2019
City of Owosso
Water Quality Report

Water Supply Serial Number: 5120

This report covers the drinking water quality for City of Owosso for the 2019 calendar year. This information is a snapshot of the quality of the water that we provided to you in 2019. Included are details about where your water comes from, what it contains, and how it compares to United States Environmental Protection Agency (U.S. EPA) and state standards.

Your water comes from five active groundwater wells, each over 80 feet deep. In 2018 the State 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 sources is high to very high.

There are no known or identified significant sources of contamination in the city water supply. In 2018 we had the EGLE Lab test our water for general chemistry, Total Trihalomethanes and Haloacetic Acids. Additional EPA UCMR4 testing for Semi-Volatile Organic Compounds and Total Metals were completed by an EPA Approved Lab. Ground water sources are also tested. Ground water sources are monitored and protected by an approved Michigan Department of Environment, Great Lakes, and Energy (EGLE) Wellhead Protection Program Plan (WHPP), which is designed to (1) ensure safe drinking water to the public, and (2) protect drinking water from potential sources of contamination by following the WHPP program guidelines set forth by the EGLE.

If you would like to know more about the report, please contact the Water Plant Superintendent David Haut at 301 W. Main Street, Owosso, MI 48867 Phone:725-0560. Email: david.haut@ci.owosso.mi.us or at our web site: http://www.ci.owosso.mi.us/utilities

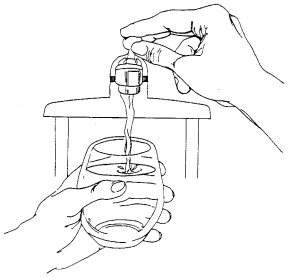
Contaminants and their presence in water: Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential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

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. U.S. EPA/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 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 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.



In order to ensure that tap water is safe to drink, the U.S. EPA 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.

Water Quality Data

The table below lists all the drinking water contaminants that we detected during the 2019 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, 2019. 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.

Terms and abbreviations used below:

- 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 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 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
- ug/l: The term ug/l refers to **micrograms per liter** and is a measure of a concentration. It is more commonly known as parts per billion (ppb).
- pCi/l: picocuries per liter (a measure of radioactivity).
- Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

Monitoring Data for Regulated Contaminants

Regulated Contaminant	MCL	MCLG	Level Detected	Range	Year Sampled	Violation Yes / No	Typical Source of Contaminant
Barium (ppm)	2	2	0.01	0.01	8/2018	No	Discharge from oil drilling wastes and from metal refineries; erosion of natural deposits
Fluoride (ppm)	4	4	0.77	0.37 to 0.77	2019	No	Erosion of natural deposits. Discharge from fertilizer and aluminum factories.
HAA5 Haloacetic Acids (ppb)	60	N/A	2	0.0 to 2.0	8/2019	No	Byproduct of drinking water disinfection
TTHM - Total Trihalomethanes (ppb)	80	N/A	39	4.7 to 39	8/2019	No	Byproduct of drinking water disinfection
Chlorine* (ppm)	**MRDL** 4	**MRDLG** 4	0.41	0.32 to 0.41	2019	No	Water additive used to control microbes
Radioactive Contaminant	**MCL**	**MCLG**	**Level Detected**	**Range**	**Year Sampled**	**Violation Yes / No**	**Typical Source of Contaminant**
Combined Radium pCi/L (T)	5	0	0.4	N/A	8/2016	No	Erosion of natural deposits
Contaminant Subject to AL	**Action Level**	***MCLG***	**90% of Samples ≤ This Level**		**Year Sampled**	**# of Samples Above AL**	**Typical Source of Contaminant**
Lead (ppb) **	15	0	6		2017	0	Corrosion of household plumbing systems; Erosion of natural deposits

* Chlorine was calculated using the running annual average.

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

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

Special Monitoring and Unregulated Contaminant

	Level Detected	Year Sampled	Comments
Sodium (ppm)	35	8/2019	Typical source is erosion of natural deposits
Chloride (ppm)	86	8/2019	Naturally occurring or indicative of road salt contamination.
Sulfate (ppm)	136***	8/2019	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	7/31/2019	Metal
Manganese (ug/L)	<0.400	7/31/2019	Metal
BHA (ug/L)	<0.0300	7/31/2019	Semi-Volatile Organic Compounds
o-Toluidine (ug/L)	<0.0070	7/31/2019	Semi-Volatile Organic Compounds
Quinoline (ug/L)	<0.0200	7/31/2019	Semi-Volatile Organic Compounds
HAA5 (five regulated haloacetic acids) (ug/L)	9.953	7/31/2019	Disinfection Byproducts
HAA6Br (six brominated haloacetic acids) (ug/L)	9.337	7/31/2019	Disinfection Byproducts
HAA9 (nine haloacetic acids) (ug/L)	15.400	7/31/2019	Disinfection Byproducts
alpha-BHC (alpha-Hexachlorocyclohexane) (ug/L)	<0.010	9/16/2019	Pesticide
Chlorpyrifos (ug/L) (ug/L)	<0.029	9/16/2019	Pesticide
Dimethipin (ug/L)	<0.190	9/16/2019	Pesticide
Ethoprop (ug/L)	<0.029	9/16/2019	Pesticide
Oxyfluorfen (ug/L)	<0.048	9/16/2019	Pesticide
Profenofos (ug/L)	<0.286	9/16/2019	Pesticide
Tebuconazole (ug/L)	<0.190	9/16/2019	Pesticide
Permethrin (total) (ug/L)	<0.038	9/16/2019	Pesticide
Tribufos (ug/L)	<0.067	9/16/2019	Pesticide
1-Butanol (ug/L)	<2.000	10/15/2019	Alcohol
2-Methoxyethanol (ug/L)	<0.400	10/15/2019	Alcohol
2-Propen-1-ol (ug/L)	<0.500	10/15/2019	Alcohol

*** Sulfate Quality Control results were outside allowed limits due to matrix interferences.

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 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 .

We have estimated that our water supply has 2,114 lead service lines and 2,118 service lines of unknown material out of a total of 4,232 service lines.

Monitoring and Reporting to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) Requirements: The State of Michigan and the U.S. EPA require us to test our water on a regular basis to ensure its safety. **We met all the monitoring and reporting requirements for 2019.**

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 glenn.chinavare@ci.owosso.mi.us. For more information about safe drinking water, visit the U.S. EPA at http://www.epa.gov/safewater/.

DRINKING WATER TREATMENT—LIME SOFTENING



Quicklime comes from limestone that is mined from the ground, crushed to size, heated in a kiln, and then transported by truck to the Treatment Facility.

Last year, 807 tons of high quality Calcium Oxide (CaO) or quicklime was required for use in the softening process.

The City of Owosso pumped underground water from 5 wells that are 80 to 153 feet deep to our WTP for processing at an average of 1.68 million gallons a day. Treatment includes aeration, lime softening, PH adjustment, filtration, chlorination and fluoridation. The average water hardness for 2019 was reduced from 529 ppm to 201 ppm.

The softening process requires that quicklime be converted to Calcium Hydroxide (Ca(OH)2), Machines called "Slakers" accomplish this process.

Calcium Hydroxide is fed into processing units called "Clarifiers". In the Solids Contact Clarifiers, raw water mixes with the calcium hydroxide to remove hardness. During 2019 the lime softening process reduced hardness by 62%.

Once the lime has been used in the softening process, it is pumped to the lagoons for dewatering. Contractors remove and transport the lime sludge to farmers for agricultural use.