MIDDLETOWN WATER

2018 Annual Consumer Water Quality Report

Middletown Water & Sewer Department
82 Berlin Street, Middletown, Connecticut 06457
Tel: (860) 638-3500 Fax: (860) 343-8091
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 2018. 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 2018 water quality data shows that your drinking water is within the standards set by both regulatory agencies. In 2018, we performed over 16,000 tests on water samples from various locations throughout the water supply 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 (MWD) 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 though 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 2018 the water department produced a total of 1.42 billion gallons of water with an average day demand of 3.87 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 MONOTORING: 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 2018 the MWD began participation within Phase IV of the EPA's Unregulated Contaminant Monitoring Rule (UCMR IV). 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. We are pleased to report that none of the unregulated contaminants tested for were detected in our water supply.

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 is currently under a reduced monitoring program for lead and copper testing due to performance. In 2018 thirty homes in Middletown were tested for lead and copper and once again the results showed that the Middletown Water Department was in compliance with federal and state standards.

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 completed 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 were 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.

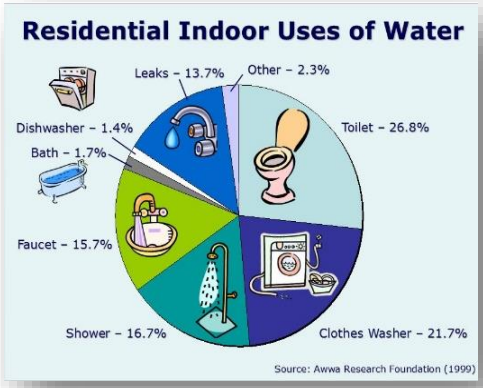
Information on sodium

Sodium is an essential nutrient in your diet. It helps maintain the correct balance of fluids in your body and transmit nerve impulses to you 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:

Turn off the faucet while brushing teeth, or shaving. Store a jug of ice water in the refrigerator for a cold drink. Run only full loads in dishwashers and washing machines. Rinse all hand-washed dishes at once.



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%.

Taking a shower uses much less water than filling up a bathtub. A shower only uses 10 to 25 gallons, while a bath takes up to 70 gallons! If you do take a bath, be sure to plug the drain right away and adjust the temperature as you fill the tub. To save even more water, keep your shower under five minutes long—try timing yourself with a clock next time you hop in!

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. 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.

When washing your car, wet it quickly, turn off the spray, wash it with soapy water from the bucket and rinse it quickly. Never use the hose to clean debris off your driveway or sidewalk use a broom or an air blower. Be sure that your hose has a shut-off nozzle. Hoses without a nozzle can waste up to 10 gallons per minute. 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)

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

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

Potential Sources of Regulated Contaminants Listed In This Report

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

Potential Sources of Unregulated Contaminants Listed In This Report

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

Charles B. Bacon Water Treatment Plant at Higby Reservoir

Water Ready For Consumption

Levels of regulated contaminants

SURFACE WATER REGION

Parameter	MCL	MCLG	Highest Level and Range Detected During 2018	Compliance
Turbidity	TT=0.3 NTU	0 NTU	**0.28 NTU (Range 0.05 - 0.28) .06 Average (e)**	Yes
Turbidity	TT= Percent of samples <0.3 NTU	N/A	**100% (e)**	Yes
Parameter	**MCL**	**MCLG**	**Minimum Removal Ratio During 2018**	**Compliance**
Total Organic Carbon	TT = 1 ratio min.	N/A	**1.2 Jan., Feb., Oct., Nov., Dec. 2018 (f)**	Yes
Parameter	**MRDL**	**MRDLG**	**Average Level and Range Detected During 2018**	**Compliance**
Chlorine	4 ppm	4 ppm	**1.46 ppm (Range 0.57 – 1.91)**	Yes
Fluoride	4 ppm	4 ppm	**0.70 ppm (Range 0.55 - 0.85)**	Yes
Parameter	**MCL**	MCLG	**Level Detected During 2018**	**Compliance**
Barium	2 ppm	2 ppm	**0.010 ppm**	Yes
Chloride	250 ppm	N/A	**27.30 ppm**	Yes
Nitrate (as Nitrogen)	10 ppm	10 ppm	**0.008 ppm**	Yes

Disinfection byproducts

Parameter	MCL	Level Detected During 2018	Compliance
Total Trihalomethanes (TTHM)	80 ppb	**20.6 ppb (a)**	Yes

Surface water region-unregulated components of disinfection byproducts

Parameter	MCL	Level Detected During 2018	Compliance
Bromodichloromethane	N/A	**4.2 ppb**	N/A
Chloroform	N/A	**15.8 ppb**	N/A
Dibromochloromethane	N/A	**0.6 ppb**	N/A

Surface water region-levels of unregulated contaminants

Parameter	MCL	Highest Level and/or Range Detected During 2018	Compliance
Sodium	Notification Level 28	**18.4 ppm (g)**	N/A
Sulfate	N/A	**5.0 ppm**	N/A

Distribution System (System Wide Service Area)

Levels of regulated contaminants for reservoir and aquifer service areas.

SYSTEM WIDE

Parameter	MCL	MCLG	Highest Level and Range Detected During 2018	Compliance
Total Coliform Bacteria	Presence of coliform bacteria not to exceed 5.00% of monthly samples	0%	**3.0 % (Range 1.64% -3.0%) October, December**	Yes
Turbidity	TT= 5.0 NTU	0 NTU	**2.15 NTU (Range 0.05- 2.15) 0.13 Average**	Yes
Parameter	**MCL**	**MCLG**	**Level at 90th Percentile 2018 (b)**	**Compliance**
Lead	AL=15 ppb (c)	0 ppb	**<1.0 ppb at 90th Percentile, Analyzed 2018 (d)**	Yes
Copper	AL=1.3 ppm (c)	1.3 ppm	**0.13 ppm at 90th Percentile, Analyzed 2018 (d)**	Yes
Parameter	**MCL**	**MCLG**	**Average Level and Range Detected During 2018**	**Compliance**
Total Trihalomethanes *(TTHM)*	80 ppb Average	N/A	**54.5 ppb (Range 27.8 – 88.8 (a))**	Yes
Total Haloacetic Acids *(THAA)*	60 ppb Average	N/A	**25.1 ppb (Range 16.3 – 30.9 (a))**	Yes

System wide unregulated components of disinfection byproducts.

Parameter	MCL	Highest Level and/or Range Detected During 2018	Compliance
Bromodichloromethane	N/A	**13.9 ppb (Range 6.4 – 13.9)**	N/A
Chloroform	N/A	**73.6 ppb (Range 20.0 – 73.6)**	N/A
Dibromochloromethane	N/A	**0.9 ppb (Range 0.9 – 2.9)**	N/A
Dibromoacetic Acid	N/A	**0.5 ppb (Range 0 – 0.5)**	N/A
Dichloroacetic Acid	N/A	**15.9 ppb (Range 2.7 – 15.9)**	N/A
Monochloroacetic Acid	N/A	**1.2 ppb (Range 0.6 – 1.2)**	N/A
Trichloroacetic Acid	N/A	**15.8 ppb (Range 11.3 – 15.8)**	N/A

John S. Roth Wellfield and Treatment Plant

Water Ready For Consumption

GROUND WATER REGION

Levels of regulated contaminants

Parameter	MCL	MCLG	Highest Level and Range Detected During 2018	Compliance
Turbidity	TT= 5 NTU	0	**0.17 NTU (Range 0.06 - 0.17), 0.08 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 2018**	**Compliance**
Chlorine	4 ppm	4 ppm	**1.46 ppm (Range 0.45 – 2.04)**	Yes
Fluoride	4 ppm	4 ppm	**0.69 ppm (Range 0.55 - 0.86)**	Yes

Ground water region-levels of regulated contaminants

Parameter	MCL	MCLG	Level Detected During 2018	Compliance
Barium	2 ppm	2 ppm	**0.023 ppm**	Yes
Chloride	250 ppm	N/A	**31.10 ppm**	Yes
Nitrate (as Nitrogen)	10 ppm	10 ppm	**0.374 ppm**	Yes
Copper	1.3 ppm	1.3 ppm	**0.01 ppm**	Yes

Disinfection byproducts

Parameter	MCL	Level Detected During 2018	Compliance
Total Trihalomethanes (TTHM)	80 ppb	**8.9 ppb (a)**	Yes

Ground water region-unregulated components of disinfection byproducts

Parameter	MCL	Level Detected During 2018	Compliance
Bromodichloromethane	N/A	**2.8 ppb**	N/A
Chloroform	N/A	**5.4 ppb**	N/A
Dibromochloromethane	N/A	**0.7 ppb**	N/A

Ground water region-levels of unregulated contaminants

Parameter	MCL	Highest Level Detected During 2018	Compliance
Sodium	Notification Level 28	**21.7 ppm (g)**	N/A
Sulfate	N/A	**8.0 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 gage 4
(h) Treatment that reliably achieves at least 99.99 percent (4-log) treatment of viruses using inactivation

Middletown Water Department Consumer Confidence Report 2018

This report provides you with a summary of the Middletown Water Department's public drinking water quality through calendar year 2018. 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.
Director
Water & Sewer Department