



**Drinking Water Quality and Compliance
SaskWater Pierceland Water Treatment Plant
2016 Notification 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 Pierceland Water Treatment Plant (WTP) water quality and sample submission compliance record for the January 1, 2016 to December 31, 2016 time period. This report was completed on March 20, 2017. 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	Required 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 the WTP

Parameter	Minimum Limit (either/or)	Range (mg/L)	# Tests Required	# Tests Submitted	# Adequate Chlorine
Free Chlorine	0.1 mg/L	0.62 – 1.63	52	52	52
Total Chlorine	0.5 mg/L	0.81 – 1.87	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	0.20 – 1.99	366	Continuous	100

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

Continuous monitoring equipment failed on October 13. Readings from that point until the end of the year are one per day, as required by the permit. Equipment was replaced in early 2017 and continuous readings resumed.

TURBIDITY

Turbidity for Water Entering Distribution System

Parameter	Limit (NTU)	Range (NTU)	95th Percentile	# Tests Required	# Tests Performed	# months Exceeding Limit
Turbidity	< 1.0 – 95% of the measurements each month	0.020 – 1.993	0.250	366	Continuous	0

Continuous monitoring equipment failed on October 13. Readings from that point until the end of the year are one per day, as required by the permit. Equipment was replaced in early 2017 and continuous monitoring resumed.

Turbidity – From Test Results Submitted with Bacteriological Samples

Parameter	Limit (NTU)	Range (NTU)	# Tests Required	# Tests Performed	# Exceeding Limit
Turbidity	No standard	0.10 – 0.71	52	52	0

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). The turbidity is done daily with a bench testing instrument, as well as continuous with an in-line analyzer.

CHEMICAL – HEALTH

The Pierceland WTP is required to submit water samples for the WSA’s Chemical Health category once every second year. 2016 is a required sampling year. The last sample was taken on March 22, 2016.

Parameter	MAC (mg/L)	IMAC (mg/L)	AO* (mg/L)	Sample Results (mg/L)	# of Samples Required	# of Samples Submitted
Aluminum	No Objective			0.0012	1	1
Antimony	0.006			<0.0002	1	1
Arsenic	0.010			<0.0001	1	1
Barium	1.0			0.21	1	1
Boron		5.0		0.04	1	1
Cadmium	0.005			<0.00001	1	1
Chromium	0.05			<0.0005	1	1
Copper			1.0	0.04	1	1
Iron			0.3	0.0036	1	1
Lead	0.01			0.0009	1	1
Manganese			0.05	0.0054	1	1
Selenium	0.01			<0.0001	1	1
Silver	No Objective			<0.00005	1	1
Uranium	0.02			<0.0001	1	1
Zinc			5	0.007	1	1

MAC – Maximum Acceptable Concentrations

IMAC – Interim Maximum Acceptable Concentrations

AO – Aesthetic Objective

CHEMICAL – GENERAL

The Pierceland WTP is required to submit water samples for the WSA's General Chemical category once every second year. 2016 is a required sampling year. The last sample for General Chemical analysis was submitted on March 22, 2016.

Parameter	MAC	AO *	Sample Results	# of Samples Required	# of Samples Submitted
Total Alkalinity (mg/L)		500	404	1	1
Bicarbonate (mg/L)	No Objective		493	1	1
Calcium (mg/L)	No Objective		85	1	1
Carbonate (mg/L)	No Objective		<1	1	1
Chloride (mg/L)		250	5	1	1
Fluoride (mg/L)	1.5		0.39	1	1
Total Hardness (mg/L)		800	385	1	1
Hydroxide (mg/L)	No Objective		<1	1	1
Magnesium (mg/L)		200	42	1	1
Nitrate (mg/L)	45		0.33	1	1
pH (pH units)		6.5 - 9.0	8.12	1	1
Potassium (mg/L)	No Objective		5	1	1
Sodium (mg/L)		300	11	1	1
Specific Conductivity (µs/cm)	No Objective		732	1	1
Sulphate (mg/L)		500	6	1	1
Sum of Ions	No Objective		647	1	1
Total Dissolved Solids (mg/L)		1500	395	1	1

MAC – Maximum Acceptable Concentration

AO – Aesthetic Objective

*Objectives apply to certain characteristics of, or substances found, in water for human consumptive or hygienic use. Compliance with drinking water aesthetic objectives (AO) is not mandatory as these objectives are in the range where they do not constitute a health hazards. The AO for several parameters (including hardness, magnesium, sodium and total dissolved solids) consider regional differences in sources and quality.

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

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