

2018 Water Quality Report

Providence Water Works

KY1170361

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Providence treats surface water from Providence City Lake and from the Tradewater River. Water from the river is used to maintain adequate levels within the lake. The Source Water Assessment for Providence has been divided into 3 protection zones. For the lake zone 1 extends one mile upstream from the intake, zone 2 extends 5 miles upstream, and zone 3 extends 10 miles upstream. For the river zone 1 extends 5 miles upstream, zone 2 extends 10 miles upstream, and zone 3 extends 25 miles upstream.

Most of the potential contaminant sites were located in zone 3 several miles from the intake. The majority of the potential contaminant sources are considered to be of moderate concern there are several potential contaminant sources that are of high concern. Areas of high concern include fuel storage tanks, underground injection sites, landfills, oil and gas wells, and agricultural activities. Another area of medium concern includes the major highways where the potential of chemical spills due to accidents exists. The Source Water Assessment can be reviewed at the Providence Water Department.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects may be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and may pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include: Microbial contaminants, such as viruses and bacteria, (sewage plants, septic systems, livestock operations, or wildlife). Inorganic contaminants, such as salts and metals, (naturally occurring or from stormwater runoff, wastewater discharges, oil and gas production, mining, or farming). Pesticides and herbicides, (stormwater runoff, agriculture or residential uses). Organic chemical contaminants, including synthetic and volatile organic chemicals, (by-products of industrial processes and petroleum production, or from gas stations, stormwater runoff, or septic systems). Radioactive contaminants, (naturally occurring or from oil and gas production or mining activities). In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water to provide the same protection for public health.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Your local public water system is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

Some or all of these definitions may be found in this report:

Maximum Contaminant Level (MCL) - the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal (MCLG) - the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Residual Disinfectant Level (MRDL) - the highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG) - the level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Below Detection Levels (BDL) - laboratory analysis indicates that the contaminant is not present.

Not Applicable (N/A) - does not apply.

Parts per million (ppm) - or milligrams per liter, (mg/L). One part per million corresponds to one minute in two years or a single penny in \$10,000.

Parts per billion (ppb) - or micrograms per liter, (µg/L). One part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

Parts per trillion (ppt) - one part per trillion corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000.

Parts per quadrillion (ppq) - one part per quadrillion corresponds to one minute in 2,000,000,000 years or one penny in \$10,000,000,000,000.

Picocuries per liter (pCi/L) - a measure of the radioactivity in water.

Millirems per year (mrem/yr) - measure of radiation absorbed by the body.

Million Fibers per Liter (MFL) - a measure of the presence of asbestos fibers that are longer than 10 micrometers.

Nephelometric Turbidity Unit (NTU) - a measure of the clarity of water. Turbidity has no health effects. However, turbidity can provide a medium for microbial growth.

Turbidity is monitored because it is a good indicator of the effectiveness of the filtration system.

Variances & Exemptions (V&E) - State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

Action Level (AL) - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system shall follow.

Treatment Technique (TT) - a required process intended to reduce the level of a contaminant in drinking water.

Spanish (Español) Este informe contiene información muy importante sobre la calidad de su agua beber. Tradúzcalo o hable con alguien que lo entienda bien.

To request a paper copy call (270) 667-2511.

The data presented in this report are from the most recent testing done in accordance with administrative regulations in 401 KAR Chapter 8. As authorized and approved by EPA, the State has reduced monitoring requirements for certain contaminants to less often than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data in this table, though representative, may be more than one year old. Copies of this report are available upon request by contacting our office during business hours.

To understand the possible health effects described for many regulated contaminants, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

	Allowable Levels	Highest Single Measurement	Lowest Monthly %	Violation	Likely Source of Turbidity
Turbidity (NTU) TT * Representative samples of filtered water	No more than 1 NTU* Less than 0.3 NTU in 95% of monthly samples	0.11	100	No	Soil runoff

Regulated Contaminant Test Results Providence Water Works

Contaminant [code] (units)	MCL	MCLG	Report Level	Range of Detection	Date of Sample	Violation	Likely Source of Contamination
Arsenic [1005] (ppb)	10	N/A	0.6	0.6 to 0.6	Feb-18	No	Natural erosion; runoff from orchards or glass and electronics production wastes
Barium [1010] (ppm)	2	2	0.024	0.024 to 0.024	Feb-18	No	Drilling wastes; metal refineries; erosion of natural deposits
Copper [1022] (ppm) sites exceeding action level 0	AL = 1.3	1.3	0.209 (90 th percentile)	0.0028 to 0.982	Jul-17	No	Corrosion of household plumbing systems
Cyanide [1024] (ppb)	200	200	50	50 to 50	Feb-18	No	Discharge from steel/metal factories; plastic and fertilizer factories
Fluoride [1025] (ppm)	4	4	0.50	0.5 to 0.5	Feb-18	No	Water additive which promotes strong teeth
Lead [1030] (ppb) sites exceeding action level 1	AL = 15	0	7 (90 th percentile)	0 to 26	Jul-17	No	Corrosion of household plumbing systems
Atrazine [2050] (ppb)	3	3	0.3125	0.25 to 0.45	Aug-18	No	Runoff from herbicide used on row crops
Total Organic Carbon (ppm) (measured as ppm, but reported as a ratio)	TT*	N/A	1.62 (lowest average)	1.18 to 2.23 (monthly ratios)	2018	No	Naturally present in environment.

*Monthly ratio is the % TOC removal achieved to the % TOC removal required. Annual average must be 1.00 or greater for compliance.

Chlorine (ppm)	MRDL = 4	MRDLG = 4	0.94 (highest average)	0.3 to 1.71	2018	No	Water additive used to control microbes.
HAA (ppb) (Stage 2) [Haloacetic acids]	60	N/A	62 (high site average)	2 to 115 (range of individual sites)	2018	YES	Byproduct of drinking water disinfection
TTHM (ppb) (Stage 2) [total trihalomethanes]	80	N/A	79 (high site average)	40 to 128 (range of individual sites)	2018	No	Byproduct of drinking water disinfection.

Fluoride (added for dental health)	Average		Range of Detection	
	0.8	0.51	to	1.05
Sodium (EPA guidance level = 20 mg/L)	13.1	13.1	to	13.1

HAA(ppb) Individual Site	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Violation
SM3	38.63	58.13	59.63	61.88	Yes
SM4	50.00	62.38	47.63	49.88	Yes

Violations:

Testing results showed that our system exceeded the standard, or maximum contaminant level (MCL), for Haloacetic acids (HAA). The standard for HAA is 0.060 mg/L. It is determined by averaging all samples at each sampling location for the last 12 months. Haloacetic acids averaged at our system's locations for:

4/1/2018 through 6/30/2018 was 0.062 mg/L

10/1/2018 through 12/31/2018 was 0.062 mg/L

We are making changes in our chemical treatment at the water plant and in our distribution system flushing program. We anticipate returning to compliance in the next two quarters. Public notices were issued for the quarter we were out of compliance.

Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

Secondary Contaminant	Maximum Allowable Level	Report Level	Range of Detection	Date of Sample
Aluminum	0.05 to 0.2 mg/l	0.03	0.03 to 0.03	Feb-18
Chloride	250 mg/l	150	150 to 150	Feb-18
Copper	1.0 mg/l	0.0059	0.0059 to 0.0059	Feb-18
Corrosivity	Noncorrosive	-1.16	-1.16 to -1.16	Feb-18
Fluoride	2.0 mg/l	0.5	0.5 to 0.5	Feb-18
Foaming Agents	0.5 mg/l	0.1	0.1 to 0.1	Feb-18
Manganese	0.05 mg/l	0.002	0.002 to 0.002	Feb-18
pH	6.5 to 8.5	7.26	7.26 to 7.26	Feb-18
Sulfate	250 mg/l	112	112 to 112	Feb-18
Total Dissolved Solids	500 mg/l	279	279 to 279	Feb-18

Secondary contaminants do not have a direct impact on the health of consumers. They are being included to provide additional information about the quality of the water.