NAVAL AIR STATION OCEANA
VIRGINIA BEACH, VIRGINIA
2023 CONSUMER CONFIDENCE REPORT

Inside this issue:

For additional information:

City of Norfolk Division of Water Quality
(757)441-5678
http://www.norfolk.gov/tap-water

Virginia Department of Health
(757)683-2000
http://www.vdh.virginia.gov/Drinking-Water/

USEPA Safe Drinking Water Hotline
(800)426-4791
http://www.epa.gov/safewater/

Public Works Division (PWD) Environmental, Drinking Water Program
(757)433-3434

The source of NAS Oceana's drinking water is from Lake Gaston and Lake Wright and Western Branch Reservoirs.

Naval Air Station Oceana (NAS Oceana) is committed to providing you drinking water that is safe and reliable. NAS Oceana believes that providing you with accurate information about your water is the best way to assure that your water is safe.

Each year, the Consumer Confidence Report (CCR) is required to be distributed by July 1st of the current year. This CCR is a snapshot of the quality of your drinking water in 2023.

The purpose of this annual report is to advise consumers of where their water comes from, provide water quality data, advance greater understanding of drinking water, and heighten awareness to conserve water resources.

NAS OCEANA WATER SOURCE

NAS Oceana purchases drinking water treated by the City of Norfolk and conveyed through the consecutive water system of the City of Virginia Beach. The City of Norfolk obtains its raw (untreated) water from eight reservoirs, two rivers and four deep wells. From these sources, raw water is pumped to one of two water treatment plants. At both plants 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 City of Virginia Beach is served by the Moore's Bridges Water Treatment Plant. The Moore's Bridges Water Treatment Plant provides state of the art treatment technology and surpasses all state and federal water quality standards and regulations. Moore's Bridges not only treats the water, but also tests it for more than 250 substances. Water from the treatment plant reaches NAS Oceana by passing through the City of Norfolk and City of Virginia Beach distribution systems (piping). Once the water reaches NAS Oceana, the Naval Facilities Engineering Command, Mid-Atlantic operates and maintains your potable water system and is dedicated to ensuring quality drinking water through monthly monitoring for coliform bacteria, quarterly monitoring for disinfection by-products, and monitoring for lead and copper every three years.

A source water assessment of our system has been conducted by the Hampton Roads Planning District Commission. This was done to determine the susceptibility of reservoirs, rivers, and wells to contamination. The City of Norfolk's (our water provider) susceptibility has been rated as high. However, Norfolk's Moore's Bridges Water Treatment Plant tests and treats the water to meet federal drinking water standards. To obtain a copy of this study, please contact the Drinking Water Program Manager at (757)433-3434.

ABOUT DRINKING WATER

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 (contaminants) resulting from the presence of animals or from human activity. Contaminants in source water may come from septic systems, discharges from domestic or industrial wastewater treatment facilities, agricultural and farming activities, urban storm water runoff, residential uses, and many other types of activities. Water from surface sources is treated to make it drinkable while groundwater may or may not have any treatment.

Contaminants that may be present in source water include:

Microbial contaminants, such as viruses and bacteria, which 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 storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

ABOUT DRINKING WATER (continued)

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 come from gas stations, urban storm water runoff, and septic systems.
Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

In addition to these contaminants, all lakes and streams contain algae, which are microscopic plants that can cause taste and odor problems in drinking water.

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).

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.

Last year, the Moore's Bridges Water Treatment Plant conducted tests for more than 250 potential contaminants. All of those tests met EPA regulatory standards. The Navy tested the NAS Oceana drinking water for a variety of contaminants.

Who needs to take 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 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/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are 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.

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. NAS Oceana 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** or until it becomes cold or reaches a steady temperature before using water for drinking or cooking. If you have questions about your water, please contact PWD Environmental at 757-433-3434. 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 at http://www.epa.gov/safewater/lead.

DEFINITIONS AND ABBREVIATIONS

Contaminants in your drinking water are routinely monitored according to Federal and State regulations. The table on the following pages shows the results of monitoring for 2023. In the tables and elsewhere in this report you may find many terms and abbreviations which you are not familiar. The following definitions are provided to help you better understand these terms:

- **Action Level (AL)** - The concentration of a contaminant that, if exceeded, triggers treatment or other requirements which a water system must follow. For lead and copper monitoring, compliance is based on the 90th percentile value.
- **Level 1 Assessment** – A Level 1 assessment is a study of the waterworks to identify potential problems and determine, if possible, why total coliform bacteria have been found in our waterworks.
- **Level 2 Assessment** – A level 2 assessment is a very detailed study of the waterworks to identify potential problems and determine, if possible, why an *E. Coli* PMCL violation has occurred and why total coliform bacteria have been found in our waterworks on multiple occasions.
- **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 based on running annual average. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants. For chlorine and chloramines, a waterworks is in compliance with the MRDL when the running annual average of monthly averages of samples taken in the distribution system, computed quarterly, is less than or equal to the MRDL.
- **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.
- **NA** – Not applicable
- **Nephelometric Turbidity Unit (NTU)** – A measure of the clarity, or cloudiness, of water. Turbidity in excess of 5 NTU is just noticeable to the average person. Turbidity is monitored because it is a good indicator of the effectiveness of the filtration system.
- **Non-detection (ND)** – Laboratory analysis indicates that the contaminant is not present.
- **Picocuries per liter (pCi/L)** - A measure of the radioactivity in water.
- **Parts per million (ppm) or Milligrams per liter (mg/L)** – A measurement of the amount of contaminant per unit of water. A part per million is one cent in $10,000 or one minute in two years.
- **Parts per billion (ppb) or Micrograms per liter (ug/L)** – A measurement of the amount of contaminant per unit of water. A part per billion is like one cent in $10,000,000 or one minute in 2,000 years.
- **Secondary Maximum Contaminant Level (SMCL)** – Non-enforceable standard that is established for aesthetic considerations
- **Treatment Technique (TT)** - A required process intended to reduce the level of a contaminant in drinking water.

WATER QUALITY DATA

The tables below list only those contaminants that were present in your drinking water at levels detectable by laboratory equipment. Unless otherwise noted, the data presented in these tables is from testing done in 2023. We are required to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change. The presence of contaminants in the water does not necessarily indicate that the water poses a health risk. The EPA sets the Maximum Contaminant Levels (MCLs) and the Maximum Contaminant Level Goals (MCLGs) as listed in the tables. The Regulated Substances Table and the Unregulated Substances Table are provided for your information and as required by the Consumer Confidence Rule.

WATER QUALITY TABLE

Regulated Substances	Unit	MCLG	MCL	Highest Level	Average Level	Range	Meets EPA Standards	Possible Source of Contamination
Barium	ppm	2	2	0.04	0.03	0.02 – 0.04	Yes	Erosion of natural deposits
Fluoride	ppm	4.0	4.0	0.7[1]	0.4	0.1 – 0.9	Yes	Added for the prevention of tooth decay
Nitrate as Nitrogen	ppm	10	10	0.30	0.12	0.03 – 0.30	Yes	Erosion of natural deposits, runoff
Total Organic Carbon	%	NA	TT	54% removal[2,3]	-	47 – 70 % removal	Yes	Occurs naturally in environment

Microbiological Contaminants	Unit	MCLG	MCL	Highest Level	Average Level	Meets EPA Standards	Possible Source of Contamination
E. Coli	# of positive samples	0	*	0	NA	YES	Human and animal fecal waste

* Effective April 1, 2016 The Revised Total Coliform Rule established the following Primary Maximum Contamination Level (PMCL): In compliance unless (i) the waterworks has an E. coli-positive repeat sample following a total coliform-positive routine sample; (ii) the waterworks has a total coliform-positive repeat sample following an E. coli-positive routine sample; (iii) the waterworks owner fails to take all required repeat samples following an E. coli-positive routine sample; or (iv) the waterworks owner fails to test for E. coli when any repeat sample tests positive for total coliform.

Residual Disinfectants and Disinfection By Products	Unit	MCLG	MCL	Highest Level[4]	Range (Individual Results)	Meets EPA Standards	Possible Source of Contamination
Haloacetic Acids (HAA5)	ppb	NA	60	20.3	0 - 33	Yes	Drinking water disinfectant by-product
Trihalomethanes (TTHM)	ppb	NA	80	34.1	16.3 – 42.2	Yes	Drinking water disinfectant by-product
Total Chlorine Residual	ppm	4[5]	4[6]	1.7	0.02 – 3.80	Yes	Drinking water disinfectant

Substance	Unit	MCLG	MCL	Highest Level	Lowest monthly percentage of samples meeting the limit	Meets EPA Standards	Likely Source
Turbidity**	NTU	NA	<1.0 maximum, and ≤0.3 95 % of the time	0.12	100 %	Yes	Soil Run-off

**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.

Lead and Copper Monitoring (2021)	Unit	MCLG	AL	Samples above AL	90th Percentile	Range	Meets EPA Standards	Possible Source of Contamination
Copper	ppb	1,300	1,300	0	102	22 - 190	Yes	Corrosion of pipes; Erosion of natural deposits
Lead	ppb	0	15	0	1	ND - 2	Yes	Corrosion of household plumbing systems; Erosion of natural deposits

[1]Highest Monthly average for calendar year.
[2]Running annual average, calculated quarterly.
[3] EPA requires 45% removal
[4]This number is the highest running annual average of quarterly compliance samples for the 2023 calendar year; for Total Chlorine Residual, the highest running annual average was determined by calculating quarterly values which were based on monthly compliance samples.
[5]MRDLG.
[6]MRDL.

Secondary and Unregulated Monitored Substances	Unit	SMCL	Highest Level	Average Level	Range	Likely Source
Aluminum	ppm	0.05 - 0.20	0.04	0.02	ND – 0.04	Erosion of natural deposits; also from use of chemicals at water treatment plant
Boron	ppm	N/A	0.06	ND	ND – 0.06	Natural in environment and manmade origins
Chloride	ppm	250	20	17	15 - 20	Natural in environment
pH	pH Units	6.5 – 8.5	7.7[7]	7.7	7.3 – 8.2	Adjusted during water treatment process
Iron	ppm	0.3	0.04	ND	ND – 0.04	Natural in environment
Nickel	ppm	N/A	0.004	ND	ND – 0.004	Corrosion of plumbing materials
Sodium	ppm	NA[8]	21	16	13 – 21	Natural in environment; also from use of chemicals at water treatment plant
Sulfate	ppm	250	41	36	33 - 41	Natural in environment; also from use of chemicals at water treatment plant
Total Dissolved Solids	ppm	500	126	122	115 – 126	Natural in environment
Zinc	ppm	5	0.32	0.20	0.04 – 0.32	Natural in environment; also from use of chemicals at water treatment plant
Perfluoropentanoic acid (PFPeA) [9]	ppb	n/a	0.0051	ND	ND – 0.0051	Industrial / Man-Made
Perfluorohexanoic acid (PFHxA)[9]	ppb	n/a	0.0037	ND	ND – 0.0037	Industrial / Man-Made
Perfluorooctanesulfonic acid (PFOS)[9]	ppb	n/a	0.0058	ND	ND – 0.0058	Industrial / Man-Made

[7] Highest monthly average for calendar year.
[8]For physician-prescribed "no salt diets," a limit of 20 ppm is suggested.
[9] Samples taken as part of the Unregulated Contaminant Monitoring Rule 5 in Norfolk. Final sampling event occurred in 2023.

Unregulated Contaminant Monitoring Rule 4 (UCMR4)[10]	Unit	SMCL	Highest Level	Average Level	Range	Likely Source
Manganese	ppm	0.05	0.002	0.001	0.00 – 0.002	Natural in environment
Haloacetic Acids (HAA5)	ppm	NA	0.023	0.007	0.0005 – 0.023	Drinking water disinfectant by-product
Haloacetic Acids (HAA6Br)	ppm	NA	0.005	0.001	0 – 0.005	Drinking water disinfectant by-product
Haloacetic Acids (HAA9)	ppm	NA	0.028	0.008	0 – 0.028	Drinking water disinfectant by-product

[10]EPA uses the Unregulated Contaminant Monitoring (UCM) program to collect data for contaminants suspected to be present in drinking water, but that do not have health-based standards set under the Safe Drinking Water Act (SDWA). Every five years EPA reviews the list of contaminants and selects no more than 30 for a nationwide drinking water survey to provide occurrence data for potential future regulation. Sampling for UCMR4 occurred in 2020.

Additional Information*	Unit	Average Level	Range
Alkalinity	ppm	38	29 – 53
Ammonia	ppm	0.1	ND – 0.4
Hardness	ppm	61[11]	54 - 69
Silica	ppm	8	6 - 9

*The substances listed above are not regulated by the EPA; however, this information is provided as a service to our customers

[11]Norfolk's water averages in the range between soft and slightly hard. This means there is enough hardness for soaps and detergents to work properly, yet not too much to interfere with most industrial applications. To find grains per gallon, divide ppm value by 17.

PER – AND POLYFLUOROALKYL SUBSTANCES

What are per- and polyfluoroalkyl substances and where do they come from?

Per- and polyfluoroalkyl substances (PFAS) are a group of thousands of man-made chemicals. PFAS have been used in a variety of industries and consumer products around the globe, including in the U.S., since the 1940s. PFAS have been used to make coatings and products that are used as oil and water repellents for carpets, clothing, paper packaging for food, and cookware. They are also contained in some foams (aqueous film-forming foam or AFFF) currently used for fighting petroleum fires at airfields and in industrial fire suppression processes. PFAS chemicals are persistent in the environment and some are persistent in the human body – meaning they do not break down and they can accumulate over time.

Is there a regulation for PFAS in drinking water?

On April 10, 2024, the US EPA established MCLs for a subset of PFAS chemicals. EPA requires implementation of sampling in accordance with the new MCLs within three years of the publication date and implementation of any required treatment within five years.

Compound	Final MCLG	Final MCL (enforceable level)
PFOA	0	4.0 parts per trillion (ppt) also expressed as (ng/L)
PFOS	0	4.0 ppt
PFHxS	10 ppt	10 ppt
PFNA	10 ppt	10 ppt
HFPO-DA (commonly known as GenX Chemicals)	10 ppt	10 ppt
Mixtures containing two or more of PFHxS, PFNA, HFPO-DA, and PFBS	1 (unitless) Hazard Index	1 (unitless) Hazard Index

These limits did not apply for the 2023 calendar year because they had not been published. However, the DoD proactively promulgated policies to monitor drinking water for PFAS at all service owned and operated water systems at a minimum of every two years. The DoD policy states that if water sampling results confirm that drinking water contains PFOA and PFOS at individual or combined concentrations greater than the 2016 EPA health advisory (HA) level of 70 ppt, water systems must take immediate action to reduce exposure to PFOS or PFAS. For levels less than 70 ppt but above the 4 ppt level (draft at the time of policy publication), DoD committed to planning for implementation of the levels once EPA's published MCLs take effect.

Has NAS Oceana tested its water for PFAS?

Yes. In December 2023 samples were collected from the wells at the Skeet Range Building (SR9) and the Natural Resources Building (78).

At the Skeet Range building (SR9), We are pleased to report that drinking water testing results were below the Method Reporting Limit (MRL) for all 29 PFAS compounds covered by the sampling method, including PFOA and PFOS. This means that PFAS were not detected in your water system. In accordance with DoD policy, the water system will be resampled every two years for your continued protection

At the Natural Resources Building (78), we are informing you that 2 of the 29 PFAS covered by the sampling method were detected above the method reporting limit (MRL). The results are provided in the table below. EPA does not have a HA or MCL for all of these compounds at this time. PFHxS and PFBS were detected but below the new MCL. As the regulated chemicals were below the new MCL's, there is not immediate cause for concern, but we will continue to monitor the drinking water closely.

PFAS Component	Unit	SMCL	Location	Result	Likely Source
Perfluorobutanesulfonic acid (PFBS)	ppb	n/a	Bldg 78	0.0051	Industrial / Man-Made
Perfluorohexanesulfonic acid (PFHxS)	ppb	n/a	Bldg 78	0.0022	Industrial / Man-Made

VIOLATIONS AND EXCEEDANCES

No Violations issued this year.

QUESTIONS

Please contact PWD Environmental staff at 757-433-3434 if you have any questions regarding this report.

To access this report electronically, please visit the Commander, Navy Region Mid-Atlantic website at:
https://cnrma.cnic.navy.mil/Operations-and-Management/Environmental-Support/Drinking-Water-Quality-Information/