City of Lloydminster
Drinking Water Quality and Compliance
2024 Annual Notice to Consumers

The Water Security Agency and Ministry of Environment 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 Minister's Order or Permit to Operate a waterworks. The following is a summary of the City of Lloydminster water quality and sample submission compliance record for the January 1 – December 31, 2024, time period. This report was completed on May 21, 2025. Readers should refer to Saskatchewan Water Security Agency's Municipal Drinking Water Quality Monitoring Guidelines, June 2015, EPB 502 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 a water supply", more detailed information is available from: http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/index_e.html .

Water Quality Standards

Bacteriological Quality

Parameter	Limit	Regular Sample Required/yr	Regular Samples Submitted	# of Positive Regular Samples Submitted
Total Coliform	0 organisms/100 mL	416	429	1 (Aug6/24)
E. coli	0 organisms/100 mL	416	429	0

The City of Lloydminster (City) is responsible to ensure that one hundred percent of all bacteriological samples are submitted as required. Outlined in the Permit to Operate a Waterworks, the City is required to take a minimum of 8 samples per week from representative locations in the distribution system. Additional Bacteriological sample are taken monthly to ensure we exceed the minimum requirement.

Water Disinfection – Chlorine residuals for Test Results Submitted with Bacteriological Samples

Parameter	Minimum Limit (mg/L)	Free Chlorine Residual Range	Total Chlorine Residual Range	# Tests Required/yr	# Tests Submitted	# Adequate Chlorine (%)
Chlorine Residual in Distribution System	0.1 mg/L free OR 0.5 mg/L total	0.38 - 1.08 mg/L	0.51 - 1.22 mg/L	364	377	(100%)

*A minimum of 0.1 milligrams per liter (mg/L) free chlorine residual **OR** 0.5 mg/L total chlorine residual is always required throughout the distribution system. The City is required to test chlorine residuals on every bacteriological sample submitted. Routine locations include Co-op gas station (east), Servus Sports Centre, Circle K Convenience store, Bud Miller Maintenance shop, West End Reservoir, City Operations Centre and Co-op gas station (West). Additional samples are taken monthly at various locations throughout the city.*

Water Disinfection – Free Chlorine Residuals for Water Entering Distribution System - From Water Treatment Plant Records

Parameter	Limit (mg/L)	Test Level Range (mg/L)	# Tests Performed	# Tests Not Meeting Requirements
Free Chlorine Residual	at least 0.1	0.89 – 1.47	Minimum one test/day	0

A minimum of 0.1 milligrams per litre (mg/L) free chlorine residual is required for water entering the distribution system. The City performs chlorine tests daily in the laboratory and has continuous on-line Cl2 monitoring to ensure treated water entering the distribution system has at least 0.5 mg/L of free Cl2 residual leaving the Water Treatment Plant.

Turbidity

Parameter	Limit (NTU)	Test Level Range	Maximum Allowable Turbidity (NTU)	# Tests Not Meeting Requirements	# Tests Required	# Tests Completed
Turbidity	0.3	0.04 - 0.15	1.0	0	366/yr.	366

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). Tests are performed daily in lab and the WTP has 5 continuous on- line Turbidimeters to ensure no treated water has Turbidity levels exceeding 0.3 NTU's for 12 consecutive hours.

Chemical – Health Category

Parameter	Limit MAC (mg/L)	Limit IMAC (mg/L)	Aesthetic Objective (mg/L)	Feb 6 Results (mg/L)	May 7 Results (mg/L)	Aug 6 Results (mg/L)	Nov 5 Results (mg/L)	Samples Exceeding MAC/IMAC	Samples Required/yr.	Samples Submitted
Aluminum				0.034	0.080	0.20	0.061		4	4
Antimony	0.006			< 0.0002	< 0.0002	< 0.0002	< 0.0002	0	4	4
Arsenic	0.010			0.0001	0.0002	0.0003	0.0002	0	4	4
Barium	1.0			0.063	0.044	0.064	0.058	0	4	4
Boron		5.0		0.01	0.01	0.02	0.01	0	4	4
Cadmium	0.005			0.00001	< 0.00001	<0.00001	0.00001	0	4	4
Chromium	0.05			< 0.0005	< 0.0005	< 0.0005	< 0.0005	0	4	4
Copper	2.0		1.0	0.0005	0.0003	0.0011	0.0013	0	4	4
Iron			<0.3	0.0016	0.0008	< 0.0005	< 0.0005	0	4	4
Lead	0.01	0.005		< 0.0001	< 0.0001	< 0.0001	< 0.0001	0	4	4
Manganese	0.12		0.02	0.0005	< 0.0005	< 0.0005	< 0.0005	0	4	4
Selenium	0.01			0.0003	0.0001	0.0002	0.0002	0	4	4
Silver				<0.00005	< 0.00005	<0.00005	< 0.00005		4	4
Uranium	0.02			0.0005	0.0002	0.0004	0.0003	0	4	4
Zinc			5.0	0.0010	0.0006	< 0.0005	0.0006	0	4	4

*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. S*ample result indicating "<" is non-detectable.

Chemical – Pesticides- Sampling Frequency Once (1) every 2 years. Data below is from May 10, 2023

Parameter	Limit MAC (µg/L)	Limit IMAC(µg/L)	Sample Result (µg/L)	Samples Exceeding MAC/IMAC	# Samples Required/2yrs.	# Samples Submitted
Atrazine		5.0	< 0.2	0	1	1
Bromoxynil (Buctril)		5.0	< 2	0	1	1
Carbofuran	90		< 0.2	0	1	1
Chlorpyrifos (Lorsban)	90		< 0.2	0	1	1
Dicamba (Banvel)	120		< 1	0	1	1
2,4-D		100	< 1	0	1	1
Diclofop-methyl (Hoegrass)	9		< 1	0	1	1
Dimethoate (Cygon)		20	< 5	0	1	1
Malathion	190		< 0.2	0	1	1
MCPA	100		< 1	0	1	1
Pentachlorophenol (PCP)	60		< 2.0	0	1	1
Picloram (Tordon)		190	< 1	0	1	1
Trifluralin (Treflan)		45	< 0.2	0	1	1

Pesticides in drinking water may occur as a result of these substances used by humans. These substances may represent a long-term health risk if the Maximum Acceptable Concentration (MAC) or Interim Maximum Acceptable Concentration (IMAC) is exceeded. Please note any sample result indicating "<" is non-detectable.

Chemical – Trihalomethanes and Haloacetic Acids- Samples Submitted February 6, May 7, August 6, November 5, 2024

Parameter	Limit (µg/L)	Sample Results Average (µg/L)	# Samples Required/yr.	# Samples Submitted
Trihalomethanes	100	45.4	8 (two every 3 months)	12
Haloacetic Acids	80	34.0	8 (two every 3 months)	12

Trihalomethanes and Haloacetic Acids are generated during the water disinfection process by a by-product of reactions between chlorine and organic material. Trihalomethanes are generally found only in drinking water obtained from surface water supplies. Trihalomethanes and Haloacetic Acids are to be monitored on a quarterly basis and the Interim Maximum Acceptable Concentration is expressed as an average of 4 quarterly samples.

Algal Toxins –Microcystin-LR

Parameter	Limit (mg/L)	May 21 Results (mg/L)	Jun 11 Results (mg/L)	Jul 16 Results (mg/L)	Aug 24 Results (mg/L)	Sept 24 Results (mg/L)	Oct 15 Results (mg/L)	# Samples Submitted
Microcystin LR	0.0015	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	6

Microcystin LR is an algal toxin typically released following die-off on an algal bloom in a raw surface water supply. Samples should typically be collected and analyzed on a monthly basis during periods when algae blooms on reservoirs or other surface water sources occur. "<" is non-detectable

Cryptosporidium & Giardia- For Raw Untreated River Water

Permit to Operate a Waterworks requires semi-annually sampling and/or following upsets or significant events that may affect raw water quality from entering a water treatment plant. Samples were collected and analyzed March 11 & December 2, 2024. Giardia is reported as cysts/100L. Cryptosporidium oocysts/ 100L.

Parameter	MAC (cysts/100L or oocysts/100L)	Mar 11 Results (cysts/100L or oocysts/100L)	Dec 2 Results (cysts/100L or oocysts/100L)
Giardia		53.5	1.1
Cryptosporidium		0.0	0.0

Chemical - General Chemical

Aesthetic Parameter	Objectives* (mg/L)	Sample Results Average (mg/L)	# Samples Required/yr.	# Samples Submitted
Alkalinity	500	121	4	4
Bicarbonate	No Objective	147	4	4
Calcium	No Objective	48	4	4
Carbonate	No Objective	<1	4	4
Chloride	250	6	4	4
Conductivity	No Objective	389 µS/cm	4	4
Fluoride	Non-Fluoridating Community	0.13	4	4
Hardness	800	180	4	4
Magnesium	200	15	4	4
Potassium	No Objective	1.3	4	4
Nitrate	45	1.15	4	4
pH	No Objective	7.72 pH units	4	4
Sodium	300	8.4	4	4
Sulphate	500	69	4	4
Total dissolved Solids	1500	248	4	4

Samples were submitted for General Chemical analysis on February 6, May 7, August 6, and November 24, 2024. Sample results indicated that there were no exceedances of the provincial aesthetic objectives for the General Chemical category.
NOTE: The City of Lloydminster does not add Fluoride into Drinking water. Trace amounts are found naturally in the source water.

**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.*

Chemical – Cyanide and Mercury

Parameter	Limit MAC (µg/L)	May 7 Result (µg/L)	Nov 5 Results (ug/L)	# Samples Exceeding MAC	# Samples Required/yr.	# Samples Submitted
Cyanide	200	<5	<1	0	2	2
Mercury	1.0	< 0.001	< 0.001	0	2	2

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. One sample required every 6 months from treated water at the Water Treatment Plant (Jan-Jun and July-Dec)

Chemical – Synthetic Organic, BTEX, PFOS & PFOA

Sampling Frequency Once (1) every 2 years. Data below is from May 10, 2023

Parameter	Limit MAC (µg/L)	Limit IMAC (µg/L)	Aesthetic Objective (µg/L)	Sample Result (µg/L)	# Samples Exceeding Limit	# Samples Required/2yrs.	# Samples Submitted
Benzene	5.0			< 0.5	0	1	1
Benzo (a) pyrene	0.01			< 0.01	0	1	1
Carbon tetrachloride	5.0			< 2	0	1	1
Dichlorobenzene, 1,2	200			< 0.5	0	1	1
Dichlorobenzene, 1,4	5.0			< 0.5	0	1	1
Dichloroethane, 1,2		5.0		< 0.5	0	1	1
Dichloroethylene 1,1	14			< 0.5	0	1	1
Dichloromethane	50			< 0.5	0	1	1
Dichlorophenol, 2,4	900			< 0.2	0	1	1
Ethylbenzene	140		1.6	< 0.5	0	1	1
Monochlorobenzene	80			< 0.5	0	1	1
Perfluorooctane Sulfonate				< 0.020	0	1	1
Perfluorooctanoic Acid				< 0.020	0	1	1
Tetrachloroethylene				< 0.5	0	1	1
Tetrachlorophenol, 2,3,4,6				< 1	0	1	1
Toluene	60		24	< 0.5	0	1	1
Trichloroethylene	50			< 0.5	0	1	1
Trichlorophenol, 2,4,6	5.0			< 2	0	1	1
Vinyl Chloride	2.0			< 0.5	0	1	1
Xylene			300	< 0.5	0	1	1

Contamination of drinking water by synthetic organic chemicals only results from pollution events. Contamination of drinking water in excess of Maximum Acceptable Concentration (MAC) or Interim Maximum Acceptable Concentration (IMAC) may represent a health risk. Please note any sample result indicating "<" is non-detectable.

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

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