

Annual Drinking Water Quality Report for 2021
Village of Warwick
77 Main Street
Warwick, N.Y. 10990
(Public Water Supply ID# 3503561)

INFORMACIÓN PARA RESIDENTS QUE NO HABLAN INGLÉS

Español

Este informe contiene información muy importante sobre el agua potable. Este informe se puede ver en español en el sitio web de el Pueblo de Warwick <http://www.villageofwarwick.org>

INTRODUCTION

To comply with State and Federal regulations, the Village of Warwick annually issues a report describing the quality of your drinking water. The purpose of this report is to raise your understanding and awareness of the need to protect our drinking water sources. Last year, your tap water met all State drinking water health standards. We are proud to report that our system did not violate a maximum contaminant level or any other water quality standard. Included are details about where your water comes from, what it contains, and how it compares to state and federal standards.

If you have any questions regarding your drinking water or this report, please consult the Village website www.villageofwarwick.org. If you need further information contact Cathy Schweizer, Village DPW office at (845) 986-2031 ext. 110, between the hours of 8:30 am and 4:00 p.m. Monday through Friday. The Village wants you to be informed about your drinking water. If you want to learn more, please attend any of the regularly scheduled Village Board meetings. These meetings are held on the first and third Monday of each month.

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 concentration of certain contaminants in water provided by public water systems. The New York State Department of Health (NYSDOH) and the FDA regulations establish limits for contaminants in bottled water, which are required to provide the same protection for public health.

Reservoir Filtration Plant (a.k.a. RWTP)

Our main surface water source is the Village of Warwick's three reservoirs located on Village owned property north of Black Rock Road in the Town of Warwick. The water from these reservoirs is gravity fed into the Reservoir Filtration Plant where it is treated with Sodium Permanganate for taste and odor control, treated with a PacI coagulant, then filtered to remove particulate matter; it is then chlorinated to destroy microorganisms prior to entering the distribution system. The plant injects Orthophosphate into the treated water to sequester iron and manganese, which can cause discoloration of the water without this treatment.

Well #1

Well #1 is located in Memorial Park and is a small supply source that has not been in service for many years primarily because it has a hydraulic connection to Well #2.

Well #2 / Microfiltration Plant (a.k.a. MWTP)

Well #2 is a substantial supply, which supplies the new Microfiltration Plant. Both are located in Memorial Park. This plant is a membrane filter system with a rated capacity to treat 1,000,000 gallons per day. This facility went into service in April 2012. The plant has been producing water of outstanding quality from a source that previously had no filtration and was determined to be Groundwater Under Direct Influence (GWUDI) of surface water. Chlorine for disinfection and Ortho Phosphate for sequestering are the only chemicals added to the water at this plant.

Well # 3

Well #3 is a backup source and is located north of Route 17A at the east end of the Village. Well #3 has been offline since May 2nd, 2012 shortly after the Microfiltration Plant came online on April 30th, 2012. In the past when Well #3 was used, the water was disinfected with chlorine to destroy microorganisms prior to entering the distribution system. The water from Well #3 has been determined to be Groundwater Under Direct Influence (GWUDI) of surface water, which requires treatment by filtration. Because of this determination, this supply, currently without filtration, would only be used in a very limited fashion, generally during emergency situations. Were the well to be used without filtration the Village would issue a Boil Water Order for its customers. In 2019 the Village completed an engineering evaluation for a treatment system that will provide the Village the ability to use the well as a safe water resource meeting Federal requirement. An engineering firm has been engaged to prepare the final design and contract documents and submit those documents to the Orange County Health Department for approval. Upon completion and approval of the design the project will be bid, contracted and then the filtration plant will be constructed.

SOURCE WATER ASSESSMENT PROGRAM SUMMARY

The NYS DOH has evaluated this Public Drinking Water Sources (PWS)'s susceptibility to contamination under the Source Water Assessment Program (SWAP), and their findings are summarized in the paragraph below. It is important to stress that these assessments were created using available information and only estimate the potential for source water contamination. Elevated susceptibility ratings do not mean that source water contamination has or will occur for the PWS. This PWS provides treatment and regular monitoring to ensure the water delivered to consumers meets all applicable standards.

The assessment area for this drinking water source contains no discrete Potential Contaminant Sources (PCS)'s, and the amount of pastureland in the watershed results in this reservoir system having a high susceptibility to protozoa. However, the high mobility of microbial contaminants in reservoirs results in this drinking water intake also having medium-high susceptibility ratings for enteric bacteria and viruses. Furthermore, reservoirs are highly susceptible to water quality problems caused by phosphorus additions. A copy of this assessment, including a map of assessment area, can be obtained by contacting the Village of Warwick.

FACTS AND FIGURES

Our water system serves approximately 6,767 people and numerous businesses through 2,764 service connections. The highest single day was 1,156,000 gallons, which occurred July 1, 2021. Village Usage includes public buildings, water main breaks, hydrant flushing, storage tank overflows, cemetery usage, park usage, wastewater treatment plant usage, firefighting and training, and Fire Department tanker filling. Unaccounted for water was 19% of the total amount of water produced. The unaccounted water can be attributed to undetected/unrepaired leaks, losses through under registering and failed meters and estimating accuracy.

Water Use Figures	2021	2020	2019	2018
Produced Annual (gallons)	234,194,000	216,872,000	211,664,000	222,925,000
Produced- Average Daily (gallons/day)	641,627	594,170	579,901	610,753
Produced Highest Single Day (gallons)	1,156,000	970,000	757,000	843,000
Metered Delivered Annual (gallons)	169,214,000	163,012,000	166,322,000	155,204,000
Village Usage- Metered and Unmetered (gallons)	19,814,000	12,155,500	7,546,525	14,234,000
Total Accountable Water (gallons)	189,028,000	175,167,500	173,868,525	169,438,000
Accountable Water Average Daily (gallons/day)	517,885	479,911	476,352	464,214
Unaccounted for Usage Annual	45,166,000	41,704,500	37,795,475	53,487,000
Percent Unaccounted Water (%)	19.29	19.23	17.86	23.99

Village of Warwick Water Rates FY 2021-22	Residential/ Commercial Customer In-Village	Industrial Customer In-Village	Residential/ Commercial Customer Outside Village	Industrial Customer Outside Village
Minimum Service Charge per Quarter	\$12.25	\$12.25	\$15.00	\$15.00
1000-25,000 gallons (per 1000 gallons)	\$5.53	\$9.53	\$16.26	\$20.80
26,000-75,000 gallons (per 1000 gallons)	\$6.93	\$9.53	\$18.03	\$20.80
Over 76,000 gallons (per 1000 gallons)	\$9.53	\$9.53	\$20.80	\$20.80

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, haloacetic acids, radiological and synthetic organic compounds. The table presented below depicts the results of that testing. 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, is more than one year old. It should be noted that all drinking water, including bottled drinking water, might be reasonably expected to contain 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 Orange County Health Department at (845-291-2331).

Table of Detected Contaminants							
Contaminant	Violation Yes/No	Date of Sample	Level Detected	Unit Measure- ment	MCL G	Regulatory Limit (MCL, TT or AL)	Likely Source of Contamination
Barium	No	4/21/2021	.0262	mg/l	2.0	MCL = 2.0	Erosion of natural deposits.
Sulfate	No	3/11/2021	20.3	mg/l	250	MCL = 250	Naturally occurring
Nitrate	No	5/3/2021	2.078	mg/l	10	MCL = 10	Runoff from fertilizer use.
Five Haloacetic Acids** (HAA5)	No	Quarterly	Max=20.0 Range= 8.0 to 35.8	ug/l	N/A	MCL = 60	By-product of drinking water disinfection needed to kill harmful organisms.
Total Trihalo- methanes** (TTHMs)	No	Quarterly	Max=37.4 Range= 6.48 to 70.1	ug/l	N/A	MCL = 80	By-product of drinking water chlorination needed to kill harmful organisms. TTHMs are formed when source water contains large amounts of organic matter.
Perfluorooctan- oic Acid (PFOA) (See Note 6)	No	10/6/2021	3.0	ng/l	0	MCL = 10	Released into the environment from widespread use in commercial and industrial applications.
Perfluorooctan- esulfonic Acid (PFOS) (See Note 6)	No	10/6/2021	3.6	ng/l	0	MCL = 10	Released into the environment from widespread use in commercial and industrial applications.
Total Uranium	No	2/5/2020	0.262	ug/l	0	MCL = 30	Erosion of natural deposits
Gross Alpha	No	2/5/2020	0.458	pCi/L	0	MCL = 15	Erosion of natural deposits
Copper (see note 1)	No	6/2020	90 th =0.0845 Range = 0.0102 -	mg/l	1.3	AL=1.3	Corrosion of household plumbing

			0.2770				
Lead (see note 2)	No	6/2020	90 th = 1.1 Range =ND – 24.7	ug/l	0	AL=15	Corrosion of household plumbing
Sodium	No	3/11/2021	116	mg/l	N/A	See Note 5	Road Salt
Chloride	No	3/11/2021	72.17	mg/l	N/A	MCL=250	Road Salt
Turbidity MWTP ³	No	10/9/2021	0.112	NTU	N/A	TT=< 1	Soil Runoff
Turbidity MWTP ³	No	Monthly	100%	NTU	N/A	TT=95% of samples≤ 0.3 NTU	Soil Runoff
Turbidity RWTP ³	No	4/6/2021	0.172	NTU	N/A	TT=< 1	Soil Runoff
Turbidity RWTP ³	No	Monthly	100%	NTU	N/A	TT=95% of samples≤ 0.3 NTU	Soil Runoff
Total Coliform Bacteria	No	8 per month	100% Absent	N/A	0	MCL= 2 positive samples/month	Naturally present in the environment
Distribution System Turbidity ⁴	No	July 2021	0.248	NTU	N/A	MCL > 5 NTU	Soil runoff

** The values shown in the table represent the highest locational running annual average calculated from data collected for Stage 2 compliance monitoring; however, the range of values includes Stage 2 and any Health Department surveillance samples.

1. The copper level presented represents the 90th percentile of the 22 customer locations 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, 22 samples were collected at your water system and the 90th percentile value was the twentieth highest value, 0.0845 mg/l with a range of 0.0102 - 0.2770 mg/l. The action level for copper was not exceeded at any of the sites tested.
2. The lead level presented represents the 90th percentile of the 22 customer samples collected. The Action level for lead was exceeded at one of the 22 sites tested. 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 customers plumbing components. The Village of Warwick is responsible for providing high quality drinking water but cannot control the variety of materials used in a customer's 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>.
3. MWTP and RWTP Turbidity is a measure of the cloudiness of the water. We test it because it is a good indicator of the effectiveness of our filtration systems. The highest single turbidity measurement (0.172 NTU) for the year occurred on 4/6/2021. State regulations require that turbidity leaving the filter plants must always be at or below 1 NTU. The regulations also require that at least 95% of the turbidity samples which are collected every four hours have measurements at or below 0.3 NTU. The Village satisfied this requirement for turbidity at each filter plant each month of 2020 as 100% of the 4-hour samples were below 0.3 NTU.
4. Distribution Turbidity is a measure of the cloudiness of the water found in the distribution system. We monitor it because it is a good indicator of water quality. High turbidity can hinder the effectiveness of disinfectants. Our highest average monthly distribution turbidity measurement detected during the year (0.248 NTU) occurred July 2021. This value is below the State's Maximum Contaminant Level (5 NTU).
5. 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.
6. "Please note that in addition to PFOS and PFOA, the lab ran the analysis for the entire EPA method 537.1, which includes 16 additional perfluorinated chemicals, 1 of these additional chemicals were detected, the highest of which was 2.4 ng/l. These additional analytes are not currently regulated and do not have an MCL."

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.

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 disinfectants to control microbial contamination.

Method Reporting Limit (MRL): The minimum concentration of a contaminant that can be reported with a specified degree of confidence

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.

Nephelometric Turbidity Unit (NTU): A measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

Milligrams per liter (mg/L): Corresponds to one part of liquid in one million parts of liquid (parts per million - ppm).

Micrograms per liter (ug/L): Corresponds to one part of liquid in one billion parts of liquid (parts per billion - ppb).

Nanograms per liter (ng/L): Corresponds to 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.

MWTP: Well #2 / Microfiltration Plant.

RWTP: Reservoir Filtration Plant.

To provide Americans, including the most sensitive populations, with a margin of protection from a lifetime of exposure to PFOA and PFOS from drinking water, EPA established the health advisory levels at 70 parts per trillion. When both PFOA and PFOS are found in drinking water, the combined concentrations of PFOA and PFOS should be compared with the 70 parts per trillion health advisory level. This health advisory level offers a margin of protection for all Americans throughout their life from adverse health effects resulting from exposure to PFOA and PFOS in drinking water

WHAT DOES THIS INFORMATION MEAN?

As noted on the table, the Village of Warwick water system had no violations. We have learned through our testing that some contaminants have been detected; however, these contaminants were detected below the level allowed by the State.

DO I NEED TO TAKE SPECIAL PRECAUTIONS?

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). Please note that after May 2, 2012 all water delivered to customers was treated to remove these microorganisms.

IS OUR WATER SYSTEM MEETING OTHER RULES THAT GOVERN OPERATIONS?

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During 2021, our water met all drinking water standards established by the U.S.E.P.A. and the N.Y.S.D.O.H.

LEAD IN DRINKING WATER

Lead in drinking water is due to leaching from lead service lines and lead solder joints in service lines and interior building piping. The Village does not believe that it has any lead water lines and in replacing service lines between the main and the curb stop has no history of finding lead lines. The customer is responsible for the line from the curb stop to the structure and all internal piping. If lead is a concern, you should check the materials in your system. The Village of Warwick is responsible for providing high quality drinking water but cannot control the variety of materials used in a customer's plumbing components. When water has been sitting in the pipes for several hours, the potential for lead exposure can be minimized by flushing the tap for 30 seconds to 2 minutes before using water for drinking or cooking.

Further the Village of Warwick injects Orthophosphate into the treated water prior to it entering the distribution system. Orthophosphate works as a sequestering agent which provides a coating on the inside of the pipes creating a shield that prevents corrosion and minimizes leaching of lead and other metals. Scientific American has a brief explanation about how this chemical works: <http://www.scientificamerican.com/video/corrosive-chemistry-how-lead-ended-up-in-flint-s-drinking-water1/>

The Village of Warwick tests for lead at 22 locations in the system. Samples are taken from tap water inside customer locations and are taken as a first draw after the water has remained in the internal piping for 6 hours. The Action level for lead was exceeded at one of the 22 sites tested. 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>.

WHY SAVE WATER AND HOW TO AVOID WASTING IT?

Although the Village's 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 fire fighting 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.
- ◆ Use your water meter to detect hidden leaks. Simply turn off all taps and water using appliances, then check the meter after 15 minutes. If it moved, you have a leak.

SYSTEM IMPROVEMENTS

The Village of Warwick during 2021 made a substantial investment into its water system through multiple improvements and upgrades.

Microfiltration Plant

- SCADA improvements which now provide complete monitoring and remote access 24/7
- New Fire Alarm system installed.
- New chlorine analyzers installed.
- New Benchtop Turbidity analyzer installed
- Replaced (by Pall Filter) leaking T-1 Tank on Skid A.
- Roof repairs were made.

Reservoir Filtration Plant

- SCADA improvements which now provide complete monitoring and remote access 24/7
- Backwash Air Scour system piping rebuilt.
- New Benchtop Turbidity analyzer installed
- Office rebuilt to accommodate SCADA improvements.

Well #3 Filtration Plant

Engaged the services of an engineering firm to prepare the final design and contract documents for the treatment facility for Well #3. The design was 85% complete as of the end of 2021. Upon completion in early 2022 design will be submitted to Health Department for review and approval with construction anticipated to commence early 2023.

Reservoirs

Raw water in the reservoir and well sources experienced minor diminished capacity during the year. The Village Water Department monitored and reported the water levels on a biweekly basis.

Listed below are the accomplishments made during the year to the reservoir system.

- Annual dam inspection conducted by Village's engineer Tectonic.
- Conducted semiannual dam inspection by NYSDEC.
- Conducted annual watershed property inspection.

- A remote-controlled slope mower to mow the dam embankments was purchased. This will allow the Village to mow more efficiently and more frequently to better maintain the dams.

The Village received a Water Quality Improvement Project program grant from New York State that will provide funding for the Village to acquire land in the Reservoir watershed so that the Village has full control over activities and uses that could be detrimental to the water quality. The grant requires a 25% match by the Village and the total received from the State is limited to \$288,150. The Village will begin negotiations with property owners and conduct surveys in 2020 with the expectation that transfer of the properties will occur in 2022.

Pump Stations and Storage Tanks

Improvements were made to the following:

- Reservoir Storage Tank Replacement design was completed and submitted to Health Department for review. Village submitted application for a WIIA grant for the project on November 22, 2021.
- Galloway Pump Station- coordinating receiving alternate emergency power from Fire House currently under construction.
- SCADA was integrated to the Galloway and Hillside pumping stations which includes remote access, alarms, graphing, flow monitoring and reporting.
- Hilltop, Valley View and Hillside Tanks received SCADA monitoring technology providing 24/7 monitoring capability

Distribution

The Village Water Department is responsible for maintaining approximately 45 miles of water main, with major portions originally installed during the early 1900's. Given the length of pipe in the system and its age it is understandable breaks occur from time to time.

Below is a listing of the Distribution projects performed during 2021:

- Performed system-wide flushing in April, July and October.
- Installed 4 new service connections.
- Updated 90 residential water meters to Sensus iPERL meter and 102 MXU's
- Installed 1 new hydrant to replace existing.
- Repaired 4 hydrants that had failed.
- Repaired 3 water main breaks.
- Repaired 5 service lines.
- Valves- Checked 16; located and mapped approx. 113 curb stops and raised 30.
- Altitude valves and Pressure Reducing Valves (PRV) were inspected for proper operation and adjusted as required.
- River St Water Main Replacement- construction 90% complete; still need to make connection across Howe St. bridge; projecting completion in Spring 2022
- Installed SCADA monitoring for 3 pump stations which instantly reports pressure drops to Contract Operator and Distribution Supervisor indicating potential main breaks.

General

Maintained and updated the GIS-based system for inventory, management and maintenance of water infrastructure.

CLOSING

Thank you for allowing us to continue to provide you with quality drinking water. We ask that all our customers help us protect our water sources, which are the heart of our community. Please call our office at the Village Hall (845) 986-2031 ext. 110 if you have any questions.