



**VILLAGE OF TARRYTOWN
WESTCHESTER COUNTY, NEW YORK**

2009 Annual Water Quality Report

Tarrytown Water District
Village of Tarrytown, New York
(PWS ID Number NY5903461)

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INTRODUCTION

To comply with State regulations, the Village of Tarrytown will be annually issuing a report describing the quality of your drinking water. The purpose of this report is to raise your 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. This report provides an overview of last year's water quality. Included are details about where your water comes from, what it contains, and how it compares to State standards.

If you have any questions about this report or concerning your drinking water, please contact the Tarrytown Water Department office at (914) 631-0356 between the hours of 7:00 a.m. to 3:30 p.m. We want you to be informed about your drinking water. If you want to learn more, please attend any of our regularly scheduled Village board meetings. The meetings are held on the first and third Mondays of each month, with the exception of summer months, when the Board only meets once a month. Exact meeting schedules, dates and times can also be reviewed by the public by visiting the Tarrytown website, www.tarrytowngov.com, or by calling the Village Hall at (914) 631-1885.

WHERE DOES OUR WATER COME FROM?

In general, the sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activities. Contaminants that may be present in source water include: microbial contaminants; inorganic contaminants; pesticides and herbicides; organic chemical contaminants; and radioactive contaminants. In order to ensure that tap water is safe to drink, the State and the EPA prescribe regulations which limit the amount of certain contaminants in water provided by public water systems. The State Health Department's and the FDA's regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

The Village of Tarrytown has two sources of water. Tarrytown's year round major source of water comes from the New York City Catskill Aqueduct System. The Village is "tapped" into the Aqueduct just south of the Kensico Reservoir. This water is not filtered due to the high quality of the water. Tarrytown's emergency source is the New York City Croton Aqueduct. This source is normally used when the Catskill source is unavailable due to repairs or low flows. The Croton source can supply 4 million gallons daily and is not filtered. In the year 2009, no water was supplied from the Croton Aqueduct. Water from both the sources is disinfected with Chlorine and meets Federal and State microbiological standards. The Croton source does not meet the new 1996 Surface Water Treatment Rule requirements for turbidity (suspended material in water, usually fine clay). The turbidity normally cannot be seen by the human eye. All surface water supplies including Tarrytown are under a Federal and State mandate to filter their water; however, Tarrytown is currently operating under a filtration avoidance waiver. The Village of Tarrytown has prepared a filtration study, which can be implemented if or when required.

The Village is also required to comply with the lead and copper monitoring program. All samples have been in full compliance with the regulatory Action Levels of Lead and Copper (i.e., 0.015 mg/L for Pb and 1.3 mg/L for Cu based on 90th percentile level of tap water samples). Due to the excellent results achieved and demonstrated during consecutive monitoring periods from 2004 to 2007, the New York State Department of Health has granted reduced monitoring of these contaminants. In accordance with the Lead and Copper Rule (subpart 5-1.42(a) 9(c) 5(ii)), the Village has been qualified for further reduction in frequency of Lead and Copper monitoring to once every third year at the reduced number of sites. Accordingly, the next round of sampling for Lead and Copper is scheduled in June of 2010.

Tarrytown Water Department uses injection of a blended orthophosphate in the treated water, as a sequestering agent, use of this chemical in drinking water has been approved by the Westchester County Department of Health.

SOURCE WATER ASSESSMENT PROGRAM (SWAP)

The New York State Department of Health (NYSDOH) has evaluated the susceptibility of water supplies statewide to potential contamination under the Source Water

Assessment Program (SWAP), and their findings are summarized in the paragraphs 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 this PWS. This PWS provides treatment and regular monitoring to ensure the water delivered to consumers meets all applicable standards.

NYC Watershed Introduction

This Public Water System obtains water from the New York City water supply system. Water primarily comes from the Catskill watershed east of the Hudson River and in emergencies from the Croton watershed in Putnam and Westchester counties. The New York City Department of Environmental Protection (NYCDEP) implements a series of programs to evaluate and protect 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 lands; and implementation partnership programs that target specific sources of pollution in the watersheds.

Due to these intensive efforts, the SWAP methodologies applied to the rest of the state were not applied for this PWS. Additional information on the water quality and protection efforts in these New York City watersheds can be found at DEP's web site www.nyc.gov/dep/watershed.

SOURCE SPECIFIC ASSESSMENTS

This Public Water System obtains its water primarily from the Catskill watershed east of the Hudson and in emergencies from the Croton watershed in Putnam and Westchester counties. The main water quality concerns associated with land cover in these watersheds are agriculture and residential land uses which can contribute microbial contaminants, pesticides, and algae producing nutrients. There are also some concerns associated with wastewater, but advanced treatments 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 impacts 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 reservoirs, along with excess algae nutrients and the presence of wetlands in the watershed, contribute to periods of elevated water tint and disinfection by-product precursor levels.

FACTS AND FIGURES

The population served by the Tarrytown Water System is approximately 12,000 people, which include approximately 2,500 service connections.

In 2009 the Tarrytown Water Department delivered 580,405,000 gallons of water from the Catskill Aqueduct alone. The following are the reported flows for the year 2009:

1. Annual Average	1.586 MGD
2. Maximum Month	1.804 MGD
3. Maximum Day*	3.425 MGD

* Based on historical data, the peaking factor used to calculate Maximum Day is 2.16 times the Annual Average.

The estimated unaccounted for water in the Tarrytown Water System is approximately 23%. This figure is based on the amount of water pumped against the amount of water sold. Unaccounted for water includes water lost due to water main breaks, firefighting, street cleaning, hydrant flushing and other miscellaneous unmetered uses of water.

The Village of Tarrytown has had a permanent Water Conservation Law in effect since 1989. A copy of this law may be obtained at the Tarrytown Water Department c/o the Village Administrator's Office, One Depot Plaza, Tarrytown, NY.

The Village utilizes a 4.4 million gallon high service tank, located above 620 South Broadway, a 900,000 gallon low service tank located north of Sunnyside Avenue, off Neperan Road, and a 50,000 gallon air break tank located at the Shaft-10 Pumping Station on Neperan Road. All water is fed to the air break tank, where it is chlorinated and chemically treated prior to distribution.

The average single-family household in the Tarrytown Water Department uses approximately 11,200 cubic feet of water per year. The Tarrytown Water Department bills four times a year and the average bill per billing period is \$136.80 for a total of \$547.19 per year. The cost for water is \$49.15/1,000 cubic feet. Outside users, Hackley School and Consolidated Edison, pay \$73.45/1,000 cubic feet. Senior citizens who qualify for reduced rate pay \$36.65/1,000 cubic feet.

The Village Water Department Budget is \$2,970,791 dollars and the cost of water purchased from the New York City is \$922.23 per million gallons. Excess water charge is \$3,489.30 per million gallons for greater than 125.01 gpcd use.

ARE THERE CONTAMINANTS IN OUR DRINKING WATER?

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

It should be noted that all drinking water, including bottled drinking water, might be reasonably expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 800-426-4791 or the Westchester County Department of Health at 914-813-5000.

The Village has available a supplement for analytical testing results for contaminants required to be tested by the United States Environmental Protection Agency and the New York State Department of Health. This supplement is available for review upon written requests to customers of the Tarrytown Water Department. All requests must be made to the Tarrytown Water Department c/o the Village Administrator's Office, One

Depot Plaza, Tarrytown, NY 10591. This supplement will also be available for review at the Warner Library, North Broadway, Tarrytown, NY.

Contaminant (Unit)	Violation (Y/N)	Date of Sample	Level Detected (Avg/Max/Range)	MCLG	MCL	Likely Source of Contamination
Microbiological Contaminants						
Turbidity (NTU) ¹	N	Daily	1.11	n/a	5	Soil Runoff
Radionuclides²						
Alpha (pCi/L)	N	2004	0.0±0.3	0	15	Erosion of natural deposits.
Beta (pCi/L)	N	2004	1.5±0.8	0	50 ³	Decay of natural deposits and man-made emissions.
Radium 226 (pCi/L)	N	2004	0.0±1.2	0	5	Decay of natural deposits and man-made emissions.
Radium 228 (pCi/L)	N	2004	0.0±1.3	0	5	Decay of natural deposits and man-made emissions.
Inorganics						
Barium (mg/l)	N	9/10/09	0.0205	2	2	Discharge of drilling wastes, metal refineries, erosion of natural deposits
Chloride (mg/l)	N	9/10/09	11.8	n/a	250	Naturally occurring or indicative of road salt contamination
Copper (mg/l) ⁴	N	2007 ¹	0.263 ⁵ (0.0229-0.325)	1.3	1.3	Corrosion of household plumbing system; Erosion of natural deposits; leaching from wood preservatives
Fluoride (mg/l)	N	9/10/09	1.07	n/a	2.2	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Iron (µg/l)	N	9/10/09	24	n/a	300 ⁶	Naturally occurring
Lead (µg/l) ⁴	N	2007 ¹	4.7 ⁵ (<LOQ-26.9)	0	15	Corrosion of household plumbing system; Erosion of natural deposits

Contaminant (Unit)	Violation (Y/N)	Date of Sample	Level Detected (Avg/Max/Range)	MCLG	MCL	Likely Source of Contamination
Manganese (µg/l)	N	9/10/09	17.5	n/a	300 ⁶	Naturally occurring; indicative of landfill contamination.
Sodium (mg/l)	N	9/10/09	9.29	n/a	See below ⁷	Naturally occurring; Road salt; Water softeners; Animal waste.
Zinc (mg/l)	N	9/10/09	0.0052	n/a	5	Naturally occurring, mining waste
Inorganics – Nitrate and Nitrite						
Nitrate (mg/l)	N	9/10/09	0.159	10	10	Fertilizers, septic systems sewage, natural deposits.
Disinfection Byproducts						
Haloacetic Acids (µg/l)	N	Quarterly	35.57 (21.21-63.07)	n/a	60	By-product of drinking water disinfection needed to kill harmful organisms.
Total Trihalomethanes (µg/l)	N	Quarterly	34.43 (8.84-79.04)	n/a	80	By-product of drinking water chlorination needed to kill harmful organisms. TTHMs are formed when source water contains large amounts of organic matter.

Turbidity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Highest Monthly Value	1.11	0.91	0.98	1.02	1.04	1.04	0.76	0.72	0.89	0.88	0.81	0.99

1. Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality. High turbidity can hinder the effectiveness of disinfectants.
2. Radiological testing is performed once every nine years under reduced monitoring. Results from 2004 are valid until 2013.
3. The state considers 50pCi/l to be the level of concern for beta particles.
4. Lead and copper testing is performed once every three years under reduced monitoring. Results from 2007 are valid until 2010.
5. The level presented represents the 90th percentile of the sites tested. A percentile is a value on a scale of 100 that indicates the percent of a distribution that is equal to or below it. The 90th percentile is equal to or greater than 90% of the lead values detected at your water system.
6. If iron and manganese are present, total concentration of both should not exceed 500 µg/l.
7. 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.

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.
- 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).
- Picograms per liter (pg/l): Corresponds to one part per of liquid to one quadrillion parts of liquid (parts per quadrillion – ppq).
- 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.
- Million Fibers per Liter (MFL): A measure of the presence of asbestos fibers that are longer than 10 micrometers.

What does this information mean?

As shown on the table above, our 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.

Is our water system meeting other rules that govern operations?

During 2009, our system was in compliance with applicable State drinking water operating, monitoring and reporting requirements.

INFORMATION ON CRYPTOSPORIDIUM

Cryptosporidium is a microbial pathogen found in surface water and groundwater under the influence of surface water. Although filtration removes Cryptosporidium, the most commonly-used filtration methods cannot guarantee 100 percent removal. 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. Additional background information and fact sheet for Cryptosporidiosis is attached.

The New York City Department of Environmental Protection (NYCDEP) samples for Cryptosporidium Oocysts on a weekly basis. During the 2009 sampling period, 1 Cryptosporidium Oocyst was detected at the Kensico Reservoir, and 5 Cryptosporidium Oocysts were detected at the New Croton Reservoir. Full results are included in the report supplement.

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

removed/inactivated through a combination of filtration and disinfection or by disinfection. 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 handwashing practices are poor. Additional background information for Giardiasis is attached.

The New York City Department of Environmental Protection (NYCDEP) samples for Giardia Cysts on a weekly basis. During the 2009 sampling period, 105 Giardia Cysts were detected at the Kensico Reservoir, and 38 Giardia Cysts were detected at the New Croton Reservoir. Full results are included in the report supplement.

DO I NEED TO TAKE SPECIAL PRECAUTIONS?

Although our drinking water met or exceeded state and federal regulations, some people may be more vulnerable to disease causing microorganisms or pathogens in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice from their health care provider about their drinking water. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium, Giardia and other microbial pathogens are available from the Safe Drinking Water Hotline (800-426-4791).

All sources of drinking water (both tap water and bottled water) including rivers, lakes, streams, ponds, reservoirs, springs, and wells contain contaminants. 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 activity. Contaminants that may be present in source water include:

- *Microbial contaminants*, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- *Inorganic contaminants*, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, farming.
- *Pesticides and herbicides*, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- *Organic chemical contaminants*, including synthetic and volatile organic chemicals, which are by-products of industrial process and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- *Radioactive contaminants*, which can be naturally occurring or be the result of oil and gas production and mining activities.
- *Unregulated contaminants* are those for which the EPA has not established drinking water standards. The purpose of unregulated contaminants monitoring is to assist the EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted.

INFORMATION FOR NON-ENGLISH SPEAKING RESIDENTS

This report contains important information about your drinking water. Translate it, or speak with someone who understands it.

Spanish: Este informe contiene información muy importante sobre su agua beber. Tradúzcalo ó hable con alguien que lo entienda bien.

French: Ce rapport contient des informations importantes sur votre eau potable. Traduisez-le ou parlez en avec quelqu'un qui le comprend bien.

WHY SAVE WATER AND HOW TO AVOID WASTING IT?

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

- Saving water saves energy and some of the costs associated with both of these necessities of life;
- Saving water reduces the cost of energy required to pump water and the need to construct costly new wells, pumping systems and water towers; and
- Saving water lessens the strain on the water system during a dry spell or drought and helps 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 up 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 these invisible toilet leaks. Fix it and you can 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, and then check the meter after 15 minutes. If it moved, you have a leak.

SYSTEM IMPROVEMENTS

Over the course of the year, nine (9) water main breaks occurred which were repaired. Additionally, the Village replaced five (5) fire hydrants in the Water District.

Thank you for allowing us to continue to provide your family with quality drinking water this year. We ask that all our customers help us protect our water sources, which are the heart of our community. Please do not hesitate to call our office if you have any questions.

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