



THE UNDER SECRETARY OF DEFENSE

3010 DEFENSE PENTAGON
WASHINGTON, DC 20301-3010

ACQUISITION,
TECHNOLOGY
AND LOGISTICS

MAY 30 2013

The Honorable Mark R. Warner
United States Senate
Washington, DC 20510

Dear Senator Warner:

Thank you for your April 4, 2013, letter to the Secretary of Defense regarding the Department's compliance with Safe Drinking Water Act (SDWA) requirements for over 900 child care and youth centers and 39 hospitals. I am responding on the Secretary's behalf.

First and foremost, let me assure you that we, like you, are strongly committed to providing safe drinking water to the 3.4 million men, women, and children who visit, live, and work at our installations. Department of Defense (DoD) policy requires full and sustained compliance with all applicable environmental laws and associated implementing regulations, including the SDWA; DoD Directive 4715.1E, "Environment, Safety, and Occupational Health;" and DoD Instruction 4715.6, "Environmental Compliance." Each Military Department has supplemental policies and programs to address drinking water at installations.

As required by the SDWA, each installation controlling a public water system that provides drinking water regularly tests for contaminants, including lead. Under the SDWA, a public water system is a system for providing piped water to the public for human consumption, if such system has at least 15 service connections or regularly services at least 25 individuals. At minimum, we monitor public water systems for contaminants at the distribution point and specifically for lead at the tap in select locations. Accredited laboratories then analyze the samples using Environmental Protection Agency (EPA)-approved methods. Further, DoD installations with public water systems publish annual reports to their customers on installation water quality and performance in meeting SDWA standards (see Enclosures).

To ensure compliance with the SDWA, each Military Department must annually report to my staff:

- The total population served by regulated DoD public water systems and other municipal (non-DoD) public water systems (United States and territories);
- The total population that received notification that their water supplier had a violation of one or more health-based drinking water standards under the SDWA;
- The total population that received water that met all SDWA health-based drinking water standards; and
- The percentage of the population that received water that met all SDWA health-based drinking water standards during the reporting period.

In the first half of 2012, 97 percent of the DoD population received drinking water that met health-based standards. To put these numbers in perspective, DoD exceeded the EPA's national goal of 91 percent of the population to receive drinking water that meets all health-based standards and also exceeded the most recent (2012) national water quality performance measurement of 94.7 percent. Of the 3 percent of the DoD population whose water did not meet those standards, installations resolved these violations quickly and provided alternative drinking water where necessary. Further, only three locations were found with water that exceeded EPA-established lead standards, affecting roughly 0.15 percent of the DoD population. These three exceedances are being addressed.

In response to the Lead Contamination Control Act (LCCA) of 1988, the Department removed all drinking water fountains that contained lead in the piping. The Department also issued policy requiring the use of lead-free products in plumbing equipment for all new construction, repair, and maintenance (Unified Facilities Criteria (UFC) 4-740-14: Design Child Development Centers; and UFC 1-300-07A: Design Build Technical Requirements).

In addition, the LCCA required EPA to publish guidance and testing protocols to assist those schools receiving public water from municipal or other public water systems in voluntary lead reduction programs that include best management practices (see <http://water.epa.gov/drink/info/lead/testing.cfm>). While there is no DoD-wide policy, each Military Department has supplemental safe drinking water and lead reduction program guidance that includes control of lead exposure at schools and child care facilities. These programs recognize EPA's guidance for testing the water at schools.

Since there is no DoD-wide policy and no standard data collection, my office does not have the information you requested about the number of DoD child care centers, schools and pediatric maternity wards covered by the Military Departments' programs and the status of the compliance with those policies. We are working with the Military Departments to collect this information and will be prepared to brief your staff once we have collected this information. Once we have collected and analyzed the status of the Military Departments' programs, we are prepared to take appropriate action to ensure we are taking all the necessary steps to eliminate potential sources of lead.

The Department's concern about children's lead exposure extends beyond drinking water. In 1992, DoD issued a policy memorandum on "Lead-Based Paint – Assessment of Risk, Associated Health Risk in Children, and Control of Hazards in DoD Housing and Related Structures." This policy called for universal blood level screening for lead poisoning in all children during their well-baby visits. By 1995, the accumulated screening data indicated a very low overall prevalence of child lead poisoning. Currently, military medical treatment facilities follow the Center for Disease Control (CDC) recommendations that were developed in conjunction with the American Academy of Pediatrics (AAP) for screening (lead exposure risk assessment questionnaires) and testing (blood level) for lead. Current guidelines recommend conducting a lead exposure risk assessment questionnaire at 6, 9, 12, 18, and 24 months; then at 3, 4, 5, and 6 years; and subsequently testing for blood lead levels if indicated by the questionnaire or other risk factors. Generally, military clinics and providers will follow state and local guidelines if those guidelines are more conservative than the CDC/AAP guidelines.

Be assured, the Department remains committed to providing the best possible care for our children and all who visit, work, or live on our installations through adoption of policies to prevent lead exposure; regular monitoring of drinking water; screening of blood lead levels; and when necessary, implementation of rigorous lead-abatement programs.

If you require further details on this issue, Mr. Brian Greer in the Office of the Assistant Secretary for Legislative Affairs will be glad to schedule a briefing for you or your staff. He can be reached at 703-571-2384.

Sincerely,

A handwritten signature in black ink, appearing to read 'Frank Kendall', with a stylized, cursive script.

Frank Kendall

Enclosures:

- 1. Langley Air Force Base Annual Water Quality Report for Calendar Year 2011**
- 2. Naval Weapon Station Yorktown 2011 Consumer Confidence Report**



*Langley Air Force Base
Annual Water Quality Report
For Calendar Year 2011
Amendment: See N.O.V. on Page 2*

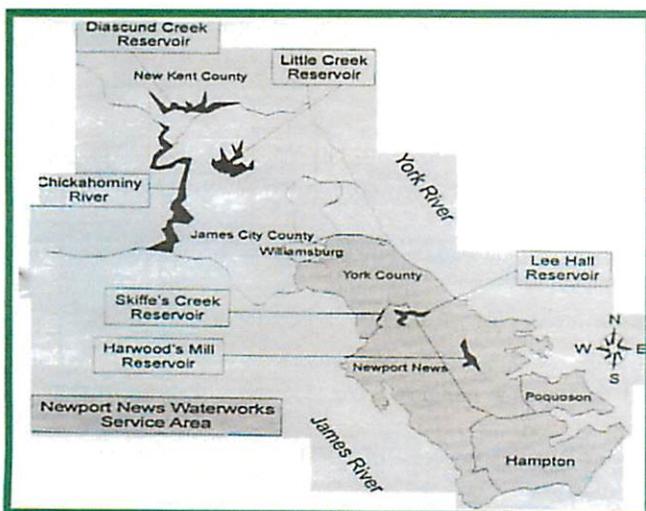
Langley AFB's goal is to provide you with a safe and dependable supply of drinking water. This is our annual Consumer Confidence Report on the drinking water delivered to Langley AFB (main base and HTA/LTA housing areas only). This report is required by the Safe Drinking Water Act (SDWA) and gives such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

If you have questions about this report, please contact TSgt Jason Smith or SSGt Shamikah Dunnings at the 633d Aerospace Medicine Squadron, Bioenvironmental Engineering Flight (757) 764-7069.

Water Source

The sole drinking water source for Langley AFB is Newport News Waterworks (NNW). 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 the Waterworks. 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 before distribution to the service area. Langley AFB receives very little ground water as most of the water comes from Harwood's Mill Reservoir.

Newport News Water Works



How the water is treated

Water is treated at NNW treatment plants where it passes through screens before aluminum sulfate (alum) and polymer are added. 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 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 NNW'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.

Newport News Waterworks had its source water assessments completed prior to 2003. Information on the Newport News Waterworks source water assessment is obtainable from the Hampton Roads Planning District Commission, (757) 420-8300, or Newport News Waterworks, (757) 926-1000.

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.

Your drinking water is continually monitored for contaminants. Langley AFB water is safe to drink.

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. FDA 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 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).

Important Information for Special Populations

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. EPA/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 fully aware of the chloramine treatment. Tropical fish owners need to de-chlorinate the water before use in fish habits or tanks.

Direct questions to:
TSgt Smith or SSgt Dunnings
Bioenvironmental Engineering Flight
633d Aerospace Medicine Squadron
Commercial 764-7069 DSN 574-7069

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 from materials and components associated with service lines and home plumbing. Newport News Waterworks is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. We suggest flushing your tap for 15 to 30 seconds prior to using tap water that has been standing in the plumbing system for 6 hours or more and that you use cold water for drinking or cooking. If you are concerned about elevated lead levels in your home's water, you may have your water tested. Additional information 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>.

NOTICE OF VIOLATION (N.O.V.)

Total Coliform Bacteria Monitoring Violation: We are required to monitor drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During September 2011 we received a consecutive positive sample result for total coliforms, and therefore could not be sure of the quality of our drinking water during that time or the health effects incurred. On 26 October 2011, the BEE Flight delivered a DRINKING WATER NOTICE to notify consumers that we violated a drinking water standard. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems. Compliance sampling for total coliforms continued with no positive samples for 6 months. The system is in compliance with standards and our drinking water meets health standards.

Explanation of 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

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.

Milligram per liter (mg/l) - A measure of volume for contaminants in drinking water. A milliliter is one thousandth of a liter (mg/l = ppm).

Nephelometric Turbidity Unit (NTU) - A measure of the clarity of the water. Turbidity in excess of 5 NTUs is just noticeable to the average person.

Non-detects (ND) - Lab analysis indicates that the contaminant is not present.

Parts per million (ppm) - One part per million corresponds to one minute in two years, or a single penny in \$10,000.

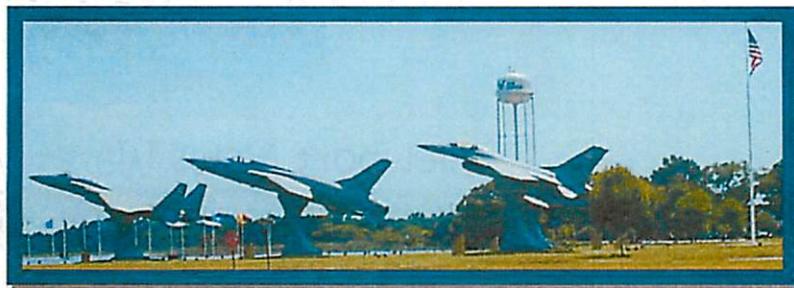
Parts per billion (ppb) - One part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

Parts per trillion (ppt) - One part per trillion corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000.

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.

<i>Contaminant</i>	<i>MCLG</i>	<i>MCL</i>	<i>Units</i>	<i>Highest Level Found</i>	<i>Range</i>	<i>Violation</i>	<i>Sample Date</i>	<i>Likely Source</i>
Fluoride	4	4	ppm	1.21	<0.20-1.21	None	2011	Fluoride is added to promote strong teeth
Barium	2	2	ppm	0.031	0.018-0.031	None	2011	Erosion of natural deposits
Nitrate	10	10	ppm	0.089	0.054-0.089	None	2011	Erosion of natural deposits
Nitrite	1	1	ppm	0.006	0.003-0.006	None	2011	Erosion of natural deposits
Total Organic Carbon Removal	None	TT	ppm ²	1.12 ³	1.03-1.38	None	2011	Naturally present in the environment
Turbidity	None	TT	NTU	0.28 ⁴	0.01-0.28	None	2011	Soil runoff
Beta/Photon Emitters	0	50	pCi/l	1.8 ⁷	N/A	None	2010	Decay of natural & man-man deposits
N-nitroso-dimethylamine	None	None	ppt	3.4 ⁸	2.1-3.4	None	2009	By-product of chlorination



TESTING RESULTS: Detected Regulated Contaminants - LANGLEY Distribution System¹

(Lab Analysis conducted at James R. Reed & Associates, state-certified lab analyzed 166 samples for 2011 calendar year to ensure water quality.)

<i>Contaminant</i>	<i>MCLG</i>	<i>MCL</i>	<i>Units</i>	<i>Level Found</i>	<i>Range</i>	<i>Violation</i>	<i>Sample Date</i>	<i>Typical Source of Contamination</i>
TTHM	N/A	80	ppb	17 ³	0.8-39.5	None	2011	By-product of drinking water chlorination
HAA5	N/A	60	ppb	11 ³	ND-27	None	2011	By-product of drinking water disinfection
Chloramines (Total Chlorine)	MRDLG 4	MRDL 4	ppm	1.17 ³	ND-3.4	None	2011	Water additive used to control microbes
Lead	0	AL = 15	ppb	4 ⁵ at the 90th percentile	ND-106	None	Aug 2009	Corrosion of household plumbing systems; Erosion of natural deposits; (Due again in Summer 2012)
Copper	1.3	AL = 1.3	mg/l	0.496 ⁵ at the 90th percentile	0.017-4.63	None	Aug 2009	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservative; (Due again in Summer 2012)
Total Coliform Bacteria	0	1 positive per month	N/A	4 ⁶	N/A	Yes	Sep 2011	Naturally present in the environment - subsequent system flushing and resampling was negative for total coliform

Notes:

- (1) The table shows the date of the latest sample with a detectable level of contaminant. Although many more tests were performed, only these contaminants were found.
- (2) TOC removal is regulated based on the percentage of how much is removed in the treatment process divided by the target removal percentage set by the EPA. Compliance is based on the running average removal over the year. A detection level of 1.0 or greater indicates compliance with the TT.
- (3) The level noted is based on a system-wide, four quarter running average. The range numbers are the results from individual samples.
- (4) Turbidity is a measure of the cloudiness of water. It indicates how well the filtration systems are working. 100% of the samples were within the limits.
- (5) Samples for lead and copper vary widely due to variations in plumbing at the delivery sites. The EPA standard is to report a concentration at which 90% of the samples fall below. The 90 percentile samples were well below the Action Level for both lead and copper. Two samples of each exceeded the Action Level.
- (6) This value represents the highest number of positive samples in each month during 2011. A minimum of 9 samples are taken each month.

- (7) The EPA considers 50 pCi/l to be the level of concern for beta particles.
- (8) This result was from the Unregulated Contaminant Monitoring Regulation Testing

Additional Information of Interest:

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. Waterworks tested the Chickahominy River, the terminal reservoirs (Harwood’s Mill and Lee Hall) and finished (or treated) water from both plants for PPCPs in 2010. 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 Waterworks water treatment process is providing adequate protection and producing high-quality water.



Environmental Protection Agency
Safe Drinking Water Hotline
[\(1-800-426-4791\)](tel:18004264791)

Newport News Water Works:
www.nngov.com/waterworks

A row of five identical glasses filled with water. From left to right, the water in each glass has a progressively darker blue tint, representing a scale of water quality or contamination levels.

“Continued Excellence in Keeping America’s #1 Resource Healthy & Safe”



NAVAL WEAPON STATION YORKTOWN YORK COUNTY, VIRGINIA 2011 CONSUMER CONFIDENCE REPORT

The base is committed to providing you drinking water that is safe and reliable. Naval Weapon Station Yorktown (NWSY) believes that providing you with accurate information about your water is the best way to assure you that your water is safe.

Inside this issue:

NWSY Source Water	1
Definitions and Abbreviations	2
2011 Sampling Results Table	3
Violation Information	4

For additional information:

Newport News Waterworks
(757) 926-1000
<http://www.nngov.com/waterworks>

Virginia Department of Health
757-683-2000
<http://www.vdh.state.va.us/drinkingwater/>

USEPA Safe Drinking Water Hotline
800-426-4791
<http://www.epa.gov/safewater/>

NAVFAC Mid-Atlantic Environmental
757-341-0482

This Consumer Confidence Report is a snapshot of the quality of your drinking water in 2011. The purpose of this annual report is to advise consumers of where their water comes from, provide water quality data, advance understanding of drinking water, and heighten awareness to conserve water resources.

DRINKING WATER SOURCES AND TREATMENT

Naval Weapons Station Yorktown purchases drinking water from the Newport News Waterworks system, which is owned and operated by the City of Newport News. Surface water from the Chickahominy River provides the *primary source* of your drinking water and Lee Hall groundwater wells provide a *secondary source* of water. This water is stored in five reservoirs owned and operated by Newport News Waterworks and supplied to two water treatment facilities, Lee Hall Water Treatment Plant and Harwood's Mill Water Treatment Plant.

Untreated water is pumped to the treatment plants, where it passes through screens to remove large debris. Aluminum sulfate and polymer are chemicals added to the water to cause small particles to cling together in a process called coagulation, making the particles easier to remove. Once the water becomes clear, it is disinfected with ozone (primary disinfection). Disinfection kills microorganisms such as bacteria and viruses. The water is then sent through filters to remove any remaining particles. Lime is added to adjust the pH, fluoride is added to prevent tooth decay in children, and zinc orthophosphate is added to control corrosion inside the distribution system piping. Finally, chloramines are added (secondary disinfection) to maintain disinfection through the piping system to your home or business. The brackish groundwater from deep wells is treated using a reverse osmosis process where the brackish groundwater is forced by high pressure through membranes that can remove the salt and most other contaminants. After the surface water and brackish groundwater are treated, they are blended together and distributed to customers in the service area.

According to the Hampton Roads Planning District Commission's 2001-02 Source Water Assessment, the Newport News surface water sources were rated as relatively high in susceptibility to contamination (which is one reason why water treatment is so important), while the deep groundwater wells were rated as low in susceptibility using the criteria developed by the state in its approved Source Water Assessment Program. The assessment report includes maps showing the source water assessment area, an inventory of known land-use activities, a susceptibility explanation chart, and definitions of key terms. The report is available by contacting Newport News Waterworks, the Virginia Department of Health, or the Hampton Roads Planning District Commission.

ABOUT DRINKING WATER

All 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 radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

- **Microbial**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- **Inorganic**, 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.



The primary source of NWSY & CAX drinking water is the Chickahominy River, and the Lee Hall ground water wells provide a secondary source. This water is stored in reservoirs owned and operated by Newport News Water works.

ABOUT DRINKING WATER (continued)

- **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 byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.
- **Radioactive**, which can be naturally occurring or be the result of oil and gas production and mining activities.

All 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 the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's (EPA) Safe Drinking Water Hotline (800-426-4791).

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

Who needs to take special precautions?

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 systems 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.

EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the EPA's Safe Drinking Water Hotline (800-426-4791).

Kidney dialysis patients should consult with their health care providers or dialysis centers in order to take special precautions when using chloraminated water. Fish owners should be sure chloramines are removed from the water before it is used in aquariums or ponds. Most pet stores sell water conditioners for chloraminated water.

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

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.

NWSY is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components in buildings. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 15 to 30 seconds or until it becomes cold or reaches a steady temperature



DEFINITIONS AND ABBREVIATIONS

Contaminants in your drinking water are routinely monitored according to Federal and State regulations. The table on the following pages shows the results of monitoring for 2011. In the tables and elsewhere in this report you may find many terms and abbreviations which you are not familiar. The following definitions are provided to help you better understand these 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 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.
- **Maximum Residual Disinfectant Level (MRDL)** - The highest level of a disinfectant allowed in drinking water based on running annual average. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- **Maximum Residual Disinfectant 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 contamination.
- **Nephelometric Turbidity Unit (NTU)** - A measure of the clarity, or cloudiness, of water. Turbidity in excess of 5 NTU is just noticeable to the average person. Turbidity is monitored because it is a good indicator of the effectiveness of the filtration system.
- **Non-detection (ND)** - Laboratory analysis indicates that the contaminant is not present.
- **Picocuries per liter (pCi/L)** - A measure of the radioactivity in water.
- **Parts per million (ppm) or Milligrams per liter (mg/L)** - A measurement of the amount of contaminant per unit of water. A part per million is one cent in \$10,000 or one minute in two years.
- **Parts per billion (ppb) or Micrograms per liter (µg/L)** - A measurement of the amount of contaminant per unit of water. A part per billion is like one cent in \$10,000,000 or one minute in 2,000 years.
- **Parts per trillion (ppt) or Nanograms per liter (nanograms/l)** - A measurement of the amount of contaminant per unit of water. A part per trillion is like one cent in \$10,000,000,000 or one minute in 2,000,000 years.
- **Secondary Maximum Contaminant Level (SMCL)** - Non-enforceable standard that is established for aesthetic considerations
- **Treatment Technique (TT)** - A required process intended to reduce the level of a contaminant in drinking water.

WATER QUALITY DATA

The tables below list only those contaminants that were present in your drinking water at levels detectable by laboratory equipment. Unless otherwise noted, the data presented in these tables is from testing done in 2011. We are required to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change. The presence of contaminants in the water does not necessarily indicate that the water poses a health risk. The EPA sets the Maximum Contaminant Levels (MCLs) and the Maximum Contaminant Level Goals (MCLGs) as listed in the tables. The Regulated Substances Table and the Unregulated Substances Table are provided for your information and as required by the Consumer Confidence Rule.

2011 NEWPORT NEWS WATER QUALITY INFO (TREATMENT PLANT SAMPLES)

Regulated Substances	Unit	MCLG	MCL	Highest Level	Range	Meets EPA Standard?	Likely Source
Barium	ppm	2	2	0.031	0.018 – 0.031	YES	Erosion of natural deposits
Beta emitters	pCi/L	0	50	1.8	1.8	YES	Decay of natural and man-made deposits
Fluoride	ppm	4	4	1.21	<0.20 – 1.21	YES	Added for the prevention of tooth decay
Nitrate	ppm	10	10	0.089	0.054 – 0.089	YES	Erosion of natural deposits
Nitrite	ppm	1	1	0.006	0.003 – 0.006	YES	Erosion of natural deposits
TOC Removal	Removal ratio	NA	TT	1.12 ¹	1.03 – 1.38	YES	Occurs naturally in environment
Turbidity	Unit	MCLG	MCL	Highest Level	Range	Meets EPA Standard?	Likely Source
Turbidity	NTU	n/a	TT	0.28 ²	0.01 – 0.28	YES	Soil Run-off
Unregulated Contaminants	Unit	MCLG	MCL	Highest Level	Range	Meets EPA Standard?	Likely Source
N-nitrosodimethylamine (2009 Daa)	ppt	none	none	3.4	2.1-3.4	YES	By-product of chloramination

2011 NAVAL WEAPONS STATION YORKTOWN WATER QUALITY INFO (DISTRIBUTION SYSTEM SAMPLES)

Regulated Substances	Unit	MCLG	MCL	Highest Level	Range	Meets EPA Standard?	Likely Source
Haloacetic Acids	ppb	0	60	11 ³	4 – 26	YES	Drinking water disinfectant by-product
Total Chlorine Residual	ppm	4.0	MRDL = 4.0	2.72 ³	0.5 – 5.2	YES	Drinking water disinfectant
Total Trihalomethanes	ppb	0	80	14.9 ³	6.1 – 33.2	YES	Drinking water disinfectant by-product
Microbial Contaminants	Unit	MCLG	MCL	Highest Level	Range	Meets EPA Standard?	Likely Source
Total Coliform	# Positive	0	1	1	0 – 1	YES	Naturally present in environment
Lead and Copper Monitoring	Unit	MCLG	MCL	Highest Level	Range	Meets EPA Standard?	Likely Source
Copper (2010 data)	ppm	1.3	AL=1.3	90 th percentile = 0.086 ⁴	0.017 – 0.227	YES	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (2010 data)	ppb	15	AL = 15	90 th percentile = <1.0 ⁴	<1.0 – 1.5	YES	Corrosion of galvanized pipes; Erosion of natural deposits

¹Compliance is based on a running four-quarter average and includes some 2010 data. The range is the individual monthly ratio from both water treatment plants in 2011. TOC has no adverse health effects, but can be a critical component in the formation of disinfection by-products;

²Turbidity is a measure of water cloudiness. It is a good indicator of the effectiveness of our filtration system. At least 95% of monthly samples had turbidity of ≤0.30 NTU (less than or equal to 0.30 NTU). Turbidity of 5.0 NTU is just noticeable to the average person;

³This number is the highest running annual average of compliance samples.

⁴At least 90% of the samples were at or below this level; no samples exceeded the action level for lead or copper in 2011;

Secondary and Unregulated Monitored Substances ¹	Unit	SMCL	Average Level	Range
pH	pH units	6.5 – 8.5	7.6	6.9 – 8.7
Chloride	ppm	250	22	15 – 34
Color	Color units	15	0	0
Copper	ppb	1000	4	ND – 29
Iron	ppb	300	12	ND – 122
Manganese	ppb	50	14	1 – 119
Silver	ppb	100	<1	ND
Sulfate	ppm	500 (proposed)	42	35 – 65
Total Dissolved Solids	ppm	500	144	113 – 180
Zinc	ppm	5	0.21	0.13 – 0.33

¹Samples taken at treatment plant

Additional Treatment Plant Analyses	Unit	Average Level	Range
Alkalinity	CaCO ₃ ppm	36	29 – 44
Aluminum	ppb	53	ND – 86
Ammonia	ppm	0.57	0.48 – 0.72
Bromide	ppb	ND	ND – 17
Calcium	ppm	28	20 – 34
Hardness	CaCO ₃ ppm	76	58 – 95
Lead	ppm	<1	<1
Magnesium	ppm	1.4	1.0 – 1.8
Molybdate	ppb	<1	<1
Nickel	ppb	<1	<1
Ortho-Phosphorus	P, ppm	0.20	0.15 – 0.23
Potassium	ppm	1.94	1.55 – 2.75
Silica	ppm	3.8	1.0 – 7.2
Sodium	ppm	13.2	5.7 – 25.8
Specific Conductance	uhmo/cm	235	188 – 272
Vanadium	ppb	<2	<2

VIOLATION INFORMATION

There were no drinking water violations to report for 2011.

ADDITIONAL INFORMATION

Lead and Copper

NWSY did not find concentrations above action levels (AL) during the most recent round of Lead and Copper sampling.