



CITY OF
Lethbridge

Water Consumer Confidence Report 2013

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 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. We process an average of about 53 million litres of high-quality drinking water on a daily basis. The maximum daily production in 2013 was 95.3 million litres on August 28th.

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 29,000 water tests as part of their daily routines in 2013. Over 1300 bacteria tests were performed by the Provincial Public Health Laboratory on samples collected each week from throughout the water distribution system. Each month, a treated water sample is sent to a commercial laboratory for some 50 different analyses, like metals and disinfection by-products. And 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 30,000 tests were conducted on our treated drinking water in the year 2013.

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.

Water Quality Summary 2013

Health Related

Parameter	Units	MAC	Range	Average
Turbidity	NTU	0.3	0.026 – 0.089	0.049
Chloramines	mg/L	3.0	1.81 – 1.97	1.91
Nitrate - N	mg/L	10	0.02 – 0.29	0.14
Fluoride	mg/L	1.5	0.75 – 0.84	0.80
Trihalomethanes	ug/L	100	<0.001 – 26	12
Chromium	ug/L	50	<0.5	<0.5
Lead	ug/L	10	<0.1	<0.1

Bacterial Testing¹

	Total Samples	Negative Results	Positive Results	Total Retests
Water Treatment Plant and Storage Reservoirs	300	300	0	0
Distribution Samples	1070	1070	0	0

Non Health Related

Parameter	Units	AO	Range	Average
pH	n/a	6.5 – 8.5	7.11 – 7.71	7.43
Hardness	mg/L	n/a ²	144 - 185	167
TDS - total dissolved solids	mg/L	500	170 - 251	215
Sulfate	mg/L	500	25 - 66	45
Sodium	mg/L	200	7 - 22	14
Iron	ug/L	300	<10 - 80	11.5
Manganese	ug/L	50	<5	<5
Aluminum	ug/L	n/a ³	30 - 104	53

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

ug/L = micrograms per litre or one part per billion

¹ Bacteriological testing is performed by the Provincial Laboratory for Alberta Health Services. A negative result means that no bacteria (total coliform & *E. coli*) were detected in the sample.

² Parameter without guideline. Hardness levels between 80 and 100 mg/L (as CaCO₃) are generally considered acceptable; hardness in excess of 200 mg/L is considered poor; in excess of 500 mg/L is unacceptable.

³ *Operational guidance value* of less than 100 µg/L total aluminum. The current weight of scientific evidence does not indicate adverse health effects at levels found in drinking water.