



Louisa County Water Authority / Town of Louisa

2017 Annual Drinking Water Quality Report for the Northeast Creek System

We are pleased to present to you this year's Annual Drinking Water Quality Report which is designed to inform you about the quality water services we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process, protect our water sources, and ensure the quality of your water. Our water source is a combination of surface water from the Northeast Creek Reservoir which is located on Route 33 – Jefferson Highway four miles east of the Town of Louisa and ground water from the Industrial Park Well; which is considered a standby source of water; located on Route 22 – Davis Highway two miles east of the Town of Louisa. The treatment process at the Northeast Creek Water Treatment Plant consists of conventional treatment (coagulation, flocculation, sedimentation and filtration). Beginning in August 2017, Advanced Treatment Process of Nanofiltration was added, and chlorine is added after treatment to disinfect the water prior to distribution. Fluoride is also added. There is no treatment process at the Industrial Park Well. The Town of Louisa purchases 100% of its water from Louisa County Water Authority.

A source water assessment for Louisa County Water Authority and the Town of Louisa waterworks was completed by the Virginia Department of Health on March 27, 2002. This assessment determined that the raw water sources (Northeast Creek Reservoir and Industrial Park Well) may be susceptible to contamination. All surface water sources are exposed to a wide array of contaminants at varying concentrations and changing hydrologic, hydraulic and atmospheric conditions that promote migration of contaminants from land use activities of concern within the assessment area. More specific information may be obtained by contacting the water system representative listed below.

This report shows our water quality and what it means. If you have any questions about this report, please contact Pam Baughman, General Manager. If you want to learn more about the water treatment process, please attend any of our regularly scheduled Board of Director meetings. They are held on the second Wednesday of every month at 6:00 p.m. at the Authority's business office located at 23 Loudin Lane, Louisa, Virginia 23093. If you require further information please call our office at 540-967-1122 during our regular office hours of 8:00 a.m. - 4:30 p.m. Monday – Friday. If you are a Town of Louisa customer and wish to know more about the Town system, contact Tom Filer, Town Manager, at 540-967-1400 during regular office hours of 8:30 a.m. – 5:00 p.m. Monday – Friday. Additional information can be obtained by attending a Louisa Town Council meeting, held on the third Tuesday of every month at 7:00 p.m. in the Town Office located at 212 Fredericksburg Avenue, Louisa, Virginia 23093.

Louisa County Water Authority and the Town of Louisa routinely monitor for constituents in your drinking water according to Federal and State laws. The following tables show the highest results of our monitoring for each constituent for the period of January 1 to December 31, 2017. Drinking water, including bottled drinking water, may 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. More information can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791). The sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity:

- microbial contaminants, such as viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife;
- inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm water 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 can also come from gas stations, urban stormwater runoff, and septic systems;
- radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

In this table you may find some terms and abbreviations with which you might not be familiar. To help you better understand these terms we've provided the following definitions:

Unit Descriptions	
Term	Definition
Parts per million (ppm)	or milligrams per liter (mg/L) – one part per million corresponds to one minute in two years or a single penny in \$10,000.
Parts per billion (ppb)	or micrograms per liter (µg/L) – one part per billion corresponds to one minute in 2,000 years or a single penny in \$10,000,000
Picocuries per liter (pCi/L)	a measure of radioactivity in water.
Nephelometric Turbidity Units (NTU)	a measure of clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
positive samples/month	The number of sampler taken monthly that were found to be positive.
Not Applicable (NA)	Not applicable
Not Detected (ND)	Not detected. Laboratory analysis indicates that the constituent is not present in detectable amounts.
Not Regulated (NR)	Monitoring not required, but recommended.
Important Drinking Water Definitions	
Term	Definition
Maximum Contaminant Level Goal (MCLG)	The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
Maximum Contaminant Level (MCL)	The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology
Treatment Technique (TT)	A required process intended to reduce the level of a contaminant in drinking water.
Action Level (AL)	The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
Variances & Exemptions (V&E)	State or EPA permission not to meet an MCL or a treatment technique under certain conditions.
Maximum Residual Disinfection Level Goal (MRDLG)	The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
Maximum Residual Disinfection Level (MRDL)	The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
Monitored Not Regulated (MNR)	Contaminants monitored in water systems that are not currently regulated.
Maximum Permissible Level (MPL)	State assigned maximum permissible level.
Level 1 Assessment	A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in a water system.
Level 2 Assessment	A Level 2 assessment is a very detailed study of the water system to identify problems and determine (if possible) why an <i>E.coli</i> MCL violation occurred and/or why total coliform bacteria have been found in a water system on multiple occasions.

We constantly monitor for various contaminants in the water supply to meet all regulatory requirements. The table lists only those contaminants that had some level of detection. Many other contaminants have been analyzed but were not present or were below the detection limits of the lab equipment.

Maximum Contaminant Levels (MCLs) are set at very stringent levels by the U.S. Environmental Protection Agency. In developing the standards EPA assumes that the average adult drinks 2 liters of water each day throughout a 70-year life span. EPA generally sets MCLs at levels that will result in no adverse effects for some contaminants or a one-in-ten thousand to one in a million chance of having the described health effect for other contaminants.

The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of the data presented in the tables, although accurate, is more than one year old.

LOUISA COUNTY WATER AUTHORITY & TOWN OF LOUISA:

ENTRY POINT DATA: Northeast Creek Water Treatment Plant Test Results

Contaminant	MCLG	MCL	Level Found	Range	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Inorganic Contaminant								
Fluoride	4	4	0.64	no detect – .64	ppm	No	2015 / 2017	Erosion of natural deposits; water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate / Nitrite	10	10	0.58	no detect – 0.44	ppm	No	2017	Run off from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.

Radiological Contaminant								
Alpha Emitters	0	15	0.6	No detect – 0.6	pCi/L	No	2017	Erosion of natural deposits.
Beta Emitters*	0	50	2.0	1.7 – 2.0	pCi/L	No	2017	Decay of natural deposits.
Treatment Technique								
Turbidity	N/A	TT	*100% in compliance	*100% in compliance	*100% in compliance	No	2017	Soil runoff. *100% of samples below ≤ 0.3 NTU. **Single maximum post filter NTU = 0..28

*The MCL for Beta Emitters is 4 mrem/year (millirems per year). EPA considers 50 pCi/L to be the level of concern for Beta Emitters.

LOUISA COUNTY WATER AUTHORITY DISTRIBUTION SYSTEM TEST RESULTS:

Contaminant	MCLG	MCL	Level Found	Range	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Total HAA5	0	60	99*	1.3 - 93	ppb	Yes**	2017	Byproduct of drinking water chlorination. *Highest Running Annual Compliance in 2017
Animal Med.	0	60	99*	1.3 - 62	ppb	Yes**	2017	Byproduct of drinking water chlorination.
Mineral Rest.	0	60	59	4.3 - 93	ppb	No	2017	Byproduct of drinking water chlorination.

Notices of violation for exceeding the HAA5 MCL were received in 1st, 2nd and 3rd quarters of 2017.

**Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer. Compliance result is based on highest 4 quarters running annual average which factors in samples from 2016 with higher concentrations than all individual samples from 2017. Compliance was regained in the 4th quarter of 2017, due to bringing the Nanofiltration Advanced Treatment Process online in August 2017.

Contaminant	MCLG	MCL	Level Found	Range	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Total Trihalomethanes	0	80	52	6 - 52	ppb	No	2017	Byproduct of drinking water chlorination. *Highest Running Annual Compliance in 2017

Louisa County Water Authority is no longer under a Consent Order. The Northeast Creek Water System has been in compliance since the 4th quarter of 2017 with the Stage 2 Disinfection Byproducts Rule.

Disinfectant	MRDLG	MRDL	Level Found	Range	Unit Measurement	Violation	Date of Sample	Typical Source
Chlorine	4	4.0	1.27	0.18 – 2.15	mg/L	No	2017	Water additive used to control microbes

Lead and Copper Table:

Contaminant	MCLG	Action Level	Level Found	Unit Measurement	AL Exceeded	Samples > AL	Date of Sample	Typical Source of Contamination
Lead	0	15	< 5	ppb	No	0	2017	Corrosion of household plumbing systems; erosion of natural deposits.
Copper	1.3	1.3	0.09	ppm	No	0	2017	Corrosion of household plumbing systems; erosion of natural deposits.

Normal / Reduced Number of Sample Taps: Louisa County Water Authority: 40/20

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. Louisa County Water Authority 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 two 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 or at <http://www.epa.gov/safewater/lead>.

TOWN OF LOUISA DISTRIBUTION SYSTEM TEST RESULTS:

Contaminant	MCLG	MCL	Level Found	Range	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Total HAA5	0	60	83	2 - 112	ppb	Yes**	2017	Byproduct of drinking water chlorination. *Highest Running Annual Compliance in 2017
Town Park Site	0	60	83*	2 - 73	ppb	Yes**	2017	Byproduct of drinking water chlorination.
Dept. of Forestry	0	60	76	3 - 112	ppb	Yes**	2017	Byproduct of drinking water chlorination.

Notices of violation for exceeding the HAA5 MCL were received in all 4 quarters of 2017.

**Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer. Compliance result is based on highest 4 quarters running annual average which factors in samples from 2016 with higher concentrations than all individual samples from 2017. Compliance was regained in the 1st quarter of 2018 and the Consent Order terminated, due to bringing the Nanofiltration Advanced Treatment Process online in August 2017.

Contaminant	MCLG	MCL	Level Found	Range	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
Total Trihalomethanes	0	80	91*	16 - 163	ppb	Yes**	2017	Byproduct of drinking water chlorination. *Highest Running Annual Compliance in 2017
Town Park Site	0	80	83	16 - 87	ppb	Yes**	2017	Byproduct of drinking water chlorination
Dept. of Forestry	0	80	91	16 - 163	ppb	Yes**	2017	Byproduct of drinking water chlorination

Notice of violation for exceeding the TTHM MCL were received in the 2nd and 3rd quarters of 2017.

**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. Compliance was regained in the 1st quarter of 2018 and the Consent Order terminated, due to bringing the Nanofiltration Advanced Treatment Process online in August 2017.

The Town of Louisa is no longer under a Consent Order. The Town regained compliance in the 1st quarter of 2018.

Disinfectant	MRDLG	MRDL	Level Found	Range	Unit Measurement	Violation	Date of Sample	Typical Source
Chlorine	4	4.0	0.74	0.02-1.95	mg/L	No	2017	Water additive used to control microbes.

Lead and Copper Table:

Contaminant	MCLG	Action Level	Level Found	Unit Measurement	AL Exceeded	Samples > AL	Date of Sample	Typical Source of Contamination
Lead	0	15	< 5	ppb	No	0	2017	Corrosion of household plumbing systems; erosion of natural deposits.
Copper	1.3	1.3	< 0.05	ppm	No	0	2017	Corrosion of household plumbing systems; erosion of natural deposits.

Normal / Reduced Number of Sample Taps: Town of Louisa: 20 / 10

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. Louisa County Water Authority 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 two 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 or at <http://www.epa.gov/safewater/lead>.

Louisa County Water Authority and Town of Louisa Microbiological Water Quality Table: Distribution System

Contaminant	MCLG	MCL	Level Found	Unit Measurement	Violation	Date of Sample	Typical Source of Contamination
<i>E.coli</i> bacteria	0	A routine sample and repeat sample are total coliform positive and one is also <i>E.coli</i> positive.	0	Presence or Absence (PA)	No	2017, monthly	Human and animal fecal waste.

There were no positive coliform or *E.coli* tests, excessive MCL results, improper treatment techniques, or monitoring and reporting violations during 2017.

Thank you for allowing us to continue providing your family with clean, quality water this year. In order to maintain a safe and dependable water supply we sometimes need to make improvements that will benefit all of our customers. These improvements are sometimes reflected as rate structure adjustments. Thank you for understanding.

Some people may be more vulnerable to contaminants 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 about drinking water from their health care providers. Environmental Protection Agency/Center for Disease Control guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

The Louisa County Water Authority and the Town of Louisa work to provide top quality water to every tap around the clock. We ask that all our customers help us protect our water sources, which are the heart of our community, our way of life and our children's future.

Este informe contiene informacion muy importante sobre la calidad de su agua potable. Por favor lea este informe o comuniquese con alguien que pueda traducir la informacion.