

Langley Air Force Base Annual Water Quality Report For Calendar Year 2018

ABOUT THIS REPORT

Langley AFB's goal is to provide you with a safe and dependable supply of drinking water. This is our annual Consumer Confidence Report on the drinking water delivered to Langley AFB (main base and heavier than air (HTA)/lighter than air (LTA) housing areas only). This report is required by the Safe Drinking Water Act (SDWA) and provides information such as to where your water comes from and information on *potential* contaminants. It is reviewed and approved by the Virginia Department of Health (VDH), Office of Drinking Water in Norfolk. The quality of your drinking water must meet state and federal requirements administered by the VDH. The information contained in this report validates all requirements were met and the water is safe for consumption.

This report is written, prepared and distributed by 633d Aerospace Medicine Squadron, Bioenvironmental Engineering (BE) as required by the Safe Drinking Water Act. If you have questions about this report, please contact SrA Rice, or TSgt Rogers at the 633d Aerospace Medicine Squadron, Bioenvironmental Engineering (757)764-7069.

NEWPORT NEWS WATERWORKS (NNWW)

Newport News Waterworks serves as a regional water provider for five jurisdictions: Hampton, Newport News, Poquoson, York County and part of James City County. NNWW is committed to providing a reliable supply of high quality drinking water to our customers. Our drinking water is treated and tested using state-of-the-art equipment and advanced procedures, and it meets or exceeds state and federal standards. The bottom line: The quality of your water is excellent.

WATER SOURCE

The sole public water system for supplying drinking water to Langley AFB is NNWW. Surface water provides the *primary source* of drinking water. It begins with the Chickahominy River. Water is pumped from the river above Walker's Dam and is transferred through pipes to one of five reservoirs owned and operated by NNWW.

These reservoirs store and supply water to the treatment plants. Groundwater provides a *secondary source* of water. Brackish (slightly salty) groundwater is pumped from deep wells in the Lee Hall area. The two source waters are treated separately then blended together at Lee Hall water treatment plant (WTP) before distribution to the service area. Langley AFB receives very little ground water as most of the water comes from Harwood's Mill WTP.

HOW THE WATER IS TREATED

Water is treated at NNWW treatment plants where it passes through screens to remove large debris. Then aluminum sulfate (alum) and polymer are added during clarification process for flocculation and coagulation needed to remove natural organics. After the water is clarified, ozone (disinfection) is added to kill microorganisms such as bacteria and viruses. The water is then sent through filters to remove any remaining particles (filtration). Lime is added to adjust the pH, fluoride is added to prevent tooth decay, and zinc orthophosphate is added to control corrosion inside the pipe system. Finally, chloramines are added (secondary disinfection) to maintain disinfection as it travels through the pipe system to your home or office.

The brackish groundwater is pumped to NNWW's desalination plant located in Lee Hall. Using a process called reverse osmosis, water is forced by high pressure through membranes that can remove the salt and other contaminants to produce very high quality water.

The water is blended with treated surface water and sent out to its customers. In order to ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations which

limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) prescribe regulations establishing limits for contaminants in bottled water, and must provide the same level of protection for the consumers as available tap water.

Drinking water, including bottled water, may reasonably be 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 (1-800-426-4791).

NNWW updated its Source Water Assessment in 2018. Information on the NNWW source water assessment is obtainable from the Hampton Roads Planning District Commission, (757) 420-8300, or NNWW Customer Service at (757) 926-1000.

HOW WE TEST YOUR WATER: NNWW

To ensure that tap water is safe to drink, EPA regulations limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish the limits for contaminants in bottled water, which must provide the same protection for public health. The water quality information listed here is based upon tests conducted in 2018 by NNWW. Samples of treated water were taken at regular intervals from specific locations (the treatment plants, residences, and businesses) across the Waterworks service area.

Tables with the results of testing for Regulated and Unregulated substances conducted by NNWW can be found on page 3. The tables contain the name of each substance, the highest level allowed by regulation (MCL), the ideal goals for public health (MCLG), the amount detected, the usual sources of such contamination, and whether or not Waterworks meets state and federal standards. For help understanding the tables, please see the key terms on the next page and the footnotes at the bottom of the tables. An expanded version of the tables in this report (listing additional test results) can be found on the Waterworks website at www.nnva.gov/waterqualityreport.

HOW WE TEST YOUR WATER ON LANGLEY AFB:

BE collects treated water samples in accordance with EPA SDWA and VDH, Office of Drinking Water. Samples of treated water were collected at regular intervals from specific locations (i.e. water system entry points, pump stations) that have been established by VDH, Office of Drinking Water.

Tables with the results of testing for Regulated substances conducted by BE for Langley AFB can be found on page 4. The tables contain the name of each substance, the highest level allowed by regulation (MCL), the ideal goals for public health (MCLG), the amount detected, the usual sources of such contamination, and whether or not Langley AFB Water System met state and federal standards. For help understanding the tables, please see the key terms on the next page and the footnotes at the bottom of the table.

Your drinking water is continually monitored for contaminants.

Langley AFB water is SAFE to drink.

INFORMATION

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 activity. *Contaminants that may be present in source water include:*

★ **MICROBIAL CONTAMINANTS**, such as viruses and bacteria, 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 storm water runoff, and residential uses.

★ **ORGANIC CHEMICAL CONTAMINANTS**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production. They can also come from gas stations, urban storm water runoff, and septic systems.

★ **RADIOACTIVE CONTAMINANTS**, which can be naturally occurring or be the result of oil and gas production and mining activities.

IMPORTANT INFORMATION FOR PEOPLE WITH HEALTH CONCERNS

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons 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 drinking water contaminants.

These people should seek advice about drinking water from their health care providers. EPA and Center for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

Chloramines, a combination of chlorine and ammonia, are now used as a secondary disinfectant. **Reminder** - kidney dialysis centers are advised of the dangers of the chloramine treatment. Also, tropical fish owners need to de-chlorinate the water before use in fish habitats or tanks.

LEAD

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily comes from materials and components associated with service lines and home plumbing. NNWW 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.

Waterworks recommends that you prepare baby formula with cold water. If you are concerned about elevated lead levels in your home's water, you may have your water tested. Additional information to include steps you can take to minimize exposure to lead is available from the EPA's Safe Drinking Water Hotline at (1-800-426-4791) or visit them on the web at <http://www.epa.gov/safewater/lead>.

Because Waterworks is a department of the City of Newport News, major decisions about your drinking water are made by Newport News City Council. They meet on the second and fourth Tuesdays of each month at 7:00pm, and you are welcome to attend and participate. These meetings are broadcast live on Newport News City Channel (in Newport News - Cox channel 48 and Verizon FIOS channel 19) and can be viewed live or on-demand by all customers in our service area on the web at www.nnva.gov.

KEY TERMS

ACTION LEVEL (AL) - The concentration of a contaminant that, if exceeded, triggers treatment or other requirements, which a water system must follow.

MAXIMUM CONTAMINANT LEVEL (MCL) - 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.

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. It does not reflect the benefits of adding the chemical for control of water borne microbial contaminants

MICROGRAM PER LITER (ug/L) - Concentrations of chemicals in water (units of the mass of chemical) per volume of water (liter = L)

MINIMUM REPORTING LEVEL (MRL) - Estimate of lowest concentration of a compound that laboratories would report as a detection.

MAXIMUM RESIDUAL DISINFECTANT 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.

MAXIMUM RESIDUAL DISINFECTANT LEVEL GOAL (MRDLG) - A non-enforceable health goal. It does not reflect the benefits of adding chemical for the control of water borne microbial contaminants.

NEPHELOMETRIC TURBIDITY UNIT (NTU) - A measurement unit of the clarity of water, based on the amount of light that is reflected off particles suspended in the water.

NON-DETECTS (ND) - Lab analysis indicates that the contaminant is not present.

PARTS PER MILLION (PPM) - Parts per million relates to one drop in one billion drops of water or about one cup of water in a swimming pool.

PARTS PER BILLION (PPB) - Parts per billion relates to one drop in one billion drops of water or about one drop of water in a swimming pool.

PICOCURIES PER LITER (PCI/L) - Picocuries per liter is a measure of the radioactivity in water.

TREATMENT TECHNIQUE (TT) - A required process intended to reduce the level of a contaminant in drinking water.

NEWPORT NEWS WATERWORKS

(Lab analyses were conducted by Newport News Public Utilities, State-certified lab, on over 2,000 samples each month to ensure water quality.)

WATER QUALITY TESTING RESULTS REGULATED HEALTH RISK CONTAMINANTS -

<u>Contaminant</u>	<u>MCLG</u>	<u>MCL</u>	<u>Units</u>	<u>Highest Level Found</u>	<u>Range</u>	<u>Meets State & Federal Standards</u>	<u>Sample Date</u>	<u>Likely Source</u>
INORGANICS								
Fluoride	4	4	ppm	1.02	0.66-1.02	Yes	2018	Fluoride is added to promote strong teeth.
Barium	2	2	ppm	0.023	0.021-0.023	Yes	2018	Erosion of natural deposits.
Nitrate	10	10	ppm	0.105	0.057-0.105	Yes	2018	Erosion of natural deposits.
Nitrite	1	1	ppm	0.002	<0.001-0.002	Yes	2018	Erosion of natural deposits.
DISINFECTION BY-PRODUCTS AND PRECURSORS								
Total Organic Carbon (TOC) Removal	None	TT	N/A	1.02 (Note 1)	0.98-1.71 (Note 1)	Yes	2017-2018	Naturally present in the environment.
MICROBIOLOGICAL & RADIOLOGICAL								
Turbidity	None	TT	NTU	0.32 (Note 2)	0.02-0.32	Yes	2018	Soil runoff.
Radium-228	0	5	pCi/L	0.6	<0.6-0.6	Yes	2016	Erosion of natural deposits.
Beta/Photon Emitters	0	50	pCi/L	2.5	1.4-2.5	Yes	2016	Decay of natural & man-made deposits.
Footnotes: The concentrations of all contaminants, except for TOC, in the table are the highest levels found in your drinking water. (1) Compliance with TOC MCL is based on the running annual average (RAA) computed quarterly. A RAA equal to or greater than 1.0 meets water quality standards. The "Highest Level Found" TOC concentration in the table is actually the lowest RAA found in samples collected between 4/1/2017 and 12/31/2018. The range is the individual monthly ratios from both water treatment plants in 2018. TOC has no adverse health effects, but can be a critical component in the formation of disinfection by-products. (2) Turbidity is a measure of water cloudiness. It is a good indicator of the effectiveness of our filtration system. 100% of samples were within the turbidity limit.								MCLs are set at very stringent levels. To experience the possible health effects described for many regulated contaminants, a person would have to drink two liters of water at the MCL level every day for a lifetime to have a one-in-a-million chance of having a possible health effect.

2018 WATER QUALITY TESTING RESULTS NON-REGULATED MICROBIALS MONITORED AT THE SOURCE

<u>Contaminant</u>	<u>MCLG</u>	<u>MCL</u>	<u>Units</u>	<u>Highest Level Found</u>	<u>Range</u>	<u>Meets State & Federal Standards</u>	<u>Sample Date</u>	<u>Likely Source</u>
Cryptosporidium	n/a	TT	Oocysts /L	0.041	ND-0.041	Yes	2018	Human or animal fecal waste.
<p>*In the raw water—not in the treated water.</p> <p>Cryptosporidium is a parasitic microbe found in surface waters throughout the U.S. Our monitoring indicates the presence of these organisms at very low levels in our source water but not in our treated water. Current test methods approved by the EPA do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of cryptosporidium may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people, infants and small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline at 800-426-4791.</p>								

NEWPORT NEWS WATER WORKS

(Lab analyses were conducted by Newport News Public Utilities, State-certified lab, on over 2,000 samples each month to ensure water quality.)

2014 WATER QUALITY TESTING RESULTS UNREGULATED SUBSTANCES

UNREGULATED CONTAMINANT MONITORING REGULATION

(UCMR3)

PERFLUORINATED COMPOUNDS (PFOS & PFOA)

<u>Contaminant</u>	<u>Health Advisory Level</u>	<u>MRL</u>	<u>Units</u>	<u>Highest Level Found</u>	<u>Range</u>	<u>Sample Date</u>	<u>Likely Source</u>
Perfluoro octanesulfonic acid - PFOS	0.070 (see footnotes)	0.06	ug/L	<0.061	<0.061	2014	PFOA and PFOS are fluorinated organic chemicals that are part of a larger group of chemicals referred to as perfluoroalkyl substances (PFASs). They have been used to make carpets, clothing, fabrics for furniture, paper packaging for food and other materials that are resistant to water, grease or stains. They are also used for firefighting at airfields and in a number of industrial processes.
Perfluorooctanoic acid - PFOA							

Footnotes: In May 2016, the EPA established Drinking Water Health Advisories for PFOS and PFOA and a combined health advisory level of 70 parts per trillion (0.07 µg/L). The 2014 sampling results for PFOS and PFOA were below the laboratory's MRL; the combined result (<0.061 µg/L) was below the health advisory level. What is a health advisory? Health advisories provide information on contaminants that can cause human health effects and are known or anticipated to occur in drinking water. EPA's health advisories are non-enforceable and non-regulatory and provide technical information to states agencies and other public health officials on health effects, analytical methodologies, and treatment technologies associated with drinking water contamination. EPA's health advisory level for PFOA and PFOS offers a margin of protection for all Americans throughout their life from adverse health effects resulting from exposure to PFOA and PFOS in drinking water.



NEWPORT NEWS WATER WORKS

(Lab analyses were conducted by Newport News Public Utilities, State-certified lab, on over 2,000 samples each month to ensure water quality.)

2018 WATER QUALITY TESTING RESULTS UNREGULATED SUBSTANCES

UNREGULATED CONTAMINANT MONITORING REGULATION – 4 (UCMR4)

This monitoring provides a basis for future regulatory actions to protect public health.

<u>Contaminant</u>	<u>MRL</u>	<u>Units</u>	<u>Highest Level Found</u>	<u>Range of Test Results (Low-High)</u>	<u>Sample Date</u>	<u>Likely Source</u>
UCMR4 – TRACE METALS						
Geranium	0.3	µg/L	<0.3	<0.3	2018	Naturally-occurring element; commercially available in combination with other elements and minerals; used in steel production, fertilizer, batteries and fi reworks; drinking water and wastewater treatment chemical; essential nutrient.
Manganese	0.4	µg/L	9	4.5 – 8.8		
UCMR4 – PESTICIDES AND PESTICIDE MANUFACTURING BYPRODUCT						
alpha-Hexachlorocyclohexane	0.01	µg/L	<0.01	<0.01	2018	Component of benzene hexachloride (BHC); formerly used as an insecticide.
Chlorpyrifos	0.03	µg/L	<0.03	<0.03		Organophosphate; used as an insecticide, acaricide and miticide.
Dimethipin	0.20	µg/L	<0.02	<0.02		Used as an herbicide and plant growth regulator.
Ethoprop	0.03	µg/L	<0.03	<0.03		Used as an insecticide
Oxyfluorfen	0.05	µg/L	<0.05	<0.05		Used as an herbicide
Profenofos	0.3	µg/L	<0.3	<0.3		Used as an insecticide and acaricide
Tebicomazole	0.2	µg/L	<0.2	<0.2		Used as a fungicide
Permethrin, cis & Tran	0.04	µg/L	<0.04	<0.04		Used as an insecticide
Tribufos	0.07	µg/L	<0.07	<0.07		Used as an insecticide and cotton defoliant
UCMR4 – SEMI-VOLATILE ORGANIC COMPOUNDS						
Buylated hydroxyanisole	0.03	µg/L	<0.03	<0.03	2018	Used as a food additive (antioxidant)
o-Toluidine	0.007	µg/L	<0.007	<0.007		Used in the production of dyes, rubber, pharmaceuticals and pesticides
Quinoline	0.02	µg/L	0.026	<0.02 – 0.026		Used as a pharmaceutical (anti-malarial) and flavoring agent; produced as a chemical intermediate; component of coal
UCMR4 – ORGANIC ALCOHOLS						
1-Butanol	2	µg/L	<2.0	<2.0	2018	Used as a solvent, food additive and in production of other chemicals
2-Methoxyethanol	0.4	µg/L	<0.4	<0.4		Used in a number of consumer products, such as synthetic cosmetics, perfumes, fragrances, hair preparations and skin lotions
2-Propen-1-ol	0.5	µg/L	<0.5	<0.5		Used in the production flavorings, perfumes and other chemicals

NEWPORT NEWS WATER WORKS

(Lab analyses were conducted by Newport News Public Utilities, State-certified lab, on over 2,000 samples each month to ensure water quality.)

2018 WATER QUALITY TESTING RESULTS UNREGULATED SUBSTANCES

UNREGULATED CONTAMINANT MONITORING REGULATION – 4 (UCMR4) - CONTINUED

This monitoring provides a basis for future regulatory actions to protect public health.

<u>Contaminant</u>	<u>MRL</u>	<u>Units</u>	<u>Highest Level Found</u>	<u>Range of Test Results (Low-High)</u>	<u>Sample Date</u>	<u>Likely Source</u>
UCMR4 – MICROCYSTIN CONGENERS AND NODULARIN						
Microcystin-LA	0.008	µg/L	<0.008	<0.008	2018	Freshwater cyanobacterial blooms may be composed of a single-species or variety of toxic and non-toxic strains. Cyanotoxins are produced and contained within the actively growing cyanobacterial cells, and can be released into the surrounding water.
Microcystin-LF	0.006	µg/L	<0.006	<0.006		
Microcystin-LR	0.02	µg/L	<0.02	<0.02		
Microcystin-LY	0.009	µg/L	<0.009	<0.009		
Microcystin-RR	0.006	µg/L	<0.006	<0.006		
Microcystin-YR	0.02	µg/L	<0.02	<0.02		
Nodularin	0.005	µg/L	<0.005	<0.005		
UCMR4 – CYLINDROSPERMOPHSIN AND ANATOXIN						
Anatoxin-a	0.03	µg/L	<0.003	<0.03	2018	Freshwater cyanobacterial blooms may be composed of a single-species or variety of toxic and non-toxic strains. Cyanotoxins are produced and contained within the actively growing cyanobacterial cells, and can be released into the surrounding water.
Cylindrospermopsin	0.09	µg/L	<0.009	<0.09		
UCMR4 – TOTAL MICROCYSTIN						
Total Microcystins	0.3	µg/L	<0.3	<0.3	2018	Freshwater cyanobacterial blooms may be composed of a single-species or variety of toxic and non-toxic strains. Cyanotoxins are produced and contained within the actively growing cyanobacterial cells, and can be released into the surrounding water.
UCMR4 – HALOACETIC ACIDS						
Monochloroacetic Acid (MCAA)	2	µg/L	<2.0	<2.0	2018	By-product of drinking water disinfection. Haloacetic acids (HAA5, HAA6Br, HAA9) are a group of disinfectant byproducts that are formed when disinfectants, such as chlorine or chloramine, are used to treat water and react with naturally occurring organic and inorganic matter present in source waters.
Monobromoacetic Acid (MBAA)	0.3	µg/L	<0.3	<0.3		
Dichloroacetic Acid (DCAA)	0.2	µg/L	27.1	5.0 – 27.1		
Trichloroacetic Acid (TCAA)	0.5	µg/L	6.3	1.4 – 6.3		
Dibromoacetic Acid (DBAA)	0.3	µg/L	0.4	<0.3 – 0.4		
Bromochloroacetic Acid (BCAA)	0.3	µg/L	3.1	0.4 – 3.1		
Bromodichloroacetic Acid (BDCAA)	0.5	µg/L	1.1	<0.5 – 1.1		
Chlorodibromoacetic Acid (CDBAA)	0.3	µg/L	0.3	<0.3 – 0.3		
Tribromoacetic Acid (TBAA)	2	µg/L	<2.0	<2.0		

LANGLEY AFB DISTRIBUTION SYSTEM

(Lab analyses were conducted by James R. Reed & Associates, State-certified lab, on 167 samples for 2018 calendar year to ensure water quality.)

2018 WATER QUALITY TESTING RESULTS REGULATED HEALTH RISK CONTAMINANTS -								
<u>Contaminant</u>	<u>MCLG</u>	<u>MCL</u>	<u>Units</u>	<u>Highest Level Found</u>	<u>Range</u>	<u>Meets State & Federal Standards</u>	<u>Sample Date</u>	<u>Likely Source</u>
INORGANICS								
Lead	0	AL = 15	ppb	2 (Note 1)	<1 - 10	Yes	Sep 2018	Corrosion of household plumbing systems; erosion of natural deposits
Copper	0	AL = 1.3	ppm	0.536 (Note 1)	0.01 – 1.120	Yes	Sep 2018	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservative
REGULATED DISINFECTANTS								
Chloramines (Total chlorine)	MRDLG= 4	MRDL= 4	ppm	1.62 (Note 3)	0.01 – 5.7 (Note 3)	Yes	2017-2018	Water additive used to control microbes
DISINFECTION BY-PRODUCTS								
TTHM	N/A	80	ppb	19 (Note 2)	6.3 – 29	Yes	2017-2018	By-product of drinking water chlorination
HAA5	N/A	60	ppb	21 (Note 2)	0 – 32	Yes	2017-2018	By-product of drinking water disinfection
MICROBIOLOGICAL								
<u>Contaminant</u>	<u>MCLG</u>	<u>MCL</u>		<u>Potential Bacteria Presence (Y/N)</u>	<u>Meets State & Federal Standards</u>	<u>Month of Sampling</u>	<u>Likely Source</u>	
Total Coliform Bacteria	N/A	TT		Yes; one routine sample was positive	Yes; all repeat samples were negative	Nov 2018	Naturally present in the environment	
Footnotes:								MCLs are set at very stringent levels. To experience the possible health effects described for many regulated contaminants, a person would have to drink two liters of water at the MCL level every day for a lifetime to have a one-in-a-million chance of having a possible health effect.
(1) None of the individual lead-and-copper sample results exceeded the established Action Levels. At least 90% of the sample results were at or below the Highest Level Found. Since the 90 th percentiles of the lead-and-copper concentrations have been consistently below the established Action Levels, your waterworks remains in the Triennial Reduced Monitoring for the contaminants.								
(2) The highest level of TTHM or HAA5 is the highest of the four locational running annual averages over the period of 4/1/2017-12/31/2018. The range of TTHM or HAA5 is the lowest and the highest concentrations in the individual samples collected from four sample sites, in 2018.								
(3) The highest level of chloramines is the highest of the four running annual averages of chloramines from 4/1/2017 through 12/31/2018. The range of chloramines is the lowest and the highest of the individual chloramines measured in 2018.								

**2018 WATER QUALITY TESTING RESULTS
UNREGULATED SUBSTANCES**

UNREGULATED CONTAMINANT MONITORING REGULATION – 4 (UCMR4)

This monitoring provides a basis for future regulatory actions to protect public health.

Footnotes: Unregulated contaminants are those that don't yet have a drinking water standard set by the U.S Environmental Protection Agency (EPA). The purpose of monitoring for these contaminants is to help the EPA decide whether the contaminants should have a standard. Langley AFB will initiate sampling for UCMR4 beginning in May 2019. Results for UCMR4 samples will be updated on the 2019 Drinking Water Quality Report.



VIOLATIONS

Langley Air Force Base waterworks **did not** receive any violations during the calendar year 2017.

ADDITIONAL INFORMATION OF INTEREST

HARDNESS

No EPA standard is set. Water treated by NNWW is considered moderately hard (the range of 4 grains - 6 grains is equal to 70 mg/L -120 mg/L as calcium carbonate or CaCO₃). In 2018 the average was 81 mg/L with a range of 62 mg/L -114 mg/L.

PHARMACEUTICALS

Medication, cosmetics, lotions, sunscreen, and other substances are referred to as “pharmaceuticals and personal care products” or PPCPs. PPCPs in water are an area of growing scientific interest because they are present in very small concentrations, but little is known about their effects on human health. NNWW tested the Chickahominy River, the terminal reservoirs (Harwood’s Mill and Lee Hall) and finished (or treated) water from both plants. Trace amounts of caffeine and triphenyl phosphate (a flame retardant) were found in the raw (or untreated) water. However, these substances were not found in the finished or treated water, confirming that the NNWW water treatment process is providing adequate protection and producing high-quality water.

FLUORIDE

Fluoride is added to water to prevent tooth decay. NNWW adheres to drinking water regulations set by the EPA and guidance provided by the Virginia Department of Health (VDH). The range for prevention of dental cavities is 0.7 mg/L to 1.2 mg/L. Waterworks’ average fluoride level is below the Primary Maximum Contamination Level (PMCL) of 4 mg/L. The U.S. Department of Health and Human Services have recently made recommendations to lower the fluoride levels in drinking water. This is being reviewed both nationally and locally. If the VDH alters their fluoride guidance to Virginia water utilities, NNWW will comply.

NNWW CONSUMER CONFIDENCE REPORT

The expanded versions of both reports featuring additional test results, are available online at www.nnva.gov/waterqualityreport.

A paper copy of this report is available at all local libraries in the Waterworks service area, in our walk-in services lobby, and in City Halls and County offices in our service area. If you would like to receive a copy of this report in the mail, please call Waterworks at 757-926-1000.

Questions can be directed to:

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