DUTCHESS COUNTY
WATER AND WASTEWATER AUTHORITY

VILLAGE OF TIVOLI WATER SYSTEM

WATER QUALITY REPORT

2024

UNDERSTANDING THIS REPORT

Every year, Dutchess County Water and Wastewater Authority (DCWWA) publishes a report on the quality of Tivoli's drinking water. This isn't just a state and federal requirement—it's also an opportunity to help our customers understand where their water comes from, what's in it, and how we work to keep it safe and reliable.

We're happy to let you know that in 2024, your drinking water met all state health and safety standards for primary contaminants. However, we did observe **exceedances of secondary standards related to iron, color, and odor**, which affect the water's appearance and taste, but not its safety.

If you have any questions about this report or the information it contains, please don't hesitate to reach out using the contact information below. **We encourage you to be part of the conversation about your water system.**

WHO WE ARE

DCWWA is an independent, not-for-profit public benefit corporation that was established in 1991 by an act of the State at the request of Dutchess County. Authority actions are governed by an appointed Board of Directors.

As owner and operator of 18 drinking water systems that collectively serve over 22,000 people, DCWWA is committed to the providing reliable drinking water with quality customer service at a reasonable cost, proportionate to the cost of proper operation and environmental stewardship.

OUR MISSION

To protect and enhance the health, environmental sustainability and economic stability of Dutchess County and its residents through the provision of clean drinking water and proper treatment of wastewater.

CONTACT US

Call our office Monday-Friday, 9:00 a.m. to 4:00 p.m. at

(845) 486-3601

Email us anytime at

DCWWA@dutchessny.gov

Visit our website to sign up for system-specific Alerts and Advisories

http://www.dcwwa.org/

Attend one of our monthly Board Meetings virtually, or in person at our office located at

1 Lagrange Ave, Poughkeepsie, NY

CELEBRATING EXCELLENCE IN WATER MANAGEMENT

We are thrilled to announce that DCWWA Operator Cody Nelson, the Lead Operator of your water system, has been honored with the prestigious Operator of the Year award from the New York section of the American Water Works Association. This recognition highlights his exceptional expertise and commitment to maintaining the highest standards of water service for your community.

DRINKING WATER FACTS

FROM THE U.S. EPA AND THE NEW YORK STATE DEPARTMENT OF HEALTH

How water sources can contain contaminants

Drinking water (both tap water and bottled water) comes from natural sources, including rivers, lakes, streams, ponds, reservoirs, springs and wells.

As water travels over the surface of the land and through the ground, it dissolves naturally occurring minerals. Substances resulting from the presence of animal or human activity—even radioactive material—can also be picked up along the way.

Potential contaminants in New York water sources

All drinking water, including bottled water, may reasonably be expected to contain at least some small amount of contamination. This does not necessarily indicate that the water poses a health risk.

In the Hudson Valley's groundwater supplies, potential sources of contamination include:

- Microbial contaminants, such as viruses, bacteria, and protozoa
- Inorganic contaminants, including metals, salts, and radioactive materials that may occur naturally in rocks and soils or leach from manmade sources
- Organic contaminants, which often result from chlorine combining with naturally occurring organic matter

How safe water standards are set and enforced

To ensure tap water is safe to drink, the State and the EPA set regulations that limit the levels of certain contaminants in water provided by public water systems. Water providers are required to perform routine testing for regulated contaminants and report the results to the New York State Department of Health and water users. If a water system fails to meet drinking water standards or violates regulations, penalties can be imposed. These penalties might include fines, mandatory corrective actions, or, in extreme cases, legal action to shut down or restrict a water system. If something is wrong with your water, you will be notified.

More information about contaminants and their potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 1 (800) 426-4791 or the Dutchess County Department of Health at (845) 486-3404.

NEW YORK STATE | Department of Health

Important Information from the New York State Department of Health

The NYS DOH has completed a source water assessment for this system, based on available information. Possible and actual threats to this water source were evaluated. The State source water assessments include a susceptibility rating based on the risk posed by each potential source of contamination and how easily contaminants can move through the subsurface to the wells. Susceptibility rating is an estimate of the potential for contamination of the source water, it does not mean that the water delivered to consumers is or will be contaminated. See section "Are there contaminants in our drinking water?" for a list of the contaminants that have been detected, if any. The source water assessments provide resource managers with additional information for protecting source waters in the future. The source water assessment has rated our water source as having an elevated susceptibility to microbial and nitrate contamination. These ratings are due primarily to the proximity of the wells to a landfill and a permitted discharge facility (industrial/commercial facilities that discharge wastewater into the environment and are regulated by the state and/or federal government) and the residential and agricultural land use and related activities in the assessment area. In addition, the wells draw from fractured bedrock and overlying soils may not provide adequate protection from potential contamination. The county and state health departments will use this information to direct future source water protection activities. The source water assessment summary for your system is available by calling the Dutchess County Department of Health at (845) 486-3404 and requesting a copy.

WHERE DOES OUR

WATER COME FROM?

The Village of Tivoli Water System has been in service since the 1930s. The system has been operated by DCWWA since 2019 and has been owned by DCWWA since 2024.

Tivoli's water source is groundwater drawn from a total of six drilled wells, which were brought into service in 1940, 1947, 1953, 1957, 1980, and 2002.

Water is pumped from the wells to two different treatment plants, where it is treated with sodium hypochlorite, which disinfects to control harmful pathogens. No other treatment processes (such as softening) are present prior to distribution.

Treated water is stored in the 300,000-gallon elevated tank on Broadway, which provides adequate pressure through nearly seven miles of distribution piping.

The Tivoli Water System serves about 1,110 people through 476 customer connections. The average public water system in the United States serves about 8,000 customers.

Are There Contaminants in Our Drinking Water?

As State regulations require, we routinely test your drinking water for numerous contaminants. In 2024, our staff conducted tests for 26 different contaminants. Of these, five contaminants were present at detectable levels and one contaminant, **iron**, was present in untreated source water and in treated water at the **McKnight Entry Point** in **concentrations that exceeded the State's recommended limit.**

It's important to note that the iron standard is set to help prevent issues with water's taste and color. **Iron at the levels we observed is not typically associated with health risks**. To put it in perspective, you'd need to drink about seven to ten gallons of treated water from the McKnight Entry Point to consume the amount of iron found in a typical daily multivitamin.

In 2023, one **untreated water sample exceeded the State's standard for odor**. However, compliant samples of treated water show that **odor is effectively removed by treatment**. In 2022, samples from **both entry points exceeded the State standard for color**. Color in Tivoli's water is a result of the treatment process and does not pose a health risk. While it may affect the appearance of the water, it is not harmful to drink.

Across the next few pages, you'll find details about what was detected in your water, when it was found, how much was present, and how those levels compare to the State's health-based standards. Keep in mind, the State allows some contaminants to be tested less frequently because they typically remain stable over time, so while a few results may be from earlier years, they still provide an accurate picture of your water quality. Want to know more about what's in your water and what it means? Keep reading—we've got you covered.

TABLE OF DETECTED CONTAMINANTS

VILLAGE OF TIVOLI WATER SYSTEM

Public Water System ID NY1302778

DISINFECTION BYPRODUCTS

Contaminant: HALOACETIC ACIDS (HAA5)

Why we test for it: Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

Sources in drinking water: By-product of drinking water disinfection needed to kill harmful organisms.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
System Wide	8/26/2022	2.17 ND - 3.3	60	N/A	ug/L	☑

Contaminant: TOTAL TRIHALOMETHANES (TTHM)

Why we test for it: Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.

Sources in drinking water: By-product of drinking water chlorination needed to kill harmful organisms. TTHMs are formed when source water contains organic matter.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
System Wide	8/26/2022	7.9 4.1 - 12	80	N/A	ug/L	☑

INORGANIC CONTAMINANTS

Contaminant: **ARSENIC**

Why we test for it: Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.

Sources in drinking water: Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
McKnight Entry Point	4/20/2023	1.86	10	N/A	ug/L	☑
Potts-Woodmarc Entry Point	4/20/2023	1.43	10	N/A	ug/L	☑
Well WM1	2/15/2023	2.10	10	N/A	ug/L	☑
Ball Lot Entry	12/7/2020	4.31	10	N/A	ug/L	☑

Contaminant: **BARIUM**

Why we test for it: Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.

Sources in drinking water: Discharge from drilling wastes; Discharge from metal refineries; Erosion of natural deposits.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
McKnight Entry Point	4/20/2023	0.06	2	2	mg/L	☑
Potts-Woodmarc Entry Point	4/20/2023	0.18	2	2	mg/L	☑
Well WM1	2/15/2023	0.30	2	2	mg/L	☑
Ball Lot Entry	12/7/2020	0.06	2	2	mg/L	☑

Out of the Game: Ball Lot Well Retired

The Ball Lot Entry Point has been out of service since December 7, 2020. As of January 12, 2024, the associated well has been officially retired — permanently abandoned and physically disconnected from the water system. This step reflects our ongoing commitment to maintaining safe, efficient, and modern water supply infrastructure.

Although the Ball Lot well is no longer in use, you will see it listed several times throughout this report. Information on past contaminant levels is provided as historical data for long-term users of the water system. This ensures transparency and helps residents understand the system's history and our ongoing efforts to improve water quality.

Contaminant: **CHLORIDE**

Why we test for it: Chloride is essential for maintaining good health. Research has not conclusively demonstrated that human exposure to chloride itself causes adverse health effects, although exposure to high levels of certain chloride salts has been associated with adverse health effects in humans. For example, high dietary intake of sodium chloride can be a contributing factor to high blood pressure, but this has been attributed mainly to the presence of sodium. The New York State standard for chloride is 250 milligrams per liter, and is based on chloride's effects on the taste and odor of the water.

Sources in drinking water: Naturally occurring or indicative of road salt contamination.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
McKnight Entry Point	4/19/2022	140	250	N/A	mg/L	☑
Potts-Woodmarc Entry Point	4/19/2022	28	250	N/A	mg/L	☑
Well WM1	2/15/2023	2.05	250	N/A	mg/L	☑

Contaminant: **COPPER**

Why we test for it: Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

Sources in drinking water: Corrosion of household plumbing systems; Erosion of natural deposits; leaching from wood preservatives.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
System Wide	8/1/2023 through 8/8/2023	0.24 0.01 - 0.27	Action Level = 1.3	1.3	mg/L	☑

Heavy Metal: Lead and Copper in Your Water

To monitor for lead and copper, we collect samples from homes that are most likely to have plumbing that could contribute to higher metal levels (typically older homes with legacy pipes and fittings). These homes are carefully selected by DCWWA and the Department of Health based on system records and construction dates. If your home is selected for future testing, please help your community by participating — **your cooperation ensures that we get accurate, meaningful data to keep your water safe.**

In this monitoring round, **five samples were collected from homes across the Tivoli Water System**. The results are used to calculate the 90th percentile value, a number that's higher than 90% of all samples, which helps us identify whether some homes might be approaching the EPA's action levels. The 90th percentile reported here is not an average; it's a way to flag potential problem areas in the system.

Lead and copper don't come from the water source. Instead, they enter drinking water when plumbing materials corrode, especially in homes with lead pipes or copper pipes joined with lead-based solder. Although we have not identified any lead service lines in Tivoli's distribution system, these materials were commonly used before the 1986 ban on lead in drinking water plumbing. The Tivoli Water System, which has been in service since the 1930s, predates that regulation by decades, so lead and copper testing is critical to ensure your water's safety.

The good news: **In our most recent round of testing, all lead and copper results, including the 90th percentile values, were well below EPA action levels.**

Contaminant: **IRON**

Why we test for it: Iron is essential for maintaining good health. However, too much iron can cause adverse health effects. Drinking water with very large amounts of iron can cause nausea, vomiting, diarrhea, constipation and stomach pain. These effects usually diminish once the elevated iron exposure is stopped. A small number of people have a condition called hemochromatosis, in which the body absorbs and stores too much iron. People with hemochromatosis may be at greater risk for health effects resulting from too much iron in the body (sometimes called "iron overload") and should be aware of their overall iron intake. The New York State standard for iron in drinking water is 0.3 milligrams per liter, and is based on iron's effects on the taste, odor and color of the water.

Sources in drinking water: Naturally occurring.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
McKnight Entry Point	3/4/2024 through 11/5/2024	651.5 533 - 906	300	N/A	ug/L	☒
Potts-Woodmarc Entry Point	9/30/2023	190	300	N/A	ug/L	☑
System Wide	3/4/2024 through 11/5/2024	53.25 ND - 166	300	N/A	ug/L	☑
Well WM1	2/15/2023	855	300	N/A	ug/L	☒
Ball Lot Entry	12/7/2020	396	300	N/A	ug/L	☒

Contaminant: **LEAD**

Why we test for it: Infants and children who drink water containing lead in excess of the action level 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.

Sources in drinking water: Corrosion of household plumbing systems; Erosion of natural deposits.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
System Wide	8/1/2023 through 8/8/2023	1.39 ND - 8.62	Action Level = 15	0	ug/L	☑

Ironing It Out: Managing Minerals in Tivoli's Water

Like many groundwater sources, some of Tivoli's wells—McKnight and Woodmarc—naturally contain high levels of iron. Raw water from Woodmarc Well 1 (shown throughout this report as WM1) goes through treatement and is then blended with lower-iron sources before entering the system at the Potts-Woodmarc Entry Point. Finished water from the Potts-Woodmarc Entry Point, where **99% of Tivoli's treated water** enters the distribution system, **consistently meets state and federal iron limits**.

The **McKnight Entry Point** supplies treated water with high iron levels, but in 2024 this source **contributed only 1% of Tivoli's total water** production. We operate this source just enough to keep it in good working order, ensure regular testing, and maintain it as a backup source for emergencies. To ensure that this practice doesn't impact customer water quality, we routinely test iron levels at a nearby service connection (labeled as a "System Wide" sample above). **These results confirm that iron levels remain within acceptable limits at your tap.**

We constantly monitor and adjust our well operations using analytical sample results, daily water demand, and well performance data. This helps us manage which wells are used and when, so we can **keep iron levels low while ensuring reliable water service**.

Contaminant: **MANGANESE**

Why we test for it: Manganese is a common element in rocks, soil, water, plants, and animals. Manganese occurs naturally in water after dissolving from rocks and soil. Contamination of drinking water may occur if manganese gets into surface or groundwater after dissolving from rocks and soil. It may also occur if manganese gets into surface or groundwater after improper waste disposal in landfills or by facilities using manganese in the production of steel or other products. Manganese is an essential nutrient that is necessary to maintain good health. However, exposure to too much manganese can cause adverse health effects. There is some evidence from human studies that long-term exposure to manganese in drinking water is associated with nervous system effects in adults (e.g., weakness, stiff muscles and trembling of the hands) and children (learning and behavior). The results of these studies only suggest an effect because the possible influences of other factors were not adequately assessed. There is supporting evidence that manganese causes nervous system effects in humans from occupational studies of workers exposed to high levels of manganese in air, but the relevance of these studies to long term drinking water exposure is less clear because the exposures were quite elevated and by inhalation, not by ingestion.

Sources in drinking water: Naturally occurring; Indicative of landfill contamination.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
McKnight Entry Point	7/8/2022	61	300	N/A	ug/L	☑
Potts-Woodmarc Entry Point	7/1/2022	32	300	N/A	ug/L	☑
Well WM1	2/15/2023	65.7	300	N/A	ug/L	☑
Ball Lot Entry	12/7/2020	40.5	300	N/A	ug/L	☑

Contaminant: **NITRATE (AS N)**

Why we test for it: 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.

Sources in drinking water: Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
McKnight Entry Point	4/30/2024	0.20	10	10	mg/L	☑
Potts-Woodmarc Entry Point	4/30/2024	1.17	10	10	mg/L	☑
Well WM1	2/15/2023	0.10	10	10	mg/L	☑

Contaminant: **SELENIUM**

Why we test for it: Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation.

Sources in drinking water: Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
McKnight Entry Point	4/20/2023	1.53	50	50	ug/L	☑

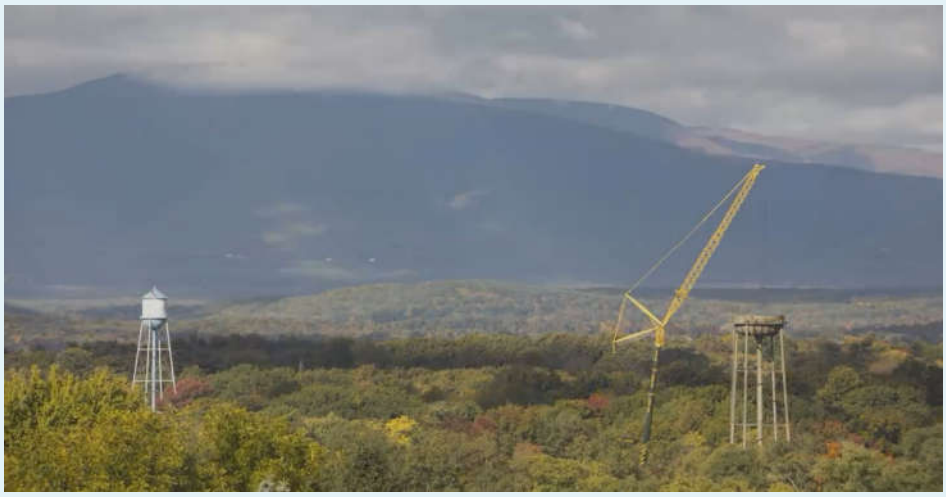
Contaminant: **SODIUM**

Why we test for it: 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.

Sources in drinking water: Naturally occurring; Road salt; Water softeners; Animal waste.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
McKnight Entry Point	4/19/2022	26	(See "Why we test for it," above)	N/A	mg/L	☑
Potts-Woodmarc Entry Point	12/16/2021	27	(See "Why we test for it," above)	N/A	mg/L	☑
Well WM1	2/15/2023	19.5	(See "Why we test for it," above)	N/A	mg/L	☑

A Towering Legacy



Tivoli's original elevated tank, seen in this archival photo (left, from the Bard College Tivoli History Collection) and in the background of the new tank's construction (right, photo by Pete Mauney), inspired the design of the new tower. The updated structure preserves the village's historic look while bringing water storage and fire protection up to modern standards.

Contaminant: **SULFATE**

Why we test for it: Drinking water containing high concentrations of sulfate can cause short-term intestinal effects in humans. The effects can range from a laxative effect (loose stools) to diarrhea (unusually frequent and liquid bowel movements). Diarrhea is of particular concern in infants, because it can lead to more serious effects such as dehydration. Travelers or new residents, who may change from drinking water with low sulfate concentrations to drinking water with high sulfate concentrations, may experience short term intestinal effects due to sulfate. The New York State standard for sulfate is 250 milligrams per liter, and is based on sulfate's effects on the taste and odor of the water.

Sources in drinking water: Naturally occurring.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
McKnight Entry Point	4/19/2022	50	250	N/A	mg/L	☑
Potts-Woodmarc Entry Point	12/16/2021	26	250	N/A	mg/L	☑
Well WM1	2/15/2023	19	250	N/A	mg/L	☑

MICROBIOLOGICAL CONTAMINANTS

Contaminant: **TOTAL COLIFORM**

Why we test for it: Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution.

Sources in drinking water: Naturally present in the environment.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
Well WM1	2/15/2023	1 positive sample	TT = 2 or more positive samples after April 1, 2016	0	N/A	☑

Coliform Under the Microscope: Treated, Tested, and Trustworthy

Woodmarc Well 1 (Well WM1) was subjected to comprehensive testing following maintenance work to improve its production. This **testing detected coliform bacteria in untreated water produced by Woodmarc Well 1**. Coliform bacteria are naturally found in the environment, including in soil, vegetation, and the intestines of animals and humans. While not usually harmful on their own, their presence is a key indicator that other, potentially dangerous bacteria like *E. coli* could also be present. In this case, **follow-up testing confirmed that *E. coli* was not present.**

It's not unusual to see coliform bacteria in untreated groundwater samples, especially right after maintenance. **The treatment system is equipped with 4-log disinfection, a high-level treatment process that inactivates 99.99% of viruses and bacteria.**

To ensure ongoing water safety and meet federal requirements, operators collect treated water samples each month from multiple locations throughout the distribution system. These samples are tested by certified laboratories for coliform bacteria. **In 2024, no coliform bacteria were detected in treated water.**

PHYSICAL CHARACTERISTICS

Contaminant: **COLOR**

Why we test for it: Color has no health effects. In some instances, color may be objectionable to some people at as low as 5 units. Its presence is aesthetically objectionable and suggests that the water may need additional treatment.

Sources in drinking water: Large quantities of organic chemicals, inadequate treatment, high disinfectant demand and the potential for production of excess amounts of disinfectant by products 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.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
McKnight Entry Point	4/19/2022	20	15	N/A	Units	☒
Potts-Woodmarc Entry Point	4/19/2022	25	15	N/A	Units	☒
Well WM1	2/15/2023	6	15	N/A	Units	☑

Contaminant: **ODOR**

Why we test for it: Odor as measured by this standard procedure has no health effects; although several contaminants exert odors when they are present at levels near their MCLs. Odor is an important quality factor affecting the drinkability of water.

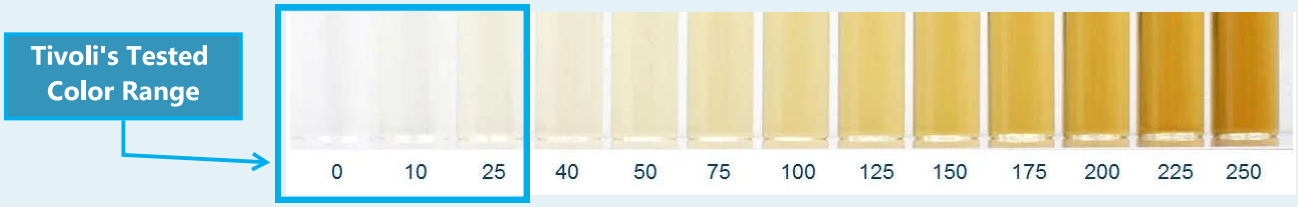
Sources in drinking water: Organic or inorganic pollutants originating from municipal and industrial waste discharges; natural sources.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
McKnight Entry Point	4/19/2022	1	3	N/A	Units	☑
Potts-Woodmarc Entry Point	4/19/2022	1	3	N/A	Units	☑
Well WM1	2/15/2023	10	3	N/A	Units	☒

See Something? Smell Something? We Test for That.

Untreated water from some of Tivoli's sources, including Well WM1, contains natural organic materials that cause odor. **Chlorine used in the treatment process neutralizes odors**, ensuring that **all finished water passes the "smell test."**

Although raw water meets color limits, when chlorine reacts with the minerals and organic matter in the source water, it forms compounds that give the water a yellowish tint. Color is most noticeable right after chlorine is added, so levels are typically highest at a system's entry points. The reference scale for color is shown below, and remember—**color affects water's appearance, not its safety**. We monitor and adjust treatment carefully to minimize this effect and stay in compliance with water quality standards.



Contaminant: **pH**

Why we test for it: Acidic water (low pH) can accelerate corrosion in pipes, potentially increasing concentrations of lead and copper in drinking water.

Sources in drinking water: Naturally occurring.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
McKnight Entry Point	6/11/2024	7.10	N/A	N/A	SU	☑
Potts-Woodmarc Entry Point	6/11/2024	6.80	N/A	N/A	SU	☑

RADIOACTIVE CONTAMINANTS

Contaminant: **COMBINED RADIUM-226 AND RADIUM-228**

Why we test for it: Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.

Sources in drinking water: Erosion of natural deposits.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
McKnight Entry Point	4/19/2022	0.30	5	0	pCi/L	☑
Potts-Woodmarc Entry Point	4/19/2022	0.85	5	0	pCi/L	☑

Contaminant: **GROSS ALPHA ACTIVITY (INCLULDING RADIUM-226 BUT EXCLUDING RADON AND URANIUM)**

Why we test for it: Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.

Sources in drinking water: Erosion of natural deposits.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
McKnight Entry Point	4/19/2022	1.55	15	0	pCi/L	☑
Potts-Woodmarc Entry Point	4/19/2022	1.30	15	0	pCi/L	☑

Contaminant: **URANIUM**

Why we test for it: Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer.

Sources in drinking water: Erosion of natural deposits.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
McKnight Entry Point	4/19/2022	0.21	30	0	ug/L	☑
Potts-Woodmarc Entry Point	4/19/2022	0.28	30	0	ug/L	☑

SYNTHETIC ORGANIC CONTAMINANTS

Contaminant: **PERFLUORO-OCTANOIC ACID (PFOA)**

Why we test for it: 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.

Sources in drinking water: Released into the environment from widespread use in commercial and industrial applications.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
Well 2PW	2/19/2024	0.81	10	N/A	ng/L	☑

Focus on PFAS: Understanding Emerging Contaminants and What They Mean for Your Water

PFAS (Per- and Polyfluoroalkyl Substances) are synthetic chemicals used in many everyday products for their water- and stain-resistant qualities. Because they break down very slowly, PFAS can accumulate in the environment and in the human body, which is why they're often called "forever chemicals." PFAS contamination has become a growing concern across the country, including here in the Hudson Valley.

Currently, two PFAS compounds, PFOA and PFOS, are regulated. **PFOS has never been detected** in Tivoli's water. **PFOA has been found only in Well 2PW**, which provided about **22% of Tivoli's treated water** in 2024. PFOA levels in this well have remained steady since monitoring began in 2021 and are well below both the current New York State limit and the stricter federal standard expected to take effect in the near future.

In addition to regulated compounds, state regulations require testing for certain **unregulated PFAS**. These substances aren't yet subject to drinking water standards, but are being monitored due to potential health concerns. Some of these compounds have been **detected in Well 2PW and Well WM1**, which together supply about **half of Tivoli's water**.

Well WM1 contained NEtFOSAA and **NMeFOSAA**, which are breakdown products of older PFAS chemicals once used in stain-resistant fabrics and firefighting foams. These compounds are persistent in the environment, though research on their health impacts is still developing. They were found in just one of four samples taken in 2023 and were **not detected at all in 2024**.

Well 2PW contained PFBS and **PFHxA**, which are newer compounds developed as alternatives to earlier, more harmful PFAS. These tend to remain in the body for a shorter time and appear to pose lower risks, but they are still under review.

Tivoli's water continues to meet all state and federal standards related to emerging contaminants.

UNREGULATED PERFLUOROALKYL SUBSTANCES

Contaminant: **N-ETHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (NETFOSAA)**

Why we test for it: Research is ongoing to understand the potential health effects of unregulated perfluoroalkyl compounds.

Sources in drinking water: Released into the environment from widespread use in commercial and industrial applications.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
Well WM1	2/15/2023 through 12/19/2023	0.33 ND - 1.33	N/A	N/A	ng/L	☑

Contaminant: **N-METHYL PERFLUOROOCTANESULFONAMIDOACETIC ACID (NMEFOSAA)**

Why we test for it: Research is ongoing to understand the potential health effects of unregulated perfluoroalkyl compounds.

Sources in drinking water: Released into the environment from widespread use in commercial and industrial applications.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
Well WM1	2/15/2023 through 12/19/2023	0.26 ND - 1.04	N/A	N/A	ng/L	☑

Contaminant: **PERFLUORO-BUTANESULFONIC ACID (PFBS)**

Why we test for it: Research is ongoing to understand the potential health effects of unregulated perfluoroalkyl compounds.

Sources in drinking water: Released into the environment from widespread use in commercial and industrial applications.

Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
Well 2PW	2/19/2024	1.23	N/A	2000	ng/L	☑

Contaminant: **PERFLUORO-HEXANOIC ACID (PFHXA)**

Why we test for it: Research is ongoing to understand the potential health effects of unregulated perfluoroalkyl compounds.

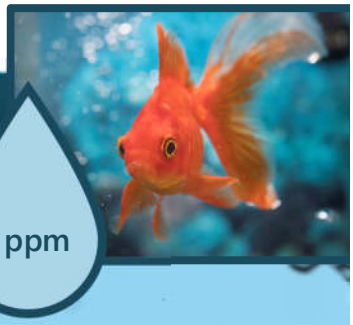
Sources in drinking water: Released into the environment from widespread use in commercial and industrial applications.

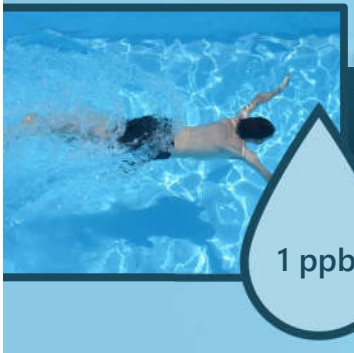
Sample Location	Sample Date(s)	Level Detected (Range)	Regulatory Limit (MCL/MRDL)	MCLG	Unit	Meets State Standards?
Well 2PW	2/19/2024	0.81	N/A	N/A	ng/L	☑

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.
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.
Action Level (AL)	The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
Treatment Technique (TT)	A required process intended to reduce the level of a contaminant in drinking water.
Non-Detects (ND)	Laboratory analysis indicates that the constituent is not present.
Milligrams per liter (mg/L)	One part of liquid in one million parts of liquid (parts per million - ppm).
Micrograms per liter (ug/L)	One part of liquid in one billion parts of liquid (parts per billion - ppb).
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.
Millirems per year (mrem/yr)	A measure of radiation absorbed by the body.

One milligram per liter equals about one drop of water in a 10-gallon fish tank.





One microgram per liter equals about one drop of water in a 13,000-gallon swimming pool.

WHAT DOES THIS INFORMATION MEAN?

Although we have learned through testing that some contaminants are present in our water, all except iron and color are present in concentrations lower than the levels allowed by the State. Color and iron are interconnected: when iron concentrations are high, our disinfection chemical reacts with the metal and gives the water a rusty color.

Many groundwater sources, including Tivoli's wells, naturally contain high levels of iron. To address this, our operators use a data-driven method to optimize each well's flow contribution, reducing iron content while still meeting the community's water needs. They have also implemented a new flushing program. This consistent twice-yearly flushing, made possible by the new, larger storage tank and distribution improvements that reduce water loss through leakage, is aimed at reducing iron buildup that causes color concerns.

If you notice extremely discolored water or moderate discoloration that lasts more than a couple of days, please contact our office for assistance.

Do I need to take special precautions?

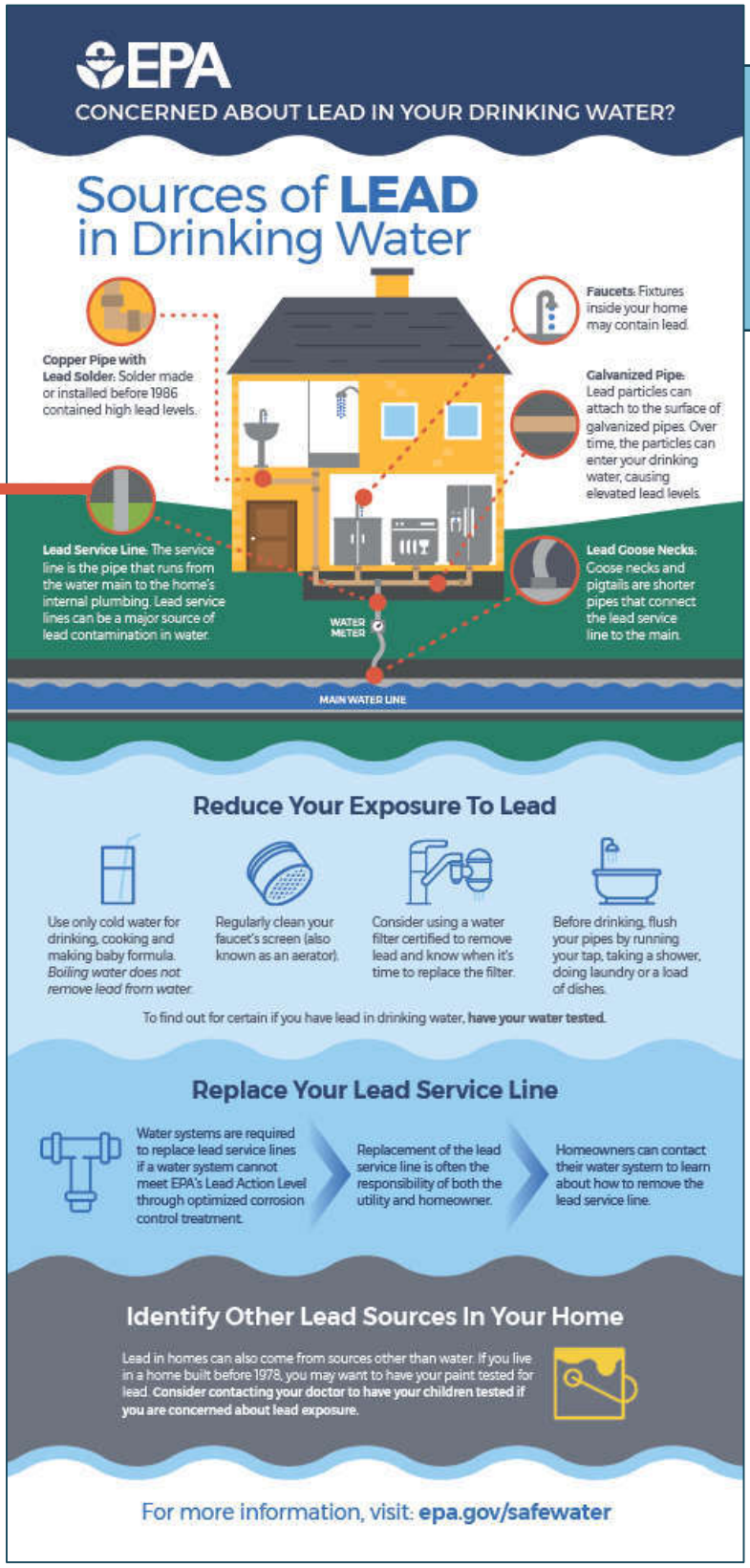
Although the drinking water provided to the Tivoli community met or exceeded all health-based State and Federal standards, some people may be more vulnerable to disease causing microorganisms or pathogens in drinking water than the general population.

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 (800-426-4791).

IS OUR WATER SYSTEM COMPLYING WITH OTHER RULES THAT GOVERN OPERATIONS?

Yes! During 2024, our system complied with applicable State drinking water operating, monitoring and reporting requirements.



Although **testing has never revealed hazardous levels of lead in your drinking water**, we are required to present the following

Important Information on Lead Contamination

from the United States Environmental Protection Agency

Lead can cause serious health effects in people of all ages, especially pregnant people, infants (both formula-fed and breastfed), and young children. Lead in drinking water is primarily from materials and parts used in service lines and in home plumbing. DCWWA is responsible for providing high quality drinking water and removing lead pipes, but we cannot control the variety of materials used in the plumbing in your home. Because lead levels may vary over time, lead exposure is possible even when your tap sampling results do not detect lead at one point in time. You can help protect yourself and your family by identifying and removing lead materials within your home plumbing and taking steps to reduce your family's risk. Using a filter, certified by an American National Standards Institute accredited certifier to reduce lead, is effective in reducing lead exposures. Follow the instructions provided with the filter to ensure the filter is used properly. Use only cold water for drinking, cooking, and making baby formula. Boiling water does not remove lead from water. Before using tap water for drinking, cooking, or making baby formula, flush your pipes for several minutes. You can do this by running your tap, taking a shower, doing laundry or a load of dishes. If you have a lead service line or galvanized requiring replacement service line, you may need to flush your pipes for a longer period. If you are concerned about lead in your water and wish to have your water tested, contact our office. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at https://www.epa.gov/safewater/lead.

SCAN AND SEARCH

to quickly identify your service line material

INFORMATION ON LEAD SERVICE LINE INVENTORY

A Lead Service Line (LSL) is defined as any portion of pipe that is made of lead which connects the water main to the building inlet. An LSL may be owned by the water system, owned by the property owner, or both. The inventory includes both potable and non-potable SLs within a system. In accordance with the federal Lead and Copper Rule Revisions (LCRR) DCWWA has prepared a lead service line inventory, which you can access by contacting our office to request a copy or by clicking or scanning the QR code above to search for your address on the New York State DOH's LSLI interactive map.

We are partners in

WATER CONSERVATION

Saving Water Saves Money

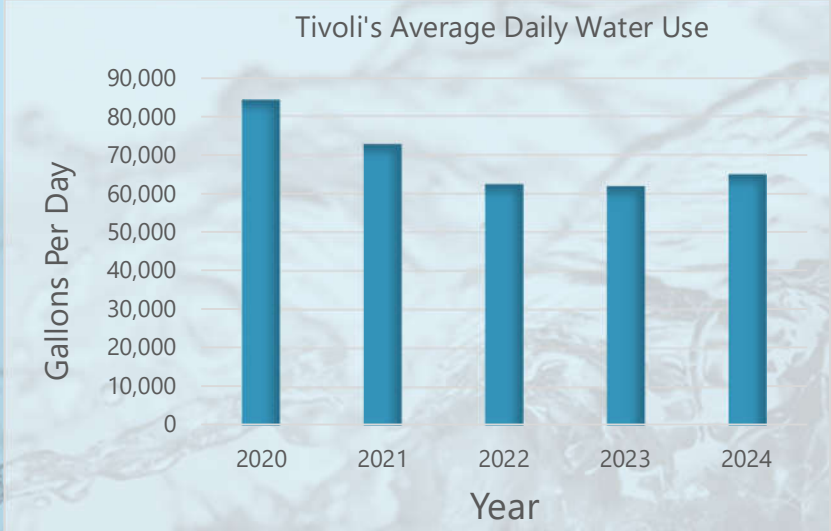
Using less water reduces the cost of treatment chemicals and electricity used in pumping water to your home. It also reduces strain on equipment, which means we need to replace wells, pumps, storage tanks, and other vital system components less often.

Saving Water Keeps Your System Sustainable

Using less water reduces stress on the aquifer your well draws from, keeping your community prepared for drought conditions and reducing the impact of future shifts in aquifer recharge patterns due to climage change.

Saving Water May Help Improve Water Quality

As the volume of water in the aquifer decreases, certain contaminants may become more concentrated in groundwater, causing users to experience unpleasant taste, color, and odor more often.



Every Drop Counts

Since 2020, Tivoli's water demand has decreased by about 23%! Much of this reduction is thanks to improvements to the distribution system on Broadway and Woods Road, which replaced aging pipes from the 1930s. However, this achievement wouldn't have been possible without the community's commitment to water conservation. Keep reading for more tips to save water at home.

Simple Ways You Can Start Conserving Water Today

Check for leaks and fix them as soon as you can. Just a slow drip can waste 15 to 20 gallons a day. That's up to 6,000 gallons a year.

Check toilets for leaks by putting a few drops of coloring in the tank. After a few minutes, check to see if the color shows up in the bowl. These invisible leaks can waste more than 30,000 gallons a year.

Water your garden less often by putting a thick layer of mulch around plants. Avoid watering lawns and gardens in the middle of the day to reduce evaporation loss.

IN CLOSING

A Message from DCWWA's Executive Director

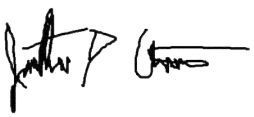
On behalf of the entire team at the Dutchess County Water and Wastewater Authority, I want to thank you for taking the time to review this Annual Water Quality Report. Our dedicated operations staff takes pride in the accurate and timely collection of thousands of water samples each year. The information in this report represents countless hours spent collecting, analyzing, and managing sample data. Presenting you with this annual synopisis of your water quality is a key part of our commitment to transparency, and we sincerely hope you find this report informative.

As the new Executive Director, a role I took on in October of 2024, I am honored to lead such a committed team of water professionals. I remain deeply focused on ensuring that our services meet the evolving needs of the people and communities we serve. As we face rising operational costs, we remain committed to controlling price increases and keeping rates as affordable as possible without compromising the quality of service you rely on.

I encourage you to reach out to our knowledgeable staff with any questions or concerns you may have about the water we provide. Your trust is important to us, and we are here to ensure that you have the data and confidence you need to make informed decisions for your family.

Thank you for your continued support. We look forward to serving you for years to come.

Sincerely,



Jonathan Churins

Executive Director
Dutchess County Water and Wastewater Authority