

# **ANNUAL DRINKING WATER QUALITY REPORT FOR 2021 BRIARCLIFF MANOR WATER DISTRICT**

## **INTRODUCTION**

In compliance with NYS regulations, the Briarcliff Manor (VBM) Water System (Public Water Supply ID Number 5903420) annually issues a report describing the quality of the drinking water provided to Briarcliff Manor water customers. The purpose of this report is to raise your understanding of the water provided to you by the Village and awareness of the need to protect the Village's drinking water sources. Last year, your tap water met all New York State drinking water health standards. This report provides an overview of last year's water quality. Included are details about where the water comes from, what it contains, and how it compares to NYS standards.

You can obtain additional information on the water system as well as learn of opportunities for public participation regarding water related issues at VBM Board of Trustees Meetings. The date and time of Board of Trustees Meetings is posted on our web site, [www.briarcliffmanor.org](http://www.briarcliffmanor.org). If you have any questions about this report or concerning your drinking water, please contact the Department of Public Works (DPW) at 941-9105.

## **WHERE DOES OUR WATER COME FROM?**

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. The water can also 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 New York State Health Department (NYS DOH) and the US Environmental Protection Agency (US EPA) prescribe regulations which limit the amount of certain contaminants in water provided by public water systems. The NYS DOH and the US Food and Drug Administration (US FDA) have regulations that establish limits for contaminants in bottled water which must provide the same protection for public health.

VBM's sources of water are New York City's Catskill/Delaware system which consists of reservoirs located in Delaware, Greene, Schoharie, Sullivan and Ulster counties, all west of the Hudson River. The Catskill/Delaware system is the major source of water for New York City. The supply to VBM is now provided from the Lower Catskill Aqueduct and the Delaware Aqueduct.

Prior to distribution to water customers, Lower Catskill/Delaware water is treated with chlorine, as the primary disinfectant followed by a secondary level of disinfection, ultraviolet light, sodium hydroxide, orthophosphate and fluoride. Chlorine is used to meet the NYS Sanitary Code and Federal Safe Drinking Water Act disinfection requirements. Ultraviolet light is used to comply with the Federal Long Term 2 Enhanced Surface Water Treatment Rule. Sodium hydroxide and orthophosphate are added to reduce the corrosion of in-home plumbing.

## **INFORMATION ON FLUORIDE ADDITION**

Our system is one of the many drinking water systems in NYS that provides drinking water with a controlled, low level of fluoride for consumer dental health protection. Fluoride is added to your water by the New York City Department of Environmental Protection (NYC DEP) before it is delivered to us. According to the United States Centers for Disease Control, fluoride is very effective in preventing dental dentifrice and cavities when present in drinking water at a properly controlled

level. To ensure that the fluoride supplement in your water provides optimal dental protection, the NYC DEP monitors fluoride levels on a daily basis to make sure fluoride is maintained at a target level of 1.0 mg/l.

**During 2021, the average fluoride value was 1.1 mg/l with none of the monitoring results showing fluoride at levels greater than 1.8 mg/l hence, the 2.2 mg/l Maximum Contaminant Level (MCL) was not exceeded.**

## **SOURCE WATER ASSESSMENT**

This Public Water Supply System obtains water from the NYC water supply system. Water either comes from the Catskill/Delaware watershed west of the Hudson River and/or from the Croton watershed in Putnam and Westchester counties. The NYC DEP implements a series of programs to evaluate and protect the source water quality within these watersheds. Their efforts focus on three important program areas: the enforcement of strengthened watershed rules and regulations; the acquisition and protection of watershed land; and an implementation partnership program that targets specific sources of pollution in the watershed. Due to these intense efforts, the Source Water Assessment Program (SWAP) methodology applied to the rest of NYS would not apply for this Public Water Supply. Information on water quality and protection efforts in these NYC watersheds can be found at the DEP's website: [www.nyc.gov/html/dep/html/watershed\\_protection](http://www.nyc.gov/html/dep/html/watershed_protection).

This Public Water System obtains its water from both the Catskill/Delaware watershed west of the Hudson. The main water quality concern associated with land cover in these watersheds are agricultural and residential land use: these contribute microbial contaminants, pesticides and algae producing nutrients. There exist some concern associated with waste water, but advanced treatment which reduce contaminants are in place for most of these discharges. Additionally, the presence of other discrete facilities such as landfills, chemical bulk storage, etc. could lead to some local impact on water quality, but significant problems associated with these facilities are unlikely due to the size of the watershed and surveillance and management practices.

## **FACTS AND FIGURES**

The VBM water system serves 9,190 people in Briarcliff Manor and portions of the Towns of Mount Pleasant and Ossining through approximately 2,700 service connections. In 2021, the average amount of water treated and supplied to customers on a daily basis is 900,000 gallons per day. The highest single day was 1.7 million gallons per day. In 2021, water customers residing in VBM were charged \$85.00 per 1,000 cubic feet of water. VBM instituted a "cascade rate" pricing policy which, in effect, is an escalation in water pricing as consumers use more water. This is both a conservation measure and price trigger for those users who consume excess water over the NYC DEP's monthly, per capita, allocation. The annual average water charge per residential user is approximately \$1,250 per year.

## **UNACCOUNTED FOR WATER**

Unaccounted for water is the difference between the volume of water pumped into the system and the volume registered by all customer meters. Absent the water loss due to individual water main breaks, the water used by the Fire Department (for fire fighting, training, drills and tank storage replacement), by the VBM Water Department for village wide hydrant flushing twice a year, maintenance and repair and routine pipe leakage common for the age and running length of this system as well as all public uses contributed to an unaccounted water usage of 12%. VBM's goal is to maintain unaccounted for water to within the 10% to 20% range suggested by the American Water Works Association (AWWA). We are very pleased with these results reflecting on our many years of determined work to lessen uncontrollable water loss.

## **ARE THERE CONTAMINANTS IN OUR DRINKING WATER?**

As NYS regulations require, the VBM routinely tests the drinking water for numerous contaminants. These contaminants tested for include: turbidity, lead and copper, inorganic compounds, nitrate, nitrite, total trihalomethanes, synthetic organic compounds, volatile organic compounds, haloacetic acids and radiological. The table presented below depicts which compounds were detected in our 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. Additionally, NYC conducts an extensive testing program of Catskill Aqueduct water. The results of NYC's sampling program are available at [www.ci.nyc.ny.us/dep](http://www.ci.nyc.ny.us/dep).

Water quality is monitored daily by the VBM's DPW. Bacteriological and chemical samples are collected as required by NYS Sanitary Code and analyzed by a NYS approved environmental laboratory.

It should be noted that all drinking water, including bottled drinking water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the 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 Westchester County Health Department at 914-864-7332

### **Explanation of Water Quality Data**

This report is based on most recent tests conducted in the VBM Water District. Terms used in the Water Quality Table are:

- Maximum Contaminant Level (MCL): The highest level of contaminant that is allowed in drinking water. MCL are set as close as possible to the MCL goal's as feasible.
- Maximum Contaminant Level Goal (MCLG): The level of contaminant drinking water below which there is no known or expected risk to health. MCLG's are allowed 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 the 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.
- Nephelometric Turbidity Unit (NTU): A measure of the clarity of water.
- 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).
- Picocuries per liter (pCi/L): A measure of the radioactivity in water.
- NDL – No designated limit.
- ND – Not Detected
- N/A – Not applicable

**Table of Detected Contaminants**

Contaminant	Violation Yes/No	Date of Sample	Level Detected	Unit Measurement	MCLG	Regulatory Limit (MCL)	Likely Source of Contamination
Entry Point Alkalinity as Calcium Carbonate	No	1/21 to 12/21	Avg 12.7 Range 11.1 -14.7	mg/l	N/A	NDL	
Cyanide	No	9/21	.006	mg/l	0.2	MCL =0.2	Discharge from steel/metal factories; Discharge from plastic and fertilizer factories.
Entry Point Conductance	No	1/21 to 12/21	Avg 64.0 Range 54 -85	Umhos/cm	No	NDL	
Sulfate	No	9/21	3.28 <sup>1</sup>	mg/l	N/A	MCL =250	Naturally occurring.
Total Coliform	No	8/26/21  11/3/21	positive samples in August  positive samples in November			TT = 2 or more positive samples in a month	Naturally present in the environment
Nitrate	No	9/21	0.14 <sup>1</sup>	mg/l	10	MCL =10	Runoff from fertilizer use; leaching from septic tanks; erosion of natural deposits.
Sodium	No	9/21	10.8 <sup>1</sup>	mg/l	N/A	NDL	Naturally occurring; indicator of road salt
Ortho-phosphate	No	1/21-12/21	Avg 1.7 Range 1.2 -3.3	mg/l	N/A	NDL	Water additive for Corrosion Control
Fluoride	No	1/21-12/21	Avg 1.1 Range 0.5 -1.8	mg/l	N/A	MCL =2.2	Water Additive that promotes strong teeth
Zinc	No	9/21	0.005 <sup>1</sup>	mg/l	N/A	MCL =5	Naturally occurring
Manganese	No	9/21	11.9 <sup>1</sup>	ug/l	N/A	MCL = 300	Naturally occurring
Barium	No	9/21	0.02 <sup>1</sup>	mg/l	2	MCL=2	Erosion of natural deposits
Chloride	No	9/21	13.2 <sup>1</sup>	mg/l	N/A	MCL =250	Naturally occurring; indicator of Road salt
Turbidity	No	6/21	Monthly Max 0.82 <sup>2</sup>	NTU	N/A	TT ≤5	Soil Runoff
pH	No	1/21-12/21	Avg 7.4 Range 7.0-7.8	pH units	N/A	NDL	

Contaminant	Violation Yes/No	Date of Sample	Level Detected	Unit Measurement	MCLG	Regulatory Limit MCL	Likely Source of Contamination
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Chlorine Residual, Free	No	1/21-12/21	Avg 2.0 Range 1.1-3.0	mg/l	N/A	MRDL= 4.0	Water additive for disinfection
Gross alpha activity (including radium-226 but excluding radon and uranium)	No	11/21	0.279 <sup>7</sup>	pCi/L	0	MCL=15	Erosion of natural deposits
Gross Beta particle and photon activity from man-made radionuclides	No	11/21	0.323 <sup>7</sup>	pCi/L	0	MCL=50 <sup>8</sup>	Erosion of natural deposits
Radium-226 & Radium-228	No	11/21	0.668 <sup>7</sup>	pCi/L	0	MCL=5	Erosion of natural deposits
Entry Point Copper	No	7/21	.024 <sup>1</sup>	mg/l	1.3	N/A	Erosion of natural deposits

Contaminant	NYSDOH AL	Date of Sample	Regulatory Limit MCLG	90 <sup>th</sup> Percentile	Range	# OF Samples Exceeding AL (Range)	Violation	Likely Source of Contamination
Lead (ug/l)	15	7/21 to 9/21 <sup>6</sup>	0	3.2 <sup>4</sup>	ND-7.9	0 out of 20	No	Corrosion of Household plumbing
Copper (mg/l)	1.3	7/21 to 9/21 <sup>6</sup>	1.3	0.28 <sup>5</sup>	0.05-0.34	0 out of 20	No	Corrosion of Household plumbing

Contaminant	Violation Yes/No	Date of Sample	Level Detected (Avg) (Range)	Unit Measurement	MCLG	Regulatory Limit (MCL)	Likely Source of Contamination
Stage 2 TTHM'S	No	1/21-12/21 (Quarterly)	Avg 55.8 <sup>3</sup> Range 38.2-65.7	ug/l	N/A	MCL Avg=80	By-product of drinking water chlorination needed to kill harmful organisms
Stage 2 Total HAA	No	1/21-12/21 (Quarterly)	Avg 56.7 <sup>3</sup> Range 23.1-68.4	ug/l	N/A	MCL Avg=60	By-product of drinking water disinfection needed to kill harmful organisms

Parameter	Reservoir Outflow	Number of Samples	Number of Samples Positive	Range	Likely Sources In Drinking Water
Cryptosporidium (oocysts/50L)	Kensico	52	4	0 - 1	Animal fecal waste
Giardia (cysts/50L)	Kensico	52	15	0 - 3	Animal fecal waste

*Footnotes*

- (1) One sample per entry point per year is required for this parameter.
- (2) Turbidity is a measure of the cloudiness of the water. It is monitored since it is a good indicator of water quality. High turbidity can hinder the effectiveness of disinfection. The highest monthly average distribution turbidity for the year was 0.82 NTU occurring in June 2021 which meets the State’s treatment technique maximum turbidity performance standard (5 NTU).
- (3) This level represents the highest locational running annual average calculated from data collected.
- (4) The level presented represents the 90th percentile of the 20 sites tested. A percentile is a value on a scale of one hundred that indicates the percentage of a distribution that is equal to or below it. The 90th percentile is equal to or greater than 90 percent of the lead values detected in the water system. In this case, the 90th percentile value was the third highest value (3.2 ug/l). Hence, for the 90th percentile value, the action limit was not exceeded. The action level for lead was not exceeded at any site. These samples are collected every 3 years.
- (5) The level presented represents the 90<sup>th</sup> percentile of the 20 sites tested. A percentile is a value on a scale of one hundred that indicates the percentage of a distribution that is equal to or below it. The 90th percentile is equal to or greater than 90 percent of the copper values detected in the water system. In this case, the 90th percentile value was the third highest value (0.28 mg/l). Hence, for the 90th percentile value, the action limit was not exceeded. Additionally, the action level for copper was not exceeded at any site. These samples are collected every 3 years.
- (6) Sample taken once every three years
- (7) Collected at Full Supply Pump station entry point.
- (8) The State considers 50 pCi/L to be a level of concern for beta particles.

Entry point samples for inorganic contaminants that were not detected include; color, uranium, chromium, cadmium, nitrite, arsenic, iron, nickel, lead, mercury, thallium, antimony, silver, beryllium, and selenium.

Organic contaminants that were tested for and not detected in the source water include:

Benzene, Bromobenzene, Bromochloromethane, Bromomethane, N-Butylbenzene, Sec-Butylbenzene, Tert-Butylbenzene, Carbon Tetrachloride, Chlorobenzene, Chloroethane, Chloromethane, 2-Chlorotoluene, 4-Chlorotoluene, Dibromomethane, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Dichlorodifluoromethane, 1,1-Dichloroethane, 1,2-Dichloroethane<sup>1</sup>, 1,1-Dichloroethene, cis-1,2-Dichloroethene, trans-1,2-Dichloroethene, 1,2-Dichloropropane, 1,3-Dichloropropane, 2,2-Dichloropropane, 1,1-Dichloropropene, cis-1,3-Dichloropropene, Trans-1,3-Dichloropropene, ethylbenzene, hexachlorobutadiene, Isopropylbenzene, p-Isopropyltoluene, Methylene Chloride, n-Propylbenzene, Styrene, 1,1,1,2-Tetrachloroethane, 1,1,2,2-Tetrachloroethane, Tetrachloroethene, Toluene, 1,2,3-Trichlorobenzene, 1,2,4-Trichlorobenzene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, Trichloroethene, Trichlorofluoromethane, 1,2,3-Trichloropropane, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, p&m-Xylene, o-Xylene, (MEK), Methyl tert-butyl ether (MTBE), (MIBK), Naphthalene, Vinyl chloride, 1,2-Dibromo-3-chloropropane, 1,2-Dibromoethane, 2,4,5-T, 2,4-D, Dalapon, Dicamba, Dinoseb, Pentachlorophenol, Picloram, Butachlor, Metolachlor, Metribuzin, Alachlor, Atrazine, Benzo(a)pyrene, Hexachlorobenzene, Hexachlorocyclopentadiene, Simazine, bis(2-Ethylhexyl)adipate, 3-Hydroxycarbofuran, Aldicarb, Aldicarb sulfone, Aldicarb sulfone, Carbaryl, Carbofuran, Methomyl, Oxamyl, aldrin, chlordane, dieldrin, endrin, heptachlor, heptachlor epoxide, lindane, methoxychlor, PCB’s, propachlor, toxaphene, PFOS, PFOA, 1-4-Dioxane

**WHAT DOES THIS INFORMATION MEAN?**

As you can see by the table, our system has no violations. It should be noted that some contaminants have been detected; however, these contaminants were detected well below NYS requirements.

**IS OUR WATER SYSTEM MEETING OTHER RULES THAT GOVERN OPERATIONS?**

During 2021, our system was in full compliance with applicable NYS drinking water operating, monitoring and reporting requirements.

## **INFORMATION ON CRYPTOSPORIDIUM AND GIARDIA**

Cryptosporidium and Giardia are microbial pathogens found in surface water and groundwater under the influence of surface water. NYC performs extensive testing on the water supply utilized by VBM for cryptosporidium and giardia.

While, the testing indicates the presence of cryptosporidium and giardia in our source water, as stated in the NYC 2021 Drinking Water Supply and Quality Report, NYC DEP's Disease and syndromic surveillance continue to indicate that there have been no outbreaks of the diseases they cause, cryptosporidiosis and giardiasis, attributed to consuming tap water. Additionally, current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease.

### **INFORMATION ON CRYPTOSPORIDIUM**

Cryptosporidium is a microbial pathogen found in surface water and groundwater under the influence of surface water. During 2021, as part of the NYC DEP's routine sampling, 52 samples of Kensico Reservoir water were collected and analyzed for Cryptosporidium oocysts. Of these samples four was confirmed positive.

Therefore, testing indicates the presence of Cryptosporidium in our source water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease.

Ingestion of Cryptosporidium may cause cryptosporidiosis, a gastrointestinal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome disease within a few weeks. However, immuno-compromised people are at greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their health care provider regarding appropriate precautions to take to avoid infection. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water.

### **INFORMATION ON GIARDIA**

Giardia is a microbial pathogen present in varying concentrations in many surface waters and groundwater under the influence of surface water. Giardia is inactivated by disinfection. During 2021, as part of the NYC DEP's routine sampling, 52 samples of Kensico Reservoir water were collected and analyzed for Giardia cysts. Of these samples 15 was confirmed positive.

Therefore, testing indicates the presence of Giardia in our source water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease.

Ingestion of Giardia may cause giardiasis, an intestinal illness. People exposed to Giardia may experience mild or severe diarrhea, or in some instances no symptoms at all. Fever is rarely present. Occasionally, some individuals will have chronic diarrhea over several weeks or a month, with significant weight loss. Giardiasis can be treated with anti-parasitic medication. Individuals with weakened immune systems should consult with their health care providers about what steps would best reduce their risks of becoming infected with Giardiasis. Individuals who think that they may have been exposed to Giardiasis should contact their health care providers immediately. The Giardia parasite is passed in the feces of an infected person or animal and may contaminate water or food. Person to person transmission may also occur in day care centers or other settings where hand washing practices are poor.

### **Do I Need to Take Special Precautions?**

Notwithstanding this very positive Annual Report, 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).

### **SYSTEM IMPROVEMENTS**

Since the completion of the Full Water Supply Pump Station (FWSPS), VBM's primary source of supply is the NYC's Lower Catskill/Delaware Aqueduct System. The sole source of supply to the pump station was from the Catskill Aqueduct. In 2020, a second source of supply from the NYC Water System was placed into service. This facility now provides a direct connection to the NYC DEP UV Facility which can be supplied by either the Catskill or Delaware Aqueduct. With this second connection in service (AKA the Delaware), use of the Croton Aqueduct has been eliminated.

### **Why Save Water and How to Avoid Wasting It?**

Although the Briarcliff Manor 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;
- ◆ Saving water lessens the strain on the water system during a dry spell or drought, helping to avoid severe water use restrictions and assuring 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.

If you have any questions about this report or concerning your drinking water, please contact the VBM DPW at 941-9105.

Sincerely,

Joshua Ringel, Village Manager

**Village of Briarcliff Manor  
1111 Pleasantville Road  
Briarcliff Manor, NY 10510**



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