



**Drinking Water Quality and Compliance
SaskWater Elbow Water Treatment Plant
Station Number SK05HF0220
2015 Notice to Consumers**

The Water Security Agency (WSA) 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 Permit to Operate a waterworks. The following is a summary of the SaskWater Elbow Treatment Plant water quality and sample submission compliance record for the January 1, 2015 to December 31, 2015 time period. This report was completed on April 6, 2016. Readers should refer to the WSA's Municipal Drinking Water Quality Monitoring Guidelines, October 2012, EPB 202 for more information on minimum sample submission requirements and types of samples. Permit requirements for a specific waterworks may require more sampling than outlined in the Agency's monitoring guidelines. If consumers need to know more about drinking water in Saskatchewan, more detailed information is available from: <http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/index-eng.php>.

BACTERIOLOGICAL QUALITY

Parameter	Limit	Regular Samples Required	Regular Samples Submitted	# Positive of 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

Analysis is performed on a single sample for all parameters mentioned above. 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 – From Test Results Submitted with Bacteriological Samples from WTP

Parameter	Minimum Limit (either/or)	Range (mg/L)	# Tests Required	# Tests Submitted	# Adequate Chlorine
Free Chlorine	0.1 mg/L	0.65 – 1.39	52	52	52
Total Chlorine	0.5 mg/L	0.74 – 1.66	52	52	52

Free Chlorine Residual for Water Entering Distribution System

Parameter	Limit (mg/L)	Range (mg/L)	# Tests Required	# Tests Performed	% Adequate Chlorine
Free Chlorine	At least 0.1	0.34 – 2.00	365	Continuous	100

Minimum 0.1 milligrams per litre (mg/L) free chlorine residual is required for water in a distribution system. Residuals are monitored continuously and tests normally performed on a daily basis by waterworks operators and are to be recorded in operation records.

TURBIDITY

Turbidity – From Test Results Submitted with Bacteriological Samples from the WTP

Parameter	Limit (NTU)	Range (NTU)	# Tests Required	# Tests Performed	# Exceeding Limit
Turbidity	No standard	0.09 – 0.21	52	52	0

Turbidity for Water Leaving the Filter

Parameter	Limit (NTU)*	Range (NTU)	95 th Percentile (NTU)	# Tests Required	# Tests Performed	# of Months Exceeding 95 th Percentile Limit
Turbidity	< 0.3 or < 0.2 -- 95% of measurements each month and; never >1.0	0.001 -- 0.998	0.151	365	Continuous	0

*SaskWater's Elbow Water Treatment Plant is required to supply treated water leaving the filter with turbidity less than 0.3 NTU in 95% of measurements made each calendar month if the average raw water turbidity for that month is greater than 1.5 NTU. If the average raw water turbidity is less than 1.5 NTU, the water leaving the filter must be less than 0.2 NTU in 95% of measurements made each calendar month.

Turbidity is a measure of water treatment efficiency. Turbidity measures the "clarity" of the drinking water and is reported in Nephelometric Turbidity Units (NTU). All waterworks are required to monitor turbidity at the water treatment plant. The turbidity is done daily with bench testing instrument, as well as continuously with an on-line analyzer.

CHEMICAL – GENERAL

All waterworks serving less than 5000 persons from a surface water or blended surface/groundwater source are required to submit water samples for the WSA's General Chemical category once per three months every second year. The SaskWater Elbow WTP submits quarterly samples every year. The last sample for General Chemical analysis was submitted on October 30, 2015.

Parameter	MAC	AO *	Sample Results	# of Samples Required	# of Samples Submitted
Total Alkalinity (mg/L)		500	161	0	4
Bicarbonate (mg/L)	No Objective		197	0	4
Calcium (mg/L)	No Objective		44	0	4
Carbonate (mg/L)	No Objective		<1	0	4
Chloride (mg/L)		250	14	0	4
Fluoride (mg/L)	1.5		0.11	0	4
Total Hardness (mg/L)		800	179	0	4
Hydroxide (mg/L)	No Objective		<1	0	4
Magnesium (mg/L)		200	17	0	4
Nitrate (mg/L)	45		0.82	0	4
pH (pH units)		6.5 – 9.0	8.20	0	4
Potassium (mg/L)	No Objective		2.8	0	4
Sodium (mg/L)		300	26	0	4
Specific Conductivity (µs/cm)	No Objective		479	0	4
Sulphate (mg/L)		500	67	0	4
Sum of Ions	No Objective		367	0	4
Total Dissolved Solids (mg/L)		1500	285	0	4

MAC – Maximum Acceptable Concentration

AO – Aesthetic Objective

*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.

CHEMICAL – HEALTH

All waterworks serving less than 5000 persons are required to submit water samples for the WSA's Chemical Health category once every 2 years. 2015 was not a required sample year, additional testing was done for informational purposes only. The last sample for Chemical Health analysis was submitted on July 22, 2015.

Parameter	MAC (mg/L)	IMAC (mg/L)	AO (mg/L)	Sample Results (mg/L)	# of Samples Required	# of Samples Submitted
Aluminum	No Objective			0.35	0	2
Arsenic	0.010			0.0009	0	2
Barium	1.0			0.081	0	2
Boron		5.0		0.025	0	2
Cadmium	0.005			<0.00001	0	2
Chromium	0.05			<0.0005	0	2
Copper			1.0	0.0008	0	2
Iron			0.3	0.0013	0	2
Lead	0.01			<0.0001	0	2
Manganese			0.05	<0.0005	0	2
Selenium	0.01			0.0006	0	2
Uranium	0.02			0.0011	0	2
Zinc			5	0.0011	0	2

MAC – Maximum Acceptable Concentration
Concentration

IMAC – Interim Maximum Acceptable

AO – Aesthetic Objective

CHEMICAL – TRIHALOMETHANES (THM)

Trihalomethanes are formed when chlorine reacts with organic matter in water. The four THM compounds are: chloroform, dibromochloromethane, bromodichloromethane (BCDM) and bromoform. The sum of the concentrations of these four components is referred to as Total Trihalomethanes. The limit for THM is a long term objective based on an annual average of seasonal samples. Additional sampling was done for informational purposes only.

Parameter	Limit (mg/L)	Average (mg/L)	# Samples Required	# Samples Submitted
Total Trihalomethanes	0.100	0.077	4	6

CHEMICAL – HALOACETIC ACIDS (HAAs)

Haloacetic acids are formed when chlorine reacts with organic matter in water. The five regulated haloacetic acids are: monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid. The sum of the concentrations of these five components is referred to as HAA5.

Parameter	Limit (mg/L)	Average (mg/L)	# Samples Required	# Samples Submitted
Haloacetic Acids 5	No Standard	0.049	4	4

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

SaskWater
200 - 111 Fairford Street East
Moose Jaw SK S6H 1C8
Toll Free: 1-888-230-1111
Fax: 306-694-3207
Email: customerservice@saskwater.com