Drinking Water Quality and Compliance
Town of Kindersley
Station Number SK05GB0004
2022 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 Town of Kindersley water quality and sample submission compliance record for the January 1, 2022 to December 31, 2022 time period. This report was completed on February 1, 2023. Readers should refer to the WSA's Municipal Drinking Water Quality Monitoring Guidelines 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

Sampling from Distribution System

Parameter	Limit	Regular Samples Required	Regular Samples Submitted	# of Positive Regular Submitted
Total Coliform	0 Organisms/100mL	106	104	0
E. Coli	0 Organisms/100m/L	106	104	0
Background Bacteria	Less than 200/100mL	106	104	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.

Two samples collected on September 28, 2022, were not tested by the lab because of a courier delay. The EPO was notified.

WATER DISINFECTION

Chlorine Residual in the Distribution System – From Test Results Submitted with Bacteriological Samples

Parameter	Minimum Limit (either/or)	Range (mg/L)	# Tests Required	# Tests Submitted	# Adequate Chlorine
Free Chlorine	0.10 mg/L	0.64 – 1.68	106	106	106
Total Chlorine	0.50 mg/L	0.80 – 1.76	106	106	

A minimum of 0.10 milligrams per litre (mg/L) Free Chlorine residual **OR** 0.50 mg/L Total Chlorine residual is required at all times throughout the distribution system. An adequate chlorine residual is a result that indicates that the chlorine level is above the regulated minimums. A waterworks is required to submit chlorine residual test results on every bacteriological sample they submit.

Free Chlorine Residual for Water Entering Distribution System

Parameter	Minimum Limit (mg/L)	Range (mg/L)	# Tests Required	# Tests Performed	% Adequate Chlorine
Free Chlorine	0.30	0.46 – 2.00	365	997	100

Residuals are monitored continuously and tests performed regularly by waterworks operators and are to be recorded in operation records. Additional testing was done for informational purposes.

Town of Kindersley

TURBIDITY

Turbidity in Raw Water Entering the Water Treatment Plant

Parameter	Limit (NTU)	Range (NTU)	# Tests Required	# Tests Performed	# Exceeding Limit
Turbidity	No Limit	0.44 – 501	52	368	0

Additional testing done for information purposes.

Turbidity for Water Leaving the Filter

Filter #1

Parameter	Limit (NTU)	Range (NTU)	95th Percentile	# Tests Required	# Tests Performed	# of Months Exceeding 95th Percentile Limit
Turbidity	< 0.3 or 0.2 – 95% of measurements each month; not to exceed 0.3 or 0.2 for more than 12 consecutive hours; never >1.0	0.010 – 0.282	0.063	Continuous	Continuous	0

Filter #2

Parameter	Limit (NTU)	Range (NTU)	95th Percentile	# Tests Required	# Tests Performed	# of Months Exceeding 95th Percentile Limit
Turbidity	< 0.3 or 0.2 – 95% of measurements each month; not to exceed 0.3 or 0.2 for more than 12 consecutive hours; never >1.0	0.010 – 0.238	0.095	Continuous	Continuous	0

Filter #3

Parameter	Limit (NTU)	Range (NTU)	95th Percentile	# Tests Required	# Tests Performed	# of Months Exceeding 95th Percentile Limit
Turbidity	< 0.3 or 0.2 – 95% of measurements each month; not to exceed 0.3 or 0.2 for more than 12 consecutive hours; never >1.0	0.004 – 0.396	0.092	Continuous	Continuous	0

Turbidity is monitored continuously and multiple tests are done daily by waterworks operators and are recorded in the daily records.

Town of Kindersley

Turbidity in the Distribution System – From Test Results Submitted with Bacteriological Samples

Parameter	Limit (NTU)	Range (NTU)	# Tests Required	# Tests Performed	# Exceeding Limit
Turbidity	No Standard	0.07 – 0.78	106	106	0

Turbidity for Water Entering Distribution System

Parameter	Limit (NTU)	Range (NTU)	95th Percentile	Average	# Tests Required	# Tests Performed
Turbidity	No Limit	0.01 – 2.27	0.28	0.17	365	995

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 tested at the same frequency as the bacteriological testing with a bench testing instrument. Additional testing was done for informational purposes.

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.

The Town of Kindersley is not required to perform this testing in 2022 as part of the operating permit. The next testing is required in 2024. The 2021 results are shown below for informational purposes.

Parameter	Maximum Limit (mg/L)	2021 Average (mg/L)	# Samples Required	# Samples Submitted
Total Trihalomethanes	0.100	0.022	0	0

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. The limit for HAA5 is a long term objective based on an annual average of seasonal samples.

The Town of Kindersley is not required to perform this testing in 2022 as part of the operating permit. The next testing is required in 2024. The 2021 results are shown below for informational purposes.

Parameter	Maximum Limit (mg/L)	2021 Average (mg/L)	# Samples Required	# Samples Submitted
Haloacetic Acids 5	0.080	0.009	0	0

MANGANESE (on-site testing)

Parameter	Regulatory Limit	Aesthetic Objective (mg/L)	Average (mg/L)	# Tests Required	# Tests Submitted
Manganese	No Limit	0.05	0.02	24	366

Additional testing done for informational purposes.

Town of Kindersley

FLUORIDE

Fluoride – From Treated Water at the Water Treatment Plant (on-site testing)

Parameter	Maximum Limit (mg/L)	Average (mg/L)	Maximum (mg/L)	# Samples Required	# Samples Submitted	# Exceeding Limit
Fluoride	1.50	0.38	0.77	365	366	0

Additional testing done for informational purposes.

Fluoride – From Test Results Submitted with Bacteriological Samples (off-site testing)

Parameter	Maximum Limit (mg/L)	Average (mg/L)	Maximum (mg/L)	# Samples Required	# Samples Submitted	# Exceeding Limit
Fluoride	1.50	0.19	1.31	52	53	0

One fluoride sample collected on September 28, 2022, was not tested by the lab because of a courier delay. The EPO was notified. Additional testing was done for informational purposes.

ULTRAVIOLET DOSAGE

Parameter	Limit	Range	# Samples Required	# Samples Submitted	# Samples Outside of Limit
Ultraviolet Transmittance (%T)	> 90	88.3 – 100	365	377	7
Ultraviolet Dosage (mJ/cm^2)	> 12	20.1 – 120.1	365	372	0
Flow Rate (L/sec)	< 69.4	18.0 – 50.3	365	372	0

The seven transmittance readings less than 90% occurred over two days. The EPO was made aware, there was no concern with the low UV transmittance because of the sufficient Free Chlorine residual at the time. Additional testing done for informational purposes.

CHEMICAL – GENERAL

The Town of Kindersley is required to submit water samples for the WSA's General Chemical category once every year.

Parameter	MAC	AO *	Sample Results	# of Samples Required	# of Samples Submitted
Total Alkalinity (mg/L)		500	155	1	1
Bicarbonate (mg/L)	No Objective		189	1	1
Calcium (mg/L)	No Objective		52	1	1
Carbonate (mg/L)	No Objective		<1	1	1
Chloride (mg/L)		250	16	1	1
Fluoride (mg/L)	1.5		0.20	1	1
Total Hardness (mg/L)		800	216	1	1
Hydroxide (mg/L)	No Objective		<1	1	1
Magnesium (mg/L)		200	21	1	1
Nitrate (mg/L)	45		1.00	1	1
pH (pH units)		7.0 – 10.5	7.71	1	1
Potassium (mg/L)	No Objective		2.9	1	1
Sodium (mg/L)		300	35	1	1
Specific Conductivity (µs/cm)	No Objective		573	1	1
Sulphate (mg/L)		500	120	1	1
Sum of Ions	No Objective		437	1	1
Total Dissolved Solids (mg/L)		1500	357	1	1

MAC – Maximum Acceptable Concentration AO – Aesthetic Objective

Town of Kindersley

CHEMICAL – HEALTH

The Town of Kindersley is required to submit water samples for the WSA's Chemical Health category once every year.

Parameter	MAC (mg/L)	IMAC (mg/L)	AO (mg/L)	Sample Results (mg/L)	# of Samples Required	# of Samples Submitted
Aluminum	No Objective			0.0180	1	1
Antimony	0.006			<0.0002	1	1
Arsenic	0.010			<0.0001	1	1
Barium	1.0			0.047	1	1
Boron		5.0		0.06	1	1
Cadmium	0.005			<0.00001	1	1
Chromium	0.05			<0.0005	1	1
Copper			1.0	0.0012	1	1
Iron			0.3	0.0044	1	1
Lead	0.01			<0.0001	1	1
Manganese			0.05	0.0020	1	1
Selenium	0.01			0.0002	1	1
Silver	No Objective			<0.00005	1	1
Uranium	0.02			0.0009	1	1
Zinc			5.0	0.0024	1	1

MAC – Maximum Acceptable Concentrations
IMAC – Interim Maximum Acceptable Concentrations
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 $CaCO_3$, magnesium, sodium and total dissolved solids) consider regional differences in drinking water sources and quality.

TOTAL MICROCYSTIN – RAW WATER

The Town of Kindersley is required to sample in the raw water at the water treatment plant following detection of significant algal blooms affecting the water intake.

Parameter	Limit (mg/L)	Average (mg/L)	# Samples Required	# Samples Submitted
Microcystin	No Standard	0.00015	2	2

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

Town of Kindersley
106 5th Avenue East
P.O. Box 1269
Kindersley, SK
S0L 1S0