

Village of Deerfield

2017 Water Quality Report

This report covers the drinking water quality for the Village of Deerfield for the 2017 calendar year. This information is a snapshot of the quality of the water that we provided to you in 2017. Included are details about where your water comes from, what it contains, and how it compares to Environmental Protection Agency (EPA) and state standards.

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 2017.

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, and water chemistry and contamination sources. The susceptibility of our source is Very High.

Your drinking water is pumped from the River Raisin to the Village's water treatment plant. Chemicals called Alum and polymer are added to the water to help combine smaller particles into larger particles, which are more easily removed in the clarification process. The water then passes through a series of sand filters to remove even smaller particulates. Approximately 75% of the water is then passed through the new Reverse Osmosis (RO) filters to remove hardness and any remaining particulates. Some of the bypassed water is then mixed with the effluent from the RO filters to produce finished water with a moderate hardness of 150 ppm (or 8.7 grains per gallon). Finally, the water is disinfected with chlorine to kill any remaining bacteria. Fluoride is not added to the water, the Raisin River has naturally low fluoride level of 0 ppm, from laboratory test results.

The Deerfield water plant staff collects and test water samples from the river and throughout the treatment process several times a day. These tests ensure that the proper chemical levels are maintained and that any contaminants that cannot be removed by treatment are at safe levels.

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.

- **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)**.
- **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 storm water 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 storm water runoff, and septic systems.

2017 Water Quality Data

The table below lists all the drinking water contaminants that we detected during the 2017 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, 2017. 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 (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):** means 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):** means 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.
- **NTU:** Nephelometric Turbidity Units, a visual measurement of the cloudiness of water.
- **N/A:** Not applicable;
- **ppb:** parts per billion (ppb) or micrograms per liter ($\mu\text{g/L}$); **ppm:** parts per million (ppm) or milligrams per liter (mg/L);
- **Action Level (AL):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow; **pCi/L:** picocuries per liter (a measure of radioactivity).

Regulated Contaminant	MCL	MCLG	Level Detected	Range	Year Sampled	Violation Yes / No	Typical Source of Contaminant
Nitrate (ppm)	10	10	2.42	0.6-7.7	2017	No	Runoff From fertilizer use; leaching of septic tanks, sewage; erosion of natural deposits
Fluoride (ppm)	2	2	0	NA	Quarterly	No	Erosion of natural deposits; discharge from fertilizer and aluminum factories
Dalapon (ppb)	200	200	1.14	0.091-1.6	Quarterly	No	Runoff from herbicides used on rights of way
*Turbidity (NTU)	TT	N/A	Highest = 0.343	100%	Every two hours	Yes	Erosion of natural deposits. Discharge from fertilizer and aluminum factories.
Total Organic Carbon (TOC)	TT	NA	68% removal (26% is required)	61%-75%	Monthly	No	Naturally present in the environment
TTHMs =Total Trihalomethanes (ppb)	80	N/A	62	50-97	Quarterly	No	Byproduct of drinking water disinfection
HAA5s = Total Haloacetic Acids (ppb)	60	N/A	34.5	21-56	Quarterly	No	Byproduct of drinking water disinfection
Chlorine (ppm)	MRDL	MRDLG	0.7	0.1-1.6	4 per month	No	Water additive used to control microbes
	4	4					
Contaminant Subject to AL	Action Level	MCLG	90% of Samples \leq This Level		Year Sampled	# of Samples > AL	Typical Source of Contaminant
**Lead (ppb)	15	0	1		2015	0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppb)	1300	1300	310		2015	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Special Monitoring and Unregulated Contaminant **			Level Detected	Range	Year Sampled	Comments	
Sodium (ppm)			27	21-33	2017	Typical source is erosion of natural deposits	

* Turbidity reported are the highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits for the filtration technology being used. 95% of samples in any given month must be lower than 0.300 NTU.

** Lead and copper lists the number of sites that exceeded the AL rather than a range of detections.

*** 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.

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 Village of Deerfield 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>.

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).

Informational statements about the chemicals detected in your water:

About Our Turbidity: Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. The Village of Deerfield did exceed the allowable limit of 0.3 NTU's for a short time frame between January 15, 2017 and January 18, 2017 during routine maintenance at the water filtration plant and this allowed small particulates to pass through the filters causing the exceedance. All turbidity readings collected downstream of the compliance point during this timeframe were less than 0.3 NTU.

The River Raisin has historically experienced very high turbidity resulting from soil runoff from agricultural practices. The water plant is able to remove these particles to a level below the allowable limit of 0.3 NTU. Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, and diarrhea and associated headaches.

About our Nitrate Results: Nitrate in drinking water at levels above 10 ppm is a health risk. 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. 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 advice from your health care provider. Pregnant women and infants less than 6 months old will be advised to seek an alternative source of drinking water if nitrate levels exceed 10 ppm. The Village of Deerfield was in compliance with the MCL for nitrates in 2017 once again thanks to our new water treatment system.

Total Trihalomethanes (TTHMs): TTHMs are a by-product of disinfection used in the treatment process. Compliance with the MCL of 80 ppb is determined by a Locational Running Annual Average (LRAA) calculated every calendar quarter. The Village of Deerfield has been in compliance with the MCLs for Total Trihalomethanes disinfection byproduct since August of 2016.

Haloacetic Acids (HAA5s): HAA5s are a by-product of disinfection used in the treatment process. Compliance with the MCL of 60 ppb is determined by a Locational Running Annual Average (LRAA) calculated every calendar quarter. The Village of Deerfield has been in compliance with the MCLs for Haloacetic Acids disinfection byproduct since August of 2011.

Treatment Technique Violation	Explanation	Length	Steps Taken to Correct the Violation	Health Effect Language
Required Ultraviolet Testing And Reporting	A treatment technique violation for lack of monthly verification of calibration of the UV sensors.	From installation of UV System in 2009 till May 27, 2017	5-27-2018 received equipment to reference check sensors in UV units on a Monthly basis to return to compliance.	The DEQ has determined it is unlikely the public health was at risk during the months where verification has not taken place.
Filtration Sampling Requirements	Our continuous turbidity monitoring equipment was offline during January 2017 and February 2017 due to repairs needed However turbidity samples were taken and tested downstream of the online equipment every two hours with Benchtop turbidity meter and were all ok.	From 1-7-2017 threw 1-31-2017 and 2-1-2017 threw 2-4-2017	Repairs to online turbidity meters were made and Continuous monitoring resumed on 2-5-2017 We also are stocking extra parts for equipment to prevent future delay on repairs to the equipment to help stay in compliance.	Turbidity has no health effects; However, Turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms, These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, and diarrhea associated headaches.

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 Village of Deerfield Water Filtration Plant located at 439 W. River St. Deerfield, Mi. 49238

We invite public participation in decisions that affect drinking water quality. The Deerfield Village Council meets at 7:00 pm on the first Monday of each month. Meetings are held at the Village hall located at 101 W. River St. Please feel free to come and participate. For more information about your water, or the contents of this report, contact Rodney Conner at 517-447-3158. For more information about safe drinking water, visit the U.S. Environmental Protection Agency at www.epa.gov/safewater/.