

ANNUAL WATER QUALITY REPORT

Reporting Year 2022



Presented By
Lorain Utilities



Our Mission Continues

We are once again pleased to present our annual water quality report covering all testing performed between January 1 and December 31, 2022. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users. Please remember that we are always available should you ever have any questions or concerns about your water.

Source Water Assessment

For purposes of source water assessment, in Ohio all surface waters are considered to be susceptible to contamination. By their nature, surface waters are accessible and can be easily contaminated by chemicals and pathogens. Compared to groundwater, contaminants in surface water tend to move swiftly, so an upstream spill may rapidly arrive at the public drinking water intake with little warning or time to prepare.

The City of Lorain's intake is close to the Black River, which increases the susceptibility of the source water to contamination. The City of Lorain's drinking water source protection area contains a moderate number of potential contaminant sources. These include accidental spills, releases associated with commercial shipping and recreational boating, air contaminant deposition, contaminants from industries and agricultural runoff, contaminants associated with oil and gas production and transportation, sediments from river dredging and disposal operations, natural erosional processes, contaminated stormwater runoff from urban areas, municipal and home sewerage treatment system discharges, and combined sewer overflows.

The City of Lorain treats the water to meet drinking water quality standards, but no single treatment technique can address all potential contaminants. Implementing measures to protect Lake Erie and the Black River can further decrease the potential for negative impacts on water quality. If you would like a copy of the source water assessment plan, please feel free to contact Superintendent Neuronsy C. Adams at (440) 204-2280.

Think before You Flush!

Flushing unused or expired medicines can be harmful to your drinking water. Properly disposing of unused or expired medication helps protect you and the environment. Keep medications out of our waterways by disposing responsibly. To find a convenient drop-off location near you, please visit <https://bit.ly/3IeRyXy>.

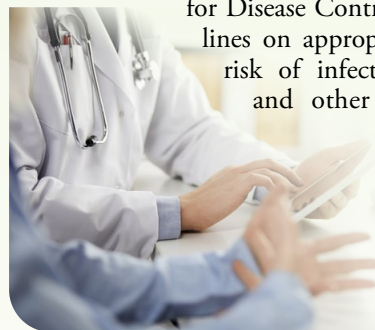
Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. City council meets the first and third Monday of each month at 6:00 p.m. at City Hall, 200 West Erie Avenue, Lorain.



Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.



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QUESTIONS? For more information about this report, or for any questions relating to your drinking water, please call Neuronsy C. Adams, Water Treatment Superintendent, or Lacy Hepp, Chemist, at (440) 204-2280.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

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, in some cases radioactive material, and substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Lead in Home Plumbing

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. We are responsible for providing high-quality drinking water, but we 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 two 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. A list of laboratories certified in the state of Ohio to test for lead may be found at <http://www.epa.ohio.gov/ddagw> or by calling (614) 644-2752. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at (800) 426-4791 or at www.epa.gov/safewater/lead.

Water Treatment Process

The treatment process consists of a series of steps. First, raw water is drawn from the Lake Erie intake, where potassium permanganate is added for zebra mussel control and preliminary disinfection. A rotating screen removes fish and debris. The water is treated with alum and polymer; the addition of these substances causes small particles to adhere to one another and become bigger, a process called flocculation. At this point caustic soda (to adjust the final pH and alkalinity) and powdered activated carbon (to remove toxins, taste and odor compounds, and algal toxins) are added. During flocculation the large particles become heavy enough to settle into a basin from which sediment is removed. The water is then filtered through layers of granular activated carbon and refined filter sand. As smaller suspended particles are removed, clear water emerges.

Chlorine is added as a precaution against any bacteria and viruses that may still be present. (We carefully monitor the amount of chlorine, adding the lowest quantity necessary to protect the safety of your water without compromising taste.) Finally, fluoride (to prevent tooth decay) and a corrosion inhibitor (to protect distribution system pipes) are added before the water is pumped to an underground reservoir and three water towers and into your home or business.



Where Does My Water Come From?

The City of Lorain uses surface water drawn from an intake in Lake Erie as the source of our drinking water. The intake is located in the central basin of Lake Erie, west of Black River Harbor, at a depth of approximately 20 feet.

Ninety-five percent of Lake Erie's total inflow of water comes via the Detroit River from the upper lakes -- Superior, Michigan, and Huron -- the St. Clair River, Lake St. Clair, and numerous tributaries. The rest comes from precipitation. Lake Erie is the shallowest of the Great Lakes and especially vulnerable to fluctuating water levels. The average depth is only about 62 feet (210 feet maximum). It therefore warms rapidly in the spring and summer and frequently freezes over in winter. Lake Erie is the 11th largest lake in the world by surface area, the fourth largest of the Great Lakes in surface area and the smallest by volume. It measures 241 miles across and 57 miles from north to south; its surface area is just under 10,000 square miles, with 871 miles of shoreline. The central basin averages 60 feet in depth and provides some protection from algal blooms and runoff. In contrast, the western basin averages a depth of only 24 feet, leading to higher concentrations of organics.

Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule, and the water we deliver must meet specific health standards. Here, we would only show those substances that were detected in our water (a complete list of all our analytical results is available upon request). Remember that detecting a substance does not mean the water is unsafe to drink; our goal is to keep all detects below their respective maximum allowed levels. That said, we are very pleased to report that we recorded no violations in 2022. This means that your drinking water meets or exceeds all state and federal standards.

Note that we have a current, unconditioned license to operate our water system.

The state recommends monitoring for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Alachlor (ppb)	2022	2	0	ND	NA	No	Runoff from herbicide used on row crops
Antimony (ppb)	2022	6	6	ND	NA	No	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Arsenic (ppb)	2022	10	0	ND	NA	No	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Atrazine (ppb)	2022	3	3	ND	NA	No	Runoff from herbicide used on row crops
Barium (ppm)	2022	2	2	0.019	NA	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Beryllium (ppb)	2022	4	4	ND	NA	No	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries
Cadmium (ppb)	2022	5	5	ND	NA	No	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints
Chlorine (ppm)	2022	[4]	[4]	1.53	1.38–1.96	No	Water additive used to control microbes
Chromium (ppb)	2022	100	100	ND	NA	No	Discharge from steel and pulp mills; erosion of natural deposits
Cyanide (ppb)	2022	200	200	ND	NA	No	Discharge from steel/metal factories; discharge from plastic and fertilizer factories
Fluoride (ppm)	2022	4	4	1.05	0.36–1.14	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Gross Alpha Particles (pCi/L)	2021	15	15	ND	NA	No	Certain rock and soil types with naturally decaying traces of uranium and cosmic ray bombardment
Mercury [inorganic] (ppb)	2022	2	2	ND	NA	No	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland
Nitrate (ppm)	2022	10	10	0.87	ND–0.87	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Nitrite (ppm)	2022	1	1	ND	NA	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Orthophosphate (ppm)	2022	NA	NA	0.94	0.72–1.32	No	Manufactured for corrosion control
Radium 228 (pCi/L)	2021	5	5	ND	NA	No	Naturally occurring radioactive metal that is present in the Earth's crust and can be found in plant tissue, animal tissue, soil, and bedrock
Selenium (ppb)	2022	50	50	ND	NA	No	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines
Simazine (ppb)	2022	4	4	ND	NA	No	Herbicide runoff
Thallium (ppb)	2022	2	0.5	ND	NA	No	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories
Total Coliform Bacteria (positive samples)	2022	TT	NA	0	NA	No	Naturally present in the environment

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Total Organic Carbon [TOC] ¹ (removal ratio)	2022	TT	NA	1.44	1–2.3	No	Naturally present in the environment
TTHMs [total trihalomethanes]–Stage 2 (ppb)	2022	80	NA	45.5	12.1–53.7	No	By-product of drinking water disinfection
Turbidity ² (NTU)	2022	TT	NA	1.26	0.02–1.26	No	Soil runoff
Turbidity (lowest monthly percent of samples meeting limit)	2022	TT = 95% of samples meet the limit	NA	0.23	NA	No	Soil runoff
Turbidity (% removal)	2022	TT	NA	99.6	NA	No	Naturally occurs in raw water from soil runoff

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH %ILE)	RANGE LOW-HIGH	SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2022	1.3	1.3	0/30	0.067–1	0/30	No	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb)	2022	15	0	1/30	ND–12.6	1/30	No	Lead services lines, corrosion of household plumbing systems including fittings and fixtures; erosion of natural deposits

UNREGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Bromodichloromethane (ppb)	2022	6.0	4.1–7.6	Pesticides; refrigerator fluids; spray can propellants
Chloroform (ppb)	2022	14.5	2.9–6.6	Swimming pools; hazardous waste sites; paper mills; sanitary landfills
Dibromochloromethane (ppb)	2022	1.9	1.1–2.9	NA
Microcystin, Total (ppb)	2022	0.3AL	ND–0.133	Algae blooms
Monochloroacetic Acid (ppb)	2022	ND	ND–2.1	Formed from chlorine or other disinfectants when used to treat drinking water
Nickel (ppb)	2022	ND	100–100	Naturally occurring
Trichloroacetic Acid (ppb)	2022	4.9	2.1–12.6	Chlorination of acetic acid

¹The value reported under Amount Detected for TOC is the lowest ratio of percentage of TOC actually removed to percentage of TOC required to be removed. A value of greater than 1 indicates that the water system is in compliance with TOC removal requirements. A value of less than 1 indicates a violation of the TOC removal requirements.

²Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

Definitions

90th %ile: The levels reported for lead and copper represent the 90th percentile of the total number of sites tested. The 90th percentile is equal to or greater than 90% of our lead and copper detections.

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

MCL (Maximum Contaminant Level): 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.

MCLG (Maximum Contaminant Level Goal): 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.

MRDL (Maximum Residual Disinfectant Level): 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.

MRDLG (Maximum Residual Disinfectant Level Goal): 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.

NA: Not applicable.

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

pCi/L (picocuries per liter): A measure of radioactivity.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

removal ratio: A ratio between the percentage of a substance actually removed to the percentage of the substance required to be removed.

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