

*Annual Drinking Water Quality Report
for 2022
Village of Tivoli Water System
26 Public Works Drive, Tivoli, NY 12583
(Public Water Supply ID#1302778)*

INTRODUCTION

To comply with State regulations, the Village of Tivoli Water System will be annually issuing a report describing the quality of your drinking water. The purpose of this report is to improve your understanding of your drinking water and awareness of the need to protect our drinking water sources. Last year, our tap water met all State drinking water health standards. The system did, however, experience several events that resulted in service disruptions and a sampling frequency violation.

Due to the aging infrastructure of our distribution system, we experienced a number of breaks in service lines during 2022, including two which resulted in significant losses in system pressure. These losses in pressure resulted in the issuance of Boil Water Notices to isolated areas of the system on August 11 and October 1, 2022. The Boil Water Notices were lifted on August 15 and October 5, respectively, after system operators collected the required Total Coliform Samples and received the necessary approvals. Improvements to your water system's infrastructure are ongoing, and we continue to make our best efforts to avoid service disruptions.

Although the levels of PFOS substances including 1,4 Dioxane in Tivoli's water sources are fully compliant with all relevant health standards, we are required to conduct regular monitoring for these contaminants. During the second quarter of 2022, monitoring samples were not collected for PFOS substances including 1,4 Dioxane one of our system's six source wells (Well 5PW). The same well was not sampled for 1,4 Dioxane in the third quarter of 2022. In all other monitoring periods, Well 5PW has consistently demonstrated levels of PFOS substances that are so low as to be non-detectable by laboratory methods.

This report provides an overview of last year's water quality. Included are details about where your water comes from, what it contains, and how it compares to State standards. If you have any questions about this report or concerning your drinking water, please contact **Dutchess County Water and Wastewater Authority at (845)-486-3601**. We want you to be informed about your drinking water. If you want to learn more about the Dutchess County Water & Wastewater Authority, please visit our website at www.DCWWA.org

WHERE DOES OUR WATER COME FROM?

In general, the sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and 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 activities. Contaminants that may be present in source water include microbial contaminants, inorganic contaminants, pesticides and herbicides, organic chemical contaminants, and radioactive contaminants. In order to ensure that tap water is safe to drink, the State and the EPA prescribe regulations which limit the amount of certain contaminants in water provided by public water systems. The State Health Departments and the FDA's regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Our water system serves 1,118 people and 476 service connections. Our water source is groundwater drawn from a total of six (6) wells during 2022. Wells were drilled in 1940, 1947, 1953, 1957, 1980, and 2002. The water is pumped from the wells to two different pump stations at which point the water is chlorinated prior to distribution. Excess water is stored in the elevated water tank on Broadway.

ARE THERE CONTAMINANTS IN OUR DRINKING WATER?

As the State regulations require, we routinely test your drinking water for numerous contaminants. These contaminants include total coliform, turbidity, inorganic compounds, nitrate, nitrite, lead and copper, volatile organic compounds, total trihalomethanes, synthetic organic compounds, total haloacetic acids, and radioactive contaminants. The table presented below depicts which compounds were detected in your drinking water. The State allows us to test for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.

It should be noted that all drinking water, including bottled drinking water, may be reasonably 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) or the Dutchess County Health Department at (845) 486-3404.

Table of Detected Contaminants

Contaminant	Location	Violation Yes/No	Date of Sample	Level Detected (Range)	Unit of Measure	MCLG	Regulatory Limit	Likely Source of Contamination
Disinfection Byproducts								
Total Trihalomethanes	System Wide	No	08/26/2022	7.9 (4.1-12)	ug/L	N/A	80 (MCL)	By-product of drinking water chlorination needed to kill harmful organisms. TTHMs are formed when source water contains large amounts of organic matter.
Total Haloacetic Acids	System Wide	No	08/26/2022	2.83 (<2.0-3.3)	ug/L	N/A	60 (MCL)	By-product of drinking water disinfection needed to kill harmful organisms.
Radioactive Contaminants								
Combined radium – 226 and 228	MCK	No	4/19/22	0.30±0.698	pCi/L	0	5 (MCL)	Erosion of natural deposits.
	Potts/WM	No	4/19/22	0.85±0.807				
Gross Alpha	MCK	No	4/19/22	1.55±1.63	pCi/L	0	15 (MCL)	
	Potts/WM	No	4/19/22	1.30±1.36				
Combined Uranium	MCK	No	4/19/22	0.205±0.01	pCi/L	0	30 (MCL)	
	Potts/WM	No	4/19/22	0.281±0.20				
Inorganic Contaminants								
Iron	Ball Lot ¹	Yes ¹	12/7/2020	0.396	mg/L	N/A	0.3 (MCL)	Naturally occurring
	MCK	Yes ²	7/08/2022 10/27/2022 11/04/2022 11/10/2022 11/18/2022 11/23/2022	0.37 (0.31-0.47)				
	Potts/WM	No	7/01/2022	0.14				

Inorganic Contaminants (Continued)

Contaminant	Location	Violation Yes/No	Date of Sample	Level Detected (Range)	Unit of Measure	MCLG	Regulatory Limit	Likely Source of Contamination
Manganese	Ball Lot ¹	No	12/7/2020	0.0405	mg/L	N/A	0.3 (MCL)	Naturally occurring, indicative of landfill contamination
	MCK	No	7/08/2022	0.061				
	Potts/WM	No	7/01/2022	0.032				
Sodium ³	Ball Lot ¹	No	3/26/2019	78.6	mg/L	N/A	See footnote 3	Naturally occurring; Road salt; Water softeners; Animal waste.
	MCK	No	12/16/2021	57				
	Potts/WM	No	12/16/21	278				
Zinc	Ball Lot ¹	No	3/26/2019	0.0151	mg/L	N/A	5	Naturally occurring; Mining waste.
	MCK	No	8/28/2019	<0.02				
	Potts/WM	No	8/28/2019	<0.02				
Silver	MCK	No	4/19/2022	<0.01	mg/L	N/A	0.1	Naturally occurring, discharge from photographic and radiographic processing; Manufacturing of electronic products; Jewelry making; Plating and soldering.
	Potts/WM	No	4/19/2022	<0.01				
Odor	Ball Lot ¹	No	3/26/2019	1.0	TON	N/A	3	Organic or inorganic pollutants originating from municipal and industrial waste discharges; natural sources.
	MCK	No	4/19/2022	1.0				
	Potts/WM	No	4/19/2022	1.0				
Chloride	Ball Lot ¹	No	3/26/2019	20	mg/L	N/A	250	Naturally occurring or indicative of road salt contamination
	MCK	No	4/19/2022	140				
	Potts/WM	No	4/19/2022	28				

Inorganic Contaminants (Continued)

Contaminant	Location	Violation Yes/No	Date of Sample	Level Detected (Range)	Unit of Measure	MCLG	Regulatory Limit	Likely Source of Contamination
Nitrate	Potts/WM	No	1/20/2022 4/19/2022	0.985 (0.87-1.1)	mg/L	10	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
	MCK	No	1/20/2022 4/19/2022	<0.28 (<0.25-0.31)				
Color	Ball Lot ¹	No	3/26/2019	10	PtCo	N/A	15	Large quantities of organic chemicals, inadequate treatment, high disinfectant demand and the potential for production of excess amounts of disinfectant byproducts such as trihalomethanes, the presence of metals such as copper, iron and manganese; Natural color may be caused by decaying leaves, plants, and soil organic matter.
	MCK	Yes	4/19/2022	20				
	Potts/WM	Yes	4/19/2022	25				
Sulfate	Ball lot ¹	No	3/26/2019	19	mg/L	N/A	250	Naturally occurring
	Potts/WM	No	12/16/2021	26				
	MCK	No	12/16/2022	48				
Lead ⁴	System Wide	No	7/9/2020- 7/14/2020	0.001 (ND-0.030)	mg/L	0	0.015 (AL)	Corrosion of household plumbing systems; Erosion of natural deposits.
Copper ⁵	System Wide	No	7/9/2020- 7/14/2020	0.248 (0.028- 0.263)	mg/L	1.3	1.3 (AL)	Corrosion of household plumbing systems leaching from wood preservatives; Erosion of natural deposits.
Arsenic	Ball Lot ¹	No	12/7/2020	4.31	µg/L	N/A	10 (MCL)	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
	MCK	No	10/21/2020	1.66				
Barium	Ball Lot ¹	No	12/7/2020	0.0629	mg/L	2	2 (MCL)	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
	Potts/WM	No	10/21/2020	0.193				
	MCK	No	10/21/2020	0.0826				

Organic Contaminants								
Contaminant	Location	Violation Yes/No	Date of Sample	Level Detected (Range)	Unit of Measure	MCLG	Regulatory Limit	Likely Source of Contamination
Total Coliform Bacteria	System Wide	No	11/10/2022	Present	N/A	0	TT = 2 or more positive samples after April 1, 2016 ⁵	Naturally present in the environment
Perfluorinated Alkyl Acids (PFOAs) ⁷	Potts W2	No	4/05/2022	1.80	ng/l	10	N/A	Released into the environment from widespread use in commercial and industrial applications.

Footnotes:

- 1- Ball Lot has not been in use as a water source for the Tivoli Water System since 2020. Information is provided as historical data for long-term users of the water system.
- 2- Although iron levels at the McKnight entry point exceed the regulatory threshold, no service connections are served water from McKnight that has not been mixed with water from other well sources much lower in iron. Through a sampling schedule determined in partnership with the Department of Health, iron levels were routinely monitored at both McKnight entry point and in the water distribution system to ensure that iron levels in the water being supplied to our users is well below the regulatory limit. Iron is not considered hazardous to health. In fact, iron is essential for good health because it transports oxygen in your blood. Iron is considered a secondary or "aesthetic" contaminant. The present recommended limit for iron in water, 0.3 mg/L (ppm), is based on taste and appearance rather than on any detrimental health effect. When the level of iron in water exceeds the 0.3 mg/L limit, we experience red, brown, or yellow staining of laundry, glassware, dishes and household fixtures such as bathtubs and sinks. The water may also have a metallic taste and an offensive odor. Water system piping and fixtures can also become restricted or clogged. These effects may be experienced sporadically at iron levels under 0.3 mg/L as well, and we encourage customers to reach out to our office if discolored water becomes an ongoing problem.
- 3- Water containing more than 20 mg/l of sodium should not be used for drinking by people on severely restricted sodium diets. Water containing more than 270 mg/l of sodium should not be used for drinking by people on moderately restricted sodium diets.
- 4- The level presented represents the 90th percentile of the 10 samples collected. The action level for lead was exceeded at one of the sites during the most recent sampling period, and the homeowner was notified.
- 5- The level presented represents the 90th percentile of the 10 sites tested. A percentile is a value on a scale of 100 that indicates the percent of a distribution that is equal to or below it. The 90th percentile is equal to or greater than 90% of the copper values detected at your water system. In this case, 10 samples were collected from the water system and the 90th percentile value was the 0.248 mg/L value. The action level for copper was not exceeded at any of the sites tested.
- 6- Before April 1, 2016, a violation occurs at systems collecting 40 or more samples per month when more than 5% of the total coliform samples are positive. A violation occurs at systems collecting less than 40 samples per month when two or more samples are total coliform positive. After April 1, 2016, a Level 1 assessment is triggered if 2 or more routine/repeat samples are total coliform positive in the same month.
- 7- PFOA caused a range of health effects when studied in animals at high exposure levels. The most consistent findings were effects on the liver and immune system and impaired fetal growth and development. Studies of high-level exposures to PFOA in people provide evidence that some of the health effects seen in animals may also occur in humans. The United States Environmental Protection Agency considers PFOA as having suggestive evidence for causing cancer based on studies of lifetime exposure to high levels of PFOA in animals.

Definitions:

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.

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.

Action Level (AL) - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Milligrams per liter (mg/L) - One part of liquid in one million parts of liquid (parts per million, or ppm).

Micrograms per liter (µg/L) - One part of liquid in one billion parts of liquid (parts per billion, or ppb).

Non-Detects (ND) - Laboratory analysis indicates that the constituent is not present.

Nanograms per liter (ng/l) - One part of liquid to one trillion parts of liquid (parts per trillion - ppt).

Picocuries per liter (pCi/L) - A measure of the radioactivity in water.

Threshold Odor Number (TON) - A whole number that indicates how many dilutions are needed to produce odor-free water

Treatment Technique (TT) - A required process to reduce the level of a contaminant in drinking water.

Platinum Cobalt Scale (PtCo) - A standard test method for color of clear liquids, especially for comparison of the intensity of yellow-tinted samples

WHAT DOES THIS INFORMATION MEAN?

As you can see by the table, our system had violations for McKnight Entry Point Iron and for Apparent Color. We invite you to reference Footnote 2 to the table, which discussed our comprehensive approach in partnership with the Dutchess County Department of Behavioral & Community Health to ensure that proper blending of high- and low-iron well sources is consistently providing the Tivoli Water System with water that meets State standards for iron concentration. At the time of this year's analysis, both of our chlorination stations produced water of greater than 15 color units. Color may be indicative of dissolved organic material, inadequate treatment, high disinfectant demand, and the potential for the production of excess amounts of disinfectant by-products. Inorganic contaminants such as metals (including iron) are also common causes of color. Color has no health effects, but may be objectionable to consumers at levels as low as five units. We encourage customers to reach out to our office if discolored water becomes an ongoing problem. We have learned through our testing that some other contaminants have been detected; however, these contaminants were detected below the level allowed by the State.

Although testing did not reveal hazardous levels of lead in our system, we are required to present the following information on lead in drinking water:

If present, elevated levels of lead can cause serious health problems, especially for pregnant women, infants, and young children. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. The Village of Tivoli Water System 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 (1-800-426-4791) or at <http://www.epa.gov/safewater/lead>.

IS OUR WATER SYSTEM MEETING OTHER RULES THAT GOVERN OPERATIONS?

During 2021, our system was in compliance with most all applicable State drinking water operating, monitoring and reporting requirements.

DO I NEED TO TAKE SPECIAL PRECAUTIONS?

Although our drinking water met or exceeded state and federal regulations, some people may be more vulnerable to disease causing microorganisms or pathogens 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 from their health care provider about their drinking water. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium, Giardia and other microbial pathogens are available from the Safe Drinking Water Hotline at 1-800-426-4791.

WHY SAVE WATER AND HOW TO AVOID WASTING IT?

Although our system has an adequate amount of water to meet present and future demands, there are a number of reasons why it is important to conserve water:

- ◆ Saving water saves energy and some of the costs associated with both of these necessities of life;
- ◆ Saving water reduces the cost of energy required to pump water and the need to construct costly new wells, pumping systems and water towers; and
- ◆ Saving water lessens the strain on the water system during a dry spell or drought, helping to avoid severe water use restrictions so that essential firefighting needs are met.

You can play a role in conserving water by becoming conscious of the amount of water your household is using, and by looking for ways to use less whenever you can. It is not hard to conserve water. Conservation tips include:

- ◆ Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So, get a run for your money and load it to capacity.
- ◆ Turn off the tap when brushing your teeth.
- ◆ Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.
- ◆ Check your toilets for leaks by putting a few drops of food coloring in the tank, watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from one of these otherwise invisible toilet leaks. Fix it and you save more than 30,000 gallons a year.

CLOSING

Thank you for allowing us to continue to provide your family with quality drinking water this year. In order to maintain a safe and dependable water supply we sometimes need to make improvements that will benefit all of our customers. The costs of these improvements may be reflected in the rate structure. Rate adjustments may be necessary in order to address these improvements. We ask that all our customers help us protect our water sources, which are the heart of our community. Please call our office if you have questions.