

# 2008 WATER QUALITY REPORT

## NAVAL WEAPONS STATION YORKTOWN

### YORK COUNTY, VIRGINIA



Naval Weapons Station Yorktown is committed to providing you drinking water that is safe and reliable. We believe that providing you with accurate information about your water is the best way to assure you that your water is safe. This 2008 Water Quality Report will explain where your water comes from and lists all of the contaminants detected in your drinking water.



### DRINKING WATER SOURCES AND TREATMENT

On October 18, 2002, Naval Weapons Station Yorktown began purchasing drinking water from the Newport News Waterworks system, owned and operated by the City of Newport News. Surface water from the Chickahominy River provides the primary source of your drinking water, and brackish groundwater from deep wells provides a secondary source of drinking 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.

Surface water treatment includes filtration to remove large debris, coagulation of small particles using aluminum sulfate (alum), and clarification, flocculation, and sedimentation to remove these particles. Once the water becomes clear, it is disinfected with ozone or chlorine (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. 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.

### DRINKING WATER AND YOUR HEALTH

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, 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.

The Virginia Department of Health conducted a Source Water Assessment of the Newport News Waterworks in 2001. The system was determined to be of high susceptibility to contamination using the criteria developed by the state in its approved Source Water Assessment Program. The assessment report consists of maps showing the Source Water Assessment area, an inventory of known Land Use Activities and Potential Conduits to Groundwater, 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.

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.

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 Safe Drinking Water Hotline (800-426-4791).

### WATER QUALITY DATA

The data tables shown below list only those contaminants that were present in your drinking water at levels detectable by laboratory equipment. This information is based on testing done during 2008 or as indicated. The EPA sets the Maximum Contaminant Levels (MCLs) and the Maximum Contaminant Level Goals (MCLGs) listed in the tables.

### TESTING- PROCEDURES AND RESULTS

#### City of Newport News Waterworks

| City Substance                           | Likely Source                                   | Range (Low-High) | Highest Detected Level         | MCL (Highest EPA allowed level) | MCLG (EPA ideal goal)  | Unit    | Meets VA & EPA Standards |
|--|---|------------------|--------------------------------|---------------------------------|------------------------|---------|--------------------------|
| Turbidity                                | Soil runoff                                     | 0.02 - 0.39      | 0.39                           | TT                              | N / A                  | NTU     | Yes                      |
| Barium                                   | Erosion of natural deposits                     | 0.016 -0.030     | 0.030                          | 2                               | 2                      | ppm     | Yes                      |
| Chloramines                              | Water additive used as disinfectant             | ND – 4.7         | 3.3<br>(4 quarter annual avg.) | average < 4<br>(MRDL)           | average < 4<br>(MRDLG) | ppm     | Yes                      |
| Fluoride                                 | Added for the prevention of tooth decay         | 0.20 – 1.58      | 1.58                           | 4                               | 4                      | ppm     | Yes                      |
| Alpha Emitters Radiological (2001)       | Erosion of natural deposits                     | 0.8 – 0.9        | 0.9                            | 15                              | 0                      | pCi / L | Yes                      |
| Beta/Proton Emitters Radiological (2001) | Decay of natural deposits and man-made deposits | 3.0 – 3.6        | 3.6                            | 50 <sup>2</sup>                 | 0                      | pCi / L | Yes                      |
| Nitrate                                  | Erosion of natural deposits                     | <0.02 – 0.09     | 0.09                           | 10                              | 10                     | ppm     | Yes                      |
| Nitrite                                  | Erosion of natural deposits                     | <0.001 – 0.012   | 0.012                          | 1                               | 1                      | ppm     | Yes                      |
| Total Organic Carbon Removal             | Naturally present in the environment            | 0.96 – 1.31      | 1.07                           | TT                              | None                   | ppm     | Yes                      |

**TESTING- PROCEDURES AND RESULTS- Continued****Naval Weapons Station Yorktown**

| Substance                            | Likely Source  | Range (Low-High) | Highest Detected Level              | MCL (Highest EPA allowed level)  | MCLG (EPA ideal goal) | Unit       | Meets VA & EPA Standards |
|--------------------------------------|--|------------------|-------------------------------------|----------------------------------|-----------------------|------------|--------------------------|
| Total Coliform                       | Naturally present in the environment                       | NA               | 1                                   | 2                                | 0                     | # positive | Yes                      |
| Lead (2007 Data)                     | Corrosion of household plumbing systems                    | <1 –16           | 90 <sup>th</sup> percentile = 5     | AL = 15                          | 0                     | ppb        | Yes                      |
| Copper (2007 Data)                   | Corrosion of galvanized pipes; erosion of natural deposits | <0.005 – 0.223   | 90 <sup>th</sup> percentile = 0.099 | AL = 1.3 (0 samples exceeded AL) | 1.3                   | ppm        | Yes                      |
| Haloacetic Acids (HAA5) <sup>4</sup> | Disinfection by-product of Drinking water                  | 0 – 4            | 1.75                                | 60                               | 0                     | ppb        | Yes                      |
| Trihalomethanes (TTHM) <sup>4</sup>  | Disinfection by-product of Drinking water                  | 8 – 21           | 13.5                                | 80                               | 0                     | ppb        | Yes                      |

## Footnotes from the Table

- 1) Turbidity is a measure of water cloudiness. It is a good indicator of the effectiveness of water filtration. 100% of the samples met the turbidity limit.
- 2) The EPA considers 50 pCi/L to be the level of concern for beta particles.
- 3) 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 average removal over the year. The detected levels indicate that the treatment plants were removing the required amount of TOC.
- 4) The highest detected level is the four-quarter running average calculated during the calendar year. The range numbers are the results from individual sample locations.

**VIOLATION INFORMATION**

Testing for coliform bacteria is performed throughout WPNSTA Yorktown's water distribution system on a weekly basis. Coliform bacteria are generally not harmful. They are naturally present in the environment and are used as an indicator that other potentially harmful bacteria may be present. If they are detected, we are required to take repeat samples in that portion of the distribution system until the coliform bacteria is absent.

In October 2008, we exceeded the primary Maximum Contaminant Level (PMCL) for total coliform bacteria in one sample. Although this incident was not an emergency, our customers have the right to know what happened and what we did to correct the situation. Flushing was conducted in the area of the positive sample and repeat sampling indicated the absence of total coliform bacteria. The standard is that no more than one sample per month can test positive for coliform bacteria. There are no violations to report for 2008 since the standard was not exceeded.

**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 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 and/or Centers for Disease Control and Prevention (CDC) guidelines on

appropriate means to lessen the risk of infection by *Cryptosporidium* are available from the EPA Safe Drinking Water Hotline (800-426-4791).

### **LEAD IN DRINKING WATER**

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. Naval Weapons Station Yorktown is responsible for providing high quality drinking, 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 15 to 30 seconds or until it becomes cold or reaches a steady temperature 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 Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

### **DEFINITIONS**

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

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

**MCLG (Maximum Contaminant Level Goal)** - The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

**MRDL (Maximum Residual Disinfectant Level)** - The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

**MRDLG (Maximum Residual Disinfectant Level Goal)** - The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.

**ND** - Not detected

**NTU (Nephelometric Turbidity Unit)** - A measure of the clarity of water.

**pCi/L (Picocuries per liter)** - A measure of the radioactivity in water.

**ppb** - Parts per billion: Equivalent to one penny in \$10,000,000 (\$10 million).

**ppm** - Parts per million: Equivalent to one penny in \$10,000 (\$10 thousand).

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

### **NEED MORE INFORMATION? TRY ANY OR ALL OF THE FOLLOWING:**

- For questions about this report, contact Ms. Valerie Walker, Potable Water Program Manager, (757) 444-2697 or e-mail [Valerie.Walker@navy.mil](mailto:Valerie.Walker@navy.mil)
- 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 7:30 PM and you are welcome to attend and participate. These meetings are also broadcast live on Newport News City Channel 48 and can be viewed live or on-demand on the web at [www.nngov.com/newport-news-tv](http://www.nngov.com/newport-news-tv).
- For more information on Newport News City Council, visit their website at [www.nngov.com/council](http://www.nngov.com/council).
- City of Newport News Website: [www.nngov.com/wwdept](http://www.nngov.com/wwdept)
- State of Virginia Department of Health Website: [www.vdh.virginia.gov/dw](http://www.vdh.virginia.gov/dw)
- Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791
- Environmental Protection Agency Website: [www.epa.gov/safewater](http://www.epa.gov/safewater)