



CITY OF
Lethbridge

Water Consumer Confidence Report 2016

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 53 million litres of high-quality drinking water on a daily basis. The maximum daily production, in 2016, was 111.1 million litres on June 8th.

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 2016. Over 1580 bacteriological 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 32,000 tests were conducted on our treated drinking water in the year 2016.

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 2016

Health Related

| Parameter | Units | MAC | Range | Average |
|-----------------|-------|-----|---------------|---------|
| Turbidity | NTU | 0.3 | 0.038 - 0.090 | 0.057 |
| Chloramines | mg/L | 3.0 | 1.89 – 2.02 | 1.96 |
| Nitrate - N | mg/L | 10 | 0.03 – 0.55 | 0.14 |
| Fluoride | mg/L | 1.5 | 0.78 – 0.84 | 0.80 |
| Trihalomethanes | ug/L | 100 | 5 – 16 | 10 |
| Chromium | ug/L | 50 | <0.5 – 0.6 | <0.5 |
| Lead | ug/L | 10 | <0.01- 0.6 | <0.01 |

Bacterial Testing

| | Total Samples | Total Negative Results | Total Positive Results | Total Resamples |
|---|---------------|------------------------|------------------------|-----------------|
| Water Treatment Plant and Storage Reservoir Samples | 300 | 300 | 0 | 0 |
| Distribution Samples | 1283 | 1283 | 0 | 0 |

Non Health Related

| Parameter | Units | AO | Range | Average |
|------------------------------|-------|------------------|-------------|---------|
| pH | n/a | 6.5 – 8.5 | 7.48 – 7.74 | 7.62 |
| Hardness | mg/L | n/a ¹ | 137 - 213 | 169 |
| TDS - total dissolved solids | mg/L | 500 | 170 - 280 | 218 |
| Sulfate | mg/L | 500 | 42 - 70 | 52 |
| Sodium | mg/L | 200 | 13 - 22 | 17 |
| Iron | ug/L | 300 | <10 | <10 |
| Manganese | ug/L | 50 | <5 | <5 |
| Aluminum | ug/L | n/a ² | 30 - 201 | 94 |

Definitions:

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 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; hardness in excess of 500 mg/L is considered unacceptable.

² *Operational guidance value* of less than 100 µg/L total aluminum. The current weight of evidence does not indicate adverse health effects at levels found in drinking water.