

New Castle / Stanwood Consolidated Water System
Year 2017 Annual Drinking Water Quality Report
280 Hunts Lane Chappaqua, NY 10514
(Public Water Supply ID# 5903442)

(The Federal Government requires that this statement be hand-delivered or mailed to every resident of the Town.)

Introduction

To comply with State regulations, the New Castle/Stanwood Consolidated Water District has been annually issuing a report describing the quality of our drinking water. The purpose of this report is to raise your understanding of drinking water and awareness of the need to protect our 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 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 Millwood Water Treatment Plant at (914) 944-0036, John Young, Chief Operator.** We want you to be informed about your drinking water. If you want to learn more, please attend any of our regularly scheduled Town Board meetings. Visit our website: www.mynewcastle.org to find out when the meetings are held.

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 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 New Castle Water System depends upon the New York City Aqueduct and Reservoir Systems for its entire raw water supply. New Castle's primary source is the Catskill Aqueduct System fed by the Ashokan Reservoir, and its secondary source is the New Croton Aqueduct fed by the Croton Reservoir System. We prefer the Catskill Supply for two reasons: the water quality is better and it is less costly to get it to the Millwood Water Treatment Plant. During **2017**, our system did not experience any restriction of our Catskill reservoir source.

The NYS DOH 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 paragraph(s) 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 our water system. The Town of New Castle provides treatment through the Millwood Water Treatment Plant and regular monitoring to ensure the water delivered to consumers meets all applicable standards.

We obtain water from the New York City water supply system. Water can either come from the Catskill watershed west of the Hudson River and/or from the Croton watershed in Putnam and Westchester Counties. The New York City Department of Environmental Protection (DEP) 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 our water system.

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 storages, 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 watercolor and disinfection by-product precursor levels. Additional information on the water quality and protection efforts in these New York City watersheds can be found at NYC DEP's web site www.nyc.gov/dep/watershed.

New Castle built its Millwood Water Treatment Plant under the requirements of the Surface Water Treatment Rule of the Safe Drinking Water Act effective June 1989. Our "state-of-the-art" plant went on-line in August 1993 and has provided New Castle water consumers with superior quality water that has met or exceeded all of the mandated drinking water standards. In a number of areas, this plant has provided levels of protection that are several times greater than the minimum standards (turbidity levels, microbial, and disinfection by-products).

The Millwood Water Treatment Plant is supervised by a Grade 1-A New York State Certified Water Treatment Plant operator and staffed 24 hours per day, seven days per week, with New York State certified Grade 2-A Water Treatment Plant Operators. The Millwood Water Treatment Plant operating criteria adds the least amount of treatment chemicals necessary to be effective and then removes nearly all of the chemicals during the treatment process. The treatment regime has five steps: **First**, the raw water is mixed for one minute to disperse coagulation chemicals such as polyaluminum chloride, polymer and potassium permanganate. **Second**, the flocculators provide 30 minutes of staged, controlled mixing to entrap impurities such as clay, viruses, bacteria, protozoan cysts, minerals and algae into floc particles. **Third**, the Dissolved Air Flotation (DAF) process releases compressed air as microscopic bubbles into the bottom of the process stream and floats the impurity laden floc particles to the surface of the tanks where they are skimmed off. Clarified water leaves the bottom of the tank and flows into the Ozone Contact Chambers. **Fourth**, ozone is injected into the water. Ozone is the strongest, commonly used oxidizing agent for disinfection and is the primary disinfectant at the plant. It is generated onsite and by injecting it into the clarified water, before filtration, the amount of ozone used is minimized while the filters can remove any oxidized material. **Finally**, clarified, ozonated water is filtered through three feet of sand and anthracite filter media into an underdrain collection system to remove any floc particles that may have escaped the DAF clarification. Typically, the Plant physically removes 98.4% of the particulate matter and anything left in the water has been disinfected by the ozonation process. The water leaving the plant is consistently 10 times cleaner than the New York State Standard for Turbidity.

Facts and Figures

The New Castle Water System serves an estimated 16,800 people. The Water Distribution System consists of 120 miles of underground water mains varying in size from 4" to 24" in diameter, approximately 1,324 fire hydrants, 3 million gallons of ground level storage located in 4 storage tanks, and 5,452 metered customer connections.

During 2017, New Castle withdrew 1176.871 Million Gallons (MG) of raw water from the Catskill Aqueduct System and 0.000 MG from the Croton Aqueduct System. During the same time, New Castle supplied water to the following wholesale customers: IBM – 43.293 MG, Town of Mt. Pleasant – 40.016 MG, Town of North Castle – 0.650 MG, Town of Yorktown – 3.289 MG, and Village of Pleasantville – 326.693 MG. The average daily taking was 3.22 million gallons per day (MGD), with the New Castle customers consuming 2.09 MGD, and the aforementioned wholesale customers using the remaining 1.13 MGD. **Less than 10%** of the total water is unmetered due to fire usage, hydrant flushing, water main breaks, leaks, under-registration of meters, and the like. The industry average is 25 to 35% unaccounted for water, with anything below 20% to be considered a "tight" system.

The typical water consumption for a family of four per quarter is 2,000 to 3,000 cubic feet, or 165 to 250 gallons per day. Therefore, the typical quarterly metered water bill is \$ 104 to \$ 156.

New Castle Department of Public Works staff assigned to water ensures compliance with all federal - state monitoring and reporting requirements, maintains and repairs: the water mains, fire hydrants, pump stations and residential water meters. In 2017, the Water Unit of DPW repaired: 12 main breaks and leaks; installed or repaired 20 hydrants; painted 575 fire hydrants; greased & maintained 1,324 hydrants; installed, repaired, or replaced 283 water meters; made 4 water taps, and responded to 1,579 service requests.

Are There Contaminants in Our Drinking Water?

As the State regulations require, we routinely test our drinking water for numerous contaminants. Following is a list of those that were not detected in 2017:

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, Aldrin, Chlordane, Dieldrin, Endrin, Heptachlor, Heptachlor Epoxide, Lindane, Methoxychlor, PCB's, Propachlor, Toxaphene, 2,3,7,8-TCDD (Dioxin), Diquat, Endothall, Glyphosate, 2,4,5-T, 2,4-D, Dalapon, Dicamba, Dinoseb, Pentachlorophenol, Picloram, Silvex, 1,2-Dibromo-3-chloropropane, 1,2-Dibromoethane, Butachlor, Metolachlor, Metribuzin, Alachlor, Atrazine, Benzo(a)pyrene, bis(2-Ethylhexyl) adipate, bis(2-Ethylhexyl) phthalate, 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, 2-chlorotoluene, 4-chlorotoluene, Benzene, Bromobenzene, Bromochloromethane, Bromomethane, Carbon tetrachloride, Chlorobenzene, Chloroethane, Chloromethane, cis-1,2-dichloroethene, cis-1,3-dichloropropene, Dibromomethane, Dichlorodifluoromethane, Ethylbenzene, Hexachlobutadiene, Isopropylbenzene, Methyl isobutyl ketone, 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, Perchlorate, DCPA di-acid, 2,4-dinitrotoluene, 2,6-dinitrotoluene, 4,4-DDE, Acetochlor, EPTC, Molinate, Terbacil, MTBE, and nitrobenzene.

Inorganic contaminants that were tested for and **not detected** in the source water include: Arsenic, Beryllium, Cadmium, , Color (Apparent), Chromium, Iron, Hexavalent Chromium, Mercury, Manganese, Ammonia as N, Nitrite nitrogen as N, Antimony, Selenium, and Thallium.

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 (800) 426-4791 or the Westchester County Department of Health at (914) 813-5000.

Additionally, all required bacteriological and chemical samples from the entry point and distribution system are taken for analysis and regulatory reporting to the Westchester County Department of Laboratory and Research in Valhalla. The results of various water analyses performed in 2017 can be found in **Table 1**. For disinfection by-products (TTHM, and HHA5) compliance is based upon LRAA (Locational Running Annual Averages) and the range of values for all locations. The presence of contaminants in the water does not necessarily indicate that the water poses a health risk. In addition, the state requires us to monitor for certain contaminants less than once per year because their concentrations are not expected to vary significantly from year to year.

What Does This Information Mean?

As you can see by the **Table**, our system had no violations. We have learned through our testing that some contaminants have been detected; however, these contaminants were detected below the New York State requirements. It should be noted that the action level for lead was exceeded in five of the samples collected. We are required to present the following information on lead in drinking water:

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 your home's plumbing. New Castle Water is responsible for providing high quality drinking water, but cannot control the variety of materials used in 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>.

Is Our Water System Meeting Other Rules That Govern Operations?

The New Castle Department of Public Works staff assigned to water ensures New Castle's compliance with all Federal and State monitoring and reporting requirements, and maintains and repairs the water mains, fire hydrants, and residential water meters.

Information on Cryptosporidium and Giardia

Cryptosporidium and Giardia are microbial pathogens found in surface water and groundwater under the influence of surface water. During 2017, we were not required to monitor for these organisms. However, our supplier (NYCDEP) found very low, sporadic levels of Crypto and Giardia. Therefore, the testing indicates a possible small presence of these organisms in our raw, untreated water. Furthermore, our water passes through processes at the Millwood Water Treatment Plant and is very aggressively treated. (See the aforementioned description of these steps found in the section entitled **Where does our water come from?**). Cryptosporidium and Giardia must be ingested to cause disease, and it may spread through other means other than drinking water. 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. 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.

Ozone is one of the most effective disinfectants for Cryptosporidium and Giardia, and New Castle water is both ozonated and filtered to minimize any health risk from these organisms. For additional information on Cryptosporidiosis or Giardiasis, please call the Westchester County Department of Health at (914) 813-5000 or write the Westchester County Department of Health, 25 Moore Avenue, Mount Kisco, New York 10549.

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).

Information on Fluoride Addition

Our system is one of the many drinking water systems in New York State that provides drinking water with a controlled, low level of fluoride for consumer dental health protection. According to the **United States Centers for Disease Control**, fluoride is very effective in preventing cavities when present in drinking water at a properly controlled level. To ensure that the fluoride supplement in your water provides optimal dental protection, we monitor fluoride levels on a daily basis to make sure fluoride is maintained at a target level of 0.7 mg/L. During 2017, monitoring showed fluoride levels in your water were within 0.1 mg/L of the target level **92.8 %** of the time. None of the monitoring results showed fluoride at levels that approach the 2.2 mg/l MCL for fluoride.

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; lessens the strain on the water system during a dry spell or drought, helping to avoid severe water use restrictions so that essential firefighting 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 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.
- ◆ Place mulch (available from New Castle Recycling Center) around trees and plants to lessen evaporation.

System Improvements

During 2017, as a Capital Project we completed the installation of more than a thousand feet of new 12 inch diameter water mains in the downtown Hamlet of Chappaqua. This pipe system replaces 86 year old, 6 inch, cast iron water mains that had reached the end of their design life.

Closing

To report any problems with your water or to request additional information, please call (914) 238-3968, Monday to Friday 7 a.m. to 3 p.m. Or, you may call the Westchester County Department of Health, Bureau of Environmental Quality at (914) 864-7332. Further information about water may be obtained by calling the EPA's Safe Drinking Water Hotline telephone at 1-800-426-4791.

NEW CASTLE/STANWOOD CONSOLIDATED WATER SYSTEM

2017 WATER ANALYSIS

TABLE OF DETECTED CONTAMINANTS						
Contaminants (units)	Violation Yes or No	Date of Sample	MCL	New Castle Result 2017	MCLG	Major Sources in Drinking Water
Total Coliform	No	7/2017 9/2017	TT= 2 or more positive samples	1 positive sample	0	Naturally present in the environment
Turbidity (at treatment plant) Average and Range	No	Every 4 hours	0.3 NTU	0.029 0.017 - 0.056 NTU	n/a	Soil runoff, Turbidity is a measurement of the cloudiness of the water.
Turbidity (in distribution system) Average and Range	No	1 per Day	5.0 NTU	0.048 0.017 - 0.940 NTU	n/a	Soil runoff, Turbidity is a measurement of the cloudiness of the water.
Inorganic Contaminants						
Fluoride (mg/L) Maximum and Range	No	Every 4 hours	2.2 mg/L	0.82 0.54 - 0.82 mg/L	n/a	Water additive which promotes strong teeth; erosion of natural deposits
Nitrate (mg/L)	No	10/10/2017	10 mg/L	0.094 mg/L	10	Runoff from fertilizer use. Leaching from septic tanks; Erosion of natural deposits
Barium (mg/L)	No	10/10/2017	2 mg/L	0.009 mg/L	2	Erosion of natural deposits.
Chloride (mg/L)	No	10/10/2017	250 mg/L	11.6 mg/L	n/a	Naturally occurring; Road salt
Cyanide (ug/L)	No	10/10/2017	200 ug/L	1.3 ug/L	200	Discharge from fertilizer factories
Nickel (ug/L)	No	10/16/2017	100 ug/L	3.6 ug/L		Naturally occurring
Sodium (mg/L)	No	10/10/2017	N/A	11.60 mg/L	n/a	Naturally occurring; road salt; water softeners; animal waste
Sulfate (mg/L)	No	10/10/2017	250 mg/L	3.75 mg/L	n/a	Naturally occurring
Zinc (mg/L)	No	10/10/2017	5 mg/L	0.003 mg/L	n/a	Naturally occurring
Gross Alpha (pCi/L)	No	10/15/2013	15 pCi/L	0.43 pCi/L	0	Erosion of natural deposits
Gross Beta (pCi/L)	No	10/15/2013	50 pCi/L	0.16 pCi/L	0	Decay of natural deposits, or man-made emissions.
Disinfection Byproducts						
TTHMs [Total - Trihalomethanes] (ppb) Highest Locational Running Annual Average and Range	No	Quarterly 2017	80 ug/L	24.63 5.5 - 44 ug/L	n/a	By-product of drinking water chlorination needed to kill harmful organisms
Haloacetic acids (ppb) Highest Locational Running Annual Average and Range	No	Quarterly 2017	60 ug/L	8.55 3.8 - 11.5 ug/L	n/a	By-product of drinking water disinfection needed to kill harmful organisms.
Chlorine Residual (entry Point) Average and Range	No	Every 4 hours	4 mg/L	1.12 1.04 - 1.27 mg/L	n/a	Water additive used to control microbes.
Chlorine Residual (distribution system) Average and Range	No	1 x per Day	4 mg/L	0.85 0.32 - 1.21 mg/L	n/a	Water additive used to control microbes.
Bromate (entry point) Highest Quarterly Running Annual Average and Range	No	Monthly	10 ug/L	5.7 0.9-31.0 ug/L	n/a	By-product of drinking water disinfection at treatment plants using ozone
Miscellaneous Analytes						
Hardness (mg/L)	No	10/10/2017	n/a	23.0 mg/L	n/a	A combination of mineral constituents such as calcium and magnesium salts. 0-45 = soft water, 46-90 = soft to moderately hard, 91-130 = moderately hard to hard.
Alkalinity (mg/L)	No	10/10/2017	n/a	24.1 mg/L	n/a	A measure of the alkaline constituents of water, mostly bicarbonates.
Calcium	No	10/10/2017	n/a	7.26 mg/L	n/a	A measure of the alkaline constituents of water
pH (pH units) Average	No	Daily	n/a	7.68	n/a	
Total Dissolved Solids	No	10/10/2017	n/a	53.2 mg/L	n/a	A measure of dissolved solids in water.
Contaminant	Violation Yes or No	Range of Sample Dates	Level Detected (90th percentile) (Range)	#Samples taken & (# exceeding the Action Level)	Action Level	Likely Sources of Contamination
Lead, ug/L	No	6/7/2017 to 8/31/2017	3.0 ¹ <LOQ - 167	60/ (5)	15.0 ug/L	Corrosion of household plumbing systems; Erosion of natural deposits.
Copper, mg/L	No	6/7/2017 to 8/31/2017	0.066 ² 0.009 - 0.6	60/ (0)	1.3 mg/L	Corrosion of household plumbing systems; Erosion of natural deposits.
<p>1&2- Levels presented represent the 90th percentile of the 60 sites tested. A percentile is a value on a scale of 100 that indicates the percent of the distribution that is equal to or below it. The 90th percentile is equal to or greater than 90% of the lead or copper values detected in our water system. In this case, 60 samples were collected in our water system and the 90th percentile value was the seventh highest value (3.0 ug/L for lead and 0.066 mg/L for copper). The action level for lead (15 ug/L) was exceeded at five of the the sites tested in 2017 with the range of (15.5 to 167ug/L). Upon re-sampling these sites tested with the range of (<LOQ to 1.7ug/L).</p>						

LOQ = Limits Of Quantitation **pCi/L** = picocuries per liter (a measure of radioactivity) **NTU** = nephelometric turbidity units
MCLG = maximum contaminant goal **PPM** = parts per million or milligrams per liter (mg/L) **AL** = action level
PPB = parts per billion or micrograms per liter (ug/L) **L/T** = Less Than **MCL** = maximum contaminant level **TT** = treatment techniques
MCL= The highest level of a contaminant that is allowed in drinking water, and are set as close to the MCLGs as feasible.
MCLG= The level of a contaminant in drinking water below which there is no known or expected risk to health.