



TOWN OF BATTLEFORD UTILITY DEPARTMENT
2019 WATER DISTRIBUTION
 DRINKING WATER QUALITY AND COMPLIANCE

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 Battleford Utility Department water quality and sample submission compliance record for the **2019-January-01 to 2019-December-31** time period. This report was completed on **2020-January-06**. 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	53	0%
E. coli	0 Organisms/100 mL	52	53	0%
Background Bacteria	Less than 200/100 mL	52	53	0%

The Town of Battleford is responsible to ensure that one hundred percent 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	Test Level Range		# of Tests Required	# of Tests Submitted	# Adequate Chlorine (%)
Chlorine	0.1 mg/L Free	0.42	1.68	52	52	100%
Residual	0.5 mg/L Total	0.61	1.98	52	52	100%

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

Parameter/Location	Limit	Test Level Range	# of Tests Performed	# of Tests Not Meeting Requirements
Free Chlorine – Residual	At least 0.15	0.64 – 1.92	2/Day = 730	0

A minimum of 0.1 milligrams per liter (mg/l) free chlorine residual **OR** 0.5 mg/l total chlorine residual is required for water entering the distribution system unless otherwise approved. Tests are 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 milligrams per liter (mg/l) free chlorine residual **OR** 0.5 mg/l total chlorine residual.

Turbidity – From Water Treatment Plant Records

Parameter	Limit (NTU)	Test Level Range (NTU)	# of Tests Not Meeting Requirements	Maximum Turbidity (NTU)	# Tests Required	# Tests Performed
Turbidity	<1.0 – 5.0	0.05 – 0.60	0	0.60	2/Day = 730	730

(NTU) Nephelometric Turbidity Unit - a unit of measurement used to indicate the clarity of drinking water

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

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 required in 2019 and was submitted on 2019-October-28. Sample results indicated that the provincial drinking water quality standards were not exceeded.

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

Parameter	Limit MAC (mg/L)	Limit IMAC (mg/L)	Sample Results	Samples Exceeding Limits
Mercury (ng/L)			<1	0%
Aluminum (mg/L)			0.0011	0%
Antimony (mg/L)	0.006		<0.0002	0%
Arsenic (ug/L)	0.010		0.2	0%
Barium (mg/L)	1.0		0.11	0%
Boron (mg/L)		5.0	0.02	0%
Cadmium (mg/L)	0.005		<0.00001	0%
Chromium (mg/L)	0.05		<0.0005	0%
Copper (mg/L)			0.036	0%
Iron (mg/L)			0.0061	0%
Lead (mg/L)	0.01		<0.0001	0%
Manganese (mg/L)			0.0098	0%
Selenium (mg/L)	0.01		<0.0001	0%
Silver (mg/L)			<0.00005	0%
Uranium (ug/L)	0.02		0.2	0%
Zinc (mg/L)			0.0059	0%
Bromate	0.01		<0.005	0%
Chlorate	1.0		<0.05	0%
Chlorite	1.0		<0.05	0%

Chemical – Trihalomethanes (THMs)

Parameter/Location	THMS Limit (ug/L)	Sample Result (avg*)	# of Samples Required	# of Samples Submitted
Trihalomethanes	Average <100 ug/L	42.1	4 (1 every 3 months)	4

Trihalomethanes are generated during the water disinfection process as a by-product of reactions between chlorine and organic material. Trihalomethanes are generally found only in drinking water obtained from surface water supplies. Trihalomethanes are to be monitored on a quarterly basis and the Interim Maximum Acceptable Concentration (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 Trihalomethanes.

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

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 in 2019 and was submitted on 2019-October-28. Sample results indicated that there were no exceedances of the provincial aesthetic objectives for the General Chemical category.

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

Parameter	Aesthetic Objectives * (mg/L)	Sample Results	Samples Exceeding Limits
Bicarbonate (mg/L)	No Objective	278	0%
Carbonate (mg/L)	No Objective	<1	0%
Chloride (mg/L)	250	18	0%
Hydroxide (mg/L)		<1	0%
P. Alkalinity (mg/L)	500	<1	0%
pH (pH units)	No Objective	7.84	0%
Specific Conductivity (uS/cm)	No Objective	600	0%
Sum of Ions (mg/L)		493	0%
Total Alkalinity (mg/L)		226	0%
Total Hardness (mg/L)	800	272	0%
Nitrate (mg/L)	45.0	0.48	0%
Fluoride (mg/L)	1.5	0.12	0%
Total Dissolved Solids (mg/L)	1500	381	0%
Calcium (mg/L)	No Objective	73	0%
Magnesium (mg/L)	200	22	0%
Potassium (mg/L)		2.8	0%
Sodium (mg/L)	300	22	0%
Sulfate (mg/L)	500	77	0%

*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 of Battleford
P.O. Box 40
392 25th Street West, Battleford, SK

Telephone Number: 306-937-6220 – Admin | 306-937-6224 – Water Plant | 306-937-6208 – Utility Manager
Email: works@battleford.ca – Admin | wtp@battleford.ca – Water Plant | aubrey@battleford.ca – Utility Manager

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