

MIDDLETOWN WATER

2017 Consumer Annual Water Quality Report



Middletown Water & Sewer Department
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Check our website at
www.middletownct.gov/water

This report contains important information about your drinking water.

Este informe contiene información muy importante sobre su agua beber.

The Middletown Water Department's consumer confidence report contains a summary of our water quality monitoring program completed during calendar year 2017. The Middletown Water Department is pleased to report that your water supply has once again met or surpassed all drinking water quality standards.

Drinking water quality

To ensure that your tap water is of the highest quality, the U.S. Environmental Protection Agency (EPA) and the Connecticut Department of Public Health have established regulations that limit the amount of certain contaminants in drinking water provided by public-water systems. A review of 2017 water quality data shows that your drinking water is within the standards set by both regulatory agencies. In 2017, we performed over 16,000 tests on water samples from various locations throughout the water distribution system testing for no less than 100 different regulated contaminants. The regulated contaminants that were detected are identified in this report. Those that were detected were present in amounts that are allowed by state and federal regulations established under the Federal Safe Drinking Water Act. The Middletown Water Department is not required to test for all regulated contaminants every year. Prior monitoring data and state and federal regulations establish time tables for which contaminants need to be tested and when.

At risk populations

All drinking water, including bottled water, can 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. Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 of infections. These people should seek advice from their health care providers about drinking water. The EPA and Centers for Disease Control offer guidelines on ways to lessen the risk from contaminants. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at (800) 426-4791.

Drinking water sources

Your drinking water comes from four reservoirs and one ground water aquifer. The reservoirs are filled from their watershed and the aquifer is a natural sand, gravel, and bedrock formation below the surface of the ground that is saturated with water. Over 70 percent of the tap water that the Middletown Water Department produces comes from the aquifer located along the Connecticut River. The map provided on the following page depicts the areas served by our two sources. The water is distributed to the two regions through a network of pipes, pumps stations, and tanks. Our distribution system is interconnected, water from both sources may be delivered to some neighborhoods. This blending of water permits us to not only meet your water demands, especially during a heat wave, but readily assures that water is available for firefighting or other emergencies. In 2017 the water department produced a total of 1.38 billion gallons of water with an average day demand of 3.77 million gallons. The water quality data on the following pages show the test results for the water that originates from the reservoirs and from the aquifer. Please note that the water coming from your tap could be from reservoirs, the aquifer, or a combination of both during the various times of the year.

What we do to assure your drinking water complies with federal and state standards

The drinking water that reaches your tap goes through a multi-step treatment and filtration process.

SOURCE WATER ASSESSMENT PROGRAM: A source water assessment of our water supplies was completed by the Connecticut Department of Public Health Drinking Water Division. The assessment program identifies potential risk of contamination that might affect the quality of our water sources. Middletown's overall susceptibility to potential sources of contamination was considered to be low for its surface water supplies because more than eighty percent of the watershed is owned by the City and is preserved as open space. The overall susceptibility to potential sources of contamination for the groundwater supplies was also considered to be low. The complete report can be found on the Department of Public Health's website: <http://www.ct.gov/dph/publicdrinkingwater>

RESERVOIRS & AQUIFERS: Our source water protection program focuses on pollution prevention and watershed management. We protect over 1,400 acres of land in our watershed and manage it carefully. We vigilantly monitor the quality of the water and all activity on the surrounding land, constantly watching for potential activities that could contaminate the reservoirs and aquifer that are used as the sources of your tap water. In addition, the City of Middletown has created zoning requirements that establish an aquifer protection area for the wellfield and watershed protection areas for the reservoirs. These regulations restrict certain activities that could potentially pose a risk to the aquifer and the reservoirs.

TREATMENT: Aquifer water is naturally filtered underground and then filtered once more in our John S. Roth water treatment plant. Reservoir water is treated at our Charles B. Bacon water treatment plant. The treatment process is comprised of coagulation, flocculation, sedimentation, and filtration to remove impurities. Both aquifer water and reservoir water are disinfected with chlorine to kill microbes that can cause illness. We also add fluoride to prevent dental decay and phosphate to control corrosion of pipes.

DISTRIBUTION: The treated or finished water is delivered to you through a 180-mile-long network of pipes, pumping stations, and storage tanks. We carefully maintain our extensive distribution system to insure that high quality water is available when you turn on your tap.

QUALITY CONTROL MONITORING: To make sure that your water is consistently of high quality, our chemists, microbiologists and water treatment plant staff completed over 1000 samples per month in our laboratory and our state and nationally certified contracted laboratory. We collect and test samples from numerous locations that are approved by the Connecticut Department of Public Health throughout the water distribution system, within our water filtration plants, and from the aquifer and reservoirs prior to treatment. The results of these tests are compared to more than 175 state and federal standards and are reported to the Connecticut Department of Public Health on a monthly, quarterly and annual basis, ensuring that only the highest-quality drinking water is provided to you.



How contaminants get into your drinking water

As water travels over the surface of land or through the ground, it can pick up substances such as natural occurring minerals and other materials that may come from animals and human activity. Both untreated and treated water may include the following kinds of contamination:

INORGANIC COMPOUNDS such as salts and metals can be naturally occurring or a result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining and/or farming.

PESTICIDES AND HERBICIDES may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.

MICROBIAL CONTAMINANTS such as bacteria and viruses may come from the sewage-treatment plants, septic systems, agricultural livestock operations, wildlife or other natural sources.

ORGANIC CHEMICAL COMPOUNDS including both synthetic and volatile organic chemicals are by-products of industrial processes, coatings, petroleum production, gas station operations, urban storm water runoff, or septic systems. Trihalomethanes and Haloacetic acids are disinfection by-products that result from the use of chlorine as a disinfectant in water treatment.

RADIOACTIVE CONTAMINANTS can be naturally occurring or may be the result of oil and gas production.

RADON is a naturally occurring radioactive gas that you cannot see, taste or smell. It is found throughout the United States. Radon can move up through the ground and into a home through cracks and holes in the foundation. It can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water during showers, washing dishes, and other household activities. In most cases, however, radon entering the home through tap water is only a small portion of all the radon in indoor air. Radon is a carcinogen, breathing air-containing radon can lead to lung cancer. Drinking water containing radon may also cause increased risk of stomach cancer. If you are concerned about radon in your home, test the air. Testing is inexpensive and easy. If the level of radon in your air is four Pico Curies per liter of air (pCi/l) or higher, you need to take steps to reduce it. For additional information, contact the Middletown Health Department (860-638-4960), call your Connecticut State radon program, or contact EPA's Radon Hotline (800-767-7236).

Information on unregulated contaminants

We are also required by Federal Law to analyze for unregulated contaminants to determine whether they are present. In 2014 and 2015 the MWD participated in Phase III of the EPA's Unregulated Contaminant Monitoring Rule (UCMR III). Unregulated contaminants are those for which EPA has not yet established drinking water standards. This phase of the unregulated contaminant monitoring rule will assist the EPA in determining the occurrence of additional unregulated contaminants in drinking water and whether future regulation is warranted.

Lead and copper testing

The EPA developed the Lead and Copper Rule (LCR) to protect public health by minimizing lead and copper levels in drinking water. The most common source of lead and copper in drinking water is corrosion of plumbing materials. Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's disease should consult their personal physicians. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink water containing lead in excess of the action level over many years could develop kidney problems or high blood pressure. The lead and copper rule established an action level of 15 ppb (parts per billion) for lead and 1.3 ppm (parts per million) for copper based on the 90th percentile level of tap water samples. This means that no more than 10 percent of the samples can be above either action level. The Maximum Contaminant Level Goal (MCLG) for copper is 1.3 ppm, the MCLG for lead is zero (MCLG=0). The test frequency for lead and copper is determined by state and federal regulatory agencies with sampling conducted at the consumer's tap. The MWD's copper and lead testing results comply with federal and state standards and the MWD is currently under a reduced monitoring program for lead and copper testing. Lead and copper will be tested again in 2018.

Information on cryptosporidium

Cryptosporidium is a microscopic organism commonly found in the environment. Cryptosporidium can contaminate surface waters, including drinking water sources, via runoff from within the watershed. Ingestion of a small amount of Cryptosporidium from contaminated water can cause Cryptosporidiosis, a gastrointestinal illness that typically lasts 10 to 14 days. In 2018 the Middletown Water Department will complete a second two (2) year monitoring program for Cryptosporidium as required by the EPA's Long Term Enhanced Surface Water Treatment Rule (LT2). Samples of untreated source water from our Higby Reservoir are being collected monthly. To date, Cryptosporidium has not been detected in any of the samples that have been collected and analyzed under this program. If this trend continues throughout the program the MWD will be able to comply with the LT2 treatment requirements without the need to install any additional treatment processes.

Information on sodium

Sodium is an essential nutrient in your diet. It helps maintain the correct balance of fluids in your body and transmit nerve impulses to your muscles. Sodium in drinking water normally presents no health risks, as about 99 percent of your daily salt intake is from food and only about one percent is from water. For comparison, whole milk has a sodium content of 530 milligrams per liter.

Wise water use for conservation

Water is a limited resource so it is vital that we all work together to use it wisely. Here are a few tips you can follow to help conserve water:

- ✓ Check for leaky toilets by putting a drop of food coloring in the tank, let it sit, if the water in the bowl turns color, you have a leak. A leaking faucet or toilet can dribble away thousands of gallons of water in a year.
- ✓ Consider replacing your 5-gallon per flush toilet with an efficient 1.6 gallon per flush unit. This will permanently cut your water consumption by 25%.
- ✓ Run only full loads in dishwashers and washing machines. Rinse all hand-washed dishes at once.
- ✓ Turn off the faucet while brushing teeth, or shaving.
- ✓ Store a jug of ice water in the refrigerator for a cold drink.
- ✓ Water lawn and plants in the early morning or evening hours to avoid excess evaporation. Don't water on windy, rainy or very hot days and be sure sprinklers water only your lawn, not the pavement.
- ✓ Water shrubs and gardens using a slow trickle around the roots. A slow soaking encourages deep root growth, reduces leaf burn or mildew and prevents water loss. Select low-water demanding plants that provide an attractive landscape without high water use.
- ✓ Apply mulch around flowers, shrubs and trees to reduce evaporation, promote plant growth and control weeds. Shrubs and ground cover require less maintenance, less water, and provide year round greenery.
- ✓ Be sure that your hose has a shut-off nozzle. Hoses without a nozzle can waste up to 10 gallons per minute.
- ✓ When washing your car, wet it quickly, turn off the spray, wash it with soapy water from the bucket, rinse quickly and never use the hose to clean debris off your driveway or sidewalk. Use a broom or an air blower.
- ✓ Rinse other items, such as bicycles or trash cans, on the lawn to give your grass an extra drink.



The Middletown Water Department continues to make Water Conservation Kits available to our customers. Each kit contains leak detector tablets, a toilet bladder for reducing usage from older toilets, faucet flow restrictors, and a low flow showerhead. There is no cost for the kit. They may be picked up at our office at 82 Berlin Street, Mon-Fri 8:30am-4:30pm, limit two kits per residence. For more tips on how to use water wisely call (866) WTR-SENS (987-7367) (toll-free WaterSense Helpline)

Important Terminology

Abbreviations, Definitions, and Water Quality Measurement Units Listed In This Report

AL = Action Level	<i>The concentration of a contaminant, which if exceeded, triggers treatment or other requirements that a water system must follow.</i>
MCL = Maximum Contaminant Level	<i>The highest level of a contaminant allowed in drinking water. Maximum Contaminant Levels are set as close to the Maximum Contaminant Level Goals as feasible using the best available treatment technology.</i>
MCLG = Max. Contaminant Level Goal	<i>The level of a contaminant in drinking water below which there is no known or expected risk to health. Maximum Contaminant Level Goals allow for a margin of safety.</i>
MRDL = Max. Residual Disinfectant Level	<i>The level of disinfectant added for water treatment that may not be exceeded at consumer's tap without adverse health effects.</i>
MRDLG = Max. Residual Disinfectant Level Goal	<i>The level of disinfectant added for water treatment that may not be exceeded at consumer's tap without adverse health effects.</i>
TT = Treatment Techniques	<i>A required process intended to reduce the level of contaminant in drinking water.</i>
MRR = Minimum Removal Ratio	<i>The calculated value derived for Total Organic Carbon (TOC) percent removal.</i>
NTU = Nephelometric Turbidity Units	<i>A measure of clarity of water. Turbidity more than five NTU is just noticeable to the average person.</i>
ND = Not Detected	<i>Not Detected</i>
N/A = No MCL or MCLG	<i>No MCL or MCLG established</i>
ppm = Parts per million	<i>A measure of the concentration of a substance, analogous to one (1) penny in \$10,000 dollars.</i>
ppb = Parts per billion	<i>Parts per billion. A measure of the concentration of a substance, analogous to one (1) penny in \$10,000,000 dollars.</i>

Potential Sources Of Regulated Contaminants Listed In This Report

Substance	Potential Sources
Barium	<i>Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits</i>
Chloride	<i>Naturally occurring in the environment</i>
Chlorine	<i>Water additive used for disinfection</i>
Copper	<i>Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives</i>
Fluoride	<i>Erosion of natural deposits; Water additive which promotes strong dental enamel</i>
Lead	<i>Corrosion of household plumbing systems; Erosion of natural deposits</i>
Nitrate (as Nitrogen)	<i>Runoff from fertilizer use; Leaching from septic tanks; sewage; Erosion of natural deposits</i>
Total Coliform Bacteria	<i>Naturally present in the environment</i>
Total Haloacetic Acids (HAA)	<i>By-product of drinking water disinfection</i>
Total Organic Carbon (TOC)	<i>Naturally present in the environment</i>
Total Trihalomethanes (TTHM)	<i>By-product of drinking water disinfection</i>
Turbidity	<i>Soil runoff</i>
Xylene	<i>By-products from coating storage and treatment equipment</i>

Potential Sources Of Unregulated Contaminants Listed In This Report

Substance	Potential Sources
Bromodichloromethane	<i>By-product of drinking water disinfection</i>
Bromoform	<i>By-product of drinking water disinfection</i>
Chloroform	<i>By-product of drinking water disinfection</i>
Dibromochloromethane	<i>By-product of drinking water disinfection</i>
Dibromoacetic Acid	<i>By-product of drinking water disinfection</i>
Dichloroacetic Acid	<i>By-product of drinking water disinfection</i>
Monochloroacetic Acid	<i>By-product of drinking water disinfection</i>
Trichloroacetic Acid	<i>By-product of drinking water disinfection</i>
Monobromoacetic Acid	<i>By-product of drinking water disinfection</i>
Radon	<i>Naturally present in environment</i>
Sodium	<i>Naturally occurring in the environment or run off from road salting</i>
Sulfate	<i>Naturally occurring in the environment</i>

Charles B. Bacon Water Treatment Plant at Higby Reservoir

Water Ready For Consumption

Levels of regulated contaminants

Parameter	MCL	MCLG	Highest Level Detected During 2017	Compliance
Turbidity	TT=0.3 NTU	0 NTU	0.19 NTU (Range 0.05 - 0.19) .06 Average (e)	Yes
Turbidity	TT= Percent of samples <0.3 NTU	N/A	100% (e)	Yes
Parameter	MCL	MCLG	Minimum Removal Ratio During 2017	Compliance
Total Organic Carbon	TT = 1 ratio min.	N/A	1.3 August, 2017 (f)	Yes
Parameter	MCL	MCLG	Highest Level and Range Detected During 2017	Compliance
Fluoride	4 ppm	4 ppm	0.93 ppm (Range 0.35 - 0.93), .70 Average	Yes
Parameter	MRDL	MRDLG	Average Level and Range Detected During 2017	Compliance
Chlorine	4 ppm	4 ppm	1.53 ppm (Range 0.83 – 2.15)	Yes
Parameter	MCL	MCLG	Level Detected During 2017	Compliance
Barium	2 ppm	2 ppm	0.009 ppm	Yes
Chloride	250 ppm	N/A	29.00 ppm	Yes
Nitrate (as Nitrogen)	10 ppm	10 ppm	0.007 ppm	Yes
Zylene (Total)	10 ppm	10 ppm	0.003 ppm	Yes

Disinfection byproducts

Parameter	MCL	Average Level and Range Detected During 2017	Compliance
Total Trihalomethanes (TTHM)	80 ppb	39.1 ppb (a) (Range 31.2 – 47.6)	Yes

Surface water region-unregulated components of disinfection byproducts

Parameter	MCL	Average Level and Range Detected During 2017	Compliance
Bromodichloromethane	N/A	1.2 ppb (a) (Range 1.1 – 1.4)	N/A
Chloroform	N/A	29.7 ppb (a) (Range 23.3 – 36.5)	N/A
Dibromochloromethane	N/A	8.3 ppb (a) (Range 6.8 – 9.7)	N/A

Surface water region-levels of unregulated contaminants

Parameter	MCL	Highest Level and/or Range Detected During 2017	Compliance
Sodium	Notification Level 28	17.2 ppm (g)	N/A
Sulfate	N/A	5.9 ppm	N/A

Distribution System (System Wide Service Area)

Levels of regulated contaminants for reservoir and aquifer service areas.

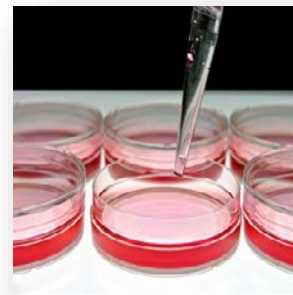
Parameter	MCL	MCLG	Highest Level and Range Detected During 2017	Compliance
Total Coliform Bacteria	Presence of coliform bacteria not to exceed 5.00% of monthly samples	0%	0% (Range 0% - 0%)	Yes
Turbidity	TT= 5.0 NTU	0 NTU	1.89 NTU High, 0.13 Average, (Range 0.01- 1.89)	Yes

Disinfection byproducts.

Parameter	MCL	MCLG	Average Level and Range Detected During 2017	Compliance
Total Trihalomethanes (TTHM)	80 ppb Average	N/A	46.7 ppb (Range 12.9 – 89.5 (a))	Yes
Total Haloacetic Acids (THAA)	60 ppb Average	N/A	25.3 ppb (Range 14.2 – 39.2 (a))	Yes

System wide unregulated components of disinfection byproducts.

Parameter	MCL	Highest Level and/or Range Detected During 2017	Compliance
Bromodichloromethane	N/A	14.0 ppb (Range 6.1 – 14.0)	N/A
Chloroform	N/A	74.0 ppb (Range 10.8 – 74.0)	N/A
Dibromochloromethane	N/A	2.4 ppb (Range 1.0 – 2.4)	N/A
Dibromoacetic Acid	N/A	0.5 ppb (Range 0 – 0.5)	N/A
Dichloroacetic Acid	N/A	22.2 ppb (Range 4.9 – 22.2)	N/A
Monochloroacetic Acid	N/A	1.7 ppb (Range 0.5 – 1.7)	N/A
Trichloroacetic Acid	N/A	15.3 ppb (Range 6.7 – 15.3)	N/A



John S. Roth Wellfield and Treatment Plant

Water Ready For Consumption

Levels of regulated contaminants

Parameter	MCL	MCLG	Highest Level and Range Detected During 2017	Compliance
Turbidity	TT= 5 NTU	0	0.80 NTU (Range 0.05 - 0.80), 0.08 Average	Yes
Fluoride	4 ppm	4 ppm	0.91 ppm (Range 0.54 - 0.91), 0.67 Average	Yes
Microbial Pathogens	TT=100% 4 log removal based on chlorine residual	N/A	100 % Achieved (h)	Yes
Parameter	MRDL	MRDLG	Average Level and Range Detected During 2017	Compliance
Chlorine	4 ppm	4 ppm	1.47 ppm (Range 0.80 – 1.97)	Yes

Ground water region-levels of regulated contaminants

Parameter	MCL	MCLG	Level Detected During 2017	Compliance
Barium	2 ppm	2 ppm	0.024 ppm	Yes
Chloride	250 ppm	N/A	24.00 ppm	Yes
Nitrate (as Nitrogen)	10 ppm	10 ppm	0.258 ppm	Yes
Copper	1.3 ppm	1.3 ppm	0.10 ppm	Yes

Disinfection byproducts

Parameter	MCL	Level Detected During 2017	Compliance
Total Trihalomethanes (TTHM)	80 ppb	19.7 ppb (a)	Yes

Ground water region-unregulated components of disinfection byproducts

Parameter	MCL	Level Detected During 2017	Compliance
Bromodichloromethane	N/A	6.0 ppb	N/A
Chloroform	N/A	12.4 ppb	N/A
Dibromochloromethane	N/A	1.3 ppb	N/A

Ground water region-levels of unregulated contaminants

Parameter	MCL	Highest Level Detected During 2017	Compliance
Sodium	Notification Level 28	20.0 ppm (g)	N/A
Sulfate	N/A	7.8 ppm	N/A

Notes

- (a) Individual sample and individual location
- (b) Calculated value derived from the analysis performed on high-priority customers (lead & copper testing is required every 3 years, the MWD maintains compliance)
- (c) Action level is based on the calculated 90th percentile (lead & copper testing is required every 3 years, the MWD maintains compliance)
- (d) Test frequency as determined by state and federal regulatory agencies (lead & copper testing is required every 3 years, the MWD maintains compliance)
- (e) 95% of samples within a given month
- (f) Ratio is a value derived from monthly TOC percent removal calculation
- (g) See Sodium notice on page 4
- (h) Treatment that reliably achieves at least 99.99 percent (4-log) treatment of viruses using inactivation

Middletown Water Department Consumer Confidence Report 2017

This report provides you with a summary of the Middletown Water Department's public drinking water quality through calendar year 2017. The pages of this report contain a map on page 3 and important terminology referred to in this report on page 5. Please refer to this information as you review the water quality data within the tables on pages 6 and 7. This report was produced to give you a better understanding of where your water comes from, and how the water is protected, treated, and tested. As required by federal and state regulations you will see detailed information describing what is in our water. Our goal is to help you understand more about the water and the system that is delivering drinking water to your tap.

If you wish to participate in decisions that may affect the quality of your drinking water, the Water Pollution Control Authority meets at the Water & Sewer headquarters on the first Thursday of the month at 7:00pm. Contact the water department at 860-638-3500 to confirm dates and times.

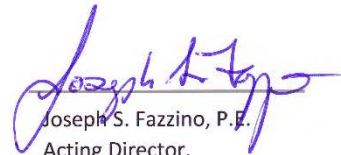
If you have further questions about your water service, or this report, please call Customer Service at 860-638-3500 or visit us online at <http://www.middletownct.gov/water> . We welcome your interest in our city's public water system.

Sincerely,

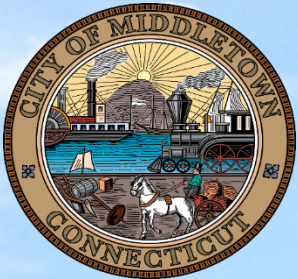


Daniel T. Drew
Mayor,
City of Middletown

Dale Aldieri
Chairman,
WPCA



Joseph S. Fazzino, P.E.
Acting Director,
Water & Sewer



The Middletown Water Department

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