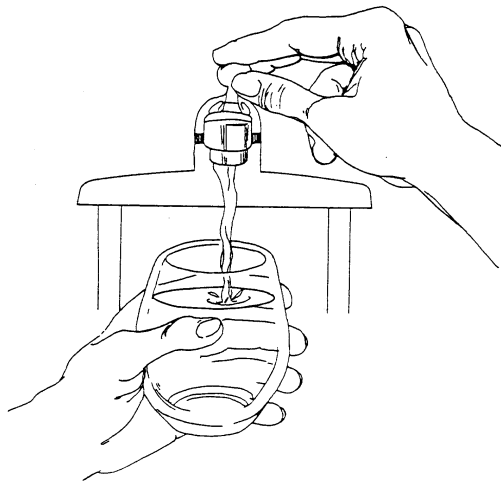


2022 Water Quality Report for the Village of Armada

Water Supply Serial Number: 00240



This report covers the drinking water quality for the Village of Armada for the 2022 calendar year. This information is a snapshot of the quality of the water that we provided to you in 2022. Included are details about where your water comes from, what it contains, and how it compares to United States Environmental Protection Agency (USEPA) and state standards.

Your water comes from three groundwater wells (wells #6, #7, and #8) from what's known as the Saginaw Aquifer. This aquifer runs under the Village. Our wells are between 113 and 162 feet deep. The State of Michigan performed an assessment of our aquifer source water in 2016 to determine the susceptibility or the relative potential for contamination. A summary of the Source Water Assessment is included later in this report, and a copy of the report is on file and available for review in the Village Office.

Contaminants and their presence in water: Drinking water, including store bought 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 **USEPA'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 contaminants from their health care providers. USEPA/Center for Disease Control guidelines on the appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the **EPA 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 Village tap water comes from wells that are fed by the aquifers running under the Village. 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 our source water include:

- **Microbial contaminants**, such as viruses and bacteria, can come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- **Inorganic contaminants**, such as salts and metals, can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, and farming.
- **Pesticides and herbicides**, may come from a variety of sources such as agriculture and residential uses.
- **Radioactive contaminants**, 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, 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 our tap water is safe to drink, the USEPA 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 Village of Armada tests for many contaminants that may not be detected in our drinking water. The table below lists all the drinking water contaminants that we detected during the 2022 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, 2022. 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 our current water quality, but some results are more than one year old.

Terms and abbreviations used in the Table 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 water treatment technologies.
- 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 specific disinfectants to control microbial contaminants.
- N/A: Not applicable

- ND: Not detectable at testing limit
- ppm or mg/L: parts per million or milligrams per liter
- ppb or ug/L: parts per billion or micrograms per liter
- ppt or ng/L: parts per trillion or nanograms 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.
- Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

Village Water Sampling – Results Table

| Regulated Contaminant | MCL | MCLG | Level Detected | Range of Detection | Year Sampled | Violation Yes/No | Typical Sources of Contamination |
|--|------|-------|-------------------------|--------------------|--------------|-------------------------|---|
| Arsenic ¹ (ppb) | 10 | 0 | 5 | 2 - 5 | 2022 | No | Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes |
| Barium (ppm) | 2 | 2 | 0.15 | 0.15 | 2022 | No | Discharge of drilling wastes; discharge of metal refineries; erosion of natural deposits |
| Fluoride (ppm) | 4 | 4 | 1.1 | 1.1 | 2022 | No | Erosion of natural deposits; water additive which promotes stronger teeth; discharge from fertilizer and aluminum factories |
| Total Xylenes (ppm) | 10 | 10 | ND | ND | 2022 | No | Discharge from petroleum or chemical factories |
| Alpha Emitters (pCi/l) | 15 | 0 | 2.35 | 2.35 | 2022 | No | Erosion of natural deposits |
| Total Trihalomethanes (TTHM) (ppb) | 80 | N/A | 60.5 | 49.7 - 60.5 | 2022 | No | By-product of drinking water disinfection |
| Haloacetic Acids (HAA5) (ppb) | 60 | N/A | 9.8 | 5.0 - 9.8 | 2022 | No | By-product of drinking water disinfection |
| Sodium ² (ppm) | N/A | N/A | 170 | 170 | 2022 | No | Erosion of natural deposits |
| Regulated Contaminant | MRDL | MRDLG | Level Detected | Range of Detection | Year Sampled | Violation Yes/No | Typical Sources of Contamination |
| Chlorine Residual ³ (ppm) | 4 | 4 | 0.67 | 0.06 - 1.54 | 2022 | No | By-product of drinking water disinfection |
| Inorganic Contaminants Subject to Action Levels (AL) | AL | MCLG | Your Water ⁴ | Range of Results | Year Sampled | No. of Samples above AL | Typical Sources of Contamination |
| Lead (ppb) | 15 | 0 | 5 | ND - 7 | 2021 | 0 | Lead service lines, corrosion of household plumbing including fittings and fixtures; erosion of natural deposits |
| Copper (ppm) | 1.3 | 1.3 | 0.41 | ND - 0.42 | 2021 | 0 | Corrosion of household plumbing systems; |

| | | | | | | | |
|--|--|--|--|--|--|--|-----------------------------|
| | | | | | | | erosion of natural deposits |
|--|--|--|--|--|--|--|-----------------------------|

¹ While our drinking water meets EPA standards for Arsenic contaminate levels, it does nevertheless 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 our drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans in high concentrations and is linked to other health effects such as skin damage and circulatory problems.

² Sodium is not a regulated contaminant.

³ The chlorine residual "Level Detected" was calculated using a running annual average.

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

| Per-and Polyfluoroalkyl Substances (PFAS) | | | | | | | |
|---|--------------------------------------|---------------|----------------|--------------------|--------------|------------------|---|
| Regulated Contaminant | MCL | MCLG | Level Detected | Range of Detection | Year Sampled | Violation Yes/No | Typical Sources of Contamination |
| Hexafluoropropylene oxide dimer acid (HFPO-DA) (ppt) | 370 | N/A | ND | ND | 2022 | No | Discharge and waste from industrial facilities utilizing the Gen X chemical process |
| Perfluorobutane sulfonic acid (PFBS) (ppt) | 420 | N/A | ND | ND | 2022 | No | Discharge and waste from industrial facilities; Stain-resistant treatments |
| Perfluorohexane sulfonic acid (PFHxS) (ppt) | 51 | N/A | ND | ND | 2022 | No | Firefighting foam; Discharge and waste from industrial facilities |
| Perfluorohexanoic acid (PFHxA) (ppt) | 400,000 | N/A | ND | ND | 2022 | No | Firefighting foam; Discharge and waste from industrial facilities |
| Perfluorononanoic acid (PFNA) (ppt) | 6 | N/A | ND | ND | 2022 | No | Discharge and waste from industrial facilities; Breakdown of precursor compounds |
| Perfluorooctane sulfonic acid (PFOS) (ppt) | 16 | N/A | ND | ND | 2022 | No | Firefighting foam; Discharge from electroplating facilities; Discharge and waste from industrial facilities |
| Perfluorooctanoic acid (PFOA) (ppt) | 8 | N/A | ND | ND | 2022 | No | Discharge and waste from industrial facilities; Stain-resistant treatments |
| 2022 Microbiological Contaminants – Monthly Monitoring in the Distribution System | | | | | | | |
| Regulated Contaminant | MCL, TT, or MRDL | MCLG or MRDLG | Level Detected | Range | Year Sampled | Violation Yes/No | Typical Source of Contaminant |
| Total Coliform (total number or % of positive samples/month) | TT | N/A | 0 | 0 | 2022 | No | Naturally present in the environment |
| <i>E. coli</i> in the distribution system (positive samples) | See <i>E. coli</i> note ⁵ | 0 | 0 | 0 | 2022 | No | Human and animal fecal waste |
| Fecal Indicator – <i>E. coli</i> at the source (positive samples) | TT | N/A | 0 | 0 | 2022 | No | Human and animal fecal waste |

⁵ *E. coli* MCL violation occurs if: (1) routine and repeat samples are total coliform-positive and either is *E. coli*-positive, or (2) the supply fails to take all required repeat samples following *E. coli*-positive routine sample, or (3) the supply fails to analyze total coliform-positive repeat sample for *E. coli*.

Monitoring and Reporting to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) Requirements: The State of Michigan and USEPA require us to test our water system on a regular basis to ensure its safety. We have met all the water monitoring and reporting requirements for 2022. We will update this Water Quality Consumer Confidence Report (CCR) annually and will keep you informed of any problems that may occur throughout the year as they happen. A copy of this CCR will be mailed to all Village water customers and additional copies are available at the Village Office.

Important Health 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 primarily comes from materials and components associated with water service lines that connect homes and businesses with the Village Water Distribution System and the private plumbing lines within the structures. The Village of Armada 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 (unmoving in household pipes) 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 ***EPA Safe Drinking Water Hotline (800-426-4791)*** or <http://www.epa.gov/safewater/lead>.

Information about Iron: Iron is considered a secondary contaminant and is also found in our groundwater supply. It is a common problem for groundwater systems. Iron and other metals occur naturally in soils, rocks, and minerals. In the aquifer underlying the Village, groundwater comes in contact with these solid materials dissolving and releasing them. Much of the iron found in the water pumped out of the ground for Village use is removed through the Arsenic filtration and chlorination processes used at our Water Treatment Plant. However, the Village does not specifically treat our water for iron. Residents may occasionally notice indications of iron in their tap water. Although not considered to cause health problems in humans, its presence in potable water may be unpleasant due to the bad odors it causes, its rusty taste and color, its feel on skin and hair, and its tendency to cause rusty stains on laundry.

Summary of the Village of Armada Source Water Assessment

As previously indicated, the Village of Armada pumps water from three wells located in an aquifer underlying the Village. In 2016, the Michigan Department of Environmental Quality, now known as the Department of Environment, Lakes, and Energy (EGLE), performed an assessment of our source water to determine susceptibility for contamination. The Susceptibility rating is on a six-tiered scale from “Very Low” to “High” based primarily on geologic sensitivity, water chemistry, and possible sources of contaminants.

The susceptibility of our source water to contamination is:

- Well #6: Moderate
- Well #7: Moderately High
- Well #8: Moderately High

Significant possible sources of contamination include but are not limited to improper wellhead isolation, industrial and wastewater treatment plants built within 2,000 feet of a wellhead, and sanitary sewer and storm drains located inside wellhead isolation areas.

General Summary of Village Water System

While our drinking water meets USEPA standards for Arsenic contamination levels, it does nevertheless contain low levels of arsenic. The Village has worked this last year to minimize Arsenic levels in our water by completely replacing the filtration media in the filtration vessels at our water treatment plant. This represents a major improvement in the safety of our water system. The Village very rarely gets funding from the Federal Government to support infrastructure needs. The Village used the approximately \$184,000 it received from the COVID, American Rescue Plan Act (ARPA) to help pay for the water treatment plant media replacement which cost approximately \$750,000.

There are no bacteriological violations for the 2022 calendar year. We collect bacteriological samples each month from the Village's Water Distribution System and at all three wells. There have been no issues found in this sampling effort.

The Village currently has 561 water taps. There are a small number that are suspected to have a lead connection between the water main and curb shut off valve. There is another group that is suspected of having galvanized connections between the curb shut off valve and a residence or business. Galvanized piping previously connected to lead components are considered to be lead service lines (LSL) and must be replaced at Village cost per a State of Michigan mandate. Municipalities have 20 years (2020 – 2040) to replace all lead goosenecks and LSL at an average replacement rate of 5% per year. The Village is currently working to identify its lead goosenecks and LSL through a Complete Distribution Material System Inventory (CDMSI). The CDMSI must be complete by January 1, 2025. Once the CDMSI is done, the Village will begin replacing lead and galvanized lines in the Village.

The Village will also continue to periodically flush our water distribution system by opening select fire hydrants throughout the year. Flushing hydrants moves the water through the system, clearing the lines of sediment and preventing stagnation. Some water distribution piping in the Village was restricted when constructed (also known as a "dead-end" main). These dead-end mains can by themselves cause water stagnation. The Village will flush these "dead-end" mains more frequently until the Village is in a position to connect these lines to other parts of the water distribution system. The Village is planning to interconnect these closed loops when it makes major investments to its water infrastructure, tentatively beginning in 2024 – 2025.

The Village Water Department and its subcontractor, HydroCorp, Inc. have performed initial inspections of all non-residential taps (businesses, public buildings, churches, schools, etc.) in the Village for cross-connections between potable and non-potable water sources and to ensure backflow preventers are in place and operating correctly. Intrusion of contaminated water sources into our drinking water distribution system could cause the system to be shut down. 99% of village businesses are in compliance with the Cross Connection Control Program. Compliance is very important to maintain a safe drinking water system and is also mandated by the State of Michigan. The Village will begin inspecting our residential taps in 2023.

We at the Village Water Department, which is comprised of the Water Commissioner, the Department of Public Works, and Water System operator F&V Operations (a contracted company) work around the clock, 7 days a week, 365 days a year, to provide a safe and

dependable drinking water supply and reliable distribution to homes and businesses in the Village. We ask all customers to help do their part to protect our water system.

The Village Water System is a self-sustaining operation, fully paid for by the Village water users themselves. Operating, maintaining, and improving the system is funded through the payment of your quarterly Water/Sewer bills. The cost of managing the system operation is reflected in the rate structure which is set yearly by the Village Council during its January – March budget development cycle. Rate increases may be periodically required to cover the cost of operating the system, including inflation. Rate adjustments are set as the Village develops its budget for the next fiscal year. Rate changes go into effect on April 1st of each year.

We want the Village residents to be informed about their Water Utility and invite the public to participate in decisions affecting our drinking water quality and system operation. If you want to learn more, please attend any of our regularly scheduled Village Council Meetings, held at the Village Hall on the second and fourth Mondays of each month, at 7:00 p.m. The Village Office is located at 74274 Burk Street, Armada, Michigan, 48005. A water system update is routinely provided to the Council at each meeting.

Finally, if you have further questions about this Consumer Confidence Report, please contact any of the individuals listed below through the Village Office, at 586-784-9151:

- Ross Boelke, Trustee and Village Water Commissioner; or
- Dave Wagner, Superintendent of Public Works; or
- Michael Glasgow, Operator in Charge, Water Treatment Plant

Additional copies of this report may be acquired at the Village Office. The office is open Monday – Thursday, from 8:00 a.m. to 4:30 p.m. and Friday from 8:00 a.m. to 12:00 p.m.

- The Village of Armada Water Department

FROM: Village of Armada Water Department

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

SUBJECT: Reporting Requirements Not Met for the Village of Armada

We are required to report the results of your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indication of whether or not your drinking water meets health standards. While we collected our monthly total coliform samples on time, we did not report the results to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) by the July 10, 2022 deadline for the June 1 to June 30, 2022, compliance period.

What should I do?

There is nothing you need to do at this time. This is not an emergency. You do not need to boil water or use an alternative source of water at this time. The results of the samples were negative for bacteria. Even though the public health was not impacted, as our customers, you have a right to know what happened and what we did to correct the situation.

What happened? What is being done?

While the Village water system Operator in Charge (F&V Operations) collected the samples on time, he inadvertently missed reporting the results to EGLE by the required deadline. We are required to monitor total coliform by collecting two samples a month. F&V Operations collected the required samples on June 21, 2022 but failed to report the results until July 26, 2022. We are taking steps and making an effort to ensure this does not happen again. Since the violation, we have returned to full compliance with EGLE's sampling and reporting requirements in all subsequent sampling activities.

For more information, please contact: Ross Boelke, Trustee and Water Commissioner, c/o the Village Office at 586-784-9151.


Please share this information with all other people who drink this water, especially those who may not have received this notice directly. You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice is being sent to you by the Village of Armada.

Certification:

WSSN: 00240

I certify that this water supply has fully complied with the public notification regulations in the Michigan Safe Drinking Water Act, 1976 PA399, as amended, and the administrative rules.

 TRUSTEE & WATER COMMISSIONER 18 OCT 2022
Signature Title Date