

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

Saskatchewan Environment (SE) 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 2016 time period. This report was completed on September 13, 2017 (*must be completed before June 30 each year on a calendar year based reporting frequency*). Readers should refer to SE's "Municipal Drinking Water Quality Monitoring Guidelines, November 2002, EPB 202" for more information on minimum sample submission requirements. 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/hecs-sesc/water/dwqsupp.htm>.

**Water Quality Standards
Bacteriological Quality**

Parameter/Location	Limit	Regular Samples Required	Regular Samples Submitted	# of Positive Regular Submitted (Percentage)
Total Coliform and Background Bacteria	0 Organisms/100 mg/L Less than 200 Organisms/100 mL	52	52	0 (0%)

The owner/operator is responsible to ensure that 100 per cent of all bacteriological samples are submitted as required. All waterworks are required to submit samples for bacteriological water quality; the frequency of monitoring depends on the population served by the waterworks.

Water Disinfection

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

Parameter	Minimum Limit (mg/L)	Free Chlorine Residual Range	Total Chlorine Residual Range	# Tests Required	# Tests Submitted	# Adequate Chlorine (Percentage)
Chlorine Residual	0.1 mg/L free OR 0.5 mg/L total	0.14-1.79 mg/l	0.44-2.44 mg/l	52	52	52 (100%)

A minimum of 0.1 milligrams per litre (mg/L) free chlorine residual OR 0.5 mg/L total chlorine residual is required at all times throughout the distribution system unless otherwise approved. A proper chlorine submission is defined as a bacteriological sample submission form with both the free and total chlorine residual fields filled out. An adequate chlorine is a result that indicates that the chlorine level is above the regulated minimums. An adequate chlorine may be counted even if the chlorine results were submitted incorrectly. A waterworks is required to submit chlorine residual test results on every bacteriological sample they submit.

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	0.14-4.20	676	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 NTU	0.06-0.28 NTU	0	0.28	365	393

Turbidity is a measure of water treatment efficiency. Turbidity measures the “clarity” of the drinking water and is generally reported in Nephelometric Turbidity Units (NTU). All waterworks are required to monitor turbidity at the water treatment plant. The frequency of measurement varies from daily for small systems to continuous for larger waterworks.

Chemical – Health Category

Parameter	Limit MAC (mg/L)	Limit IMAC (mg/L)	Sample Results	# Samples Exceeding MAC/IMAC	# Samples Required	# Samples Submitted
Arsenic	0.025		0.0005	0	1	1
Barium	1.0		0.0076	0	1	1
Boron		5.0	0.59	0	1	1
Cadmium	0.005		<0.00002	0	1	1
Chromium	0.05		<0.0005	0	1	1
Fluoride (avg. *)	1.5		0.17	0	1	1
Lead	0.01		<0.0001	0	1	1
Nitrate (avg. *)	45.0		0.22	0	1	1
Selenium	0.01		0.0001	0	1	1
Uranium	0.02		0.0002	0	1	1

Substances within the chemical health category may be naturally occurring in drinking water sources or may be the result of human activities. These substances may represent a long-term health risk if the Maximum Acceptable Concentration (MAC) or Interim Maximum Acceptable Concentration (IMAC) is exceeded. All drinking water supplies are required to monitor for substances in the Chemical-Health category, the frequency of monitoring depends on the population served by the waterworks. Some waterworks will add fluoride to drinking water as a means to aid in the prevention of dental decay.

Chemical – Trihalomethanes

Parameter	Limit IMAC (mg/L)	Sample Result (average)	# Samples Required	# Samples Required
Trihalomethanes (THMs)	0.1	N/A	N/A	N/A

THMs are generated during the water disinfection process as a by-product of reactions between chlorine and organic material. THMs generally found only in drinking water obtained from surface water supplies. THMs are to be monitored on a quarterly basis and the IMAC result is expressed as an average of 4 quarterly samples. Only water supplies derived from surface water or groundwater under the influence of surface water are required to monitor for THMs.

General Chemical

Parameter	Aesthetic Objectives* (mg/L)	Sample Results (average)	# Samples Required	# Samples Submitted
Alkalinity	500	<u>358</u>	1	1
Bicarbonate	No Objective	<u>437</u>	1	1
Calcium	No Objective	<u>93</u>	1	1
Carbonate Chloride	No Objective	<u><1</u>	1	1
Conductivity	250	<u>515</u>	1	1
Hardness	No Objective	<u>3460</u>	1	1
Magnesium	800	<u>409</u>	1	1
PH	200	<u>43</u>	1	1
Sodium	No Objective	<u>7.75</u>	1	1
Sulphate	300	<u>579</u>	1	1
	500	<u>720</u>	1	1
Total dissolved solids	1500	<u>2260</u>	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 or 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 in 2016 and submitted on Jan 27, 2016. Samples exceeded provincial aesthetic objectives for the General Chemical category for the following parameters: *Total dissolved solids, chloride, sodium and sulphate.*

*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 CaCO₃, 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)

(Note: This form may be used for communities or waterworks serving a population of less than 5000 persons.)
 March 2005 EPB 236C

Town of Shellbrook
 54 Main St
 Box 40
 Shellbrook, SK S0J 2E0
 Attn: Mike Tanchuk
 Date Samples Received: Jan-27-2016

Client P.O.:

2210 SK05GF0008 01/27/2016 TOWN OF SHELLBROOK - DEEP WELL #10 *WATER*
 2211 SK05GF0109 01/27/2016 TOWN OF SHELLBROOK - DEEP WELL #11 *WATER*

Analyte	Units	2210	2211
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Inorganic Chemistry

Analyte	Units	2210	2211
Bicarbonate	mg/L	451	444
Carbonate	mg/L	<1	<1
Chloride	mg/L	459	473
Hydroxide	mg/L	<1	<1
P. alkalinity	mg/L	<1	<1
pH	pH units	7.81	7.79
Specific conductivity	uS/cm	3290	3470
Sum of ions	mg/L	2290	2370
Total alkalinity	mg/L	370	364
Total hardness	mg/L	400	424
Nitrate	mg/L	<0.04	<0.04
Fluoride	mg/L	0.17	0.17
Total dissolved solids	mg/L	2130	2240

ICP

Analyte	Units	2210	2211
Calcium	mg/L	91	96
Magnesium	mg/L	42	45
Potassium	mg/L	13	13
Sodium	mg/L	540	567
Sulfate	mg/L	690	730
Aluminum	mg/L	0.0006	0.0013
Arsenic	ug/L	2.2	2.7
Barium	mg/L	0.0091	0.010
Boron	mg/L	0.58	0.62
Cadmium	mg/L	0.00001	0.00003
Chromium	mg/L	<0.0005	<0.0005
Copper	mg/L	0.0018	0.0016
Iron	mg/L	1.73	2.00
Lead	mg/L	0.0001	0.0016
Manganese	mg/L	0.044	0.056
Selenium	mg/L	0.0001	0.0001

Town of Shellbrook

2210	SK05GF008 01/27/2016 TOWN OF SHELLBROOK - DEEP WELL #10 *WATER*
2211	SK05GF0109 01/27/2016 TOWN OF SHELLBROOK - DEEP WELL #11 *WATER*

Analyte	Units
2210	2210
2211	2211

ICP	Analyte	Units	Value
Uranium	2210	ug/L	0.2
Zinc	2210	mg/L	0.0054
	2211		0.10

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

SRC Group # 2016-970
 Feb 03, 2016

www.src.sk.ca/analytical

Environmental Analytical Laboratories
 102 - 422 Downey Road, Saskatoon, SK Canada S7N 4N1
 T: 306-933-6932 F: 306-933-7922
 Toll-free: 1-800-240-8808
 E: analytical@src.sk.ca



Calcium	mg/L	93
Magnesium	mg/L	43
Potassium	mg/L	13
Sodium	mg/L	579
Sulfate	mg/L	720
Aluminum	mg/L	<0.0005
Arsenic	ug/L	0.5
Barium	mg/L	0.0076
Boron	mg/L	0.59
Cadmium	mg/L	0.00002
Chromium	mg/L	<0.0005
Copper	mg/L	0.014
Iron	mg/L	0.024
Lead	mg/L	<0.0001
Manganese	mg/L	0.0074
Selenium	mg/L	0.0001

ICP

Bicarbonate	mg/L	437
Carbonate	mg/L	<1
Chloride	mg/L	515
Hydroxide	mg/L	<1
P. alkalinity	mg/L	<1
pH	pH units	7.75
Specific conductivity	uS/cm	3460
Sum of ions	mg/L	2400
Total alkalinity	mg/L	358
Total hardness	mg/L	409
Nitrate	mg/L	0.22
Fluoride	mg/L	0.17
Total dissolved solids	mg/L	2260

Inorganic Chemistry

Analyte	Units	2217
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2217 SK05GF0003 01/27/2016 TOWN OF SHELLBROOK - DISTRIBUTION WATER *WATER*

Town of Shellbrook
 54 Main St
 Box 40
 Shellbrook, SK S0J 2E0
 Attn: Mike Tanchuk
 Date Samples Received: Jan-27-2016

Client P.O.:

SRC Group # 2016-973
 Feb 03, 2016

www.src.sk.ca/analytical

Environmental Analytical Laboratories
 102 - 422 Downey Road, Saskatoon, SK Canada S7N 4N1
 T: 306-933-6932 F: 306-933-7922
 Toll-free: 1-800-240-8808
 E: analytical@src.sk.ca



Town of Shellbrook

2217 SK05GF0003 01/27/2016 TOWN OF SHELLBROOK - DISTRIBUTION WATER *WATER*

Analyte	Units	2217
ICP		
Uranium	ug/L	0.2
Zinc	mg/L	0.0035

Symbol of "<" means "less than". This indicates that it was not detected at level stated above.

SRC Group # 2016-973
Feb 03, 2016

www.src.sk.ca/analytical

Environmental Analytical Laboratories
102 - 422 Downey Road, Saskatoon, SK Canada S7N 4N1
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Toll-free: 1-800-240-8808
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Bacteriological Samples

Jan	4	11	18	25	
Feb	1	10	17	22	29
Mar	7	14	21	30	
Apr	4	11	18	27	
May	2	9	16	25	30
Jun	6	13	20	27	
Jul	4	11	20	25	
Aug	3	8	15	24	29
Sep	7	12	19	28	
Oct	3	12	17	24	31
Nov	7	14	21	28	
Dec	5	12	19	28	