



Naval Support Activity Annapolis Annapolis, Maryland 2011 WATER QUALITY REPORT

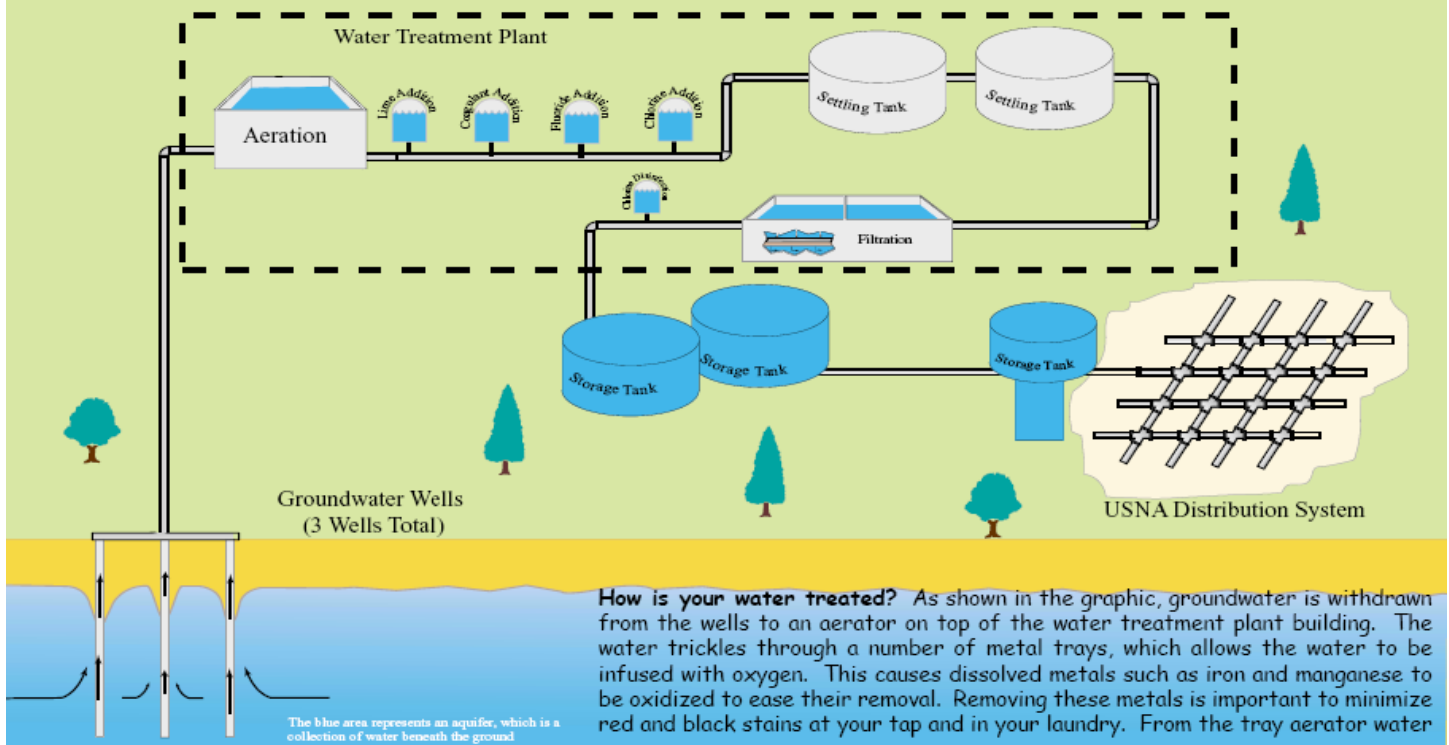


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PROVIDING HIGH QUALITY WATER TO OUR CUSTOMERS

Naval Support Activity Annapolis (NSAA) is committed to providing the U.S. Naval Academy (USNA) Complex and you drinking water that is safe and reliable. In 2003, the NSAA Water Treatment Plant underwent a major renovation, replacing filters, aerators, chemical systems, and other associated systems. NSAA believes that providing you with accurate information about your water is the best way to assure you that your water meets all the state and federal drinking water health standards. This 2011 Water Quality Report will explain where your water comes from, how it is treated and distributed, as well as information regarding contaminants detected in your water. **We are pleased to report that the levels of all contaminants detected in your drinking water were far less than the Maximum Contaminant Levels prescribed by the US Environmental Protection Agency (EPA) and the Maryland Department of the Environment (MDE).**

Where does your water come from? The NSAA Water Treatment Plant obtains untreated (raw) water from three groundwater wells owned and maintained by NSAA. These wells withdraw groundwater from the Patapsco Aquifer, approximately 700 feet below the ground surface.



How is your water treated? As shown in the graphic, groundwater is withdrawn from the wells to an aerator on top of the water treatment plant building. The water trickles through a number of metal trays, which allows the water to be infused with oxygen. This causes dissolved metals such as iron and manganese to be oxidized to ease their removal. Removing these metals is important to minimize red and black stains at your tap and in your laundry. From the tray aerator water moves into the water treatment plant where four different chemicals (coagulant, lime, fluoride, chlorine) are added. The coagulant helps to make suspended particles in the water stick together and settle out. Lime is added to increase the pH of the water, increasing the effectiveness of the coagulant. Chlorine helps to oxidize the remaining dissolved metals and fluoride is added to prevent tooth decay. The water then flows to the clarifier tanks, where it is first mixed to encourage the formation of larger sticky particles ("flocs"), which become heavy and settle; a process called sedimentation. This bed of settled particles ("sludge blanket") provides additional filtration as the water moves through it. The water is then piped to the filtration tanks located inside the water treatment plant. Two types of media, sand and anthracite ("carbon"), remove any remaining solids or organics from the water. Chlorine is added once again as a disinfectant to ensure there are no remaining microbial contaminants, thus completing the treatment process. The treated ("finished") drinking water is then moved into two large (1 million gallons each) above-ground storage tanks. A combination of high-rate pumps and the elevated 750,000-gallon water tower provides the pressure necessary to move this treated drinking water throughout the NSAA distribution system and, ultimately, to your faucets, drinking water fountains, pools, groundskeeping water, and other places where potable water is required.

Definitions

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

Coliform - A group of bacteria commonly found in the environment. They are an indicator of potential contamination of water. Adequate and appropriate disinfection effectively destroys bacteria.

Disinfection - A process that effectively destroys coliform bacteria.

Contaminant - Any naturally-occurring or man-made physical, chemical, biological, or radiological substance in water, which at a high enough level may have an adverse effect on public health, and which is known or anticipated to occur in public water systems.

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 are non-enforceable public health goals and allow for a margin of safety.

Nitrates - A dissolved form of nitrogen found in fertilizers and sewage by-products, which may leach into groundwater and other water sources. Nitrates may also occur naturally in some waters.

pCi/L, picocuries per liter - A measurement of radiation released by a set amount of a certain compound.

pH - A measure of the acidity or alkalinity of water.

ppb, ppm - part per billion, part per million.

Measurements of the amount of contaminant per unit of water. A part per million is like one dollar in \$1,000,000 and a part per billion like one dollar in \$1,000,000,000.

Understanding Your Drinking Water

Your tap water is of high quality and meets all state (MDE), federal (EPA) and Navy standards for drinking water. Like any other public water treatment facility, the NSAA Water Treatment Plant abides by the primary regulation [the federal Safe Drinking Water Act (SDWA)] to ensure that public health and safety is protected in drinking water supplies.

NSAA routinely monitors your drinking water for over 80 potential contaminants. The sampling schedule for each contaminant varies by parameter, ranging from twice monthly to once every several years. The MDE allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants in deep groundwater do not change frequently. Some of our data, though representative, are more than one year old.

The top half of the table on page 3 lists **only** those contaminants that were present in your drinking water at levels detectable by laboratory equipment. The bottom half of the table lists those **undetected** contaminants that were monitored per the MDE's requirements. The table contains the name of each substance, the likely sources of such contamination, the amount detected, the highest level allowed by regulation (MCL), the ideal goals for public health (MCLG), whether or not the detected amount meets EPA standards, and footnotes explaining our findings. This information is based on testing conducted prior to the end of 2011. The Maximum Contaminant Levels (MCLs) listed in the tables are set by the EPA. These levels are based on the assumption that the average person drinks 2 liters of water each day over a 70-year life span. The MCLs are typically set at a level that will cause no harm or a one-in-ten thousand to one-in-a-million chance increase over the average risk of having the associated health effect as a result of exposure to a particular contaminant.

Drinking Water and Your Health

Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches. NSAA performs microbial testing at five locations across the Yard twice per month. If these bacteria are detected, there also may be a potential for the presence of other, more harmful, organisms. No coliform presence was detected in any of the 120 samples collected in 2011.

2011 Monitoring Data for NSAA Distribution System

Substance	Likely Source	Amount Detected	MCL	MCLG	Units	Within EPA standards?
Barium	Erosion of natural deposits	ND	2	2	mg/L	yes
Copper	Corrosion of building plumbing systems	<0.05	1.3 ^a	1.3	mg/L	yes
Fluoride	Additive for prevention of tooth decay	0.327	4	4	mg/L	yes
Lead	Corrosion of household piping, erosion of natural deposits	<0.005	0.015 ^a	0	mg/L	yes
Gross alpha	Erosion of natural deposits	1	15	0	pCi/L	yes
Radium 228	Erosion of natural deposits	<1.5	5	0	pCi/L	yes
Total Trihalomethanes	Byproduct of drinking water disinfection	0.008	0.080	N/A ^b	mg/L	yes
Haloacetic Acids (HAA5)	Byproduct of drinking water disinfection	0.002	0.060	N/A ^b	mg/L	yes
Antimony	Discharge from petroleum refineries; fire retardants; ceramics; electronics;	ND	0.006	0.006	mg/L	yes
Arsenic	Herbicides, erosion of natural deposits	ND	0.01	0	mg/L	yes
Beryllium	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense	ND	0.004	0.004	mg/L	yes
Cadmium	Corrosion of galvanized pipe, erosion of natural deposits	ND	0.005	0.005	mg/L	yes
Chromium	Erosion of natural deposits	ND	0.1	0.1	mg/L	yes
Mercury	Discharge from refineries & factories, erosion of natural deposits, landfill	ND	0.002	0.002	mg/L	yes
Nickel	Erosion of natural deposits	ND	0.002	N/A	mg/L	yes
Nitrate	Fertilizer runoff, leaching from septic tanks, erosion of natural deposits	ND	10	10	mg/L	yes
Selenium	Erosion of natural deposits, discharges from refineries or mining operations	ND	0.05	0.05	mg/L	yes
Thallium	Leaching from ore-processing sites; discharge from electronics, glass, and	ND	0.002	0.0005	mg/L	yes

Notes: N/A - Not Applicable ND - Not Detected mg/L - milligram per liter (a milligram per liter is roughly equivalent to ppm)

^a Action Level for > 10% of sample/sites

^b Although there is no collective MCLG for this contaminant group, there are individual MCLGs for some of the individual contaminants: Trihalomethanes: bromodichloromethane (zero); bromoform (zero); dibromochloromethane (0.06 mg/L); chloroform (0.07 mg/L).

Haloacetic acids: dichloroacetic acid (zero); trichloroacetic acid (0.02 mg/L); monochloroacetic acid (0.07 mg/L). Bromoacetic acid, and dibromoacetic acid are regulated with this group but have no MCLGs.

Drinking Water and Your Health (continued)

In addition, the water treatment operators maintain a rigorous sampling schedule (some parameters several times per shift) to ensure proper plant operation. These include the continuous monitoring of pH, iron, hardness, and flow so that the proper amount of treatment additives (fluorine, chlorine, lime, and polymers) can be used to generate high quality potable water.

However, 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/Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791) or at <http://www.epa.gov/safewater/consumer/pdf/crypto.pdf>.

Additionally, 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. NSAA 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 2 minutes before using water for drinking or cooking. If you are concerned about lead in your drinking water, you may wish to have your water tested. NSAA sampled for lead in July of 2010, all samples collected were below the EPA action limit of 0.015 mg/L as indicated in the table above. Information on lead in drinking water, testing method, and steps you can take to minimize exposure is available from the EPA Safe Drinking Water Hotline below or at <http://www.epa.gov/safewater/lead>.

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. U.S. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water that must provide the same protection for public health. Any bottled water that is labeled "Drinking Water" has to meet FDA's drinking water regulations. 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)**.

Current Issues Impacting Your Drinking Water

The following rules impacting U. S. drinking water were adopted in recent years by the MDE and EPA: Arsenic Rule, Groundwater Rule (GWR), Lead and Copper, Microbials & Disinfection Byproduct Rule (DBPR), Methyl-t-butyl ether (MTBE), Radionuclide Rule (RAD), and Radon. NSAA has determined that the groundwater has not been influenced by the surface water due to the depth of the wells, and our location. Therefore, these rules (except for Arsenic Rule, GWR, Lead and Copper, and DBPR) do not apply to our drinking water. For more information about these rules, you can go to <http://www.epa.gov/safewater/standards.html>.

There are issues with the presence of radium in shallow groundwater wells in Anne Arundel County, nominally north of Route 50. For those of you who live in northern Anne Arundel County, the MDE has an informative web site, which discusses this issue (http://www.mde.state.md.us/Programs/WaterPrograms/Water_Supply/radium.asp)

For those of you who reside and/or work in the North Severn area, Anne Arundel County has been supplying your water since December 1999 (upon closure of the former David Taylor Research Center's water treatment plant). AA County's Department of Public Works web site is: <http://www.aacounty.org/DPW/Utilities/waterQuality.cfm>, which will lead you to their Annual Water Quality Report that covers the entire county's water service area.

NEED MORE INFORMATION?

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WEBSITES

EPA: www.epa.gov/safewater
MDE: www.mde.state.md.us
Anne Arundel County: <http://www.aacounty.org/>
NSAA/USNA: <http://www.usna.edu/PublicWorks/enviro.htm>
(public access)

