



2022 Water Quality Report

Water Supply Serial Number: 05120

Municipal tap water is the life source of every community.

Our dependable water supply contributes to public health, keeps citizens safe from waterborne illness, drives economic prosperity, and is vital for everyday life. The Owosso Water Filtration Plant treated over 652 million gallons of water to over 14,301 residents in the City of Owosso during 2022. This report covers the drinking water quality for City of Owosso Water Supply for the 2022 calendar year. This information is a snapshot of the quality of the water that we provided to you in 2022. Included are details about where your water comes from, what it contains, and how it compares to United States Environmental Protection Agency (USEPA) and state standards.

At Owosso's water filtration plant - water is tested continuously. Operators also conduct quality assurance and quality control processes to ensure accuracy. Chemists in the water quality laboratory conduct hourly tests from the treatment process. In addition, weekly and monthly, they test samples from water sites throughout the city. Staff work closely with Michigan Department of Environment, Great Lakes, and Energy (EGLE) to ensure water regulatory and safety guidelines are met. Owosso's team of water quality experts go to great lengths to deliver great-tasting tap water. It's a 24/7, 365-day-a-year responsibility that they take very seriously.

Your water comes from five active groundwater wells, each over 80 feet deep. In 2018 EGLE performed an assessment of our source water to determine the susceptibility or the relative potential of contamination. The susceptibility rating is on a seven-tiered scale from "very-low" to "very-high" based on geologic sensitivity, well construction, water chemistry, and contamination sources. The susceptibility of our well source is high to very high.

Water Treatment Plant and System Maintenance in 2022.

Maintenance at the water plant is a continuous exercise. There are many parts and pieces of equipment that make up the different processes. All of the equipment has an expected useful life which we try to prolong with preventive maintenance. Our Asset Management Plan and Capital Improvement Plan guides us on when to repair/replace more expensive items and how to budget for them. During 2022, as part of a State Drinking Water Revolving Fund (DWRf) loan project, the City completed a rehabilitation of the Standpipe and the West Tower. Both tanks required component upgrades in design due to code changes. Also this work included the installation of mixers. The 24/7 operation of mixers will improve water quality, improve disinfection and prevent damage during winter due to freezing.



The newly painted West Tower!



Ongoing HVAC repairs and replacements in 2022!



Each year used lime sludge is removed for beneficial use on farm fields.



One of four High Service Pumps that maintain our water pressure and water supply located at the Filtration Plant.

Distribution System

The City of Owosso has over 113 miles of water mains, including raw and potable distribution piping ranging in size from 1.5" to 24". The majority of water distribution system mains are 50 to 65 years old with some mains 80 to 100 years old. There are over 2,388 water system valves throughout the system and over 799 fire hydrants. Owosso serves over 6,471 residential households and commercial customers with meter sizes ranging from 3/4" to 8". Also, the distribution system includes 2 water storage facilities.

Projects & Maintenance

The City of Owosso in 2021 started the process of replacing one of our wells near Hopkins Lake and developing another new well site on city property near Osburn Lakes. During 2022 the City obtained permits from EGLE to construct both well sites. The production capacity of both well sites are approved for a capacity of 1,800 gallons per minute. Construction planning and design was completed in 2022 along with plans for obtaining funding in 2023. These two wells will ensure water supply capacity and water quality for future generations in Owosso.

Another major investment in 2022 was the rehabilitation of both water storage tanks. This was a major accomplishment as epoxy and steel supply chain shortages were occurring during this project. Routine inspections of both tanks are included in our future budget to maintain both of these tanks for the next 15 to 20 years like new.

During 2022 roof repairs by a qualified contractor were ongoing and staff along with Public Works replaced other building roof sections. All of our High Service pumps were tested and inspected in 2022 and two were rebuilt to OEM specs. The High Service pumps have a total pumping capacity of 8 million gallons per day! Annual service of the clarifier's in the plant continued in 2022, worn parts needed to be replaced either by staff or OEM mechanics. Staff completed service on the Lime Silo, replacing failed and aged components.

During 2022 the City was required to complete another Lead and Copper Rule sampling period. We thank everyone involved in collecting samples, filling out paperwork, and returning everything in a timely manner. Your help made this regulatory requirement easier to accomplish. The LCR (Lead and Copper Rule) results for 2022 were again below the ALE (Action Level Exceedance) and are provided in this report. Again the City is glad to report that at locations where elevated lead and copper test results are obtained, that service line became a priority to ensure all piping going into the residence had compliant materials.



Service and replacing equipment using the DPW tree truck!

Contaminants in the 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 USEPA's Safe Drinking Water Hotline (800-426-4791).

Water Supply

In 2022 we had certified labs test our water for general chemistry, Lead and Copper, Nitrate, PFAS, Synthetic Organic Compounds (SOC's) and Total Trihalomethanes - Haloacetic Acids. Our ground water sources were also tested for general chemistry, Arsenic, Complete Minerals and Metals, and VOC's. We continue to protect our sources by using an updated Wellhead Protection Program (WHPP) to ensure safe drinking water to the public and protect the drinking water from potential sources of contamination by following the WHPP program guidelines set forth by EGLE. Another major investment involves the start of the development of a Water Master Plan, Reliability Plan, WTP Improvement Plan, WTP Performance Evaluation and WTP Engineering Studies by Fishbeck Engineering in 2022. The primary goal of the comprehensive planning study project is to identify needs and costs for Owosso drinking water system in regards to planning, budgeting, and funding. This project will be used to guide future water utility decisions. Such a comprehensive study has not been completed since 1999 and typically is required every 20 years.



During 2022 well development occurred during the coldest months of the year!

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 systems 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. USEPA/Center for Disease Control 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).

Sources of Drinking Water

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. Our water comes from 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 in source water:

- 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 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 and residential uses.
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- To ensure that tap water is safe to drink, the USEPA prescribes regulations that limit the levels of certain contaminants in water provided by public water systems. Federal Food and Drug Administration regulations establish limits for contaminants in bottled water which provide the same protection for public health.



Visit to Owosso's Water Filtration Plant

Owosso's City Council members joined the EGLE Director Liesl Clark for a tour of Owosso's water filtration plant on Tuesday, April 19, 2022. This visit follows EGLE awarding the city a \$3 million forgivable loan for lead service line replacement, a \$460,021 drinking water asset management grant and a \$403,500 grant and \$225,960 forgivable loan to replace the City's water main on Center Street and to rehab both the Stand Pipe and Elevated Tower.

City Manager Nathan Henne discussed the impact the \$3 million forgivable loan would have on the city's lead service line replacement program. Owosso has 179 known lead service lines and up to 4080 unknown and suspected lead service lines. EGLE requires the city count unknown or suspected lines as lead service lines until they can be identified. The city continues to work at identifying all lead service lines and will replace them as they are identified. The EGLE funding, paired with funds from the city's water fund, will allow Owosso to replace between 400 and 700 lead service lines.

Former Mayor Eveleth thanked EGLE for the contribution to Owosso's infrastructure projects, acknowledging that Owosso, like most of the country, faces challenges with aging infrastructure. "\$4.5 million from EGLE is a really big deal for us and I can't express how appreciative we are and how big of a difference that is going to make," Eveleth stated.

Information about Lead

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. The City of Owosso Water Supply 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, 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 Safe Drinking Water Hotline 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 this water over many years could develop kidney problems or high blood pressure.

Our water supply has 179 lead service lines and 4080 service lines of unknown material out of a total of 6467 service lines.

Monitoring and Reporting to EGLE Requirements: The State of Michigan and the USEPA require us to test our water on a regular basis to ensure its safety. During the monitoring period from October 1, 2022 to October 31, 2022 we did not take the required number of repeat routine samples for Total Coliform. This violation did not pose a threat to the quality of the drinking water.

During the past year we failed to conduct all of the required assessment(s). On October 13th, 2022, we were required to conduct a Level 1 Assessment. This Level 1 Assessment was completed on November 14th, 2022. In addition, we were required to take five corrective actions, and we completed all five of these actions. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct the problems that were found during these assessments.

Due to a Level 1 Assessment being two days overdue, the state considered this a Treatment Technique Violation. Also the number of required samples of well water was short by one sample. This was considered a Groundwater Monitoring Violation. The City of Owosso Water Supply became out of compliance on November 13, 2022, and returned to compliance on November 14, 2022, when the completed L1A form was submitted to EGLE. Additional details and explanation of this event leading up to the Violations were included in an insert in the January 2023 quarterly water bill mailing as required by the state.



Contractors remove lime at an average annual cost over \$250,000.00



Regular cleaning and parts replacement each year.

Water Quality Data

The table below lists all the drinking water contaminants that we detected during the 2022 calendar year. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in this table is from testing done January 1 through December 31, 2022. The State allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. All the data is representative of the water quality, but some are more than one year old.

Regulated Contaminant	MCL	MCLG	Level Detected	Range	Year Sampled	Violation (Yes/No)	Typical Source of Contaminant
Barium (ppm)	2	2	0.01	0.01	08/2018	No	Discharge from oil drilling wastes and from metal refineries; erosion of natural deposits
Fluoride (ppm)	4	4	0.64	0.37 - 0.64	2022	No	Erosion of natural deposits. Discharge from fertilizer and aluminum factories. *Water additive which promotes strong teeth.
HAA5 Haloacetic Acids (ppb)	60	N/A	3	1 - 3	08/2022	No	Byproduct of drinking water disinfection.
TTHM - Total Trihalomethanes(ppb)	80	N/A	43	40 - 43	08/2022	No	Byproduct of drinking water disinfection.
Chlorine* (ppm)	MRDL 4	MRDLG 4	1.06	0.55 - 1.06	2022	No	Water additive used to control microbes.
Bromodichloromethane	0.080	N/A	0.014	0.012 - 0.014	08/2022	No	Byproduct of drinking water disinfection.
Bromoform	0.080	N/A	0.0063	0.0054 - 0.0063	08/2022	No	Byproduct of drinking water disinfection.
Chlorodibromomethane	0.080	N/A	0.015	0.014 - 0.015	08/2022	No	Byproduct of drinking water disinfection.
Chloroform	0.080	N/A	0.0083	0.0073 - 0.0083	08/2022	No	Byproduct of drinking water disinfection.

*Chlorine was calculated using the running annual average.

Microbiological Contaminant	MCL	MCLG	Level Detected	Range	Year Sampled	Violation (Yes/No)	Typical Source of Contaminant
Total Coliform (total number or % of positive samples/month)	TT	N/A	N/A	N/A	2022	No	Naturally present in the environment
E. coli in the distribution system (positive samples)	See E. coli note *	0	0	N/A	2022	No	Human and animal fecal waste
Fecal Indicator - E. coli at the source (positive samples)	TT	N/A	0	N/A	2022	No	Human and animal fecal waste

* E. coli MCL violation occurs if: (1) routine and repeat samples are total coliform-positive and either is E. coli-positive, or (2) the supply fails to take all required repeat samples following E. coli-positive routine sample, or (3) the supply fails to analyze total coliform-positive repeat sample for E. coli.

Inorganic Contaminant Subject to ALs	AL	MCLG	Your Water*	Range of Results	Year Sampled	Number of Samples Above AL	Typical Source of Contaminant
Lead (ppb)	15	0	7 ppb	0 ppb - 34 ppb	2022	1	Lead service lines, corrosion of household plumbing including fitting and fixtures; Erosion of natural desposits.
Copper (ppm)	1.3	1.3	0.0 ppm	0 ppm - 0.1 ppm	2022	0	Corrosion of household plumbing systems; Erosion of natural desposits.

*Ninety (90) percent of the samples collected were at or below the level reported for our water.

We will update this report annually and will keep customers informed of any problems that may occur throughout the year, as required. Copies are available at City Hall. This report will not be sent to you. We invite public participation in decisions that affect drinking water quality. Public comment may be provided at City Hall during regularly scheduled city council meetings, held at 7:30 p.m. on the first and third Mondays of each month. For more information about your water, or the contents of this report, contact the Water Plant Superintendent, David Haut at 989-725-0560, or email: david.haut@ci.owosso.mi.us. Further, the city web site at <http://www.ci.owosso.mi.us/Utilities> is available for inquiries and comment. Finally the Director of Public Services and Utilities is available for information and inquiries at 989-725-0555 or email at ryan.suchanek@ci.owosso.mi.us. For more information about safe drinking water, visit the U.S. EPA at <http://www.epa.gov/safewater/>.

Terms & Abbreviations

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

Level 1 Assessment: A study of the water supply to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

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.

N/A: Not applicable

ND: not detectable at testing limit

ppb: parts per billion or micrograms per liter

ppm: parts per million or milligrams per liter

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

Additional Monitoring

Unregulated contaminants are those for which the USEPA has not established drinking water standards. Monitoring helps the USEPA determine where certain contaminants occur and whether regulation of those contaminants is needed.

Unregulated Contaminant Name	Average Level Detected	Year Sampled	Comments
Sodium (ppm)	43	8/2022	Typical source is erosion of natural deposits.
Chloride (ppm)	94	8/2022	Naturally occurring or indicative of road salt contamination.
Sulfate (ppm)	124	8/2022	Naturally occurring.
Magnesium (ppm)	15	8/2022	Naturally occurring.
Hardness of CaCO3 (ppm)	169	8/2022	Naturally occurring.
Calcium (ppm)	43	8/2022	Naturally occurring.
	Average Level Detected	Year Sampled	Comments
			See EPA Website: https://www.epa.gov/dwucmr/fourth-unregulated-contaminant-monitoring-rule
Germanium (ug/L)	<0.300	1/21/2020	Metal.
Manganese (ug/L)	<0.400	1/21/2020	Metal.
BHA (ug/L)	<0.0300	1/21/2020	Semi-Volatile Organic Compounds
o- Toluidine (ug/L)	<0.0070	1/21/2020	Semi-Volatile Organic Compounds
Quinoline (ug/L)	<0.0200	1/21/2020	Semi-Volatile Organic Compounds
HAA5 (five regulated haloacetic acids) (ug/L)	2.00	08/2022	Disinfection Byproducts
HAA6Br (six brominated haloacetic acids) (ug/L)	11.000	1/07/2020	Disinfection Byproducts
HAA9 (nine haloacetic acids) (ug/L)	18.300	1/07/2020	Disinfection Byproducts
alpha-BHC (alpha-Hexachlorocyclohexane) (ug/L)	<0.010	1/07/2020	Pesticide
Chlorpyrifos (ug/L)	<0.030	1/07/2020	Pesticide
Dimethipin (ug/L)	<0.200	1/07/2020	Pesticide
Ethoprop (ug/L)	<0.030	1/07/2020	Pesticide
Oxyfluorfen (ug/L)	<0.050	1/07/2020	Pesticide
Profenofos (ug/L)	<0.300	1/07/2020	Pesticide
Tebuconazole (ug/L)	<0.200	1/07/2020	Pesticide
Permethrin (ug/L)	<0.040	1/07/2020	Pesticide
Tribufos (ug/L)	<0.070	1/07/2020	Pesticide
1-Butanol (ug/L)	<2.000	1/07/2020	Alcohol
2-Methoxyethanol (ug/L)	<0.400	1/07/2020	Alcohol
2-Propen-1-ol (ug/L)	<0.500	1/07/2020	Alcohol



Saving funds by staff replacing a shingle roof.