Drinking Water Quality and Compliance
SaskWater Wakaw-Humboldt
Potable Water Supply System
2024 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 Wakaw-Humboldt Water Supply System water quality and sample submission compliance record for the January 1, 2024, to December 31, 2024, time period. This report was completed on February 1, 2025. 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

Parameter	Limit	Regular Samples Required	Required Samples Submitted	# of Positive Regular Submitted
Total Coliform	0 Organisms/100 mL	156	156	0
E. Coli	0 Organisms/100 mL	156	156	0
Background Bacteria	Less than 200/100 mL	156	156	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 in 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	0.40 – 1.76	156	156	156
Total Chlorine	0.50 mg/L	0.54 – 2.06	156	156	

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 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	Limit (mg/L)	Range (mg/L)	# Tests Required	# Tests Performed	% Adequate Chlorine
Free Chlorine	0.45	1.26 – 1.90	Continuous	Continuous	100

Residuals are continuously monitored and recorded. Multiple tests are performed on a daily basis by waterworks operators and are recorded in operational records.

Wakaw-Humboldt Water Supply System

TURBIDITY

Turbidity for Water Leaving the Filters

Filter #1

Parameter	Limit (NTU)	Range (NTU)	95th Percentile (NTU)	# Tests Required	# Tests Performed	# months Exceeding 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	0.051 – 0.288	0.079	Continuous	Continuous	0

Filter #2

Parameter	Limit (NTU)	Range (NTU)	95th Percentile (NTU)	# Tests Required	# Tests Performed	# months Exceeding 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	0.022 – 0.681	0.051	Continuous	Continuous	0

Filter #3

Parameter	Limit (NTU)	Range (NTU)	95th Percentile (NTU)	# Tests Required	# Tests Performed	# months Exceeding 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	0.018 – 0.265	0.062	Continuous	Continuous	0

Filter #4

Parameter	Limit (NTU)	Range (NTU)	95th Percentile (NTU)	# Tests Required	# Tests Performed	# months Exceeding 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	0.035 – 0.343	0.063	Continuous	Continuous	0

Wakaw-Humboldt Water Supply System

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	0.02 – 0.60	156	156	0

Turbidity in Water Entering the Distribution System

Parameter	Limit (NTU)	Range (NTU)	Average (NTU)	# Tests Required	# Tests Performed	# Exceeding Limit
Turbidity	No standard	0.049 – 0.350	0.064	381	Continuous	0

Additional testing is done for information purposes.

Turbidity in Raw Water Entering the Water Treatment Plant

Parameter	Limit (NTU)	Range (NTU)	# Tests Required	# Tests Performed	# Exceeding Limit
Turbidity	No standard	0.12 – 297	52	730	0

Additional testing is done for information purposes.

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.

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	0.60	0.98	366	727	0

Additional testing was done for informational purposes.

From Water in the Distribution System (off-site testing)

Parameter	Maximum Limit (mg/L)	Average (mg/L)	Maximum (mg/L)	# Samples Required	# Samples Submitted	# Exceeding Limit
Fluoride	1.50	0.50	0.66	52	52	0

MANGANESE (on-site testing)

Parameter	Regulatory Limit	Aesthetic Objective (mg/L)	Average (mg/L)	# Tests Required	# Tests Submitted
Manganese	No Limit	0.05	0.01	50	52

Additional testing was done for informational purposes.

HALOACETIC ACIDS (HAAs)

SaskWater is not required to perform this testing in 2024 as part of the operating permit. The next testing is required in 2026. The 2023 results are shown for informational purposes.

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 HAAs is a long-term objective based on an annual average of seasonal samples.

Parameter	Maximum Limit (mg/L)	2023 Average (mg/L)	# Samples Required 2024	# Samples Submitted 2024
Haloacetic Acids	0.080	0.034	0	0

TRIHALOMETHANES (THM)

SaskWater is not required to perform this testing in 2024 as part of the operating permit. The next testing is required in 2026. The 2023 results are shown for informational purposes.

Trihalomethanes are formed when chlorine reacts with organic matter in water. The four THM compounds are: chloroform, dibromochloromethane, bromodichloromethane (BDCM) 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.

Parameter	Maximum Limit (mg/L)	2023 Average (mg/L)	# Samples Required 2024	# Samples Submitted 2024
Trihalomethane	0.100	0.040	0	0

CHEMICAL – GENERAL

SaskWater Wakaw-Humboldt Potable Water Supply System is required to submit water samples for the WSA's General Chemical category once per three months every year.

Parameter	MAC (mg/L)	AO * (mg/L)	Sample Results	# of Samples Required	# of Samples Submitted
Total Alkalinity (mg/L)		500	133	4	4
Bicarbonate (mg/L)	No Objective		163	4	4
Calcium (mg/L)	No Objective		46	4	4
Carbonate (mg/L)	No Objective		<1	4	4
Chloride (mg/L)		250	19	4	4
Fluoride (mg/L)	1.5		0.54	4	4
Total Hardness (mg/L)		800	192	4	4
Hydroxide (mg/L)	No Objective		<1	4	4
Magnesium (mg/L)		200	19	4	4
Nitrate (mg/L)	45		2.0	4	4
pH (pH units)		7.0 – 10.5	7.67	4	4
Potassium (mg/L)	No Objective		3.3	4	4
Sodium (mg/L)		300	30	4	4
Specific Conductivity (µs/cm)	No Objective		514	4	4
Sulphate (mg/L)		500	96	4	4
Sum of Ions	No Objective		377	4	4
Total Dissolved Solids (mg/L)		1500	306	4	4

MAC – Maximum Acceptable Concentration AO – Aesthetic Objective

CHEMICAL – HEALTH

SaskWater Wakaw-Humboldt Potable Water Supply System is required to submit water samples for the WSA's Chemical Health category once per three months 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			0.017	4	4
Antimony	0.006			0.0003	4	4
Arsenic	0.010			0.0002	4	4
Barium	1.0			0.073	4	4
Boron		5.0		0.03	4	4
Cadmium	0.005			0.00001	4	4
Chromium	0.05			0.0016	4	4
Copper			1.0	0.0022	4	4
Iron			0.3	0.0007	4	4
Lead	0.01			<0.0001	4	4
Manganese			0.05	0.0009	4	4
Selenium	0.01			0.0010	4	4
Silver	No Objective			<0.00005	4	4
Uranium	0.02			0.0004	4	4
Zinc			5	0.0016	4	4

MAC – Maximum Acceptable Concentrations AO – Aesthetic Objective
IMAC – Interim Maximum Acceptable Concentrations

CHEMICAL – PESTICIDES

SaskWater Wakaw-Humboldt Potable Water Supply System is required to submit water samples for the WSA's Pesticide category once every 2 years. 2024 is a required sampling year.

Parameter	MAC (mg/L)	IMAC (mg/L)	Sample Results (mg/L)	# of Samples Required	# of Samples Submitted
Atrazine		0.005	<0.0002	1	1
Bromoxynil		0.005	<0.002	1	1
Carbofuran	0.09		<0.0002	1	1
Chlorpyrifos	0.09		<0.0002	1	1
Dicamba	0.12		<0.001	1	1
2, 4-D		0.10	<0.001	1	1
Diclofop-methyl	0.009		<0.001	1	1
Dimethoate		0.02	<0.005	1	1
Malathion	0.19		<0.0002	1	1
MCPA	0.10		<0.001	1	1
Pentachlorophenol	0.06		<0.002	1	1
Picloram		0.19	<0.001	1	1
Trifluralin		0.045	<0.0002	1	1

MAC – Maximum Acceptable Concentrations IMAC – Interim Maximum Acceptable Concentrations

CHEMICAL – ORGANICS

SaskWater Wakaw-Humboldt Potable Water Supply System is required to submit water samples for the WSA's Synthetic Organic category once every 2 years. 2024 is a required sampling year.

Parameter	MAC (mg/L)	IMAC (mg/L)	AO* (mg/L)	Sample Results (mg/L)	# of Samples Required	# of Samples Submitted
Benzene	0.005			<0.0005	1	1
Benzo(a)pyrene	0.00001			<0.00001	1	1
Carbon tetrachloride	0.005			<0.002	1	1
Dichlorobenzene 1,2	0.2			<0.0005	1	1
Dichlorobenzene 1,4	0.005			<0.0005	1	1
Dichloroethane 1,2		0.005		<0.0005	1	1
Dichloroethylene 1,1	0.014			<0.0005	1	1
Dichloromethane	0.05			<0.0005	1	1
Dichlorophenol 2,4	0.9			<0.0002	1	1
Ethylbenzene			0.0016	<0.0005	1	1
Monochlorobenzene	0.080			<0.0005	1	1
Perfluorooctane sulfonate	0.0006			<0.00002	1	1
Perfluorooctanoic Acid	0.0002			<0.00002	1	1
Tetrachlorophenol 2,3,4,6	0.10			<0.001	1	1
Toluene			0.024	<0.0005	1	1
Trichloroethylene	0.05			<0.0005	1	1
Trichlorophenol 2,4,6	0.005			<0.002	1	1
Vinyl Chloride	0.002			<0.0005	1	1
Xylene			0.02	<0.0005	1	1

MAC – Maximum Acceptable Concentrations AO – Aesthetic Objective
IMAC – Interim Maximum Acceptable Concentrations

*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 hazard. The AO for several parameters (including hardness, magnesium, sodium and total dissolved solids) consider regional differences in sources and quality.

CYANIDE AND MERCURY

Mercury enters water supplies naturally and as a result of human activities. Cyanide can enter source waters as a result of industrial effluent or spill events. These substances may represent a long-term health risk if the Maximum Acceptable Concentration (MAC) is exceeded.

Parameter	Maximum Limit (mg/L)	Sample Results (mg/L)	# Samples Required	# Samples Submitted
Cyanide	0.2	0.002	1	1
Mercury	0.001	<0.000001	1	1

MICROCYSTIN LR and/or TOTAL MICROCYSTIN TOXINS

SaskWater Wakaw-Humboldt Potable Water Supply System is required to sample for microcystin once every month from the treated water at the water treatment plant during the algal bloom period.

Parameter	Maximum Limit (mg/L)	Average (mg/L)	# Samples Required	# Samples Submitted	# Samples Exceeding Limit
Microcystin	0.0015	<0.0001	4	4	0

GIARDIA AND CRYPTOSPORIDIUM (in the raw water)

SaskWater Wakaw-Humboldt Potable Water Supply System is required to sample from the raw water entering the water treatment plant for giardia & cryptosporidium semi-annually (early spring and fall) and following upsets or significant events that may affect raw water quality.

Parameter	Limit	Average (cysts or oocysts / 100 L)	# Samples Required	# Samples Submitted
Giardia	No Standard	2.6 (cysts)	2	2
Cryptosporidium	No Standard	0.0 (oocysts)	2	2

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

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