

The Annual Consumer Confidence Report on the Quality of Drinking Water



Naval Air Station Patuxent River



Reporting Period & Water Testing for 2009

Introduction

This is an annual report on the quality of drinking water delivered by Naval Air Station (NAS) Patuxent River. Under the "Consumer Confidence Reporting Rule" of the federal Safe Drinking Water Act (SDWA), community water systems are required to report this water quality information to the consuming public. Presented in this report is **information on the source of our water, its constituents and the health risks associated with any contaminants.**

Water Quality

Last year, as in years past, your tap water met all U.S. Environmental Protection Agency (EPA) and state drinking water health standards. The NAS Patuxent River vigilantly safeguards its water supplies and once again we are proud to report that our system has not violated a maximum contaminant level (MCL) or any other water quality standard.

Source of NAS Patuxent River's Drinking Water

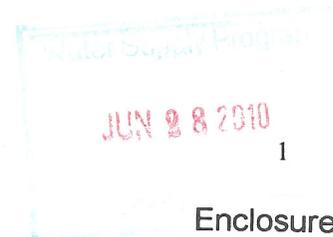
The NAS Patuxent River water being delivered to you is pumped from the *Piney Point-Nanjemoy, Patapsco, and Aquia* Aquifers, which are groundwater sources below St. Mary's County, Maryland. The recharge zone for these aquifers is a broad area approximately 25-75 miles north and northeast from here. The water is chlorinated to ensure it is delivered safely to your building or residence.

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 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 (CDC) guidelines on appropriate means to lesson the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline, at (800) 426-4791.

Source Water Assessment and Availability

The Maryland Department of the Environment's (MDE) Water Supply Program has conducted a Source Water Assessment (SWA) for NAS Patuxent River. The susceptibility analysis of this report is based on a review of the existing water quality data for each water system, the presence of potential sources of contamination in the individual assessment areas, well integrity, and aquifer characteristics. It was determined that the NAS Patuxent River water supply is not susceptible to contaminants originating at the land surface due to the protected nature of the confined aquifers. The wells pumping from the Aquia aquifer are susceptible to naturally occurring arsenic. The susceptibility of the water to radon-222, a naturally occurring element, will depend on the final MCL that is adopted for this contaminant. Due to security risks, distribution and access to the SWA is restricted. For further information you may contact the MDE Water Supply Program at (410) 537-3702.



Drinking Water and Contaminants

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. 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: microbial contaminants, such as viruses and bacteria, that 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 stormwater 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, and can also come from gas stations, urban stormwater runoff, and septic systems and radioactive contaminants, which can be naturally occurring or be the results of oil and gas production and mining activities. In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

Additional Information for Arsenic, Disinfectants and Disinfection Byproducts, Lead and Copper, Nitrate, Radon, and Sodium

Arsenic above 5 up through 10 parts per billion (ppb): While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the cost of removing arsenic from the drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations, and is linked to other health effects such as skin damage and circulatory problems. **Arsenic above 10 ppb:** Some people who drink water containing arsenic in excess of the maximum contaminant level (MCL) over many years could experience skin damage or problems with their circulatory systems, and may have an increased risk of getting cancer.

Disinfection of drinking water is one of the major public health advances; however, the disinfectants themselves can react with naturally occurring materials in the water to form unintended by-products, which may pose public risk. The Stage 1 Disinfectants and Disinfection Byproducts Rule, establishes maximum residual disinfectant level goals and maximum residual disinfectant levels for three chemical disinfectants – chlorine, chloramine, and chlorine dioxide. It also established maximum contaminant level goals and maximum contaminant levels for byproducts of the disinfection process, namely total trihalomethanes (TTHMs), haloacetic acids (HAA5), chlorite, and bromate. TTHMs monitored include chloroform, bromoform, bromodichloromethane, and dibromochloromethane.

Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby-syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you're caring for an infant, you should ask for advice from your health care provider.

Radon is a radioactive gas that you can't see, taste, or smell and is found throughout the U.S. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Radon in air poses the greatest risk to human health over a lifetime. **Compared to radon entering the home through soil, radon entering the home through tap water will most likely be a small source of radon in indoor air.** If you are concerned about radon in your home, test the air in your home, it's inexpensive and easy. Fix your home if the level of radon in your air is 4 picocuries per liter of air (pCi/L) or higher. For additional information, call EPA's Radon Hotline (800-SOS-RADON).

Sodium does not have a federal MCL, however the EPA has set a recommended sodium level of 20 mg/L for people who are on a *physician-prescribed* "no salt diet". This is a very stringent level. For comparison purposes, regular milk has a sodium concentration of approximately 500 mg/L. Sodium is a natural occurring component of water, and

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high levels can give the water a salty taste. The concentration of sodium in water supplies may vary from a few to several hundred milligrams per liter. The sodium levels on base ranged from 14 to 81 mg/L. The information here is being provided for those persons on a strict low-sodium diet who should consult their physician or a registered dietician to plan a healthy diet that reduces the sodium content in their total food intake. More information can be found on the EPA website at <http://www.epa.gov/ogwdw/ccl/sodium.html>.

Lead and Copper sampling is required for all community and nontransient noncommunity water systems. NAS Patuxent River is required to sample for lead and copper every three years. Lead enters drinking water mainly from the corrosion of lead-containing plumbing. All water is corrosive to metal plumbing materials to some degree. 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 homes plumbing.

Copper contamination generally occurs from the corrosion of household plumbing. Copper is an essential nutrient, required by the body in small amounts. However, copper can cause the following health effects: Stomach and intestinal distress, liver, and kidney damage, and anemia. Persons with Wilson's Disease may be more sensitive than others to the effects of copper contamination. An action level is a level, when the water is sampled, that ninety percent (90%) of your samples must be below (90th percentile). If the action level is exceeded, then further action is triggered. The Lead Action Level is fifteen parts per billion (15ppb). The copper action level is one and three tenths milligrams per liter (1.3 mg/l).

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. The NAS Patuxent River Public Works Department 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. Information on lead in drinking water , testing methods, and steps you can take to minimize exposure is available from the EPA Safe Drinking Water Hotline at 1-800-426-4791 or at <http://www.epa.gov/safewater/lead>.



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Water Quality Data Table

The following tables present the results of our monitoring for the reporting period of calendar year 2009. The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old because of this monitoring frequency. It is important to note that these detected contaminants are at levels **BELOW** the allowable maximum contaminant level (MCL), which is determined safe by the EPA, unless data show the standard was exceeded. The presence of contaminants in the water does not necessarily indicate that the water poses a health risk.

<u>Contaminants</u>	<u>MCLG or MRDLG</u>	<u>MCL, TT, or MRDL</u>	<u>Your Water</u>	<u>Range</u> <u>Low</u> <u>High</u>		<u>Sample Date</u>	<u>Violation</u>	<u>Typical Source</u>
Disinfectants & Disinfection By-Products								
(There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.)								
Haloacetic Acids (HAA5) (ppb)	NA	60	.708	0	2.2	2009	No	By-product of drinking water disinfection
TTHMs (Total) (ppb) (Trihalomethanes)	NA	80	3.18	.6	5.0	2009	No	By-product of drinking water disinfection
Inorganic Contaminants								
Antimony (mg/l)	.006	.006	.005	.005	.005	2007	No	Discharge from petroleum refineries; fire retardants, ceramics, electronic, solder
Arsenic (ppb)	0	10.0	6.5	6.2	6.8	2009	No	Erosion of natural deposits; runoff from orchards, glass, and electronics production waste
Barium (mg/l)	2	2	.005	.005	.005	2007	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Beryllium (mg/l)	.004	.004	.0005	.0005	.0005	2007	No	Discharge from metal refinery, coal burning factories; electrical, aerospace and defense industries
Cadmium (mg/l)	.005	.005	.0005	.0005	.0005	2007	No	Corrosion of galvanized pipes, erosion of natural deposits; discharge from metal refineries; runoff from waste batteries, paints
Chromium (mg/l)	.1	.1	.002	.002	.002	2007	No	Discharge from steel and pulp mills; Erosion of natural deposits
Fluoride (mg/l)	4	4	.78	.4	1.9	2007	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Mercury (mg/l)	.002	.002	.0005	.0005	.0005	2007	No	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and croplands

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Nickel (mg/l)			.002	.002	.002	2007	No	
Nitrate [measured as Nitrogen] (mg/l)	10	10	1.0	1.0	1.0	2009	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Selenium (mg/l)	.05	.05	.005	.005	.005	2007	No	Discharge from petroleum refineries; erosion of natural deposits; discharge from mines
Sodium (optional) (mg/l)		MPL	59.3	14	81	2007	No	Erosion of natural deposits; Leaching
Thallium (mg/l)	.0005	.002	.002	.002	.002	2007	No	Leaching from ore processing sites; discharge from electronics, glass/drug factories

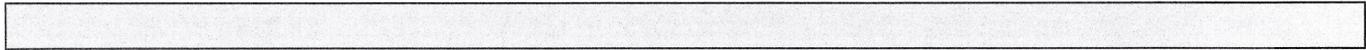
Radioactive Contaminants								
Beta/photon emitters (pCi/L)	0	50	7.09	4	11	2002	No	Decay of natural and man-made deposits. The EPA considers 50 pCi/L to be the level of concern for Beta particles
Radium (combined 226/228) (pCi/L)	0	5	2.03	1	2.5	2002	No	Erosion of natural deposits

Contaminants	MCLG	AL	Your Water	Sample Date	# Samples Exceeding AL	Exceeds AL	Typical Source
Inorganic Contaminants							
Copper – action level at consumer taps (ppm) 90 th percentile	1.3	1.3	.066 mg/l	2009 30 sites sampled	0	No	Corrosion of household plumbing systems; Erosion of natural
Lead - action level at consumer taps (ppb) 90 th percentile	0	15	0 ppb	2009 30 sites sampled	0	No	Corrosion of household plumbing systems; Erosion of natural

During 2009, NAS Patuxent River received three Notices of Violations. These violations were of an administrative nature and involved report receipt delays. These violations are listed below :

Violation ID	Begin	End	Violation Date	Type	Status
1070450	01-Jan-09	31-Dec-09	12-Jan-10	03-nitrate	in compliance
0969495	01-Apr-09	30-Apr-09	10-May-09	23 coliform	in compliance
0969553	01-May-09	31-May-09	10-Jun-09	23 coliform	in compliance





Unit Descriptions	
Term	Definition
ppm	ppm: parts per million, or milligrams per liter (mg/L)
ppb	ppb: parts per billion, or micrograms per liter (µg/L)
pCi/L	pCi/L: picocuries per liter (a measure of radioactivity)
NA	NA: not applicable
ND	ND: Not detected
NR	NR: Monitoring not required, but recommended.

Important Drinking Water Definitions	
Term	Definition
MCLG	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.
MCL	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.
TT	TT: Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.
AL	AL: Action Level: The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements, which a water system must follow.
Variations and Exemptions	Variations and Exemptions: State or EPA permission not to meet an MCL or a treatment technique under certain conditions.
MRDLG	MRDLG: Maximum residual disinfection 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 contaminants.
MRDL	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.
MNR	MNR: Monitored Not Regulated
MPL	MPL: State Assigned Maximum Permissible Level



Water Conservation Tips

Water conservation measures are an important first step in protecting our water supply. Such measures can save the supply of our source water. Here are a few suggestions:

Conservation measures you can use inside your home:

- Fix Leaking faucets, pipes, toilets, etc
- Replace old fixtures; install water-saving devices in faucets, toilets, and appliances
- Wash only full loads of laundry
- Do not use the toilet for trash disposal
- Take shorter showers
- Do not let the water run while shaving or brushing teeth
- Soak dishes before washing
- Run the dishwasher only when full

You can conserve outdoors as well:

- Water the lawn and garden in the early morning or evening
- Use mulch around plants and shrubs
- Repair leaks in faucets and hoses
- Use water saving nozzles
- Use water from a bucket to wash your car, and save the hose for rinsing

Additional information on other ways to help you conserve water can be found at www.epa.gov/safewater/publicoutreach/index.html.

Public Involvement

The Naval Air Station Patuxent River works diligently to provide top quality drinking water to every tap. As residents, employees, and caretakers here, please help us protect our water sources. We welcome your suggestions to help maintain our high quality level of drinking water as well as to conserve water throughout the Station.

If you have questions or concerns please call or email the Naval Facilities Engineering Command, Public Works Department, Environmental Compliance Division. The Safe Drinking Water Program points of contact is: Mr. Denis Gonda, Safe Drinking Water Program Manager, at (301) 757-4792, Denis.Gonda@navy.mil .



