020	mg/L		02-JAN-20	R4958761
Chromium (Cr)-Total	<0.00020	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Cobalt (Co)-Total	0.00029	DLDS	0.00020	mg/L		02-JAN-20	R4958761

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2397937-1 WELL #10 SK05GF0085							
Sampled By: CLIENT on 17-DEC-19 @ 09:30							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Copper (Cu)-Total	<0.0010	DLDS	0.0010	mg/L		02-JAN-20	R4958761
Iron (Fe)-Total	1.81	DLDS	0.020	mg/L		02-JAN-20	R4958761
Lead (Pb)-Total	0.00116	DLDS	0.00010	mg/L		02-JAN-20	R4958761
Lithium (Li)-Total	0.194	DLDS	0.0020	mg/L		02-JAN-20	R4958761
Magnesium (Mg)-Total	42.7	DLDS	0.010	mg/L		02-JAN-20	R4958761
Manganese (Mn)-Total	0.0470	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Molybdenum (Mo)-Total	0.0129	DLDS	0.00010	mg/L		02-JAN-20	R4958761
Nickel (Ni)-Total	0.0159	DLDS	0.0010	mg/L		02-JAN-20	R4958761
Potassium (K)-Total	13.7	DLDS	0.10	mg/L		02-JAN-20	R4958761
Phosphorus (P)-Total	0.35	DLDS	0.10	mg/L		02-JAN-20	R4958761
Rubidium (Rb)-Total	0.00411	DLDS	0.00040	mg/L		02-JAN-20	R4958761
Selenium (Se)-Total	<0.00010	DLDS	0.00010	mg/L		02-JAN-20	R4958761
Silicon (Si)-Total	8.11	DLDS	0.20	mg/L		02-JAN-20	R4958761
Silver (Ag)-Total	<0.000020	DLDS	0.000020	mg/L		02-JAN-20	R4958761
Sodium (Na)-Total	597	DLDS	0.10	mg/L		02-JAN-20	R4958761
Strontium (Sr)-Total	0.936	DLDS	0.00040	mg/L		02-JAN-20	R4958761
Sulfur (S)-Total	271	DLDS	1.0	mg/L		02-JAN-20	R4958761
Tellurium (Te)-Total	<0.00040	DLDS	0.00040	mg/L		02-JAN-20	R4958761
Thallium (Tl)-Total	<0.000020	DLDS	0.000020	mg/L		02-JAN-20	R4958761
Thorium (Th)-Total	<0.00020	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Tin (Sn)-Total	0.00058	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Titanium (Ti)-Total	<0.00060	DLDS	0.00060	mg/L		02-JAN-20	R4958761
Tungsten (W)-Total	<0.00020	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Uranium (U)-Total	0.000158	DLDS	0.000020	mg/L		02-JAN-20	R4958761
Vanadium (V)-Total	<0.0010	DLDS	0.0010	mg/L		02-JAN-20	R4958761
Zinc (Zn)-Total	0.0104	DLDS	0.0060	mg/L		02-JAN-20	R4958761
Zirconium (Zr)-Total	<0.00040	DLDS	0.00040	mg/L		02-JAN-20	R4958761
L2397937-2 WELL #11 SK05GF0109							
Sampled By: CLIENT on 17-DEC-19 @ 09:30							
Matrix: WATER							
General Chemical							
Alkalinity by Auto. Titration							
Bicarbonate (HCO3)	447.		6.1	mg/L		18-DEC-19	R4946057
Hydroxide (OH)	<5.0		5.0	mg/L		18-DEC-19	R4946057
Carbonate (CO3)	<5.0		5.0	mg/L		18-DEC-19	R4946057
Alkalinity, Total (as CaCO3)	367		5.0	mg/L		18-DEC-19	R4946057
Cations by ICP-OES							
Calcium (Ca)	101	DLDS	5.0	mg/L	23-DEC-19	23-DEC-19	R4958320
Dissolved Metals Filtration Location	LAB	SFP				23-DEC-19	R4952945
Potassium (K)	15.0	DLDS	5.0	mg/L	23-DEC-19	23-DEC-19	R4958320
Magnesium (Mg)	46.7	DLDS	5.0	mg/L	23-DEC-19	23-DEC-19	R4958320
Sodium (Na)	630	DLDS	10	mg/L	23-DEC-19	23-DEC-19	R4958320
Chloride in Water by IC							
Chloride (Cl)	475	DLDS	10	mg/L		18-DEC-19	R4951148
Conductivity (Automated)							
Conductivity	3500		5.0	uS/cm		18-DEC-19	R4946057
Fluoride in Water by IC							
Fluoride (F)	<0.40	DLDS	0.40	mg/L		18-DEC-19	R4951148
Ion Balance Calculation							
Ion Balance	96.5			%		03-JAN-20	
Cation - Anion Balance	-1.8			%		03-JAN-20	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2397937-2 WELL #11 SK05GF0109							
Sampled By: CLIENT on 17-DEC-19 @ 09:30							
Matrix: WATER							
Ion Balance Calculation							
Computed Conductivity	3130			uS/cm		03-JAN-20	
Conductivity % Difference	-11.1			%		03-JAN-20	
TDS (Calculated)	2320			mg/L		03-JAN-20	
Anion Sum	38.0			me/L		03-JAN-20	
Cation Sum	36.7			me/L		03-JAN-20	
Saturation pH	7.08			pH		03-JAN-20	
Langelier Index	0.9					03-JAN-20	
Hardness (as CaCO3)	445			mg/L		03-JAN-20	
Nitrate in Water by IC							
Nitrate (as N)	<0.40	DLDS	0.40	mg/L		18-DEC-19	R4951148
Nitrite in Water by IC							
Nitrite (as N)	<0.20	DLDS	0.20	mg/L		18-DEC-19	R4951148
Sulfate in Water by IC							
Sulfate (SO4)	830	DLDS	6.0	mg/L		18-DEC-19	R4951148
Total Dissolved Solids							
Total Dissolved Solids	2060		20	mg/L		18-DEC-19	R4952826
pH by Meter (Automated)							
pH	7.99		0.10	pH		18-DEC-19	R4946057
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	<0.0060	DLDS	0.0060	mg/L		02-JAN-20	R4958761
Antimony (Sb)-Total	<0.00020	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Arsenic (As)-Total	0.00242	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Barium (Ba)-Total	0.0102	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Beryllium (Be)-Total	<0.00020	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Bismuth (Bi)-Total	<0.00010	DLDS	0.00010	mg/L		02-JAN-20	R4958761
Boron (B)-Total	0.724	DLDS	0.020	mg/L		02-JAN-20	R4958761
Cadmium (Cd)-Total	<0.000010	DLDS	0.000010	mg/L		02-JAN-20	R4958761
Calcium (Ca)-Total	101	DLDS	0.10	mg/L		02-JAN-20	R4958761
Cesium (Cs)-Total	<0.000020	DLDS	0.000020	mg/L		02-JAN-20	R4958761
Chromium (Cr)-Total	<0.00020	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Cobalt (Co)-Total	0.00025	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Copper (Cu)-Total	<0.0010	DLDS	0.0010	mg/L		02-JAN-20	R4958761
Iron (Fe)-Total	2.11	DLDS	0.020	mg/L		02-JAN-20	R4958761
Lead (Pb)-Total	<0.00010	DLDS	0.00010	mg/L		02-JAN-20	R4958761
Lithium (Li)-Total	0.206	DLDS	0.0020	mg/L		02-JAN-20	R4958761
Magnesium (Mg)-Total	45.6	DLDS	0.010	mg/L		02-JAN-20	R4958761
Manganese (Mn)-Total	0.0564	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Molybdenum (Mo)-Total	0.0125	DLDS	0.00010	mg/L		02-JAN-20	R4958761
Nickel (Ni)-Total	<0.0010	DLDS	0.0010	mg/L		02-JAN-20	R4958761
Potassium (K)-Total	14.0	DLDS	0.10	mg/L		02-JAN-20	R4958761
Phosphorus (P)-Total	0.31	DLDS	0.10	mg/L		02-JAN-20	R4958761
Rubidium (Rb)-Total	0.00411	DLDS	0.00040	mg/L		02-JAN-20	R4958761
Selenium (Se)-Total	<0.00010	DLDS	0.00010	mg/L		02-JAN-20	R4958761
Silicon (Si)-Total	8.42	DLDS	0.20	mg/L		02-JAN-20	R4958761
Silver (Ag)-Total	<0.000020	DLDS	0.000020	mg/L		02-JAN-20	R4958761
Sodium (Na)-Total	644	DLDS	0.10	mg/L		02-JAN-20	R4958761
Strontium (Sr)-Total	0.996	DLDS	0.00040	mg/L		02-JAN-20	R4958761
Sulfur (S)-Total	300	DLDS	1.0	mg/L		02-JAN-20	R4958761
Tellurium (Te)-Total	<0.00040	DLDS	0.00040	mg/L		02-JAN-20	R4958761
Thallium (Tl)-Total	<0.000020	DLDS	0.000020	mg/L		02-JAN-20	R4958761
Thorium (Th)-Total	<0.00020	DLDS	0.00020	mg/L		02-JAN-20	R4958761

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2397937-2 WELL #11 SK05GF0109							
Sampled By: CLIENT on 17-DEC-19 @ 09:30							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Tin (Sn)-Total	<0.00020	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Titanium (Ti)-Total	<0.00060	DLDS	0.00060	mg/L		02-JAN-20	R4958761
Tungsten (W)-Total	<0.00020	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Uranium (U)-Total	0.000188	DLDS	0.000020	mg/L		02-JAN-20	R4958761
Vanadium (V)-Total	<0.0010	DLDS	0.0010	mg/L		02-JAN-20	R4958761
Zinc (Zn)-Total	0.0112	DLDS	0.0060	mg/L		02-JAN-20	R4958761
Zirconium (Zr)-Total	<0.00040	DLDS	0.00040	mg/L		02-JAN-20	R4958761
L2397937-3 DISTRIBUTION SK05GF0003							
Sampled By: CLIENT on 17-DEC-19 @ 09:30							
Matrix: WATER							
General Chemical							
Alkalinity by Auto. Titration							
Bicarbonate (HCO3)	436.		6.1	mg/L		18-DEC-19	R4946057
Hydroxide (OH)	<5.0		5.0	mg/L		18-DEC-19	R4946057
Carbonate (CO3)	<5.0		5.0	mg/L		18-DEC-19	R4946057
Alkalinity, Total (as CaCO3)	357		5.0	mg/L		18-DEC-19	R4946057
Cations by ICP-OES							
Calcium (Ca)	99.2	DLDS	5.0	mg/L	23-DEC-19	23-DEC-19	R4958320
Dissolved Metals Filtration Location	LAB	SFP				23-DEC-19	R4952945
Potassium (K)	15.0	DLDS	5.0	mg/L	23-DEC-19	23-DEC-19	R4958320
Magnesium (Mg)	45.6	DLDS	5.0	mg/L	23-DEC-19	23-DEC-19	R4958320
Sodium (Na)	629	DLDS	10	mg/L	23-DEC-19	23-DEC-19	R4958320
Chloride in Water by IC							
Chloride (Cl)	497	DLDS	10	mg/L		18-DEC-19	R4951148
Conductivity (Automated)							
Conductivity	3510		5.0	uS/cm		18-DEC-19	R4946057
Fluoride in Water by IC							
Fluoride (F)	<0.40	DLDS	0.40	mg/L		18-DEC-19	R4951148
Ion Balance Calculation							
Ion Balance	96.0			%		03-JAN-20	
Cation - Anion Balance	-2.0			%		03-JAN-20	
Computed Conductivity	3130			uS/cm		03-JAN-20	
Conductivity % Difference	-11.5			%		03-JAN-20	
TDS (Calculated)	2310			mg/L		03-JAN-20	
Anion Sum	37.9			me/L		03-JAN-20	
Cation Sum	36.4			me/L		03-JAN-20	
Saturation pH	7.10			pH		03-JAN-20	
Langelier Index	0.9					03-JAN-20	
Hardness (as CaCO3)	435			mg/L		03-JAN-20	
Nitrate in Water by IC							
Nitrate (as N)	<0.40	DLDS	0.40	mg/L		18-DEC-19	R4951148
Nitrite in Water by IC							
Nitrite (as N)	<0.20	DLDS	0.20	mg/L		18-DEC-19	R4951148
Sulfate in Water by IC							
Sulfate (SO4)	806	DLDS	6.0	mg/L		18-DEC-19	R4951148
Total Dissolved Solids							
Total Dissolved Solids	2010		20	mg/L		18-DEC-19	R4952826
pH by Meter (Automated)							
pH	7.97		0.10	pH		18-DEC-19	R4946057
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	<0.0060	DLDS	0.0060	mg/L		02-JAN-20	R4958761

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2397937-3 DISTRIBUTION SK05GF0003							
Sampled By: CLIENT on 17-DEC-19 @ 09:30							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Antimony (Sb)-Total	<0.00020	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Arsenic (As)-Total	0.00054	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Barium (Ba)-Total	0.00773	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Beryllium (Be)-Total	<0.00020	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Bismuth (Bi)-Total	<0.00010	DLDS	0.00010	mg/L		02-JAN-20	R4958761
Boron (B)-Total	0.716	DLDS	0.020	mg/L		02-JAN-20	R4958761
Cadmium (Cd)-Total	<0.000010	DLDS	0.000010	mg/L		02-JAN-20	R4958761
Calcium (Ca)-Total	96.9	DLDS	0.10	mg/L		02-JAN-20	R4958761
Cesium (Cs)-Total	<0.000020	DLDS	0.000020	mg/L		02-JAN-20	R4958761
Chromium (Cr)-Total	<0.00020	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Cobalt (Co)-Total	0.00027	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Copper (Cu)-Total	0.0359	DLDS	0.0010	mg/L		02-JAN-20	R4958761
Iron (Fe)-Total	0.067	DLDS	0.020	mg/L		02-JAN-20	R4958761
Lead (Pb)-Total	<0.00010	DLDS	0.00010	mg/L		02-JAN-20	R4958761
Lithium (Li)-Total	0.198	DLDS	0.0020	mg/L		02-JAN-20	R4958761
Magnesium (Mg)-Total	45.8	DLDS	0.010	mg/L		02-JAN-20	R4958761
Manganese (Mn)-Total	0.0143	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Molybdenum (Mo)-Total	0.0127	DLDS	0.00010	mg/L		02-JAN-20	R4958761
Nickel (Ni)-Total	<0.0010	DLDS	0.0010	mg/L		02-JAN-20	R4958761
Potassium (K)-Total	14.4	DLDS	0.10	mg/L		02-JAN-20	R4958761
Phosphorus (P)-Total	<0.10	DLDS	0.10	mg/L		02-JAN-20	R4958761
Rubidium (Rb)-Total	0.00414	DLDS	0.00040	mg/L		02-JAN-20	R4958761
Selenium (Se)-Total	<0.00010	DLDS	0.00010	mg/L		02-JAN-20	R4958761
Silicon (Si)-Total	8.11	DLDS	0.20	mg/L		02-JAN-20	R4958761
Silver (Ag)-Total	<0.000020	DLDS	0.000020	mg/L		02-JAN-20	R4958761
Sodium (Na)-Total	672	DLDS	0.10	mg/L		02-JAN-20	R4958761
Strontium (Sr)-Total	1.00	DLDS	0.00040	mg/L		02-JAN-20	R4958761
Sulfur (S)-Total	287	DLDS	1.0	mg/L		02-JAN-20	R4958761
Tellurium (Te)-Total	<0.00040	DLDS	0.00040	mg/L		02-JAN-20	R4958761
Thallium (Tl)-Total	<0.000020	DLDS	0.000020	mg/L		02-JAN-20	R4958761
Thorium (Th)-Total	<0.00020	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Tin (Sn)-Total	<0.00020	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Titanium (Ti)-Total	<0.00060	DLDS	0.00060	mg/L		02-JAN-20	R4958761
Tungsten (W)-Total	<0.00020	DLDS	0.00020	mg/L		02-JAN-20	R4958761
Uranium (U)-Total	0.000175	DLDS	0.000020	mg/L		02-JAN-20	R4958761
Vanadium (V)-Total	<0.0010	DLDS	0.0010	mg/L		02-JAN-20	R4958761
Zinc (Zn)-Total	<0.0060	DLDS	0.0060	mg/L		02-JAN-20	R4958761
Zirconium (Zr)-Total	<0.00040	DLDS	0.00040	mg/L		02-JAN-20	R4958761

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
SFP	Sample was Filtered and Preserved at the laboratory

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-PCT-SK	Water	Alkalinity by Auto. Titration	APHA 2320 Alkalinity

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

CL-IC-N-SK	Water	Chloride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

EC-PCT-SK	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

ETL-ROUTINE-ICP-SK	Water	Cations by ICP-OES	APHA 3120 B-ICP-OES-ROU

This procedure involves preliminary filtration through a 0.45 um filter followed by instrumental analysis using inductively coupled plasma optical emission spectroscopy (ICP-OES).

F-IC-N-SK	Water	Fluoride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

IONBALANCE-OP03-SK	Water	Ion Balance Calculation	APHA 1030-E
MET-T-CCMS-SK	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)

This procedure involves preliminary digestion with concentrated nitric acid followed by instrumental analysis using collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A).

NO2-IC-N-SK	Water	Nitrite in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-N-SK	Water	Nitrate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

PH-PCT-SK	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

SO4-IC-N-SK	Water	Sulfate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

TDS-SK	Water	Total Dissolved Solids	APHA 2540 C

An aliquot of sample is filtered using a glass fibre filter and the filtrate evaporated to dryness at 180 – 2□C in a pre-weighed dish. The dish plus residue is cooled and weighed to constant weight. Total dissolved solids (TDS) is determined by difference.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
SK	ALS ENVIRONMENTAL - SASKATOON, SASKATCHEWAN, CANADA

Chain of Custody Numbers:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

ALS Environmental

Quality Control Report

Workorder: L2397937 Report Date: 03-JAN-20

Client: TOWN OF SHELLBROOK
71 Main Street PO Box 40
Shellbrook SK S0J 2E0

Contact: Shalene Boyko

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-PCT-SK	Water							
Batch R4946057								
WG3245739-2 LCS		**PCT**						
Alkalinity, Total (as CaCO3)			100.8		%		85-115	18-DEC-19
WG3245739-3 MB								
Alkalinity, Total (as CaCO3)			<5.0		mg/L		5	18-DEC-19
CL-IC-N-SK	Water							
Batch R4951148								
WG3245502-3 LCS								
Chloride (Cl)			101.0		%		90-110	18-DEC-19
WG3245502-2 MB								
Chloride (Cl)			<0.50		mg/L		0.5	18-DEC-19
WG3245502-4 MS		**L2397937-2**						
Chloride (Cl)			N/A	MS-B	%		-	18-DEC-19
EC-PCT-SK	Water							
Batch R4946057								
WG3245739-2 LCS		**PCT**						
Conductivity			98.6		%		90-110	18-DEC-19
WG3245739-3 MB								
Conductivity			<5.0		uS/cm		5	18-DEC-19
ETL-ROUTINE-ICP-SK	Water							
Batch R4958320								
WG3246128-2 DUP		**L2397937-3**						
Calcium (Ca)		99.2	99.7		mg/L	0.5	20	23-DEC-19
Potassium (K)		15.0	15.0		mg/L	0.3	20	23-DEC-19
Magnesium (Mg)		45.6	46.0		mg/L	0.8	20	23-DEC-19
Sodium (Na)		629	632		mg/L	0.4	20	23-DEC-19
WG3246128-3 LCS								
Calcium (Ca)			100.6		%		80-120	23-DEC-19
Potassium (K)			99.4		%		80-120	23-DEC-19
Magnesium (Mg)			100.1		%		80-120	23-DEC-19
Sodium (Na)			104.8		%		80-120	23-DEC-19
WG3246128-1 MB								
Calcium (Ca)			<1.0		mg/L		1	23-DEC-19
Potassium (K)			<1.0		mg/L		1	23-DEC-19
Magnesium (Mg)			<1.0		mg/L		1	23-DEC-19
Sodium (Na)			<2.0		mg/L		2	23-DEC-19
F-IC-N-SK	Water							

ALS Environmental

Quality Control Report

Workorder: L2397937 Report Date: 03-JAN-20

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F-IC-N-SK	Water							
Batch R4951148								
WG3245502-3 LCS								
Fluoride (F)			100.7		%		90-110	18-DEC-19
WG3245502-2 MB								
Fluoride (F)			<0.020		mg/L		0.02	18-DEC-19
WG3245502-4 MS		**L2397937-2**						
Fluoride (F)			79.8		%		75-125	18-DEC-19
MET-T-CCMS-SK	Water							
Batch R4958761								
WG3248093-3 CRM		**TMRM_20**						
Aluminum (Al)-Total			105.1		%		80-120	02-JAN-20
Antimony (Sb)-Total			105.5		%		80-120	02-JAN-20
Arsenic (As)-Total			107.3		%		80-120	02-JAN-20
Barium (Ba)-Total			106.7		%		80-120	02-JAN-20
Beryllium (Be)-Total			102.6		%		80-120	02-JAN-20
Bismuth (Bi)-Total			105.5		%		80-120	02-JAN-20
Boron (B)-Total			92.3		%		80-120	02-JAN-20
Cadmium (Cd)-Total			101.8		%		80-120	02-JAN-20
Calcium (Ca)-Total			103.3		%		80-120	02-JAN-20
Cesium (Cs)-Total			99.4		%		80-120	02-JAN-20
Chromium (Cr)-Total			105.3		%		80-120	02-JAN-20
Cobalt (Co)-Total			104.0		%		80-120	02-JAN-20
Copper (Cu)-Total			98.5		%		80-120	02-JAN-20
Iron (Fe)-Total			107.9		%		80-120	02-JAN-20
Lead (Pb)-Total			103.2		%		80-120	02-JAN-20
Lithium (Li)-Total			106.5		%		80-120	02-JAN-20
Magnesium (Mg)-Total			102.4		%		80-120	02-JAN-20
Manganese (Mn)-Total			105.6		%		80-120	02-JAN-20
Molybdenum (Mo)-Total			103.9		%		80-120	02-JAN-20
Nickel (Ni)-Total			103.5		%		80-120	02-JAN-20
Potassium (K)-Total			108.0		%		80-120	02-JAN-20
Phosphorus (P)-Total			106.5		%		70-130	02-JAN-20
Rubidium (Rb)-Total			110.9		%		80-120	02-JAN-20
Selenium (Se)-Total			98.1		%		80-120	02-JAN-20
Silicon (Si)-Total			105.4		%		60-140	02-JAN-20
Silver (Ag)-Total			100.1		%		80-120	02-JAN-20
Sodium (Na)-Total			104.5		%		80-120	02-JAN-20

ALS Environmental

Quality Control Report

Workorder: L2397937 Report Date: 03-JAN-20

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-SK	Water							
Batch R4958761								
WG3248093-3 CRM		**TMRM_20**						
Strontium (Sr)-Total			102.4		%		80-120	02-JAN-20
Sulfur (S)-Total			95.6		%		80-120	02-JAN-20
Tellurium (Te)-Total			105.0		%		80-120	02-JAN-20
Thallium (Tl)-Total			102.5		%		80-120	02-JAN-20
Thorium (Th)-Total			101.1		%		80-120	02-JAN-20
Tin (Sn)-Total			100.2		%		80-120	02-JAN-20
Titanium (Ti)-Total			105.4		%		80-120	02-JAN-20
Tungsten (W)-Total			108.8		%		80-120	02-JAN-20
Uranium (U)-Total			105.8		%		80-120	02-JAN-20
Vanadium (V)-Total			106.8		%		80-120	02-JAN-20
Zinc (Zn)-Total			95.9		%		80-120	02-JAN-20
Zirconium (Zr)-Total			101.7		%		80-120	02-JAN-20
WG3248093-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	02-JAN-20
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	02-JAN-20
Arsenic (As)-Total			<0.00010		mg/L		0.0001	02-JAN-20
Barium (Ba)-Total			<0.00010		mg/L		0.0001	02-JAN-20
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	02-JAN-20
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	02-JAN-20
Boron (B)-Total			<0.010		mg/L		0.01	02-JAN-20
Cadmium (Cd)-Total			<0.000005(		mg/L		0.000005	02-JAN-20
Calcium (Ca)-Total			<0.050		mg/L		0.05	02-JAN-20
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	02-JAN-20
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	02-JAN-20
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	02-JAN-20
Copper (Cu)-Total			<0.00050		mg/L		0.0005	02-JAN-20
Iron (Fe)-Total			<0.010		mg/L		0.01	02-JAN-20
Lead (Pb)-Total			<0.000050		mg/L		0.00005	02-JAN-20
Lithium (Li)-Total			<0.0010		mg/L		0.001	02-JAN-20
Magnesium (Mg)-Total			0.0257	B	mg/L		0.005	02-JAN-20
Manganese (Mn)-Total			0.00020	B	mg/L		0.0001	02-JAN-20
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	02-JAN-20
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	02-JAN-20
Potassium (K)-Total			<0.050		mg/L		0.05	02-JAN-20

ALS Environmental

Quality Control Report

Workorder: L2397937 Report Date: 03-JAN-20

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-SK	Water							
Batch R4958761								
WG3248093-1 MB								
Phosphorus (P)-Total			<0.050		mg/L		0.05	02-JAN-20
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	02-JAN-20
Selenium (Se)-Total			<0.000050		mg/L		0.00005	02-JAN-20
Silicon (Si)-Total			<0.10		mg/L		0.1	02-JAN-20
Silver (Ag)-Total			<0.000010		mg/L		0.00001	02-JAN-20
Sodium (Na)-Total			0.063	B	mg/L		0.05	02-JAN-20
Strontium (Sr)-Total			0.00021	B	mg/L		0.0002	02-JAN-20
Sulfur (S)-Total			<0.50		mg/L		0.5	02-JAN-20
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	02-JAN-20
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	02-JAN-20
Thorium (Th)-Total			<0.00010		mg/L		0.0001	02-JAN-20
Tin (Sn)-Total			<0.00010		mg/L		0.0001	02-JAN-20
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	02-JAN-20
Tungsten (W)-Total			<0.00010		mg/L		0.0001	02-JAN-20
Uranium (U)-Total			<0.000010		mg/L		0.00001	02-JAN-20
Vanadium (V)-Total			<0.00050		mg/L		0.0005	02-JAN-20
Zinc (Zn)-Total			<0.0030		mg/L		0.003	02-JAN-20
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	02-JAN-20
NO2-IC-N-SK	Water							
Batch R4951148								
WG3245502-3 LCS								
Nitrite (as N)			100.2		%		90-110	18-DEC-19
WG3245502-2 MB								
Nitrite (as N)			<0.010		mg/L		0.01	18-DEC-19
WG3245502-4 MS		**L2397937-2**						
Nitrite (as N)			95.7		%		75-125	18-DEC-19
NO3-IC-N-SK	Water							
Batch R4951148								
WG3245502-3 LCS								
Nitrate (as N)			101.1		%		90-110	18-DEC-19
WG3245502-2 MB								
Nitrate (as N)			<0.020		mg/L		0.02	18-DEC-19
WG3245502-4 MS		**L2397937-2**						
Nitrate (as N)			101.6		%		75-125	18-DEC-19
PH-PCT-SK	Water							

ALS Environmental

Quality Control Report

Workorder: L2397937 Report Date: 03-JAN-20

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-PCT-SK	Water							
Batch R4946057								
WG3245739-2 LCS		**PCT**						
pH			6.86		pH		6.76-6.96	18-DEC-19
SO4-IC-N-SK	Water							
Batch R4951148								
WG3245502-3 LCS								
Sulfate (SO4)			105.5		%		90-110	18-DEC-19
WG3245502-2 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	18-DEC-19
WG3245502-4 MS		**L2397937-2**						
Sulfate (SO4)			N/A	MS-B	%		-	18-DEC-19
TDS-SK	Water							
Batch R4952826								
WG3245223-3 LCS		**41-SOLIDS-TDS_LCS**						
Total Dissolved Solids			102.1		%		85-115	18-DEC-19
WG3245223-1 MB								
Total Dissolved Solids			<10		mg/L		10	18-DEC-19

Quality Control Report

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH by Meter (Automated)							
	1	17-DEC-19 09:30	18-DEC-19 17:00	0.25	31	hours	EHTR-FM
	2	17-DEC-19 09:30	18-DEC-19 17:00	0.25	31	hours	EHTR-FM
	3	17-DEC-19 09:30	18-DEC-19 17:00	0.25	31	hours	EHTR-FM

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2397937 were received on 18-DEC-19 09:15.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes 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 pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

Chain of Custody (COC) / Analytical Request Form

L2397937-COFC

COC Number: 17 - 737569

Page of

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company:	Town of Shellbrook
Contact:	Kelly Hoare
Phone:	306-747-4900
	Company address below will appear on the final report
Street:	71 Main Street
City/Province:	Shellbrook, SK
Postal Code:	S0J 2E0
Invoice To	Same as Report To ☐ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: ☑ PDF ☐ EXCEL ☐ EDD (DIGITAL)

Quality Control (QC) Report with Report ☐ YES ☐ NO

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

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax townoffice@townofshellbrook.ca

Email 2 townshop@sasktel.net

Email 3

Invoice Distribution

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax townoffice@townofshellbrook.ca

Email 2

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#

Major/Minor Code: Routing Code:

Requisitioner:

Location:

Project Information

ALS Account # / Quote #: 25689

Job #: Sewage Works Effluent, Monthly

PO / AFE:

LSD: Station#: SK05GF0100

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

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

PRIORITY (Business Days): 4 day [P4-20%] ☐ 3 day [P3-25%] ☐ 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E - 100%] ☐ Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

ALS Lab Work Order # (lab use only):

ALS Contact:

Sampler:

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	General Chemical	Metals	Both for Annual Notice to Consumers for WSA	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	Well #10 SK05GF0085	Dec 17/19	930am	water	2	X	X			
	Well # 11 SK05GF0109	Dec 17/19	930am	water	2	X	X			
	Distribution SK05GF0003	Dec 17/19	930am	water	2	X	X			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☒ YES ☐ NO

Are samples for human consumption/ use? ☒ YES ☐ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
8c							

SHIPMENT RELEASE (client use)

Released by: MT Date: Dec 17/19 Time: 930

INITIAL SHIPMENT RECEPTION (lab use only)

Received by: NM Date: 18/12/19 Time: 9:15

FINAL SHIPMENT RECEPTION (lab use only)

Received by: NM Date: Time: 9:15

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 FRONT

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

TOWN OF SHELLBROOK
ATTN: Shalene Boyko
71 Main Street
PO Box 40
Shellbrook SK S0J 2E0

Date Received: 21-JAN-20
Report Date: 23-JAN-20 14:45 (MT)
Version: FINAL

Client Phone: 306-747-4900

Certificate of Analysis

Lab Work Order #: L2407400

Project P.O. #:	STATION# SK05GF0003
Job Reference:	WATERWORKS WEEEKLY - BROMATE
C of C Numbers:	
Legal Site Desc:	STATION# SK05GF0003

Kimberley Head, B.Sc.
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2407400-1 SK05GF0003 WATER PLANT - BROMATE							
Sampled By: CLIENT on 20-JAN-20 @ 10:50							
Matrix: WATER							
Miscellaneous Parameters							
Bromate	4.5	DLM	3.0	ug/L	23-JAN-20	23-JAN-20	R4976649

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BROMATE-ONT-DW-WT	Water	Bromate in Water by LC/MS-MS	EPA 6850

An aliquot of sample is spiked with 18O-BrO3 internal standard and analyzed by LC/MS/MS.

This test procedure does not incorporate EDA preservation for bromate. Unpreserved bromate in water is stable for at least the 28 day recommended hold time, but samples that contain free chlorine or ozone could form additional bromate after the time of sampling (EPA 300.0 and 300.1).

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

ALS Environmental

Quality Control Report

Workorder: L2407400 Report Date: 23-JAN-20

Client: TOWN OF SHELLBROOK
71 Main Street PO Box 40
Shellbrook SK S0J 2E0

Contact: Shalene Boyko

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BROMATE-ONT-DW-WT	Water							
Batch	**R4976649**							
WG3262290-2	**LCS**							
Bromate			103.0		%		70-130	23-JAN-20
WG3262290-1	**MB**							
Bromate			<0.30		ug/L		0.3	23-JAN-20

Quality Control Report

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes 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 pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

ALS Environmental

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Chain of Custody (COC) / Analytic Request Form

Canada Toll Free: 1 800 668 9878

L2407400-COFC

COC Number: 15 -

Page of

Report To	Contact and company name below will appear on the final report
Company:	Town of Shellbrook
Contact:	Kelly Hoare
Phone:	306-747-4900
	Company address below will appear on the final report
Street:	71 Main Street
City/Province:	Shellbrook, SK
Postal Code:	S0J 2E0
Invoice To	Same as Report To ☑ NO
	Copy of Invoice with Report ☑ NO
Company:	Town of Shellbrook
Contact:	

Report I

Select Report Format: ☑ PDF ☐ EXCEL ☐ EDD (DIGITAL)

Quality Control (QC) Report with Report ☑ NO

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

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax townoffice@townofshellbrook.ca

Email 2 townshop@sasktel.net

Email 3

Invoice Distribution

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax townoffice@townofshellbrook.ca

Email 2

confirm all E&P TATs with your AM - surcharges will apply

Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days)			EMERGENCY		
	4 day [P4]	☐		1 Business day [E1]	☐
	3 day [P3]	☐		Same Day, Weekend or Statutory holiday [E0]	☐
	2 day [P2]	☐			

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #:	25689
Job #:	Waterworks Weekly
PO / AFE:	Station #: SK05GF0003
LSD:	

Oil and Gas Required Fields (client use)

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

ALS Lab Work Order # (lab use only):

ALS Contact: Lyndsay Hinrichsen

Sampler:

Analysis Request

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Bromate (P)	Free Chlorine (mg/L) WTP Field Data	Total Chlorine (mg/L) WTP Field Data	Turbidity (NTU) WTP Field Data	Number of Containers
	SK05G-F0003 Water Plant - Bromate	20/01/20	10:55						

Reason for Analysis

ROUTINE ☑ REPEAT ☐ SPECIAL ☐ OTHER ☐

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☑ NO

Are samples for human drinking water use? ☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
8					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Dale Johnson	Date: Jan 20/20	Time: 10:55	Received by: NK	Date: 21/1/2020	Time: 8:00	Received by: NK	Date:	Time: 8:30

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY OCTOBER 2015 FRONT

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

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

O:\Town\Time Sheets\2018\Admin\Sigourney\January - December 2018.xlsx

TOWN OF SHELLBROOK
ATTN: Shalene Boyko
71 Main Street
PO Box 40
Shellbrook SK S0J 2E0

Date Received: 11-FEB-20
Report Date: 14-FEB-20 11:07 (MT)
Version: FINAL

Client Phone: 306-747-4900

Certificate of Analysis

Lab Work Order #: L2415503

Project P.O. #:	NOT SUBMITTED
Job Reference:	WATERWORKS WTP
C of C Numbers:	
Legal Site Desc:	STATION #: SK05GF0003

Kimberley Head, B.Sc.
Account Manager

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ADDRESS: #819-58th St E., Saskatoon, SK S7K 6X5 Canada | Phone: +1 306 668 8370 | Fax: +1 306 668 8383
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Environmental
www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2415503-1 SK05GF0003							
Sampled By: CLIENT on 10-FEB-20 @ 09:30							
Matrix: WATER							
Miscellaneous Parameters							
Chlorate	0.835		0.050	mg/L		13-FEB-20	R4996423
Chlorite	<0.050		0.050	mg/L		13-FEB-20	R4996423

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
CHLORATE-IC-WT	Water	Chlorate by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

CHLORITE-IC-WT	Water	Chlorite by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

ALS Environmental

Quality Control Report

Workorder: L2415503 Report Date: 14-FEB-20

Client: TOWN OF SHELLBROOK
71 Main Street PO Box 40
Shellbrook SK S0J 2E0

Contact: Shalene Boyko

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CHLORATE-IC-WT	Water							
Batch R4996423								
WG3274973-3 DUP		**L2415503-1**						
Chlorate		0.835	0.848		mg/L	1.5	20	13-FEB-20
WG3274973-2 LCS								
Chlorate			101.0		%		85-115	13-FEB-20
WG3274973-1 MB								
Chlorate			<0.050		mg/L		0.05	13-FEB-20
WG3274973-4 MS		**L2415503-1**						
Chlorate			93.7		%		75-125	13-FEB-20
CHLORITE-IC-WT	Water							
Batch R4996423								
WG3274973-3 DUP		**L2415503-1**						
Chlorite		<0.050	<0.050	RPD-NA	mg/L	N/A	20	13-FEB-20
WG3274973-2 LCS								
Chlorite			103.2		%		85-115	13-FEB-20
WG3274973-1 MB								
Chlorite			<0.050		mg/L		0.05	13-FEB-20
WG3274973-4 MS		**L2415503-1**						
Chlorite			91.0		%		75-125	13-FEB-20

Quality Control Report

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes 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 pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

Chain of Custody (COC) / Analytical Request Form

ALS ENVIRONMENTAL

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2415503-COFC

COC Number: 15 -

Page of

Report To	Contact and company name below will appear on the final report
Company:	Town of Shellbrook
Contact:	Kelly Hoare
Phone:	306-747-4900
	Company address below will appear on the final report
Street:	71 Main Street
City/Province:	Shellbrook, SK
Postal Code:	S0J 2E0
Invoice To	Same as Report To ☑ ☐ NO
	Copy of Invoice with Report ☑ ☐ NO
Company:	Town of Shellbrook
Contact:	

Report Format / ...

Select Report Format: ☑ ☐ EXCEL ☐ EDD (DIGITAL)

Quality Control (QC) Report with Report ☑ ☐ NO

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

Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax townoffice@townofshellbrook.ca

Email 2 townshop@sasktel.net

Email 3

Invoice Distribution

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax townoffice@townofshellbrook.ca

Email 2

...l E&P TATs with your AM - surcharges will apply

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

PRIORITY (Business Days)		EMERGENCY	
	4 day [P4] ☐		1 Business day [E1] ☐
	3 day [P3] ☐		Same Day, Weekend or Statutory holiday [E0] ☐
	2 day [P2] ☐		

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #:	25689
Job #:	Waterworks WTP - ~~Monthly~~
PO / AFE:	Station #: SK05GF0003 Distribution
LSD:	
ALS Lab Work Order # (lab use only)	

Oil and Gas Required Fields (client use)

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

Analysis Request

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

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	~~Bromate~~ P	Chlorite	Chlorate									Number of Containers
		Feb 10/20	930am	water		X	X									
	SK05G-F0003															

Reason for Analysis

ROUTINE ☒ REPEAT ☐ SPECIAL ☐ OTHER ☐

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☑ ☐ NO

Are samples for human drinking water use? ☑ ☐ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
10c					

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date: Feb 10/20	Time: 930am	Received by:	Date: 11/2/2020	Time: 9:00	Received by:	Date:	Time: 9:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

OCTOBER 2015 FRONT

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

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