



MICHIGAN STATE UNIVERSITY

PUBLISHED JUNE 2024

WATER QUALITY ANNUAL REPORT

INFRASTRUCTURE PLANNING AND FACILITIES

ipf.msu.edu

This report compares campus water quality to federal Environmental Protection Agency (EPA) and Michigan Department of Environment, Great Lakes and Energy (EGLE) standards and regulations. MSU facilities operate 24 hours a day, seven days a week and are monitored by qualified, trained and licensed personnel.

MSU is pleased to report our drinking water meets or surpasses all federal and state regulatory requirements.



TABLE OF CONTENTS

3	Our Commitment
4	Sources of Drinking Water
5	Campus Distribution System
7	Farm District Well Distribution System
8	Important Water Quality Notices
14	Definitions/Appendix



OUR COMMITMENT TO SAFE WATER

MSU is committed to providing our campus community with safe and reliable water.

To ensure that tap water is safe to drink, EPA regulations limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) establishes limits for contaminants in bottled water, which provide the same protection for public health.

The state and EPA require MSU to test our water on a regular basis to ensure its safety. MSU meets all monitoring and reporting requirements for both state and federal regulations.

In the wake of the water crisis experienced in Flint, it is understandable that the MSU community is concerned about its water quality. Infrastructure Planning and Facilities has a highly qualified staff of water utility professionals who understand the importance of the water quality for our community. We are dedicated to providing the highest quality drinking water, and continue to meet or exceed all state and federal regulatory requirements.

There is no detectable lead in MSU drinking water when it enters the distribution system. Water supplied to MSU comes from a consistent source of groundwater, drawn from wells located deep within the Saginaw Aquifer. If small amounts of lead are present in existing plumbing materials and water is allowed to set for several hours, lead may enter into drinking water since it is naturally corrosive.

To prevent this, MSU employs a comprehensive corrosion protection regimen, consisting of the use of phosphate additives. MSU has been testing for lead and other contaminants since 1992. Water testing results consistently show lead levels below the action level of 15 parts per billion (ppb).



Sources of drinking water

MSU's water system uses more than a dozen groundwater wells, each with pumping capacities ranging from 400 to 850 gallons per minute. Source water is closely monitored to ensure a high level of quality.

WHERE DOES MSU WATER COME FROM?

The water source for most of Michigan State University's East Lansing campus is groundwater drawn from the Saginaw Aquifer. These underground water-bearing formations are continually replenished with water through the normal hydrologic cycle.

In Michigan and the Great Lakes Basin, we are fortunate to have an abundant supply of fresh water as compared with other areas of the world. The Great Lakes Basin contains 20 percent of the world's fresh water.

MSU's water system uses more than a dozen groundwater wells, each with pumping capacities ranging from 400 to 850 gallons per minute. MSU closely monitors the source water and the treated drinking water to ensure a high level of quality and safety is maintained. Once treated, the water is distributed to campus through a network of water mains, consisting of about 74 miles of pipes that range from 6 to 16 inches in diameter.

1855 Place, Jack Breslin Student Events Center, Brody Neighborhood, University Village and the Kellogg Hotel & Conference Center are supplied water by the East Lansing-Meridian Water and Sewer Authority.

For more information, refer to East Lansing-Meridian Water and Sewer Authority water quality report online:

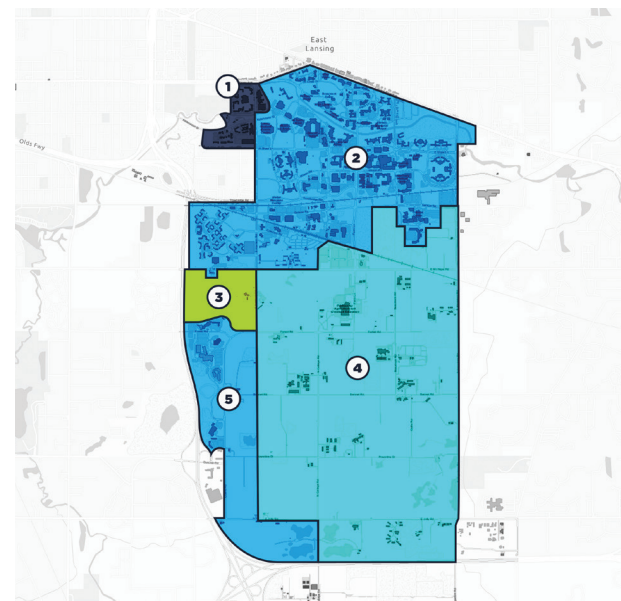
<https://www.cityofeastlansing.com/600/Annual-Water-Quality-Report>

Facilities along the southwest border of campus at Forest and Collins roads, including the Henry Center for Executive Development, are supplied water by the Lansing Board of Water and Light. For more information, refer to the Lansing Board of Water and Light water quality report online:

<https://www.lbwl.com/WaterQualityReport>

MSU East Lansing Water Distribution Systems

- ¹City of East Lansing Distribution System
- ²Campus Distribution System
- ³Forest Akers West
- ⁴Wells Distribution System
- ⁵Board of Water and Light Distribution System



CAMPUS DISTRIBUTION SYSTEM

JAN 1 - DEC 31, 2023

This table shows test results for substances that were found in MSU's drinking water. Results are not shown for substances that were tested for but not detected at or above the Maximum Contaminant Level (MCL).

TABLE OF DETECTS CAMPUS DISTRIBUTION SYSTEM

CONSTITUENT/UNITS OF MEASUREMENTS	MCL/AL	MCLG	AMOUNT IN MSU WATER	RANGE OF RESULTS	YEAR ¹	# OF SAMPLES ABOVE AL	LIKELY SOURCES
Biological Constituents							
Total Coliform (% Positive Samples)	N/A	N/A	Number Detected: 0 Violation: None		2023	NONE	Naturally present in the environment
Inorganic							
Copper (ppm) ⁵	AL= 1.3	1.3 ppm	0.35	ND-1.2 ppm	2023	THREE ⁴	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb) ³	AL=15	0 ppb	0.06	ND-2 ppb	2023	THREE ⁴	Lead service lines, corrosion of household plumbing including fittings and fixtures; Erosion of natural deposits
Number of Lead Services	N/A	N/A	0 Lead Service Leads			NONE	N/A
Fluoride (Tap) (ppm)	4	4	0.56	0.23-0.99	2023	NONE	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Barium (ppm)	2	2	0.14	0.12-0.2	2020	NONE	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Disinfectants							
Chlorine (ppm) ⁵	4	4	Highest RAA: 1.43	0.22-1.79	2023	NONE	Water additive used to control microbes
Disinfectants By-Products							
Stage 2 Total Trihalomethanes (THMs) (ppb)	80	N/A	LRAA: 17.35	15.4-19.3	2023	NONE	By-product of disinfection
Stage 2 Total Haloacetic Acid (HAA5) (ppb)	60	N/A	LRAA: 13	13	2023	NONE	By-product of disinfection
Radionuclides							
Gross Alpha (pCi/L)	15	0	1.1	0.0622-2.38	2023	NONE	Erosion of natural deposits
Radium (pCi/L)	5	0	1.232	1.06-1.42	2023	NONE	Erosion of natural deposits
Unregulated Substance²							
Sodium (ppm)	N/A	N/A	16.75	13-23	2023	NONE	Erosion of natural deposits and runoff

¹Water quality regulations allow the monitoring of some substances less often than once a year because their concentrations are not expected to vary significantly from year to year.

²Unregulated substances are those for which the EPA has not established drinking water standards. The purpose of monitoring these substances is to assist the EPA in determining the occurrence of unregulated substances in drinking water and whether future regulation is warranted.

³90 percent of samples were at or below this level.

⁴Sample Fixtures were isolated and changed after receipt of sample results above action level.

⁵Chlorine does not have an associated MCL or MCLG. It is limited by a MRDLG which is defined on page 13. The levels shown are the MRDLG limit.



Additional parameters

While not mandatory for State of Michigan reporting, we've compiled additional campus water quality parameters of interest for researchers, faculty, staff and students.

NORTH CAMPUS

MSU WATER REPORT: Additional water parameters of interest for researchers, faculty, staff and students.			
PARAMETER	UNITS	YOUR WATER RESULTS	
		AVG. LEVEL DETECTED	RANGE
Chloride	ppm	37.1	22-42
Hardness (calcium carbonate) ¹	ppm	460.2	386-502
Iron	ppm	0.12	0-1.9
Nitrate as N	ppm	ND	ND
Nitrite as N	ppm	ND	ND
Sodium	ppm	16.75	13-23
Sulfate	ppm	112.34	80-157

¹May differ at tap due to residence time

REGULATED CONTAMINANT MONITORING DISINFECTION BY PRODUCTS

CONTAMINANT	AVG.	RANGE	MRL	YEAR
Bromochloroacetic Acid (ppb)	0.002	0.002	0.30	2023
Bromodichloroacetic Acid (ppb)	1.43	1.30-1.50	0.50	2023
Chlorodibromoacetic Acid (ppb)	0.00125	0.0012-0.0013	0.30	2023
Dichloroacetic Acid (ppb)	0.0065	0.006-0.007	0.20	2023
Trichloroacetic Acid (ppb)	0.009	0.009	0.50	2023

WELL DISTRIBUTION SYSTEM

JAN 1 - DEC 31, 2023

This table shows test results for substances that were found in MSU's drinking water. Results are not shown for substances that were tested for but not detected at or above the Maximum Contaminant Level (MCL).

TABLE OF DETECTS WELL DISTRIBUTION SYSTEM

CONSTITUENT/UNITS OF MEASUREMENTS	MCL	MCLG	AMOUNT IN MSU WATER	RANGE OF RESULTS	YEAR ¹	# OF SAMPLES ABOVE AL	LIKELY SOURCES
Biological Constituents							
Total Coliform (% Positive Samples)	N/A	N/A	Number Detected: 0 Violation: None		2023	NONE	Naturally present in the environment
Inorganic							
Copper (ppm) ³	AL= 1.3	1.3 ppm	0.82	ND-2.7	2023	ONE ⁴	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb) ³	AL=15	0 ppb	0.03	2-93	2023	ONE ⁴	Lead service lines, corrosion of household plumbing including fittings and fixtures; Erosion of natural deposits
Number of Lead Services	N/A	N/A	0 Lead Service Leads			NONE	N/A
Fluoride (Natural) (ppm)	4	4	0.17	0-0.43	2023	NONE	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nickel (ppm)	0.1	0.1	ND	ND	2023	NONE	Erosion of natural deposits
Barium (ppm)	2	2	0.14	0.11-0.2	2023	NONE	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Arsenic (ppb)	10	10	1.5	0-5	2023	NONE	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes ⁵
Isopropylbenzene (ppm)	None	None	ND	ND	2022	NONE	Runoff from petroleum products, paint, and rust preventatives
CONSTITUENT/UNITS OF MEASUREMENTS	MCL	MCLG	AMOUNT IN MSU WATER		YEAR ¹		LIKELY SOURCES
Radionuclides							
Radium (pCi/L) ⁹	5	0	4.2	2.13-6.19	2023	NONE	Erosion of natural deposits ⁶
Gross Alpha (pCi/L)	15	0	4.0753	0.851-10	2023	NONE	Erosion of natural deposits ⁷
Unregulated Substance²							
Sodium (ppm)	N/A	N/A	13.409	6.4-54	2023	NONE	Erosion of natural deposits and runoff
Litium (ug/L)	N/A	Reporting limit 9.0	11.46	9-16.50	2023	NONE	Erosion of natural deposits and runoff

¹Water quality regulations allow us to monitor some substances less often than once a year because their concentrations are not expected to vary significantly from year to year.

²Unregulated substances are those for which the EPA has not established drinking water standards. The purpose of monitoring these substances is to assist the EPA in determining the occurrence of unregulated substances in drinking water and whether future regulation is warranted.

³MSU tests lead and copper twice per year as required by MI EGLE.

⁴90th Percentile testing results were at or below the MCL level in accordance with regulations.

⁵While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

⁶Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.

⁷Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.

⁸Test results post 2018 have reported Non-Detect.

⁹ Radium 226 and 228 testing done at some individual entry points to the Well Distribution System are sampled on quarterly basis. These sample test results are calculated on a running annual average basis. Some individual sample results of the quarterly samples may be over the MCL however when calculated into the running annual average, the average is below the MCL. Therefore no violation of the MCL.

IMPORTANT WATER QUALITY NOTICES

Vulnerability of sub-populations - 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 people, and infants can be particularly at risk from infections.

These people should seek advice about drinking water from their health care providers. 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 EPA's Safe Drinking Water Hotline (800-426-4791) or at www.epa.gov/safewater.

Contaminants and their presence in water - 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 can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791) or at www.epa.gov/safewater.

Sources of drinking water - 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 can 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, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- **Inorganic Contaminants**, such as salts and metals, which can be naturally occurring or result from urban storm 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 farming, storm water runoff, residential or business.
- **Organic Chemical Contaminants**, including synthetic and volatile organics, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems.
- **Radioactive Contaminants**, which can be naturally-occurring, or may be the result of oil and gas production and mining activities.

To ensure that tap water is safe to drink, the EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems.

The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

IMPORTANT WATER QUALITY NOTICES

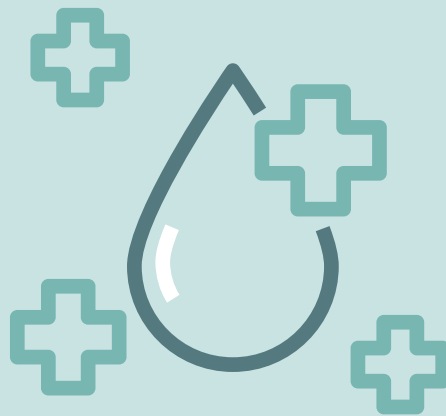
Lead and copper in drinking water - If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Michigan State University is 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 have a lead service line, galvanized pipes previously connected to lead, or unknown but likely to be lead, it is recommended that you run your water for at least 5 minutes to flush water from both your home plumbing and the lead service line. 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 EPA's Safe Drinking Water Hotline at 1-800-426-4791 or at <http://www.epa.gov/safewater/lead>.

Infants and children who drink water containing lead could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink water containing lead over many years could develop kidney problems or high blood pressure.

Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.



MONITORING REQUIREMENTS NOTICE: TIMING

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER Monitoring Requirements Not Met for Michigan State University

We are required to monitor your drinking water for specific analytes on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During February 19, 2023 to March 4, 2023, we did not monitor for Water Quality Parameters¹ (WQP), and therefore cannot be sure of the quality of our drinking water during that time. However, this violation does not pose a threat to your supply's water.

What should I do? There is nothing you need to do at this time. This is not an emergency. You do not need to boil water or use an alternative source of water at this time. Even though this is not an emergency, as our customers you have a right to know what happened and what we did to correct the situation.

The table below lists the analytes we did not properly test for, how often we are supposed to sample for this analyte, how many samples we are supposed to take, how many samples we took, when samples should have been taken, and the date we will collect follow-up samples.

Analytes	Required sampling frequency	Number of samples taken	When all samples should have been taken between	Date samples were taken by
WQP pH, sulfate, chloride, and orthophosphate	1 sample every two weeks	0	February 19, 2023 to March 4, 2023	March 7, 2023

What happened? What is being done? We failed to take and analyze samples for all of the required parameters within the required sampling periods. Monitoring of Water Quality Parameters (WQPs) is an essential part of a corrosion control treatment program and is used to evaluate the potential aggressiveness of water on plumbing and fixtures. Sampling of WQPs is required to safeguard public health. We will continue to work with the Michigan Department of Environment, Great Lakes, and Energy to resolve this issue as quickly as possible.

For more information, please contact: Sherri Jett, Utilities Director, Michigan State University, T.B. Simon Power Plant, 354 Service Drive, East Lansing, Michigan 48824
Email: jettsher@msu.edu Phone: (517) 355-3314

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice is being sent to you by: Michigan State University

WQP are a group of analytes that are indicators of corrosivity. They can include pH, alkalinity, calcium, conductivity, temperature, sulfate, chloride, and orthophosphate.

MONITORING REQUIREMENTS NOTICE: SAMPLE NUMBER

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER Monitoring Requirements Not Met for Michigan State University

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During July 1 to July 31, 2023, we did not complete all monitoring or testing for total coliform bacteria, nor properly monitor or test for chlorine residuals, and therefore cannot be sure of the quality of your drinking water during that time.

What should I do? There is nothing you need to do at this time. This is not an emergency. You do not need to boil water or use an alternative source of water at this time. Even though this is not an emergency, as our customers you have a right to know what happened and what we did to correct the situation.

The table below lists the contaminant we did not properly test for, how often we are supposed to sample for this contaminant, how many samples we are supposed to take, how many samples we took, when samples should have been taken, and the date we collected follow-up samples.

Contaminant	Required sampling frequency	Number of samples taken	When all samples should have been taken	Date(s) additional samples will be taken
Total Coliform Bacteria	14 samples per month	11	July 1, 2023 to July 31, 2023	August 1, 2023 to August 31, 2023
Chlorine Residual	10 samples per month	4	July 1, 2023 to July 31, 2023	August 1, 2023 to August 31, 2023

What happened? What is being done? We inadvertently missed taking a sample within this required sampling period. We are making every effort to ensure this does not happen again. We expect to return to compliance by the end of August 2023.

For more information, please contact Thomas Silsby, silsbyth@msu.edu, (517) 884-7109.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice is being sent to you by Michigan State University.

MONITORING REQUIREMENTS NOTICE: ACTION LEVEL (AL) EXCEEDANCE - LEAD AND COPPER MONITORING

Michigan State University collected 7 samples from 5 unique locations in the Farm District distribution system. Five samples were used to calculate the 90th percentile values.

The Farm District’s distribution system’s 90th percentile values exceeded the AL for lead and copper during the most recent round of lead and copper monitoring of drinking water taps from June 1 through September 30, 2023, as summarized below.

Contaminant	AL	MCLG*	90th percentile value	Number of sites above AL	Range of sample results	Typical source of contaminant
Lead orthophosphate	15 ppb	0	50 ppb	1	2 - 93 ppb	Corrosion of household plumbing systems; Service lines that may contain lead; Erosion of natural deposits

Contaminant	AL	MCLG*	90th Percentile Value	Number of Sites Above AL	Range of Sample Results	Typical Source of Contaminant
Copper orthophosphate	1.3 ppm	1.3	1.5 ppm	1	0-2.7 ppm	Corrosion of household plumbing systems; Service lines that may contain lead; Erosion of natural deposits

*MCLG: Maximum contaminant level goal means 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.

The following 2 samples were excluded from the 90th percentile calculations for the Farm District:

Site Address	Collection Date	Sample Number	Lead (ppb)	Copper (ppm)	Exclusion Reason
Dairy Forman's house (kitchen)	09/28/2023	K94369	0 ppb	0.2 ppm	Not highest result at location
Dairy Forman's house (bath tub)	09/28/2023	KK94370	1 ppb	0.3 ppm	Not first draw

An AL exceedance is not a violation, but it triggers other requirements under the administrative rules promulgated under the Michigan Safe Drinking Water Act, 1976 PA 399, as amended (Act 399). Requirements include water quality parameter (WQP) monitoring, source water monitoring, corrosion control treatment, and public education (PE). Please refer to the “Timetable of Upcoming Requirements” for your specific deadlines for each of the following requirements.

For more information, please contact Thomas Silsby, silsbyth@msu.edu, (517) 884-7109.

SOURCE WATER ASSESSMENT

The 1996 amendments to the federal Safe Drinking Water Act required states to assess the susceptibility of all public water supplies to potential sources of contamination. The susceptibility rating is determined using a scale ranging from “very low” to “very high” based primarily on geologic sensitivity, water chemistry and locations of contaminant sources. MSU’s Source Water Assessment was completed in 2003. The susceptibility of the campus water supply was deemed to be “moderately high.”

Potential sources of contamination include: above-ground storage tanks, liquid manure spreading, chemical and waste storage areas, biowaste holding tanks, wet labs, equipment storage areas, farming operations, chemical storage, pesticide storage, equipment washing pads, paint storage, mixing and cleaning operations, a biotechnology facility, and a number of sites that generate, use and dispose of hazardous waste and other chemicals.

To protect our groundwater from these potential sources of contamination, MSU developed a Wellhead Protection Program (WHPP) in 2000. The program is updated regularly, with the latest revision approved by EGLE in 2022.

The goal of MSU’s WHPP is to manage the land area that surrounds our water supply wells to minimize the potential for contamination.

Information about the WHPP can be found online:

<https://www.michigan.gov/egle/about/organization/drinking-water-and-environmental-health/source-water-assessment>



COMMON ABBREVIATIONS

AL (Action Level) - The concentration of a contaminant which, if exceeded, requires a water system to initiate a treatment process or other action.

ALG (Action Level Goal) - The level of a contaminant in drinking water below which there is no known or expected risk to health. ALGs allow for a margin of safety.

AVG (Average) - Regulatory compliance with some MCLs are based on a running annual average of monthly samples.

LRAA (Location Running Annual Average) - The average of sample analytical results from samples taken at a particular monitoring location during the previous four calendar quarters.

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 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.

MRL (Minimum Reporting Level) - The smallest measured concentration of a substance that can be reliably measured and reported by a laboratory using a given analytical method.

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 Goals) - The level of 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.



COMMON ABBREVIATIONS

ND (Non-Detect) - Below analytical method detection limit.

NTU (Nephelometric Turbidity Units) - Unit of measurement for water clarity.

pCi/L (picocuries per liter or nanograms per liter ng/L) - A measure of radioactivity.

ppb (parts per billion or micrograms per liter mcg/L) - One ounce in 7,350,000 gallons of water.

ppm (parts per million or nanograms per liter ng/L) - One ounce in 7,350 gallons of water

ppt (parts per trillion or nanograms per liter ng/L) - One ounce in 7,350,000,000 gallons of water.

RAA (Running Annual Average) - A continuous averaging of four quarters of sampling.

SDWA (Safe Drinking Water Act) - A set of federally mandated regulations that ensures the quality and safety of water provided by public water systems.

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

> - A symbol meaning "more than."

< - A symbol meaning "less than."



MICHIGAN STATE UNIVERSITY



PUBLISHED JUNE 2024

WATER QUALITY ANNUAL REPORT

INFRASTRUCTURE PLANNING & FACILITIES

ipf.msu.edu