2008 WATER QUALITY REPORT
NAVAL STATION NORFOLK, VIRGINIA

Naval Station Norfolk/Naval Support Activity (NSN/NSA) is committed to providing you drinking water that is safe and reliable. NSN/NSA believes that providing you with accurate information about your water is the best way to assure you that your water is safe. This Water Quality Report will explain where your water comes from and contains tables listing all contaminants detected in your water in 2008.

NSN/NSA purchases drinking water from the City of Norfolk. Water from Lake Gaston is blended with Norfolk's water and is treated at the Moores Bridges Water Treatment Plant in Norfolk. Norfolk's primary water supply comes from Lake Prince and Western Reservoir in Suffolk and Lake Burnt Mills in Isle of Wight County. From the reservoirs, water is pumped through pipes to the treatment plant. Water treatment chemicals are added to the water, causing small solid particles to clump together and sink to the bottom of a settling basin. The water is then filtered to remove bacteria, algae, and other impurities. Finally, the water is disinfected with chloramines to kill any remaining bacteria. The Moores Bridges Water Treatment Plant provides state of the art treatment technology and surpasses all state and federal water quality standards and regulations. Moores Bridges not only treats the water, but also tests it for over 230 substances, and the Navy collects 50 bacteriological samples per month providing continuous monitoring for the highest water quality possible.

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, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

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).

Contaminants that may be present in source water include:

(1) **Microbial contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
(2) **Inorganic contaminants**, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
(3) **Pesticides and herbicides**, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
(4) **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 stormwater runoff, and septic systems.
(5) **Radioactive contaminants**, which can be naturally occurring or be the result of oil and gas production and mining activities.

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.

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. The Maximum Contaminant Levels (MCLs) and the Maximum Contaminant Level Goals (MCLGs) listed in the tables are set by the EPA. The Regulated Substances Table and the Unregulated Substances Table are provided for your information.

REGULATED SUBSTANCES TABLE

Substance	Likely Source	Range	Average Level	Highest level	MCL	MCLG	Unit	Meets EPA Standards?
Barium	Erosion of natural deposits	23-33	29	33	2000	2000	ppb	Yes
Total Chlorine	Drinking Water disinfectant	0.1 – 4.8	2.2	4.8	Average < 4 (MRDL)	Average < 4 (MRDLG)	ppm	Yes
Dalapon	Herbicide from runoff	ND – 1.1	ND	1.1	200	200	ppb	Yes
Fluoride	Added to prevention of tooth decay	0.1 – 2.2	0.8	1.1***	4	4	ppm	Yes
Gross Alpha Activity	Erosion of natural deposits	0.1 – 0.5	0.3	0.5	15	0	pCi/L	Yes
Gross Beta Activity	Erosion of natural deposits	3.3 – 3.3	3.3	3.3	50**	N/A	pCi/L	Yes
Haloacetic Acids*** (HAAs)	Drinking water disinfection by-product	ND – 63	27	63	60	N/A	ppb	Yes
Hexachlorocyclopentadiene	Pesticide component from runoff	ND – 0.1	ND	0.1	50	50	ppb	Yes
Nitrate as Nitrogen	Erosion of natural deposits, runoff	0.01 – 0.2	0.1	0.2	10	10	ppm	Yes
Radium 226/228	Erosion of natural deposits	0.2 – 0.4	0.3	0.4	5	0	pCi/L	Yes
Total Organic Carbon	Occurs naturally in environment	1.3 – 3.1	2.2	2.7***	TT	N/A	ppm	Yes
Trihalomethanes*** (THMs)	Drinking water disinfection by-product	8 – 77	56	77	80	N/A	ppb	Yes

* This number is the highest monthly value of compliance samples for the calendar year.
** EPA considers 50 pCi/L to be the level of concern for Beta particles.
*** The average and highest level is the highest running annual average calculated during the calendar year. The range numbers are the results from individual sample locations.
ND - Not Detected
TT - Treatment Technique. A required process intended to reduce the level of a substance in drinking water.
AL - Action Level. The concentration of a contaminant that, if exceeded, triggers treatment or other requirements, which a water system must follow.

TURBIDITY TABLE

Substance	Likely Source	Lowest monthly percentage of samples meeting the limit	Highest Level (NTUs)	MCL	MCLG	Unit	Meets EPA Standards?
Turbidity	Soil runoff	99.5%	0.50	<95%	N/A	NTU	Yes

Turbidity is a measure of the cloudiness of water. Turbidity, by itself, is not harmful, but it can interfere with the disinfection of drinking water.

COLIFORM TABLE

Substance	Likely Source	Range	Level Detected	MCL	MCLG	Meets EPA Standards?
Total Coliform Bacteria	Naturally present in the environment	0-1	1*	Presence of coliform bacteria in >5% of monthly samples	0	Yes

* This number represents the highest number of positive coliform samples in a month.

Weekly testing for coliform bacteria is performed throughout the Naval Station Norfolk distribution system. Coliform bacteria are naturally present in the environment. They are used as an indicator that other, potentially harmful bacteria may be present. If these bacteria are detected, we are required to take further samples in that portion of the distribution system. One sample tested positive for total coliform bacteria during the months of June and December 2008. Repeat sampling was performed resulting in negative detection levels of total coliform bacteria in both cases.

LEAD AND COPPER TABLE

Substance	Likely Source	Range	Average Level	Highest level	MCL	MCLG	Unit	Meets EPA Standards?
Lead (2007 Data)	Corrosion of household plumbing systems, erosion of natural deposits	1 - 315	90th percentile = 13	315	AL = 15 (1 site exceeded AL)	0	ppb	Yes
Copper (2007 Data)	Corrosion of galvanized pipes; erosion of natural deposits	25 - 764	90th percentile = 300	764	AL = 1300 (0 sites exceeded AL)	1300	ppb	Yes

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 Station Norfolk 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 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 the Safe Drinking Water Hotline or http://www.epa.gov/safewater/lead.

UNREGULATED SUBSTANCES TABLE

Substance	Likely Source	Range	Avg. Level	Highest Level	MCL	Unit
Aluminum	Erosion of natural deposits; also comes from the addition of treatment chemicals at the water treatment plant.	0.01 - 0.04	0.02	0.04	N/A	ppm
Boron	Erosion of natural deposits	ND - 0.12	0.07	0.12	N/A	ppm
Manganese	Natural in environment	ND - 0.02	ND	0.02	N/A	ppm
Nickel	Corrosion of plumbing materials	ND - 2	ND	2	N/A	ppm
Sodium	Occurs naturally in the environment; also comes from the addition of treatment chemicals at the water treatment plant.	13 - 31	22	31	N/A*	ppm
Sulfate	Natural in environment; also from use of chemicals at water treatment plant	24 - 42	35	42	N/A	ppm

* For physician-prescribed “no salt diets” a limit of 20 ppm is suggested.

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 and other microbial contaminants are available from the EPA Safe Drinking Water Hotline (800-426-4791).

Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested, and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the 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.

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 coliform bacteria.
- **Contaminant** - Any natural or man-made physical, chemical, biological, or radiological substance or matter in water, which is at a level that may have an adverse effect on public health, and which is known or anticipated to occur in public water systems.
- **Disinfection** - A process that effectively destroys coliform bacteria.
- **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. 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.
- **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.
- **NTU (nephelometric turbidity unit)** - A measure of the clarity of water.
- **Pathogens, disease-causing pathogens, and waterborne pathogens** - A pathogen is a bacterium, virus or parasite that causes or is capable of causing disease. Pathogens may contaminate water and cause waterborne disease.
- **pCi/L, picocuries per liter –** picocuries per liter is a measure of the radioactivity in water.
- **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 cent in $10,000 and a part per billion is like one cent in $10,000,000.
- **Treatment Technique (TT)** - 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. Kristen Bass, Water Program Manager for NSN/NSA, at 757-444-6874 or e-mail: kristen.bass@navy.mil
- For more information about decisions affecting your drinking water quality, you may attend Norfolk City Council meetings. For times and agendas, call the City Clerk's office at 664-4253 or visit the City of Norfolk website at www.city.norfolk.va.us/utilities
- State of Virginia Department of Health Website: http://www.vdh.state.va.us/DrinkingWater/
- Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791
- Environmental Protection Agency Website: www.epa.gov/safewater