

2014 CONSUMER CONFIDENCE REPORT ON THE QUALITY OF TAP WATER AT FORT MONROE, VA PWSID #3650150



Introduction

This annual water quality report or Consumer Confidence Report is prepared and distributed by Veolia and the Fort Monroe Authority as required by the Safe Drinking Water Act. It is reviewed and approved by the Virginia Department of Health/Office of Drinking Water in Norfolk. This report explains where your water comes from, what analytical testing shows about it, and other things you should know about your drinking water. Fort Monroe's goal is to provide you with a safe and dependable supply of drinking water, and we want you to understand the efforts we make to protect your water supply. Drinking water quality must meet state and federal requirements administered by the Virginia Department of Health (VDH). The water produced by Newport News Waterworks (NNWW) is treated and tested by state-of-the-art equipment and techniques and meets or exceeds state and federal standards for water-quality.

General Information

Generally speaking, 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 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 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, stormwater runoff, and residential uses.
- Organic chemicals, including synthetic and volatile organics, are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- Radioactive, which can be naturally-occurring or be the result of oil and gas production and mining activities.

Water Sources and Treatment

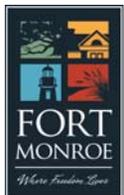
During 2014, the drinking water at Fort Monroe was purchased from Newport News Waterworks (NNWW). NNWW's primary source of water is surface water. It begins with the Chickahominy River. When available, water is pumped from the river, above Walkers Dam, and is transferred through pipes to reservoirs for storage. NNWW owns and operates five reservoirs that store and supply water to the treatment plants. Brackish (slightly salty) groundwater from deep wells in the Lee Hall area provide a second source of water. The two source waters are treated separately, then blended together before distribution to the service area.

Untreated water is pumped to the NNWW treatment plants, where it passes through screens, before aluminum sulfate (alum) and polymer are added. These chemicals cause tiny particles in the water to cling together (coagulation), making the particles easier to remove. 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, the secondary disinfectant, are added to maintain disinfection through the pipe system to your home or business.

The brackish groundwater is pumped to a desalination plant located at the Lee Hall facility. 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 the NNWW customers.

Surface Water Source Assessment

According to the Hampton Roads Planning District Commission's 2001-02 Source Water Assessment, NNWW surface water sources were rated as relatively high in susceptibility to contamination (which is one reason why water treatment is so important), while NNWW 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. A copy of the report is available from the Hampton Roads Planning District Commission (757) 420-8300 or Newport News Waterworks (757) 926-1000.



Water Quality Testing

To ensure that tap water is safe to drink, the EPA prescribes regulations which 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 2014 by NNWW. Samples of treated water were taken at regular intervals from specific locations (residences, businesses, and the treatment plants) across the Waterworks service area. Every regulated substance that we detected in the water, even in the smallest traces, is listed in TABLE 1 below. The table contains 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 the set regulation. For help understanding the tables below, please see the explanation of terms at the right and the footnotes at the bottom of the table.

NNWW participated in the U.S. Environmental Protection Agency's (EPA) third round of the Unregulated Contaminant Monitoring Rule (UCMR3). Approximately 6,000 utilities nationwide monitored unregulated contaminants for a year to help the EPA determine the occurrence of these contaminants in drinking water and whether or not they need to be regulated for protection of public health. The results of our findings are in TABLE 2 below.

Definitions of Key Terms Used in the Tables

Action Level (AL) - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements that 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.

Minimum Reporting Level (MRL) - an estimate of the lowest concentration of a compound that laboratories would report as a detection.

Maximum Residual Disinfectant Level (MRDL) - the highest level of a residual contaminant allowed in drinking water. MRDLs are set as close to the MRDLGs as feasible, using the best available treatment technology.

Maximum Residual Disinfectant Level Goal (MRDLG) - the level of a residual contaminant in drinking water below which there is no known or expected risk to health.

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

Not Detected (ND) - laboratory analysis indicates that the substance analyzed is not present, or was not detected above the analytical method detection limit.

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. EPA considers 50pCi/L to be the level of concern for beta particles

Secondary Maximum Contaminant Level (SMCL) - EPA recommended MCLs for Secondary Drinking Water Standards.

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

Table 1- Newport News Waterworks

| TABLE 1 - Regulated substances | | | | | | |
|---|-----------------------|---------------------------------|------------------------------|-------------------------|---------------------------------|---|
| Contaminant and Unit of Measurement | EPA Ideal Goal (MCLG) | Highest EPA Allowed Level (MCL) | Max Detected (what we found) | Range Detected Low-High | Meets State & Federal Standards | Likely Source |
| INORGANICS | | | | | | |
| Copper (ppm) | 1.3 | AL = 1.3 | 0.084 ¹ | 0.011-0.172 | YES | Corrosion of household plumbing |
| Lead (ppb) | 0 | AL = 15 | 0.0 ¹ | <1.0-4.6 | YES | Corrosion of household plumbing |
| Fluoride (ppm) | 4 | 4 | .98 | 0.90-0.98 | YES | Added to promote strong teeth |
| Barium (ppm) | 2 | 2 | 0.022 | 0.018-0.022 | YES | Erosion of natural deposits |
| Nitrate (ppm) | 10 | 10 | 0.030 | 0.024-0.030 | YES | Erosion of natural deposits |
| Nitrite (ppm) | 1 | 1 | 0.002 | 0.001-0.002 | YES | Erosion of natural deposits |
| DISINFECTION BY-PRODUCTS AND PRECURSORS | | | | | | |
| Total Trihalomethanes (ppb) | 0 | 80 | 24 ² | 6-30 | YES | By-product of chlorination |
| Haloacetic Acids (ppb) | 0 | 60 | 34 ² | 0-54 | YES | By-product of chlorination |
| Total Organic Carbon removal | none | TT | 1.24 ³ | 1.18-1.74 | YES | Naturally present in the environment |
| MICROBIOLOGICAL | | | | | | |
| Turbidity (NTU) | none | TT | 0.17 ⁴ | 0.02-0.17 | YES | Soil runoff |
| Chloramines (ppm) | MRDLG 4 | MRDL 4 | 3.4 ² | 0.0-6.2 | YES | Water additive used to control microbes |
| RADIOLOGICAL - results from 2010, required to test again in 2016 | | | | | | |
| Beta/Photon Emitters (pCi/L) ⁵ | 0 | 4 | 1.8 | 1.8-1.8 | YES | Decay of natural & man-made deposits |

Table 2 - Newport News Waterworks

TABLE 2 - Unregulated substances (data from 2013-2014)

| Contaminant and Unit of Measurement | MRL | Average Detected | Range Detected (Low-High) | Likely Source |
|---|-------|------------------|---------------------------|---|
| UNREGULATED ORGANICS - MONITORED at the treatment plant | | | | |
| Chloroform (ppb) | n/a | 2.7 | 1.2-4.2 | By-product of chlorination |
| Dichlorobromomethane (ppb) | n/a | 2.2 | 2.0-2.3 | By-product of chlorination |
| Dibromochloromethane (ppb) | n/a | 2.0 | 1.8-2.1 | By-product of chlorination |
| UNREGULATED CONTAMINANT MONITORING REGULATION (UCMR3) <i>This monitoring provides a basis for future regulatory actions to protect public health.</i> | | | | |
| Chlorate (µg/L) | 20 | 177 | 0-550 | Agricultural defoliant or desiccant; disinfectant by-product; and used in production of chlorine dioxide |
| Total Chromium (µg/L) | 0.2 | 0.19 | 0-0.74 | Naturally occurring, used in industry and can be discharged by industrial facilities. Total Chromium is the sum of chromium in all its valence states. |
| Hexavalent Chromium Cr-6 (dissolved) (µg/L) | 0.030 | 0.088 | 0.044-0.180 | Naturally occurring. Used in making steel and other alloys. A new Environmental Protection Agency (EPA) risk assessment, not finalized yet, has raised concerns about the risk to human health. |
| Strontium (µg/L) | 0.3 | 130 | 90-200 | Naturally occurring. Has been used commercially to produce color TV tubes. It also blocks x-ray emissions. |
| Vanadium (µg/L) | 0.2 | .71 | 0.49-1.00 | Naturally occurring. Is used as an additive to steel to make engine parts and tools. |

NNWW Sampling Notes: (Tables 1 and 2)

Excluding the radiological results, all test samples reported in the table above were taken in 2013-2014 (those samples taken in 2013 are part of a required four quarter running average). Lead, copper and radiological samples will be taken again in 2016.

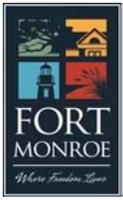
- 1 At least 90% of the samples were at or below this level. None of the individual samples exceeded the Action Level. Because our lead and copper levels are so low, we only have to test every three years. These results were from samples taken in 2013. Our next sampling will be in 2016.
- 2 The highest detected level is based on a system-wide, four-quarter running average of several samples (for Chloramines, it is an annual running average). The range numbers are the results from individual samples.
- 3 Compliance is based on a running four-quarter average. The range is the individual monthly ratio from both water treatment plants. TOC has no adverse health effects, but can be a critical component in the formation of disinfection by-products.
- 4 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.
- 5 Radiological samples were taken in 2010.

Table 3 - 2014 Regulated Contaminants of the Fort Monroe Distribution System.

| Contaminant, units | Year, Month or Date of Sample | MCLG | MCL | MAX CONC | RANGE | TYPICAL SOURCE |
|---------------------------------------|-------------------------------|------|----------|-------------------------|----------------|--|
| Total Trihalomethane THM, mg/L | 2014 / Quarterly | 0 | 80 ppb | 17 ppb | ND - 15.2 ppb | By-product of drinking water chlorination |
| Haloacetic Acids HAA(5) mg/L (Note 1) | 2014 / Quarterly | 0 | 60 | 4 ppb | ND - 5.4 ppb | By-product of drinking water chlorination |
| Total Chlorine (Chloramines) (Note 1) | 2014 / Monthly | 4 | MRDL=4.0 | 0.24 ppm | ND - 0.34 ppm | Additive used to control microbes |
| Lead, ppb (Note 2 - 3) | 2012 | 0 | AL=15 | 12.21 90% percentile | <0.2 - 19.1 | Corrosion of household plumbing systems; erosion of natural deposits |
| Copper, ppm (Note 2 - 3) | 2012 | 0 | AL=1.3 | 0.365 90% percentile | 0.0279 - 0.618 | Corrosion of household plumbing systems; erosion of natural deposits |

Fort Monroe Sampling Notes (Table 3):

- 1 The detected level is the compliance level based on a running annual average. The range numbers are the results from individual sample locations.
- 2 At least 90% of samples were at or below this level. The levels detected are 90th percentile values. One individual sample exceeded the Action Level for Lead.
- 3 The state allows Fort Monroe and NNWW to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of the data, though accurate, is more than one year old.
- 4 Fort Monroe is required to test for Total Coliform every month. There were no positive samples for Total Coliform in 2014.



Water Quality Information

- **Sodium** – The EPA has not set a standard for sodium in drinking water. However, sodium levels are usually low and unlikely to be a significant contribution to adverse health effects. The average level of sodium found in our treated water in 2014 was 14 mg/L, and the range was 6-34. Should you have a health concern, please contact your health care provider.
- **Lead** - Lead is not detectable in the treated water tested monthly from either treatment plant. However, if present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water comes primarily from materials 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. If your water has been sitting for several hours, you can minimize the potential for lead exposure by running your tap for 15 to 30 seconds, or until it becomes cold or reaches a steady temperature, before using water for drinking or cooking. Waterworks recommends that you prepare baby formula with cold water. 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 www.epa.gov/safewater/lead.
- **Hardness** - No EPA standard is set. Water treated by Newport News Waterworks is considered moderately soft (4-6 grains which is equal to 70-120 mg/L as calcium carbonate or CaCO₃). In 2014 the average was 85 mg/L with a range of 26-130.
- **Fluoride** - Fluoride is added to water to prevent tooth decay. Newport News Waterworks 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 0.8 mg/l to 1.0 mg/l. Waterworks' average fluoride level is within the optimum range. The U.S. Department of Health and Human Services proposed recommendation to lower the fluoride level is being studied nationally and locally. If the VDH alters their fluoride guidance to Virginia water utilities, NNWW has stated they will comply.

Public Participation Opportunities

Because NNWW 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 7:00 pm, 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/nntv.

The Fort Monroe Authority (FMA) is a political subdivision of the Commonwealth of Virginia and is governed by a twelve member Board of Trustees. The FMA Board meets no less than quarterly to discuss operations and to make managerial and financial decisions including matters related to the water distribution system on Fort Monroe. You are welcome to attend and participate in these meetings as well. The schedule of upcoming meetings can be found on the web at www.fmauthority.com/public-meetings/meeting-schedule/.

Information for Special Populations

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 Environmental Protection Agency's (EPA) Safe Drinking Water Hotline at (800) 426-4791.

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 are available from the Safe Drinking Water Hotline at (800) 426-4791.

For More Information

This report is available on the Fort Monroe Authority website at <http://www.fmauthority.com/about/the-fort-monroe-authority/public-documents/> in the utility section. If you have questions concerning this report, please contact the Fort Monroe Authority by calling 757-637-7778 or call Veolia Water at 757-224-2411. You may also request additional copies or submit questions and concerns to either the Fort Monroe Authority or Veolia Water at the following addresses:

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