

Water Consumer Confidence Report 2021

Where does our water come from?

The City of Lethbridge gets all of its water from the Oldman River. A river is considered a surface water supply. Lethbridge does not use groundwater from wells. Our Water Treatment Plant processes river water into safe and healthy drinking water. The plant site is on the east bank of the river, south of Whoop-Up Drive, and across the river from the University of Lethbridge. We process an average of about 65 million litres of high-quality drinking water on a daily basis. The maximum daily production, in 2021, was 136.4 million litres on July 1st.

How is the water treated so you can drink it?

Like many water utilities with a surface water supply, we use a multi-step treatment process consisting of the following:

1. **Coagulation** is the addition of approved treatment water treatment chemicals to convert microscopic particles and other contaminants into larger and heavier particles.
2. **Sedimentation** is a process that removes the majority of these larger particles by settling them in tanks called clarifiers.
3. **Filtration** of the "settled" water removes most of the remaining particles to thousandths of a millimeter (too small to see).
4. **Fluoridation** is the addition of fluoride ion to the water to benefit the community's dental health. Lethbridge has added fluoride to the drinking water since 1974.
5. **Disinfection** of the water with chlorine is a way to protect public health from disease causing organisms that can be found in the river. The risk to public health is reduced further by treatment with ultraviolet light (UV). Before the water leaves the treatment plant, we combine the chlorine with ammonia to form chloramine. This reduces the formation of disinfection by-products, and ensures a long-lasting "residual" to protect your water against bacteria or other organisms on its journey to your home tap.

How is the water tested to assure its quality?

The certified operators at the treatment plant performed about 30,000 water tests as part of their daily routines in 2021. Over 1240 bacteriological tests were performed by the Provincial Public Health Laboratory on samples collected each week from throughout the water distribution system. On a quarterly basis, treated water samples are sent to a commercial laboratory for approximately 50 different tests that measure metal and disinfection by-product concentrations. Finally, at least twice each year treated water samples are subjected to a scan of 40 organic compounds including pesticide chemicals, over 40 tests for metals, and other routine analysis. In total, over 35,000 tests were conducted on our treated drinking water in the year 2021.

How does our water measure up?

Lethbridge drinking water consistently exceeds the regulated requirements established by Health Canada in the "Guidelines for Canadian Drinking Water Quality", and the specific requirements within our Waterworks Approval from the Province of Alberta issued under the Environmental Protection and Enhancement Act.

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Water Quality Summary

Acronyms

MAC = Maximum acceptable concentration established by Health Canada

AO = Aesthetic objective (no health based limit) suggested by Health Canada

NTU = Nephelometric Turbidity Unit

mg/L = milligrams per litre or one part per million

Health Related

Parameter	Range	Units	Average	MAC
Turbidity	0.039 - 0.161	NTU	0.056	0.3
Chloramines	1.60 - 2.16	mg/L	1.96	n/a ¹
Nitrate-N	0.02 - 0.13	mg/L	0.09	10
Fluoride	0.70 - 0.88	mg/L	0.79	1.5
Trihalomethanes	0.008 - 0.020	mg/L	0.014	0.1
Chromium	<0.0005	mg/L	<0.0005	0.05
Lead	<0.0001	mg/L	<0.0001	0.005
Manganese	<0.005	mg/L	<0.005	0.12

<u>Bacteriological Testing</u>	Total Samples	Total Negative Results	Total Positive Results	Total Re-samples
Water Distribution System (Random Locations)	1242	1242	0	0

Non Health Related

Parameter	Range	Units	Average	AO
pH	7.09 - 7.91		7.46	7.0 - 10.5
Hardness	148 - 162	mg/L	154	n/a ²
TDS - total dissolved solids	165 - 204	mg/L	186	≤ 500
Sulfate	23.0 - 48.6	mg/L	34.1	≤ 500
Sodium	4.8 - 14.8	mg/L	9.4	≤ 200
Iron	<0.01	mg/L	<0.01	0.05
Manganese	<0.005	mg/L	<0.005	≤ 0.02
Aluminum	0.027 - 0.165	mg/L	0.068	n/a ³

¹ Guideline value not necessary due to low toxicity at concentrations found in drinking water. Chloramine residuals in most Canadian drinking water distribution systems are typically below 4 mg/L.

² Although hardness may have significant aesthetic effects, a guideline has not been established because public acceptance of hardness may vary considerably according to the local conditions; major contributor to hardness (calcium & magnesium) are not of direct public health concern

³ Operational Guidance Value of < 0.1 mg/L total aluminum. There is no consistent, convincing evidence that aluminum in drinking water causes adverse health effects in humans.