ANNUAL WATER QUALITY REPORT

Water Testing Performed in 2018

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.

Cé rapport contient des information importantes concernant votre eau potable. Veuillez traduire, ou parlez avec quelqu' un qui peut le comprendre.

此份有关你的食水报告,
内有重要资料和讯息,请找
他人为你翻译及解释清楚。

Presented By

Norwich Public Utilities

PWS ID#: CT1040011

Our Mission Continues

We are once again pleased to present our annual water quality report covering all testing performed between January 1 and December 31, 2018. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please remember that we are always available should you ever have any questions or concerns about your water.

Where Does My Water Come From?

NPU customers enjoy a very safe water supply from two active sources located in Colchester and Montville. We also have two backup water supplies in Norwich. Finally, we have a groundwater well and an interconnection with another major water supplier in southeastern Connecticut, both of which serve as reserve supply in the case of an emergency. Combined, our treatment facilities provide roughly 1.6 billion gallons of clean drinking water every year, or approximately 4.5 million gallons a day. Our storage tanks hold a combined 7.9 million gallons of treated water delivered to your home or business through a 190-mile network of water mains.

Our distribution system is carefully maintained and tested, using chlorine for disinfection, to ensure the water coming out of your faucet is at the same high quality as when it leaves the treatment plant. This includes the regular flushing of our system to remove sediment and keep the water clear.

Community Participation

The NPU Board of Commissioners generally meets the fourth Tuesday of every month at 6:00 p.m. These meetings are open to the public and, unless otherwise noted, take place at 16 South Golden Street, Norwich. For more information about these meetings, visit norwichpublicutilities.com.

Important Health Information

Sources of lead in drinking water include corrosion of household plumbing systems and erosion of natural deposits. 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 this water over many years could develop kidney problems or high blood pressure.

Sources of copper in drinking water include corrosion of household plumbing systems, erosion of natural deposits, and leaching from wood preservatives. 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 doctor.

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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

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, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances 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, or wildlife; Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or 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 processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems; Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

> "We remain vigilant in delivering the best-quality drinking water"

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Source Water Assessment

A water assessment of the two active reservoirs was completed by the Department of Public Health (DPH), Drinking Water Section, in 2003. The DPH assessment found that NPU's public drinking water sources have a low susceptibility to potential sources of contamination. The assessment report can be found on the Department of Public Health Drinking Water Section's website at http://www.dir.ct.gov/dph/Water/SWAP/Community/CT1040011.pdf.

Testing for *Cryptosporidium*

Cryptosporidium is a microbial parasite found in surface water throughout the U.S. Although filtration removes *Cryptosporidium*, the most commonly used filtration methods cannot guarantee 100-percent removal. Monitoring of source and finished water indicates the presence of these organisms. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immunocompromised people are at greater risk of developing life-threatening illness. We encourage immunocompromised individuals to consult their doctor 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.

There are no reported cases of waterborne disease due to *Cryptosporidium* or Giardia in NPU's water supplies.

Lead in Home Plumbing

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. We are responsible for providing high-quality drinking water, but we 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 at (800) 426-4791 or at www.epa.gov/safewater/lead.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call us at (860) 887-2555 or email us at communitymatters@npumail.com.

Caring for Our Water

We continually monitor our reservoirs and surrounding lands to prevent potential contamination of our water supplies. Testing is performed by the following certified laboratories:

- NPU Stony Brook Laboratory (PH-0196)
- NPU Deep River Laboratory (PH-0449)
- NPU Falls Avenue Laboratory (PH-0453)
- Complete Environmental Testing (PH-0116)
- Analytical Consulting Technology (PH-0518)
- Baron Consulting (PH-0440)
- Environmental Consulting Laboratory (PH-0535)
- Analytical Services Inc. (PH-0788)
- Environmental Health Laboratories (PH-0132
- State of Connecticut Laboratory (CL-117)

Source water is untreated water from streams, rivers, lakes, or underground aquifers that is used to supply public drinking water. Preventing drinking water contamination at the source is the safest and most practical approach from a public health, economic, and environmental perspective.

The public should take an active role in protecting public water sources by properly disposing of household chemicals, helping clean up watersheds that are the source of our community's water, and attending public meetings to ensure that our need for safe drinking water is considered in making decisions about land use. Contact us for more information on source water protection, or contact the U.S. Environmental Protection Agency (U.S. EPA) at (800) 426-4791. You may also find information on the U.S. EPA website at http://cfpub.epa.gov/safewater/sourcewater/index.cfm.

About Our Violations

The results of routine water quality samples from Sample Point ID 48 indicate a locational running annual average (LRAA) of 62.0 parts per billion (ppb) for haloacetic acids (HAA5) during the compliance period ending in March 2018. Several capital improvements completed in 2017 or underway in 2018 will allow NPU to make operational changes to stabilize water quality. The subject LRAA is based on the first quarter of 2018, averaged with the second, third, and fourth quarters of 2017. All subsequent quarters in 2018 were compliant with the standard. Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

The results of routine water quality samples from Sample Point ID 65 indicate LRAAs of 88.9, 86.4, and 84.2 ppb for total trihalomethanes (TTHM) during the first three quarters of 2018. Results of routine water quality samples from Sample Point 68 indicate LRAAs of 82.9, 82.5, and 83.22 ppb for TTHM during the same three quarters. Several capital improvements completed in 2017 and underway in 2018 will allow NPU to make operational changes to stabilize water quality and reduce water age, the chief contributors to the TTHM exceedances. Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system and may have an increased risk of getting cancer.

Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule, and the water we deliver must meet specific health standards. Here, we only show those substances that were detected in our water (a complete list of all our analytical results is available upon request). Remember that detecting a substance does not mean the water is unsafe to drink; our goal is to keep all detects below their respective maximum allowed levels.

The state recommends monitoring for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES

				Deep River Reservoir		Stony Brook Reservoir		Distribution System			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Alpha Emitters (pCi/L)	2017	15	0	ND	NA	ND	NA	NA	NA	No	Erosion of natural deposits
Chlorine (ppm)	2018	[4]	[4]	NA	NA	NA	NA	0.68	0.36–0.91	No	Water additive used to control microbes
Haloacetic Acids [HAA]–Sample Point ID 48 (ppb)	2018	60	NA	NA	NA	NA	NA	62.0	39.0–83.0	Yes	By-product of drinking water disinfection
Nitrate (ppm)	2018	10	10	0.14	ND–0.25	0.1	ND–0.21	NA	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Nitrite (ppm)	2018	1	1	ND	NA	ND	NA	NA	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes]–Sample Point ID 65 (ppb)	2018	80	NA	NA	NA	NA	NA	88.9	20.8–118.6	Yes	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes]–Sample Point ID 68 (ppb)	2018	80	NA	NA	NA	NA	NA	83.2	45.2–118.2	Yes	By-product of drinking water disinfection
Total Organic Carbon[1] (ppm)	2018	TT	NA	1.38	0.88–2.44	1.78	0.50–3.10	NA	NA	No	Naturally present in the environment
Turbidity[2] (NTU)	2018	TT	NA	0.35	0.05–0.35	0.87	0.06–0.87	NA	NA	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2018	TT = 95% of samples meet the limit	NA	99	NA	99	NA	NA	NA	No	Soil runoff

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2016	1.3	1.3	0.068	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2016	15	0	3.6	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits

SECONDARY SUBSTANCES

				Deep River Reservoir		Stony Brook Reservoir			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chloride (ppm)	2018	250	NA	24	19–30	22	14–29	No	Runoff/leaching from natural deposits
Color (Units)	2018	15	NA	1.25	ND–3	1.16	ND–3	No	Naturally occurring organic materials
Fluoride (ppm)	2018	2.0	NA	0.69	0.55–0.83	0.68	0.53–0.85	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Odor (Units)	2018	3	NA	ND	ND–1	ND	ND–1	No	Naturally occurring organic materials
pH (Units)	2018	6.5–8.5	NA	7.56	7.20–8.30	7.58	7.2–8.4	No	Naturally occurring

UNREGULATED SUBSTANCES

		Deep River Reservoir		Stony Brook Reservoir		
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Sodium (ppm)	2018	18	15–21	14	7–19	Stormwater runoff containing road salt; Erosion of natural deposits

[1] The value reported under Amount Detected for TOC is the lowest ratio of percentage of TOC actually removed to the percentage of TOC required to be removed. A value of greater than 1 indicates that the water system is in compliance with TOC removal requirements. A value of less than 1 indicates a violation of the TOC removal requirements.

[2] Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

Definitions

90th %ile: The levels reported for lead and copper represent the 90th percentile of the total number of sites tested. The 90th percentile is equal to or greater than 90% of our lead and copper detections.

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

LRAA (Locational Running Annual Average): The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters. Amount Detected values for TTHMs and HAAs are reported as the highest LRAAs.

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG (Maximum Contaminant Level Goal): 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.

MRDL (Maximum Residual Disinfectant Level): 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.

MRDLG (Maximum Residual Disinfectant Level Goal): 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 contaminants.

NA: Not applicable.

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

pCi/L (picocuries per liter): A measure of radioactivity.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

SMCL (Secondary Maximum Contaminant Level): These standards are developed to protect aesthetic qualities of drinking water and are not health based.

TON (Threshold Odor Number): A measure of odor in water.

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.