Saskatchewan Ministry of Environment

Water Security Agency

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

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 Arcola's water quality and sample submission compliance record for the January 1st – December 31st, 2018 time period. This report was completed on February 18th, 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. 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 (Percentage)
Total Coliform	0 Organisms/100 mg/L	52	51 (98%)	0 (0%)
E. coli	0 Organisms/100 ml			
Background Bacteria	Less than 200 Organisms/100 mL			

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	0.38-1.39	52	52	51	50 (97%)

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 Requirememts
Free Chlorine Residual	at least 0.1	0.04-1.05	Daily	1 (2%)

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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	0.11 - 0.67	0	0.67	Daily	Daily

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	0.010		0.0006	0	1	1
Barium	1.0		0.0495	0	1	1
Boron		5.0	0.1	0	1	1
Bromate	0.01		N/A	0	0	0
Cadmium	0.005		0.00015	0	1	1
Chlorate	1.0		N/A	0	0	0
Chlorite	1.0		N/A	0	0	0
Chromium	0.05		0.00019	0	1	1
Fluoride (avg.*)	1.5		0.13	0	1	1
Lead	0.01		0.00010	0	1	1
Nitrate (avg.*)	45.0		7.5	0	1	1
Selenium	0.01		0.0021	0	1	1
Uranium	0.02		0.0185	1	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 (THMs) and Haloacetic Acids (HAAs)

Parameter	Limit IMAC (mg/L)	Sample Result (average)	# Samples Required	# Samples Required
Trihalomethanes (THMs)	0.1	0.8025	4 (one every 3 months)	4

Haloacetic Acids (HAAs)	0.080	0	0	0

THMs and Haloacetic Acids are generated during the water disinfection process as a by-product of reactions between chlorine and organic material. THMs are generally found only in drinking water obtained from surface water supplies. THMs and HAAs 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 and Haloacetic Acids unless otherwise specified in the facility Permit to Operate.

General Chemical

Parameter	Aesthetic Objectives* (mg/L)	Sample Results (average)	# Samples Required	# Samples Submitted
Alkalinity	500	327	1	1
Bicarbonate	No Objective	399	1	1
Calcium	No Objective	139	1	1
Carbonate	No Objective	0	1	1
Chloride	250	11.3	1	1
Conductivity	No Objective	1227	1	1
Hardness	800	714	1	1
Magnesium	200	89	1	1
PH	No Objective	7.6	1	1
Sodium	300	18	1	1
Sulphate	500	384.5	1	1
Total dissolved solids	1500	1059	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 $CaCO_3$), magnesium, sodium, sulphate and total dissolved solids.

The last sample for General Chemical analysis was submitted on May 2019. Sample results indicated that there were no exceedences of the provincial aesthetic objectives for the General Chemical category. The next sample is required in 2021.

*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:

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