

City of Grand Ledge 2017 Annual Drinking Water Quality Report

The City of Grand Ledge is pleased to present the Annual Drinking Water Quality Report for 2017. This Report is provided to inform water customers about the quality of drinking water they were provided during the past year. The Safe Drinking Water Act requires this report be updated and published annually.

The city's goal is to provide its residents with a safe and dependable supply of drinking water and is committed to providing the highest quality water possible. As this 2017 Report details, the city was successful in achieving this goal by meeting or exceeding all water quality standards issued by the United States Environmental Protection Agency (US EPA) and the Michigan Department of Environmental Quality (MDEQ).

Water Source

The City of Grand Ledge derives its drinking water from wells drilled 250 feet into the bedrock of the Saginaw Formation, the underground aquifer that underlies the entire mid-Michigan area. Protection of the drinking water source was formalized in the City's Wellhead Protection Plan, developed and implemented in 2002.

The raw well water is pumped first to a filtering process that removes about 90 percent of the dissolved iron that is naturally present in the water. In November 2006 the voters of the City of Grand Ledge approved a referendum to fluoridate the city's drinking water and in October 2007 the addition of fluoride was initiated. Optimum levels of fluoride in drinking water are widely recognized as being beneficial in preventing tooth decay. In 2017 the City began adding orthophosphates to its drinking water. This was done to mitigate the naturally corrosive effects of water on plumbing. Water is then chlorinated and pumped to one of two elevated storage tanks or is sent directly to the city's water customers. One of the four wells that the city maintains is not able to go through the iron removal process and therefore is only used to provide additional water to the system during periods of high water demand. During 2017, the City of Grand Ledge supplied 239,000,000 gallons of drinking water to customers.

The water customers receive comes from a network of underground water mains underlying almost every street in the city. This network consists of approximately 47 miles of water main and serves all of the City of Grand Ledge and parts of Oneida Township. If you should experience a service interruption or unexplained change in water quality, please notify the Grand Ledge Public Service Department at 517-627-2149. During evenings and weekends, on-call Public Service Department personnel may be reached at 517-483-7236.

Effective July 1, 2018, water rates are \$4.82 per thousand gallons for the 1st 4,000 gallons used and \$6.54 per thousand gallons for usage above 4,000 gallons. There is an additional fixed water charge of \$12.21 per month for each water customer. The fixed water charge finances water system improvements. For a typical household using 6,500 gallons per month, the cost of Grand Ledge water amounts to about 7/10th's of a cent per gallon.

Water Quality

The City of Grand Ledge routinely monitors for contaminants in drinking water according to Federal and State laws, and, as stated previously, met or exceeded all US EPA and MDEQ regulatory requirements. The water the city delivers is safe to consume as determined by all current standards with no need for customers to purchase expensive “on-site” treatment systems or bottled water.

The following tables indicate the city’s monitoring results for the period of January 1, 2017 through December 31, 2017. Annual testing is not required *for many of the potential* contaminants as concentrations are not expected to vary significantly from year to year. The year of the most recent testing is included in the table.

In this table you will find many terms and abbreviations you might not be familiar with. To make these terms more understandable the following definitions are provided:

Terms	Definitions
ND	Non-Detect - laboratory analysis indicates that the contaminant is not present at a detectable level
PPM	Parts per Million or Milligrams per Liter (mg/l) - one part per million corresponds to one minute in two years or a single penny in \$10,000
PPB	Parts per Billion or Micrograms per Liter - one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000
PPT	Parts per Trillion or Nanograms per Liter - one part per trillion corresponds to one minute in 2,000,000 years or a single penny in \$10,000,000,000
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 “Maximum Allowed”, 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 “Goal” (MCLG) is 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. MRDLG’s do not reflect the benefits of the use of disinfectants to control microbial contaminants.

2017 TEST RESULTS

Regulated Compounds - Detected

The following table includes test results for regulated compounds detected in the city's drinking water. Regulated compounds include any compounds for which limits in drinking water have been established.

Contaminant	Violation Y/N	Highest Level Detected	Range of Levels Detected	Test Year	Unit Measurement	MCLG	MCL	Contaminant Source
Microbiological Contaminants								
Total Coliform Bacteria	NO	>1	0 - >1	2017		0	Presence of coliform bacteria in 5% of monthly samples	Naturally present in the environment
Inorganic Contaminants								
Barium	NO	0.15	0.12-0.15	2016	PPM	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Fluoride	NO	0.44	0.40-0.44	2017	PPM	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Radioactive Contaminants								
Alpha emitters	NO	2.42	0.17-2.42	2014	pCi/L	0	15	Erosion of natural deposits.
Combined radium	NO	1.9	1.0-1.9	2016	pCi/L	0	5	Erosion of natural deposits.

Lead/Copper

Lead and copper, two additional regulated inorganic contaminants, were ***not detected*** in the city's source water but have been detected through testing of individual customer taps. 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 Grand Ledge is responsible for providing high quality drinking water, but cannot control the variety of materials used in household 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 drinking 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 at 1-800-426-4791 or at <https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water>.

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

Contaminant	Test Year	Unit Measurement	Action Level	Range of Levels Detected	90 th Per Centile	Violation Y/N	Contaminant Source
Copper	2017	PPB	1300	<50-280	200	NO	Corrosion of household plumbing; erosion of natural deposits; leaching of wood preservatives
Lead	2017	PPB	15	<1-17	6	NO	Corrosion of household plumbing systems; erosion of natural deposits.

Disinfectant By-Products

The City of Grand Ledge adds chlorine to the water to protect against bacterial growth. The following table lists the levels of residual chlorine and disinfectant by-products created by the reaction of chlorine with naturally occurring organic compounds. Chlorine and disinfectant by-product levels are measured from tests conducted on samples from the distribution system.

Substance	Unit Measurement	MRDL	MRDLG	Average Detected Level	Range of Detected Levels	Violation Y/N	Source
Chlorine	PPM	4	4	0.74	0.25-1.33	NO	Disinfectant applied at plant tap.
Haloacetic Acids	PPB	60	60	9.0	9.0-9.0	NO	By-product of drinking water chlorination.
Total Trihalomethanes	PPB	80	80	48.0	48.0-48.0	NO	By-product of drinking water chlorination.

Regulated Compounds - Not Detected

The city's drinking water was tested for many other regulated compounds that were not detected at any level. A list of these compounds is available from the Public Service Department.

Un-regulated Compounds

Un-regulated compounds are those constituents of drinking water for which MCL limits have not been set but for which the city is required to test. The following table lists those compounds. There are many unregulated compounds which were not detected and have not been listed in this report. Interested persons wishing to have a list of those contaminants should contact the Public Service Department.

Compound	Violation Y/N	Average Level Detected	Range of Levels Detected	Test Year	Unit Measurement	Potential Source
Calcium Carbonate	NO	361	311-411	2017	PPM	Erosion of natural deposits
Chloride	NO	26	20-31	2017	PPM	Erosion of natural deposits
Iron	NO	0.35	ND-0.70	2017	PPM	Erosion of natural deposits
Nickel	NO	1.8	ND-1.8	2016	PPB	Erosion of natural deposits
Manganese	NO	0.02	0.02-0.02	2010	PPM	Erosion of natural deposits
Sodium	NO	27	16-41	2017	PPM	Erosion of natural deposits

Sulfate	NO	65	69-73	2017	PPM	Erosion of natural deposits
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General Health Information

All sources of drinking water are subject to potential contamination by constituents that are naturally occurring or manmade. Those constituents can be microbes, organic or inorganic chemicals, or radioactive materials. All 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 the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency’s Safe Drinking Water Hotline at 1-800-426-4791 or accessing their website at <http://www.epa.gov/safewater>.

MCL’s are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

Total Coliform: The Total Coliform Rule requires water systems to meet a stricter limit for coliform bacteria. Coliform bacteria are usually harmless, but their presence in water can be an indication of disease-causing bacteria. When coliform bacteria are found, special follow-up tests are done to determine if harmful bacteria are present in the water supply. If this limit is exceeded, the water supplier must notify the public by newspaper, television or radio. To comply with the stricter regulation, we have increased the average amount of chlorine in the distribution system.

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, 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 microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Water System Improvements

The City of Grand Ledge is committed to maintaining a safe, dependable water supply through continually improving the water distribution system to meet the needs of our growing community and providing improved fire protection. Of the 47 miles of water mains which make up the City’s water system, almost 10 miles of that total has been constructed or replaced since the year 2000. In 2017, the water main on Jones Street was replaced. In the current year, water main replacement has been completed in Fitzgerald Park as part of overall street and infrastructure improvement projects.

Protecting our water supply is everyone’s responsibility. Gasoline, motor oil, pesticides, and other household products can contaminate the underground aquifer from which the City of Grand Ledge draws water. Please dispose of these products properly, never by simply dumping onto the ground or down a drain. For more information about proper disposal methods, please contact the Public Service Department or Eaton County Resource Recovery at 517-543-3686.

The City of Grand Ledge encourages public interest and participation in decisions affecting drinking water. The Grand Ledge City Council meets the second and fourth Monday of each month at 7:30 p.m. in the Grand Ledge City Hall, 310 Greenwood Street, Grand Ledge, Michigan 48837. Specific questions regarding water and water quality or any other information provided in this report, should be directed to the Utilities

Superintendent, Kurt Ristow at 517-627-2149.