Goddard Space Flight Center
Wallops Flight Facility
Main Base Waterworks

2024 Annual Drinking Water Quality Report

NASA Wallops Flight Facility is pleased to present the 2024 Annual Water Quality Report (Consumer Confidence Report) as required by the Safe Drinking Water Act (SDWA). This report is designed to provide details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. This report is a snapshot of last year's water quality. Wallops routinely conducts tests for over 50 substances in drinking water. Last year, only 9 of the substances tested for were detected and there was one exceedance of a treatment technique but no exceedance of action levels or limits. (For more information see the section labeled Violations and Exceedances at the end of the report.)

Do I need 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 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 lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the **Safe Water Drinking Hotline (800-426-4791).**

Where does my water come from?

Water for the Wallops Main Base Waterworks comes from four groundwater wells located on the Main Base.
Well #1 – 260 feet deep
Well #3 – 253 feet deep
Well #4 – 265 feet deep
Well #6 – 275 feet deep

Source water assessment and its availability

The Virginia Department of Health (VDH) conducted a Source Water Assessment of the Wallops Main Base Waterworks in 2019. At that time, all wells evaluated were determined to be of low susceptibility to contamination using the criteria developed by VDH in its approved Source Water Assessment Program. The report consists of maps showing the Source Water Assessment area, an inventory of Land Use Activity Sites, a Susceptibility Explanation Chart, and Definitions of Key Terms. A copy of the report can be obtained by contacting the VDH Southeast Virginia Field Office (757-683-2000). Information on how you can help conserve water and protect your water supply can be found on page 3 of this report. The Wallops Main

Base Waterworks has not substantively changed since 2019 through 2024 and continues to have a low susceptibility to contaminants.

Why are there contaminants in my drinking water?

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 (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. Contaminants that may be present in source water include: 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 stormwater 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 result 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 waterworks. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

How can I get involved?

If you have questions about this report or wish to obtain additional information about any aspect of Wallops' drinking water, please contact:

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Water Conservation Tips

Did you know that the average U.S. household uses approximately 400 gallons of water per day or 100 gallons per person per day? Luckily, there are many low-cost and no-cost ways to conserve water. Small changes can make a big difference - try one today and soon it will become second nature.

- Take short showers - a 5-minute shower uses 4 to 5 gallons of water compared to up to 50 gallons for a bath.
- Shut off water while brushing your teeth, washing your hair, and shaving and save up to 500 gallons a month.
- Use a water-efficient showerhead. They're inexpensive, easy to install, and can save you up to 750 gallons a month.
- Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons a month.
- Water plants only when necessary.
- Fix leaky toilets and faucets. Faucet washers are inexpensive and take only a few minutes to replace. To check your toilet for a leak, place a few drops of food coloring in the tank and wait. If it seeps into the toilet bowl without flushing, you have a leak. Fixing it or replacing it with a new, more efficient model can save up to 1,000 gallons a month.
- Adjust sprinklers so only your lawn is watered. Apply water only as fast as the soil can absorb it and during the cooler parts of the day to reduce evaporation.
- Teach your kids about water conservation to ensure a future generation that uses water wisely. Make it a family effort to reduce next month's water bill!
- Visit www.epa.gov/watersense for more information.

Source Water Protection Tips

Protection of drinking water is everyone's responsibility. You can help protect your drinking water sources, both at Wallops and in your community, in several ways:

- Eliminate excess use of lawn and garden fertilizers and pesticides - they contain hazardous chemicals that can reach your drinking water source.
- Pick up after your pets.
- If you have your own septic system, properly maintain your system to reduce leaching to water sources or consider connecting to a public water system.
- Dispose of chemicals properly; take used motor oil to a recycling center.
- Volunteer in your community. Find a watershed or wellhead protection organization in your community and volunteer to help. If there are no active groups, consider starting one. Use EPA's Adopt Your Watershed to locate groups in your community or visit the Watershed Information Network's How to Start a Watershed Team.
- Organize a storm drain stenciling project with your local government or water supplier. Stencil a message next to the street drain reminding people "Dump No Waste - Drains to River" or "Protect Your Water." Produce and distribute a flyer for households to remind residents that storm drains dump directly into your local water body.

Water Quality Data Table

In order to ensure that tap water is safe to drink, EPA has regulations that limit the amount of contaminants in water provided by public water systems. All sources of drinking water contain some naturally occurring contaminants. At low levels, these substances are generally not harmful in our drinking water. A few naturally occurring minerals may actually improve the taste of drinking water and have nutritional value at low levels.

Unless otherwise noted, the data presented in this table is from testing done in the calendar year of the report. Although many more contaminants were tested, only those substances listed below were found in your water. VDH requires Wallops to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. As such, some of the data, though representative, may be more than one year old. In this table you will find terms and abbreviations that might not be familiar to you. To help you better understand these terms, definitions are provided below the table.

Contaminants	MCLG or MRDLG	MCL, TT, or MRDL	Detected In Your Water	Range		Sample Date	Violation	Typical Source
				Low	High			
Disinfectants & Disinfection By-Products (There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants)								
Chlorine (as Cl2) (ppm)	4	4	1.09	0.06	1.42	2024	No	Water additive used to control microbes
Haloacetic Acids (HAA5) (ppb) Building N-162	NA	60	58	48	60	2024	No	By-product of drinking water chlorination
Haloacetic Acids (HAA5) (ppb) Building D-010	NA	60	43	20	50	2024	No	By-product of drinking water chlorination
TTHMs [Total Trihalomethanes] (ppb) Building N-162	NA	80	72	53	75	2024	No	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes] (ppb) Building D-010	NA	80	71	35	94	2024	No	By-product of drinking water disinfection
Radioactive Contaminants								
Beta/photon emitters (pCi/L)	0	50	11.7	NA	NA	2020	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	0.2*	NA	NA	2020	No	Erosion of natural deposits
*compliance indicator value, calculated as half (50%) of the laboratory reporting limit for gross alpha analysis								

Contaminants	MCLG or MRDLG	MCL, TT, or MRDL	Detected In Your Water	Range		Sample Date	Violation	Typical Source
				Low	High			
Inorganic Contaminants								
Arsenic (ppm)	0	0.010	0.002	NA	NA	2022	No	Erosion of natural deposits
Sodium (optional) (ppm)	NA	NA	17.8	NA	NA	2022	No	Erosion of natural deposits; Leaching

Contaminants	MCLG	MCL or TT	Sample Date	# of Detections	Violation	Typical Source
Microbiological Contaminants						
Total Coliform (RTCR)	NA	TT	2024	1	No*	Naturally present in the environment
E. coli (RTCR) - in the distribution system	0	MCL	2024	0	No	Human and animal fecal waste
*Single detection was confirmed not detected in resample: we are not in violation of the Total Coliform MCL.						

Contaminants	MCLG	AL	Your Water*	Range		Sample Date	# Samples Exceeding AL	Violation	Typical Source
				Low	High				
Inorganic Contaminants									
Copper - action level at consumer taps (ppm)	1.3	1.3	0.147	ND	0.183	2024	0	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead - action level at consumer taps (ppb)	0	15	2.25	ND	2.71	2024	0	No	Corrosion of household plumbing systems; Erosion of natural deposits
* "Your Water" for lead and copper is the 90th percentile.									

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)
% positive samples/month	% positive samples/month: Percent of samples taken monthly that were positive
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.
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.

TT Violation	Explanation	Length	Health Effects Language	Explanation and Comment
Ground Water Rule violations	We are required to disinfect our drinking water source. On June 28, 2024, we did not meet our treatment requirement to provide sufficient levels of disinfectant at the system entry point due to a configuration issue with a new chlorine pump that caused no chlorine to be dosed. Chlorine levels were maintained in the distribution system while the issue was being corrected.	June 28, 2024	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.	The issue was promptly identified by the continuous chlorine monitoring system installed at the Main Base entry point in May 2024. Chlorine was manually dosed into the system to prevent low chlorine levels in the distribution system while operational staff worked to diagnose the issue with the chlorine dosing pump. This issue has been resolved. Wallops issued a public notice for this violation to consumers on July 24, 2024.

Additional Information for Lead

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. Wallops Flight Facility is responsible for providing high quality drinking water but cannot control the variety of materials used in plumbing components in your home or building. You share the responsibility for protecting yourself and your family from the lead in your home plumbing. You can take responsibility by identifying and removing lead materials within your home plumbing and taking steps to reduce your family's risk. Before drinking tap water, flush your pipes for several minutes by running your tap, taking a shower, doing laundry, or a load of dishes. You can also use a filter certified by an American National Standards Institute accredited certifier to reduce lead in drinking water. If you are concerned about lead in your water and wish to have your water tested, contact the Wallops Main Base Waterworks by emailing the Wallops Compliance Team at wff-dl-enviro@mail.nasa.gov. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at http://www.epa.gov/safewater/lead.

The Wallops Main Base Waterworks completed its lead service line inventory in October 2024. While no evidence of lead service lines has been found, several facilities still have unknown service line materials. Wallops continues to review historic records and verify service line materials during construction projects. For more information, please contact the Wallops Compliance Team at wff-dl-enviro@mail.nasa.gov.

Results of Voluntary Monitoring: Per- and Polyfluoroalkyl Substances (PFAS)

Since 2017, NASA, in collaboration with local, state, and federal health agencies, has routinely conducted testing of drinking water for the presence of per- and polyfluoroalkyl substances (PFAS). NASA continues to track EPA and the scientific and community's progress toward establishing new testing and treatment methods and is committed to expanding our PFAS testing as additional analytical methods of detection are established and approved by the EPA.

For additional information on PFAS, visit EPA's dedicated website: https://www.epa.gov/pfas

For more information about PFAS testing at Wallops, please visit the Wallops PFAS webpage at https://www.nasa.gov/wallops/pfas.

On April 10, 2024, EPA published new drinking water maximum contaminant levels (MCLs) for six PFAS compounds in drinking water. Although Wallops is not yet required to sample PFAS, a total of twenty-nine PFAS compounds, including the six newly-regulated compounds, are tested for the Main Base Waterworks. Of the PFAS compounds monitored, none were detected in 2024.