

2018 Water Quality Report for City of Otsego

This report covers the drinking water quality for the City of Otsego for the 2018 calendar year. This information is a snapshot of the quality of the water that we provided to you in 2018. Included are details about where your water comes from, what it contains, and how it compares to Environmental Protection Agency (EPA) and state standards.

Your water comes from 3 groundwater wells, each over 90 feet deep. 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 source is moderately high for each well.

Significant sources of contamination include the closed Otsego Township Landfill and the Otsego/Alamo Drain. We are making efforts to protect our sources by participating in the Wellhead Protection Program..

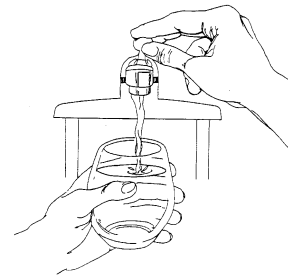
If you would like to know more about the report, please contact Otsego City Hall 117 E. Orleans Street Otsego, MI 49078, or contact Luke Keyzer at 269-694-9194. A copy can be seen online at www.cityofotsego.org.

- **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)**.
- **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. 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).
- **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, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. 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 2018 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 – December 31, 2018. 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 of 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 **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.
- **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.
- **Level 2 Assessment:** A very detailed study of the water system to identify potential problems and determine (if possible) why an *E. coli* MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

Regulated Contaminant	MCL, TT, or MRDL	MCLG or MRDLG	Level Detected	Range	Year Sampled	Violation Yes / No	Typical Source of Contaminant
Inorganic Contaminants							
Arsenic (ppb)	10	0	0	0	2018	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2	2	0.11	0.08-0.11	2018	No	Discharge of drilling wastes; Discharge of metal refineries; Erosion of natural deposits
Nitrate (ppm)	10	10	0.6	0.6	2018	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Fluoride (ppm)	4	4	0.79	0.17-0.54	2018	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Sodium ¹ (ppm)	N/A	N/A	29.2	18-29	2018	No	Erosion of natural deposits.
Fluoride	4	4	0.54	0.17-0.54	2018	No	Water Treatment
Disinfectants & Disinfection By-Products							
TTHM - Total Trihalomethanes (ppb)	80	N/A	6.8	6.8	2018	No	Byproduct of drinking water disinfection
HAA5 Haloacetic Acids (ppb)	60	N/A	0	0	2018	No	Byproduct of drinking water disinfection
Chlorine ² (ppm)	4	4	0.29	0.19-0.37	2018	No	Water additive used to control microbes

Radioactive Contaminants							
Alpha emitters (pCi/L)	15	0	2.8	1.7-4.4	2016	No	Erosion of natural deposits
Combined radium (pCi/L)	5	0					Erosion of natural deposits
Microbiological Contaminants							
Total Coliform (total number or % of positive samples/month)	TT	0	0	0	2018		Naturally present in the environment.
<i>E. coli</i> in the distribution system (positive samples)	See <i>E. coli</i> ³ note below	0	0	0	2018		Human and animal fecal waste.
Fecal Indicator – <i>E. coli</i> at the source (positive samples)	TT	N/A		N/A			Human and animal fecal waste.
Inorganic Contaminant Subject to AL	AL	MCLG	Your Water ⁴	Year Sampled	# of Samples Above AL	Does System Exceed AL? Yes / No	Typical Source of Contaminant
Lead (ppb)	15	0	0	2016	0	No	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	1.3	1.3	0.5	2016	0	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

¹ Sodium is not a regulated contaminant.

² The chlorine "Level Detected" was calculated using a running annual average.

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

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

Additional Monitoring

Unregulated contaminants are those for which EPA has not established drinking water standards. Monitoring helps EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants.

Unregulated Contaminant Name	Average Level Detected	Range	Year Sampled	Comments
Chloride (ppm)	39	30-54	2018	Results of monitoring are available upon request.
Hardness as CaCO ₃ (ppm)	261	248-280	2018	Results of monitoring are available upon request
Iron (ppm)	0.46	0.2-0.6	2018	Results of monitoring are available upon request
Sulfate (ppm)	26	18-37	2018	Results of monitoring are available upon request

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 Otsego 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>.

Infants and children who drink water containing lead in excess of the action level 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.

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 and Reporting to the DEQ Requirements: The State and EPA require us to test our water on a regular basis to ensure its safety. We met all the monitoring and reporting requirements for 2018.

We will update this report annually and will keep you informed of any problems that may occur throughout the year, as they happen. Copies are available at City Hall 117 E. Orleans Street Otsego Mi 49078.

We invite public participation in decisions that affect drinking water quality. City Commission Meetings are on the first and third Mondays of each month.. For more information about your water, or the contents of this report, contact Luke Keyzer Water Superintendent (269)694-9194. For more information about safe drinking water, visit the U.S. Environmental Protection Agency at www.epa.gov/safewater/.

Per- and Polyfluoroalkyl Substances (PFAS)

Per- and polyfluoroalkyl substances (PFAS), sometimes called PFCs, are a group of chemicals that are resistant to heat, water, and oil. PFAS have been classified by the United States Environmental Protection Agency (U.S. EPA) as an emerging contaminant on the national landscape. For decades, they have been used in many industrial applications and consumer products such as carpeting, waterproof clothing, upholstery, food paper wrappings, fire-fighting foams, and metal plating. They are still used today. PFAS have been found at low levels both in the environment and in blood samples from the general U.S. population.

These chemicals are persistent, which means they do not break down in the environment. They also bioaccumulate, meaning the amount builds up over time in the blood and organs. Although our understanding of these emerging contaminants is constantly evolving, elevated levels of PFAS have the potential to cause increased cholesterol, changes in the body's hormones and immune system, decreased fertility, and increased risk of certain cancers. Links to these health effects in humans are supported by epidemiologic studies and by laboratory studies in animal models.

Are there health advisory levels?

The U.S. EPA has not established enforceable drinking water standards, called maximum contaminant levels, for these chemicals. However, the U.S. EPA has set a lifetime health advisory (LHA) level in drinking water for two PFAS: perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). The PFOA and PFOS LHA is the level, or amount, *below which no harm is expected from these chemicals*. The LHA level is 70 parts per trillion (ppt) for PFOA and 70 ppt for PFOS. If both PFOA and PFOS are present, the LHA is 70 ppt for the combined concentration.

The amount of PFOA and PFOS combined in the sample collected from our Wells ranged from 0 to 11 ppt, which is more than 6

times lower than the LHA for the combination of these two chemicals. There are many other PFAS compounds that currently do not have LHA levels. For information on PFOA, PFOS, and other PFAS, including possible health outcomes, you may visit these websites: <https://www.epa.gov/pfas>; <https://www.atsdr.cdc.gov/pfas/>; or <http://www.michigan.gov/pfasresponse>

Instructions to Water Supplier

****Note: The CCR should contain the most recent data back to 5 years.**

1. Under "Level Detected" and "Range":

- enter the highest test result from the lab report using the appropriate unit of measure as listed in the table **UNLESS** a contaminant's compliance is determined based on a running annual average. Then, the highest running annual average would be listed in the table.
- range of levels detected such as "12 to 48" (if you sample more than once or from multiple locations)
- average and range of levels detected such as "35" and "12 to 48" (for unregulated contaminants)
- enter the test result from the lab report for sodium, even if it was not detected
- range of levels detected and highest running annual average such as "range 12 to 48, highest running annual average 35" (if compliance is based on a running annual average)

2. Under "Year Sampled" enter the year sampled (if earlier than the year of this report) of **detected** contaminants for which monitoring is done less frequently than annually (no data older than five years need be included).

3. Under "Violation Yes / No" enter "No" for each contaminant whose level was at or below the MCL. Enter "Yes" if the level was above the MCL (usually calculated as a running annual average). Below the table, explain each violation including the length of the violation, the steps taken to remedy the situation (such as posting a public notice, finding alternative sources of drinking water, or changing water treatment).

4a. If arsenic was detected above 5 ppb but at or below 10 ppb include the following:

While 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.

4b. If the arsenic level was above 10 ppb, calculated as a running annual average, enter "Yes" in the table under "Violations." Include an explanation of the length of the violation and steps taken to remedy the situation. Also, include the following:

Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.

4c. If total trihalomethanes (TTHMs) were detected above 80 ppb, enter "Yes" in the table under "Violations." Include an explanation of the length of the violation and steps taken to remedy the situation. Also, include the following:

Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.

4d. If haloacetic acids (HAA5s) were detected above 60 ppb, enter "Yes" in the table under "Violations." Include an explanation of the length of the violation and steps taken to remedy the situation. Also, include the following:

Some people who drink water containing haloacetic acids in excess of EPA's standard over many years may have an increased risk of getting cancer.

4e. Surface water systems or ground water under direct influence of surface water, include the following:

Many water suppliers add a disinfectant to drinking water to kill germs such as giardia and E.coli. Especially after heavy rainstorms, your water system may add more disinfectant to guarantee that these germs are killed.

4f. If the chlorine running annual average is detected above the MRDL for any quarter, enter "Yes" in the table under "Violations." Include an explanation of the length of the violation and steps taken to remedy the situation. Also include the following:

Some people who use drinking water containing chlorine well in excess of EPA's standard could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of EPA's standard could experience stomach discomfort.

5. If nitrate was detected above 5ppm but below 10 ppm include the following:

Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider.

6. If nitrate was detected above the MCL (10 ppm) enter "Yes" in the table under "Violations." Include an explanation of the length of the violation and steps taken to remedy the situation. Also include the following:

Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill, and if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.

7. If any samples detected Nitrite above the MCL (1 ppm), enter "Yes" in the table under "Violations." Include an explanation of the length of the violation and steps taken to remedy the situation. Also include the following:

Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill, and if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.

8. If another contaminant was detected above the MCL, call your MI DEQ, drinking water district engineer or analyst for mandatory language on potential adverse health effects or special education statements.

9. If the supply sampled for lead and copper, the water supply is required to notify the occupants of the buildings/homes tested of the lead results (even if not detected). If the water supply failed to make this notification, include the following:

During the year, we failed to provide lead results to persons served at the sites that were tested as required by the Lead and Copper Rule.

10. If lead or copper was detected above the action level (15 ppb for lead, 1.3 ppm for copper) in any sample, enter the "Number of Samples Above the Action Level" in the table, and include the following, as appropriate:

[Lead] Infants and children who drink water containing lead in excess of the action level 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.

[Copper] 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.

11. If the 90th percentile for lead or copper was above the action level (15 ppb for lead, 1.3 ppm for copper), explain the situation and what steps you took to lower the concentration of lead or copper, such as changing water treatment.

12. If you detected total coliform, enter the highest number of positive samples collected in any one month under "Number Detected." (If you routinely collect 40 or more samples, include the highest percentage of positive samples in any one month and change the heading to "Percent Detected.")

13. If monitoring requirements were not met, explain the violation such as:

During the monitoring period from _____ to _____ we did not take the required number of routine samples for [enter contaminant name]. This violation did not pose a threat to the quality of the drinking water. [FURTHER EXPLAIN WHAT HAPPENED, ACTIONS TAKEN TO REMEDY THE SITUATION, AND STEPS TAKEN TO PREVENT ANOTHER VIOLATION.]

14. If a level 1 assessment or a level 2 assessment was required, include the following, as appropriate:

(A) During the past year we were required to conduct [INSERT NUMBER OF LEVEL 1 ASSESSMENTS] level 1 assessment(s). [INSERT NUMBER OF LEVEL 1 ASSESSMENTS] level 1 assessment(s) were completed. In addition, we were required to take [INSERT NUMBER OF CORRECTIVE ACTIONS] corrective actions and we completed [INSERT NUMBER OF CORRECTIVE ACTIONS] of these actions.

(B) During the past year [INSERT NUMBER OF LEVEL 2 ASSESSMENTS] level 2 assessments were required to be completed for our water supply. [INSERT NUMBER OF LEVEL 2 ASSESSMENTS] Level 2 assessments were completed. In addition, we were required to take [INSERT NUMBER OF CORRECTIVE ACTIONS] corrective actions and we completed [INSERT NUMBER OF CORRECTIVE ACTIONS] of these actions.

15. If a level 1 assessment or a level 2 assessment was required but not completed, or the identified sanitary defects were not corrected, include the following, as appropriate:

During the past year we failed to conduct all of the required assessment(s).

During the past year we failed to correct all identified defects that were found during the assessment.

16. If a level 1 assessment or a level 2 assessment was required that was not due to an *E. coli* MCL violation, include the following:

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.

17. If a level 2 assessment was required due to a *E. coli* MCL violation, include the following:

E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We found *E. coli* bacteria, 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.

We were required to complete a level 2 assessment because we found *E. coli* in our water system. In addition, we were required to take [INSERT NUMBER OF CORRECTIVE ACTIONS] corrective actions and we completed [INSERT NUMBER OF CORRECTIVE ACTIONS] of these actions.

18. If *E. coli* was detected and the *E. coli* MCL was violated, include the following, as appropriate:

(A) We had an *E. coli*-positive repeat sample following a total coliform-positive routine sample.

(B) We had a total coliform-positive repeat sample following an *E. coli*-positive routine sample.

(C) We failed to take all required repeat samples following an *E. coli*-positive routine sample.

(D) We failed to test for *E. coli* when a repeat sample tests positive for total coliform.

19. If the groundwater supply has any uncorrected significant deficiency, as designated by the DEQ, or fecal indicator positive source sample result during the year, include the following elements:

(A) Nature of the significant deficiency or source of the fecal contamination, if known, and the date(s).

(B) Whether the fecal contamination has been addressed and date addressed.

(C) For unaddressed significant deficiencies and unaddressed fecal contamination, the approved plan and schedule for correction, including interim measures, and progress to date.

(D) The potential health effects of the fecal indicator positive source sample.