ANNUAL DRINKING WATER QUALITY REPORT FOR 2012 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 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 and on our web site, 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 EPA prescribe regulations which limit the amount of certain contaminants in water provided by public water systems. The NYS DOH and the FDA have regulations that establish limits for contaminants in bottled water which must provide the same protection for public health.

VBM's normal source of water is source of water is 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 provided from the Lower Catskill Aqueduct.

Prior to distribution to water customers, Lower Catskill water is treated with chlorine, sodium hydroxide, orthophosphate and fluoride. Chlorine is used to meet the NYS Sanitary Code and Federal Safe Drinking Water Act disinfection requirements. Sodium hydroxide and orthophosphate are added to reduce the corrosion of in-home plumbing.

Due to a NYC DEP maintenance project, in the period January 6th to January 27th, supply from the Lower Catskill Aqueduct was not available. During this period, VBM was supplied from the NYC DEP's Croton Aqueduct. When VBM is utilizing the Croton Supply, a food grade, phosphate based water treatment chemical is added to the water to reduce the severity of discolored water, stained plumbing fixtures and discoloration of laundry. Sodium hydroxide is also added to reduce the corrosion of in-home plumbing. Additionally Chlorine is used to meet the NYS Sanitary Code and Federal Safe Drinking Water Act disinfection requirements.

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 cavities when present in drinking water at an optimal range from 0.8 to 1.2 mg/l (parts per million). To ensure that the fluoride supplement in your water provides optimal dental protection, the NYS DOH requires that NYC DEP monitor fluoride levels on a daily basis. During 2012, the NYC DEP did not continuously supply fluoride due to maintenance to the fluoride feed system and other aqueduct construction activities that required the system to be turned off. Hence, fluoridation was off-line 23% of the time. The New York State Dental Association has indicated that a continuous interruption of fluoridation is not expected to have a significant impact on dental health.

None of the monitoring results showed fluoride at levels that exceeded the 2.2 mg/l MCL.

SOURCE WATER ASSESSMENT

The following discussion of source water quality from the NYC water supply system was prepared by the NYS DOH.

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.

This Public water system obtains its water from both the Catskill/Delaware watershed west of the Hudson and the Croton watershed in Putnam and Westchester counties. 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. In addition the shallow nature of the Croton Reservoir, along with excess algae nutrients and the presence of wetlands in the watershed, contribute to periods of elevated water color and disinfection by-products precursor levels.

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 2012, the average amount of water treated and supplied to customers on a daily basis is 1.1 million gallons per day. The highest single day was 2.4 million gallons per day. In 2012, water customers residing in VBM were charged $76.00 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 $1,100 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 hydrant flushing, maintenance and repair and routine pipe leakage common for the age and running length of this system as well as recreational uses (sprinklers and pool) contributed to an unaccounted water usage of 13%. 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 pleased with these results reflecting on many years of work to lessen 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. 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.

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) 813-5100.

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.
- Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- Nephelometric Turbidity Unit (NTU): A measure of the clarity of water.
- ppm: Parts per million or milligrams per liter.
- ppb: Parts per billion or micrograms per liter.
- Picocuries per liter (pCi/L): A measure of the radioactivity in water.
- NDL – No designated limit.
- ND – Not Detected

Table of Detected Contaminants

Contaminant	Violation Yes/No	Date of Sample	Level Detected (Avg) (Range)	Unit Measure-ment	MCLG	Regulatory Limit (MCL)	Likely Source of Contamination
Nickel	**No**	1/12 & 3/12	.002 & ND (1)	ppm	N/A	NDL	Erosion of natural deposits
Sulfate	**No**	1/12 & 3/12	9.6 & 5.0 (1)	ppm	N/A	MCL =250	Naturally occurring.
Color	**No**	1/12 & 3/12	10 & ND (1)	Units	N/A	MCL =15	Natural color may be caused by decaying leaves, plants, and soil organic matter.
Nitrate	**No**	1/12 & 3/12	0.4 & 0.2 (1)	ppm	10	MCL =10	Runoff from fertilizer use; leaching from septic tanks; erosion of natural deposits.
Sodium	**No**	1/12 & 3/12	30.7 & 5.5 (1,2)	ppm	N/A	NDL	Erosion of natural deposits
Phosphorus, Ortho	**No**	1/12-12/12	Avg 1.5 Range 0.2 -3.3	ppm	N/A	NDL	Water additive for Corrosion Control
Zinc	**No**	1/12 & 3/12	0.004 & ND (1)	ppm	N/A	MCL =5	Naturally occurring
Fluoride	**No**	1/12-12/12	Avg 0.7 Range 0.2-1.3	ppm	N/A	MCL =2.2	Water Additive that promotes strong teeth
Iron	**No**	1/12 & 3/12	0.09 & 0.01 (1)	ppm	N/A	MCL =0.3	Erosion of natural deposits
Manganese	**No**	1/12 & 3/12	0.06 & 0.01 (1)	ppm	N/A	MCL = 0.3	Erosion of natural deposits
Barium	**No**	1/12 & 3/12	0.09 & 0.03 (1)	ppm	2	MCL=2	Erosion of natural deposits
Chloride	**No**	1/12 & 3/12	50.0 & 9.0 (1)	ppm	N/A	MCL =250	Erosion of natural deposits
Turbidity	**No**	1/12-12/12	2.2 (3)	NTU	N/A	MCL =5	Soil Runoff
TTHM'S	**No**	1/12-12/12	Avg 0.044 Range 0.035-0.060	ppm	N/A	MCL Avg=0.08	By-product of drinking water chlorination
Total HAA	**No**	1/12-12/12	Avg 0.043 Range 0.037-0.052	ppm	N/A	MCL Avg=0.06	By-product of drinking water chlorination

Contaminant	Violation Yes/No	Date of Sample	Level Detected (Avg) (Range)	Unit Measure-ment	MCLG	Regulatory Limit MCL	Likely Source of Contamination
pH	**No**	1/12-12/12	Avg 7.3 Range 5.9-8.0	pH units	N/A	NDL	
Chlorine Residual, Free	**No**	1/12-12/12	Avg 1.6 Range 0.5-3.5	ppm	N/A	MCL= 4.0	Water additive for disinfection
Total Coliform	**No**	1/12-12/12	12 Months 0 positive samples per month	N/A	N/A	MCL =2 or more positive samples per month	Naturally present in the environment
Lead	**No**	8/12 & 9/12	2.2 (4) ND-3.0	ppb	0	Al=15	Corrosion of Household plumbing
Copper	**No**	8/12 & 9/12	0.19 (5) 0.03-0.7	ppm	N/A	Al=1.3	Corrosion of Household plumbing
Uranium	**No**	6/04(6)	0.5	pCi/L	0	MCL=20	Erosion of natural deposits

Footnotes

(1) One sample per entry point per year is required for this parameter. The first value is for the Croton Aqueduct entry point which was taken in January. The second value is for the Catskill Aqueduct entry point and was taken in March.

(2) 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.

(3) 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 turbidity for the year was 2.2 NTU which meets the Filtration Avoidance Criteria that the entry point turbidity cannot exceed 5 NTU.

(4) The action 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 18th value (2.2 ppb). Hence, for the 90th percentile value, the action limit was not exceeded. The action level for lead was not exceeded at any site.

(5) The action level presented represents the 90th percentile of the 20 sites tested. The action level for copper was not exceeded at any site.

(6) Sample taken once every ten years

Entry point samples for inorganic contaminants that were not detected include; chromium, cadmium, cyanide, nitrite, arsenic, mercury, thallium, antimony, silver, beryllium and selenium. Additionally, all bacteriological samples tested for e-coli were found to be e-coli absent.

Distribution samples for inorganic contaminants that were not detected include: Asbestos.

Organic contaminants that were tested for and not detected in the source water include 3-Hydroxycarbofuran, Aldicarb, Aldicarb sulfone, Aldicarb sulfoxide, Carbaryl, Carbofuran, Methomyl, Oxamyl, 2,3,7,8-TCDD (Dioxin), Diquat, Endothall, Glyphosate, 2,4,5-T, 2,4-D, Dalapon, Dicamba, Dinoseb, Pentachlorophenol, Picloram, 1,2-Dibromo-3-chloropropane, 1,2-Dibromoethane, Butachlor, Metolachlor, Metribuzin, Alachlor, Atrazine, Benzo(a)pyrene, Hexachlorobenzene, Hexachlorocyclopentadiene, Simazine, 1,1,1,2-tetrachloroethane, 1,1,1-trichloroethane, 1,1,2,2-tetrachloroethane, 1,1,2-trichloroethane, 1,1-dichloroethane, 1,1-dichloroethene, 1,1-dichloropropene, 1,2,3-trichlorobenzene, 1,2,3-trichloropropane, 1,2,4-trichlorobenzene, 1,2,4-trimethylbenzene, 1,2-dichlorobenzene, 1,2-dichloroethane, 1,2-dichloropropane, 1,3,5-trimethylbenzene, 1,3-dichlorobenzene, 1,3-dichloropropane, 1,4-dichlorobenzene, 2,2-dichloropropane, 2-butanone(MEK), 2-chlorotoluene, 4-chlorotoluene, Benzene, Bromobenzene, Bromochloromethane, Bromomethane, Carbon tetrachloride, Chlorobenzene, Chloroethane, Chloromethane, cis-1,2-dichloroethene, cis-1,3-dichloropropene, Dibromomethane, Dichlorodifluoromethane, Ethylbenzene, Hexachlorobutadiene, Isopropylbenzene, 4-Methyl-2-pentanone, Methyl tert-butyl ether (MTBE), Methylene Chloride, N-butylbenzene, N-propylbenzene, Naphthalene, O-xylene, P & M-xylene, P-isopropyltoluene, SEC-butylbenzene, Styrene, TERT-butylbenzene, Tetrachloroethene, Toluene, trans-1,2-dichloroethene, trans-1,3-dichloropropene, Trichloroethene, Trichlorofluoromethane,Vinyl chloride, 4,4-DDE, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, Acetocholr,

Molinate, Terbacil, EPTC, Nitrobenzene, aldrin, chlordane, dieldrin, endrin, heptachlor, heptachlor epoxide, lindane, methoxychlor, PCB's, propachlor, toxaphene, bis(2-Ethylhexyl)adipate, silvex, bis(2-ethylhexyl)phthalate, ethylene glycol, propylene glycol.

Radiological contaminants tested for and not detected in the source water include gross alpha, gross bata, Radium 226, radium 228.

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 New York State requirements. The Briarcliff Manor Water System is in full compliance with applicable State drinking water operating, and reporting requirements.

IS OUR WATER SYSTEM MEETING OTHER RULES THAT GOVERN OPERATIONS?

During 2012, our system was in compliance with applicable State 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. During the 2012 calendar year, forty-nine (49) weekly samples of Catskill Aqueduct water were collected and analyzed for giardia cysts and cryptosporidium oocysts. Of the 49 samples, 24 samples were positive for giardia and 1 sample was positive for cryptosporidium. Due to a shutdown by the NYC DEP of the Catskill Aqueduct, during the period January 6th to January 27th, VBM utilized the Croton Aqueduct Water Supply. During this period, 3 weekly samples of New Croton Aqueduct water were collected and analyzed for giardia cysts and cryptosporidium oocysts. Of the 3 samples, 2 samples were positive for giardia and none were positive for cryptosporidium. While, the testing indicates the presence of cryptosporidium and giardia in our source water, NYC's monitoring program found no evidence of illness from cryptosporidium and giardia related to the NYC Water Supply. Additionally, current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease.

Cryptosporidiosis and giardiasis are intestinal illnesses caused by microscopic pathogens (cryptosporidium and giardia) which can be water borne. But, according to the EPA and the Center for Disease Control and Prevention (CDC), it is unclear how most cases of cryptosporidiosis in the United States are contracted. The relative importance of various risk factors are unknown. Such factors include eating contaminated food, swallowing contaminated recreational water while swimming or camping, contact with animals, contact with human waste, certain sexual practices or drinking contaminated water. Individuals who think they may have cryptosporidiosis or giardiasis should contact their health care provider immediately.

Ingestion of cryptosporidium may cause cryptosporidiosis, a gastrointestinal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. The 2012 cryptosporidium testing found that no sample has a higher concentration than 1 per 50 Liters of water. In a Public Health Update dated February 15, 2002, the Westchester County Health Department stated that at the low levels identified by the NYC testing the "Cryptosporidium are not felt to pose a risk to healthy people".

Most healthy individuals can overcome disease within a few weeks. However, immuno-compromised people are at greater risk of developing life-threatening illness. The Village encourages 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.

Ingestion of giardia may cause giardiasis, an intestinal illness. It should be noted that the February 15, 2002 Public Health Update reported that for a public water supply, "routine chlorination of water is generally sufficient to kill giardia". 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?
Not withstanding 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
With the completion of the Full Water Supply Pump Station (FWSPS) in 2011, VBM's primary source of supply is the NYC's Lower Catskill/Delaware Aqueduct System.

The Lower Catskill/Delaware Aqueduct System which supplies most of NYC and southern Westchester, has been given a waiver from filtration requirements, due to its water quality and NYC's watershed protection program. In the event that the Lower Catskill/Delaware Aqueduct System filtration waiver is removed, NYC has submitted plans calling for the construction of a filtration plant in the immediate vicinity of VBM's aqueduct connection. Thus, if at some later date, filtration of the Lower Catskill/Delaware Aqueduct System is required, VBM's connection is at the appropriate location to obtain filtered water from a NYC facility. The Croton Aqueduct connection will now only be utilized when NYC shuts down the Catskill Aqueduct for maintenance. Use of the Croton Aqueduct will be eliminated once the Delaware Aqueduct supply component of the FWSPS is completed.

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

Sincerely,

Phil Zegarelli

Philip E. Zegarelli, Village Manager

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.

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

BOARD OF TRUSTEES

William Vescio, Mayor
Lori Sullivan, Deputy Mayor
Robert Murray, Trustee
Mark Pohar, Trustee
Mark Wilson, Trustee

www.briarcliffmanor.org