

TOWN OF BATTLEFORD
UTILITY DEPARTMENT

Town of Battleford Drinking Water Quality and Compliance – Annual Notice to Consumers

Saskatchewan Environment requires that at least once a 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 to operate a waterworks. The following is a summary of the Town of Battleford's water quality and sample submission compliance record for the **January 1, 2014 to December 31, 2014** time period. This report was completed **January 7, 2015**. Readers should refer to Saskatchewan Environment's "Municipal Drinking Water Quality Monitoring Guidelines, November 2002, EPB202" 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 water supply", more detailed information is available from:

http://www.hc-sc.gc.ca/ehp/ehd/catalogue/bch_pubs/dwgsup_doc/dwgsup_doc.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/100ml Less than 200 Organisms/100ml	52	52	0%

The owner/operator 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 (mg/L)	Range To	# of Tests Required	# of Tests Submitted	# Adequate Chlorine (Percentage)
Chlorine	0.1 mg/l free	0.54 to 1.25	52	52	(100%)
Residual	0.5 mg/l total	0.66 to 1.50	52	52	(100%)

*A minimum of 0.1 milligrams per litre (mg/l) free chlorine residual **OR** 0.5mg/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 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 residual test results on every bacteriological sample they submit.*

Chemical - Trihalomethanes

Parameter	Limit IMAC (mg/L)	Sample Result (Max)	Sample Result (Average)	# of Samples Required	# of Samples	Submitted Percentage
Trihalomethanes	Ave. <100 Ug/L	38.0	34.0	4	4	100%

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.

Water Quality Objectives

General Chemical - Major Ions

As Of

Parameter/Location	Objective Value (mg/L)	Sample Result	#Samples Exceeding Objectives	# of Samples Required (Percentage)	# of Samples Submitted
Alkalinity	<500	199	0	1 every 2 years	1 2013
Chloride Dissolved	<250	12.0	0	1 every 2 years	1 2013
Fluoride Dissolved	<1.5	0.11	0	1 every 2 years	1 2013
Nitrate Dissolved	<45	<0.2	0	1 every 2 years	1 2013
Sulfate Dissolved	<500	62.1	0	1 every 2 years	1 2013
Manganese	<200	20	0	1 every 2 years	1 2013
Sodium	<300	15	0	1 every 2 years	1 2013
Total Hardness (Calculated)	<800	250	0	1 every 2 years	1 2013
Total Dissolved Solids	<1500	421	0	1 every 2 years	1 2013
Iron	<0.3	<0.1	0	1 every 2 years	1 2013
Manganese	<0.05	0.01	0	1 every 2 years	1 2013

Objectives apply to certain characteristics of, or substances found in water for human consumptive or hygienic use. The presence of these substances will affect that acceptance of water by consumers and/or interfere with the practice of supplying good quality water. Compliance with drinking water quality objectives is not mandatory and these objectives are in the range where they do not constitute a health hazard. However, these substances may represent a health risk to some people if found in excessive concentrations. The "Aesthetic Objects" for several parameters (including hardness as CaCO₃, magnesium, sodium and total dissolved solids) consider regional differences in drinking water quality.

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

Town of Battleford

P.O. Box 40

Battleford, Sask. S0M 0E0

Phone: (306) 937-6220 Fax: (306) 937-5963

E-mail: works@battleford.ca

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

Water Disinfection

Free Chlorine Residual for Water Entering Distribution System

Parameter	Limit (mg/L)	Test Level Range	# Tests Performed	# Tests not Meeting Requirements
Free Chlorine Residual	At least 0.5	High 1.38	>730	0
		Low 0.79	Have continuous analyzer	

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

Parameter	Limit (NTU)	Test Level Range	# Tests not Meeting Requirements	Maximum Turbidity	# of Tests Required	# of Tests Performed
	1.0	High 0.80 NTU	0	0.80 NTU	365	730
		Low 0.04 NTU				Plus Continuous Analyzer

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	Limit IMAC	Sample Results	# Samples Exceeding MAC/IMAC	# Samples Required	%	# Samples Submitted	
Aluminum	mg/L	None set		<0.0005	0	1 / 2yrs	100%	1	2013
Arsenic	ug/L	10		0.2	0	1 / 2yrs	100%	1	2013
Barium	mg/L	1.0		0.10	0	1 / 2yrs	100%	1	2013
Boron	mg/L	5.0	5.0	0.02	0	1 / 2yrs	100%	1	2013
Cadmium	mg/L	0.005		<0.00001	0	1 / 2yrs	100%	1	2013
Chromium	mg/L	0.05		<0.0005	0	1 / 2yrs	100%	1	2013
Copper	mg/L	None set		0.050	0	1 / 2yrs	100%	1	2013
Iron	mg/L	None set		0.0037	0	1 / 2yrs	100%	1	2013
Lead	mg/L	0.01		<0.0001	0	1 / 2yrs	100%	1	2013
Manganese	mg/L	None set		0.0083	0	1 / 2yrs	100%	1	2013
Mercury	ug/L	1.0		<0.01	0	1 / 2yrs	100%	1	2013
Selenium	mg/L	0.01		<0.0001	0	1 / 2yrs	100%	1	2013
Uranium	ug/L	20		0.1	0	1 / 2yrs	100%	1	2013
Zinc	mg/L	200		0.0017	0	1 / 2yrs	100%	1	2013

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 add fluoride to drinking water as a means to aid in the prevention of dental decay.