2016 Water Quality Report for Village of Pentwater

This report covers the drinking water quality for Village of Pentwater for the calendar year 2016. This information is a snapshot of the quality of the water that we provided to you in 2016. Included are details about where your water comes from, what it contains, and how it compares to Environmental Protection Agency (EPA) and state standards.

Monitoring and Reporting Requirements: The State And EPA require us to test our water on a regular basis to ensure its safety. We met all the monitoring requirements for 2015.

"Your water comes from [Three (3)] groundwater wells, each over [Approximately 200 feet deep] drawing from the [Pentwater] watershed. The State performed an updated source water assessment in 2014 to determine the susceptibility or the relative potential of contamination, attached. The susceptibility rating is on a seven-tiered scale from "very-low" to "very-high" based primarily on geologic sensitivity, water chemistry and contaminant sources. The susceptibility of our source is Moderately Low for Well No. 1 and Very High on Wells #2 and #3. If you would like to know more about the report please contact [Village Hall at 327 South Hancock Street or call 231-869-8301 or Call DPW at 231-869-4327".

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 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)**.

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 are 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.

- **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).

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.

Lead and Drinking Water: 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 Pentwater 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 at 1 (800) 426-4791 or at http://www.epa.gov/safewater/lead.

Water Quality Data

The table and water quality analytical results below lists all the drinking water contaminants that we tested for or detected during the 2016 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, 2016. 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.
- 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: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.
- HRAA: Highest running annual average RAA: Running annual average HD: Highest detection

Regulated Contaminant	MCL	MCL G	Level Detected	Sample Date (If not in 2016)	Violation Yes / No	Typical Source of Contaminant
Arsenic (ppb)	10[1]	0[1]	H 7.8 ppb L 5.6 ppb HRAA 6.7 ppb		no	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2	2	0.12 ppm	2013	no	Discharge of drilling wastes; Discharge of metal refineries; Erosion of natural deposits
Fluoride (ppm)	4	4	0.51 ppm		no	Erosion of natural deposits. Discharge from fertilizer and aluminum factories.
Total Trihalomethanes (ppb)	80	80	3.2 ppb		no	Organic and chlorination by-products
Chlorine	4	4	H 0.72 ppm L 0.05 ppm HRAA 0.61 ppm		no	Water additive used to control microbes

Haloacetic Acid (ppb)	60	60	1.0 ppb		no	Organic and chlorination by-products

Special Monitoring and Unregulated Contaminant [4]	Level Detected	Sample Date (If not in 2016)	Typical Source of Contaminant
Sodium (ppm)	HD 83 ppm		Erosion of natural deposits
Carbamates	ND	2015	Sources such as agriculture runoff
Pesticides	ND	2015	Sources such as agriculture runoff
Chlorinated Acid Herbicides	ND	2015	Sources such as agriculture runoff
Gross Alpha (Radiological)	ND	2015	Naturally occurring or the result of oil and gas production and mining activities.
Radium 226 & Radium 228	ND	2015	Naturally occurring or the result of oil and gas production and mining activities.

Contaminant Subject to an Action Level	Action Level	90% of Samples ≤ This Level	Sample Date (If not in 2016)	Number of Samples Above AL	Typical Source of Contaminant
Lead (ppb)	15	6.0 ppb	07/2012	0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	1.3	0.45 ppm	07/2012	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

[1] These arsenic values are effective January 23, 2006. Until then, the MCL is 50 ppb and there is no MCLG.

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.

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. Pentwater is currently 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 your 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 at 800-426-4791 or at http://www.epa.gov/safewater/lead.

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 Hall 327 South Hancock Street.

We invite public participation in decisions that affect drinking water quality. The second Monday of each month Council meets at 327 South Hancock Street in the Council meeting room. If you have any questions, please contact Rob Allard 231-869-8301 or visit our website www.pentwatervillage.org. For more information about safe drinking water, visit the U.S. Environmental Protection Agency at www.epa.gov/safewater/.

What can be done?

Homeowners, as well as plant managers, business persons, administrators, and school officials, must share the responsibility to protect potable water piping systems from contamination through cross connections. Each should contact either the local water utility or the local health department for assistance in locating and correcting cross connection hazards. Residents supplied by private water well sources must assume total control of their water system and safeguard it from contamination. In many instances involving residential cross connections, the installation of a hose bib (faucet) vacuum breaker can prevent backsiphonage of contaminants and provide adequate protection of the homeowner's water system, and consequently, the utility's water system.

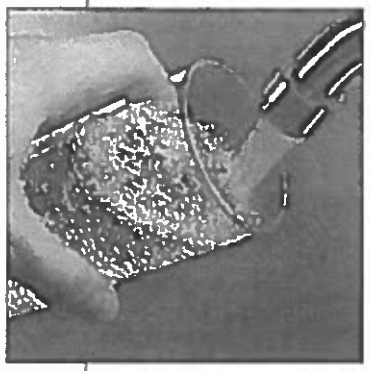
This means equipping each outside hose connection and hose connections in the basement and laundry room with a simple and inexpensive vacuum breaker. These devices can be obtained from hardware stores or plumbing shops for approximately $10 each. In other instances, more elaborate protective devices may be necessary. For those situations, assistance in determining what device is appropriate may be needed.

Questions concerning cross connection control and backflow prevention may be directed to:

- Michigan Department of Environmental Quality
  Resource Management Division
  517-241-1242;
- Michigan Department of Licensing and
  Regulatory Affairs
  Bureau of Construction Codes
  Plumbing Division
  517-241-9330;
- Your local health department or your local water department.

Prepared by: Michigan Department of Environmental Quality
www.michigan.gov/deq

Cross Connections



Protecting our Public Water System

A cross connection is an arrangement of piping that could allow undesirable water, sewage, or chemical solutions to enter your drinking (potable) water system as a result of backflow. Cross connections with potable piping systems have resulted in numerous cases of illness and even death.

Historically, cross connections have been one of the most serious public health threats to a drinking water supply system and many times are present in a residential water system.

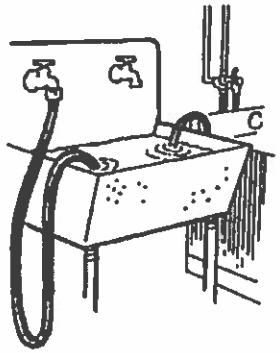
Michigan Department of Environmental Quality
Resource Management Division

RMD 1000

What is backflow and how can it occur?

Backflow is the reversal of normal flow in a system due to backsiphonage or backpressure.

Backsiphonage backflow occurs when a vacuum is induced on a piping system, just like drinking from a glass with a drinking straw. A garden hose or a hose connected to a laundry tub can act as a "drinking straw" allowing undesirable liquids to be drawn through it by backsiphonage. Some typical situations that cause backsiphonage action include:



- watermain breaks or repairs occurring in the system at a point of lower elevation than your service point.
- high water flow rates exerted on a watermain due to fire fighting, hydrant flushing, large system demands or major piping breaks.
- booster pumps taking direct suction from potable water supply piping.
- undersized piping.

Whenever the drinking water supply system is directly connected to another piping system or process that operates at a higher system pressure, backpressure backflow can occur.

Typical causes of backpressure backflow include:

- nonpotable piping systems equipped with pumping equipment (irrigation well interconnected with a potable system, for example).
- steam or hot water boilers.
- heat exchangers.

What is the law?

Cross connections with potable piping systems are prohibited by state plumbing codes. Additionally, Michigan water utilities are required to have a cross connection control inspection program of their water customers to eliminate and prevent cross connections. Common commercial and industrial users posing a public health threat include:

- industries with private wells.
- industries with chemically treated boilers.
- plating operations, chemical processing plants.
- funeral homes, mortuaries.
- marina facilities.
- hospitals, nursing homes.
- research laboratories.
- car washes, laundromats.
- school facilities.

Most utilities have made inspections of these facilities and have had corrective action taken where necessary. However, due to a lack of staff resources, many utilities cannot effectively carry out a residential cross connection inspection program. Consequently, residential water users could remain a potential health threat to the public water supply system and to other system customers.

What hazards threaten the homeowner?

Many common household uses for water pose a public health threat to the potable water supply system whether the home is supplied by municipal water or by a private well. Principal areas of water use in the home that pose a threat due to cross connections are:

- a hose connection to a chemical solution aspirator to feed lawn/shrub herbicides, pesticides, and fertilizers.
- lawn irrigation systems.
- chemically treated heating systems.
- water softeners.
- hose connections to a water outlet or laundry tub.
- swimming pools.
- solar heating systems.
- private nonpotable water supplies.
- noncode (siphonable) ball cock assemblies in toilets.
- water-operated sump drain devices.

This list of potential cross connection hazards is by no means complete. A private residence that has one or two of these situations is seriously jeopardizing its own potable water system and that of the community if it is served by a public water supply system.