

HEALTH PRECAUTIONS

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as cancer patients 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/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 at 1-800-426-4791.

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 U.S. Navy Water System is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When 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 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 at <http://www.epa.gov/safewater/lead>.

HOW CAN YOU OBTAIN ADDITIONAL INFORMATION?

Please contact Naval Hospital Preventative Medicine at (671) 344-9787 for health concerns related to this report. For information about the U.S. Navy Water System, please contact the Naval Facilities Engineering Systems Command Marianas Utilities Department at (671) 333-1321. Additionally, Guam EPA Safe Drinking Water Program may be reached at (671) 300-9026.

HOW CAN YOU REPORT A WATER QUALITY COMPLAINT?

Should you notice that your water is discolored, or if you have any concerns about your drinking water, you are encouraged to call our Regional Call Center Marianas Trouble Desk at (671) 333-2011. Arrangements can be made to have your water sampled and analyzed to ensure that it is safe to drink.

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. The U.S. Navy Water System was not in compliance with all primary drinking water Maximum Contaminant Levels (MCL) and Treatment Technique (TT) requirements in 2023, particularly in regards to the Revised Total Coliform Rule and the Disinfectants and Disinfection By-Products Rule. The system worked to address compliance orders for the *E. Coli* MCL exceedance and the Total Trihalomethanes locational running annual average (LRAA) MCL exceedance. We also submitted all of our laboratory reports on time as required by Guam EPA.

MONITORING, REPORTING, AND VIOLATIONS



In order to ensure that tap water is safe to drink, the EPA created regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water that must provide the same protection for public health. The **National Primary Drinking Water Regulations** sets limits for contaminants in drinking water and standards for water treatment that primarily safeguard health. The **Secondary Drinking Water Standards (Aesthetic)** are non-enforceable guidelines for limiting the contaminants in drinking water that affect its aesthetic quality (such as taste, smell, appearance, staining properties, etc.). Our drinking water may at times contain various aesthetic parameters above the recommended acceptable levels. While these parameters directly affect the aesthetic quality of your drinking water, they do not pose a health hazard.

DRINKING WATER REGULATIONS

WHY ARE CONTAMINANTS FOUND IN MY 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 land or through the ground, it dissolves naturally-occurring minerals 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 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 untreated 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 discharge, 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.
 - **Radioactive contaminants**, which can be naturally occurring or be the result of oil and gas production and mining activities.
 - **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 storm water runoff and septic systems.



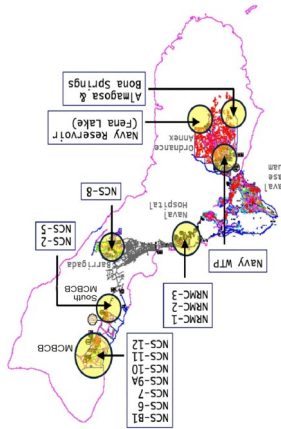
2023 US NAVY WATER SYSTEM WATER QUALITY REPORT

This annual report contains information about the quality of the water supplied by the U.S. Navy Water System during the period of January 1 to December 31, 2023. Included as part of this report is the “2023 U.S. Navy Water Quality Data” table detailing the water quality of our system. This report will help you, our customer, understand the relationship between the contaminants found in drinking water, activities that may contaminate the water supply, and their associated health effects.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example people in apartments, nursing homes, schools or businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

U.S. NAVY WATER SYSTEM

The primary source of water for the U.S. Navy Water System is the Navy (Fena) Reservoir. It is supplemented by Almagosa Springs and Bona Springs, and is processed at the Navy Water Treatment Plant prior to distribution to Naval Base Guam and surrounding areas. Groundwater wells at Marine Corps Base Camp Blaz, Naval Computer Telecommunication Station (NCTS) Barrigada, and Naval Hospital further augment our water system supplying these areas and supplementing the surface water-fed areas. U.S. Navy Water System Wells NCS 2, NCS 5, NCS B1, NCS 6, NCS 7, NCS 9A, NCS 10, NCS 11, and NCS 12 are now under Marine Corps Base Camp Blaz real property jurisdiction. During the 2nd quarter of 2023, the entry point to the distribution system for Wells NCS 6, 7, 11, and 12 were combined prior to treatment. Naval Facilities Engineering Systems Command Marianas operates the U.S. Navy Water System with support provided by our Base Operations Support Contractor DZSP21, LLC.



2023 WATER QUALITY REPORT



U.S. NAVY WATER SYSTEM PWS ID: GU0000010



NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND MARIANAS PSC 455 BOX 195

2023 U.S. NAVY WATER SYSTEM WATER QUALITY DATA

The table below presents the 2023 water quality monitoring results of each detected contaminant in comparison with the established drinking water standards. The table also summarizes the monitoring times, the range of detections, whether or not the drinking water standards were met, the major sources of the contaminant, and the locations detected. Monitoring for some contaminants may occur at intervals greater than once per year. This is allowed because the concentrations of these contaminants do not change frequently. Some data, though representative, are more than a year old. For those contaminants, the date of the last sample is shown in the table.

ABBREVIATIONS					
ARA - annual running average		NCTS - Naval Computer Telecommunication Station		n/a - not applicable	
IOC - Inorganic Compound		NRMC - Navy Regional Medical Center		nd - not detected (above laboratory detection limit)	
MRL - Minimum Reporting Level		NTU - Nephelometric Turbidity Unit		pCi/L - picoCuries per liter	
NCS - Naval Communication Station		NWTP - Navy Water Treatment Plant		ppb - parts per billion (or micrograms per liter)	
SOC - Synthetic Organic Compound		NRMC - Navy Regional Medical Center		ppm - parts per million (or milligrams per liter)	
				ppt - parts per trillion (or nanograms per liter)	

PRIMARY STANDARDS, Mandatory, Health Related Standards, established by GUAM EPA and US EPA

Contaminants (Units)	Sample Year	MCLG	MCL	Detection Range low high		Violation	Sources of Contamination	Locations Detected
SYNTHETIC ORGANIC COMPOUNDS								
Picloram (ppb)	2023	500	500	nd	0.35	No	Herbicide runoff	Well NCS 8
INORGANIC CHEMICALS								
Barium (ppm)	2023	2	2	nd	0.0022	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	NWTP Clearwell
Fluoride (ppm)	2023	4	4	nd	0.47	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories	NWTP Clearwell
Nickel (ppm)	2023	n/a	n/a	nd	0.001	No	Discharge from domestic wastewater, landfills and mining and smelting operations	Combined Production Well NCS –6,7,11,12
Nitrate (ppm)	2023	10	10	0.21	2.3	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	NWTP Clearwell, Wells NCS B1, NCS 8, NCS 9A, NCS 10, Combined Production Well NCS-6,7,11,12
Selenium (ppb)	2023	50	50	nd	1.6	No	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines	Wells NCS B1, NCS 8, NCS 9A, NCS 10, Combined Production Well NCS-6,7,11,12
RADIONUCLIDES								
Gross Alpha Activity (pCi/L)	2023	0	15	nd	2.3	No	Erosion of natural deposits	Wells NCS 10
Radium 226 (pCi/L)	2023	0 <i>Note 1</i>	5 <i>Note 1</i>	nd	2.0	No	Erosion of natural deposits	Wells NCS B1, NCS 9A,NCS 10, Combined Production Well NCS-6,7,11,12
SPECIAL MONITORING for SODIUM								
Sodium (ppm)	2023	n/a	n/a	12	65	No	Salt water intrusion from aquifer/salt water interface; sodium hy-droxide reaction for pH control in water treatment	NWTP Clearwell, Wells NCS B1, NCS 8, NCS 9A, NCS 10, Combined Well Production NCS-6,7,11,12
DISINFECTION BY PRODUCTS AND DISINFECTANT RESIDUALS								
Five Haloacetic Acids [HAA5] (ppb)	2023	n/a <i>Note 2</i>	60	22	49	No	Byproduct of drinking water chlorination	Distribution system
Total Trihalomethanes [TTHM] (ppb)	2023	n/a <i>Note 2</i>	80	41 <small>(lowest LRAA)</small>	90 <small>(highest LRAA)</small>	See information for Sites 2 and 4 in the following two rows	Byproduct of drinking water chlorination	Distribution system
TTHM Site 2 (ppb)	2023	n/a	80	47 <small>(LRAA)</small>	82 <small>(LRAA)</small>		Yes <i>Note 3</i>	Byproduct of drinking water chlorination
				11 <small>(1st QTR result)</small>	150 <small>(3rd QTR result)</small>			
TTHM Site 4 (ppb)	2023	n/a	80	56 <small>(LRAA)</small>	90 <small>(LRAA)</small>	Yes <i>Note 3</i>	Byproduct of drinking water chlorination	Distribution system
				12 <small>(1st QTR result)</small>	157 <small>(3rd QTR result)</small>			
Control of DBP Precursors [Total Organic Carbon, TOC]	2023	n/a	TT>1.0 <i>Note 4</i>	1.9	3.1	No	Naturally present in the environment	Navy Water Treatment Plant
Chlorine (ppm)	2023	4 <small>(MRDLG)</small>	4 <small>(MRDL)</small>	0.06	2.6	No	Water additive used to control microbes	Distribution system, NWTP Clearwell
Contaminants (Units)	Sample Year	AL	MCLG	YOUR WATER	Number of samples exceeding AL	Violation	Sources of Contamination	Locations Detected

LEAD and COPPER								
Lead (ppb)	2021	15 <i>Note 5</i>	0	0.86	None	No	Corrosion of household plumbing system, erosion of natural deposits	Distribution system
Copper (ppm)	2021	1.3 <i>Note 5</i>	1.3	0.30	None	No	Corrosion of household plumbing system, erosion of natural deposits	Distribution system
Contaminants (Units)	Sample Year	MCLG	MCL	YOUR WATER		Violation	Sources of Contamination	Locations Detected
Turbidity as an Indicator of Filtration Performance								
Turbidity (NTU)	2023	n/a	TT ≤ 0.3 NTU for 95% of samples <i>Note 6</i>	100%		No	Soil runoff	Navy Water Treatment Plant
	6/9/2023	n/a	TT = 1 NTU <i>Note 7</i>	0.197		No	Soil runoff	Navy Water Treatment Plant
Contaminants (Units)	Sample Year	MCLG	MCL	Highest Reporting Value	Violation	Sources of Contamination	Locations Detected	
Total Coliform [TC] (% positive per month)	2023	0%	>5% <i>Note 8</i>	6.3%	Yes <i>Note 9</i>	Naturally present in the environment	Distribution system	
Escherichia coli (E.Coli)	2023	0	0 <i>Note 10</i>	2	Yes <i>Note 11</i>	Human and animal fecal waste	Distribution system	
Contaminants (Units)	Sample Year	MCLG	MCL	YOUR WATER	Violation	Sources of Contamination	Locations Detected	
ACRYLAMIDE								
Acrylamide (ppm)	2023	0	<i>Note 12</i>	TT ≤ 0.05% dosed at 1 ppm	No	Added to water during treatment	Navy Water Treatment Plant	

NOTES
All contaminants detected as ND were detected below the established regulatory method detection limit.
Note 1: The combined radium (total of radium-226 and radium-228,pCi/L) MCL and MCLG are 5 and 0 respectively.
Note 2: Although there is no collective MCLG for these contaminants, individual MCLGs for some of the contaminants do exist. **HAAs:** Monochloroacetic acid (70 ppb), Dichloroacetic acid (zero), and Trichloroacetic acid (20 ppb). Bromoacetic acid and Dibromoacetic acid do not have MCLGs. **THM:** Bromodichloromethane (zero), Bromoform (zero), Chloroform (70 ppb), Dibromo chloromethane (60 ppb). Compliance with MCL is based on Locational Running Annual Average (LRAA) calculated quarterly (highest reported average).
Note 3: Following the TTHM LRAA exceedance, an Operational Evaluation Report was submitted to Guam EPA for TTHM Site 2 and Site 4. The U.S. Navy Water System (NWS) provided a Tier II Public Notice to Guam EPA on September 14, 2023 and to the public the following day. The NWS provided a Public Notice Certification to Guam EPA on September 20, 2023 and an Operational Evaluation Level (OEL) report on November 14, 2023. All submittals were in compliance with the SDWA. Guam EPA verified the NWS achieved the Notice of Opportunity to correct deficiencies and returned to compliance on November 14, 2023. Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.
Note 4: TOC results are calculated quarterly, as the % removal ratio 12-month ARA. The value must be >1.0.
Note 5: The AL is exceeded if the concentration of more than 10 percent of tap water sample collected (the '90th percentile' level) is greater than 1.3 ppm for copper and 15 ppb for lead.
Note 6: TT = At least 95% of monthly filtered water samples must be <0.3 NTU, measured every four hours. Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.
Note 7: TT = No filtered water sample should exceed 1 NTU.
Note 8: MCL = A PWS collecting at least 40 samples per month has greater than 5% of the routine/repeat samples in the same month that are total coliform positive will trigger a Level 1 Assessment.
Note 9: A monthly MCL violation was observed in May 2023 following TC positive results at routine and repeat TCR sampling sites. The NWS complied with the Guam Safe Dinking Water Act and Regulations and took the following actions within the required timeframes: a). Notified the affected customers on June 2, 2023. b). Submitted a copy of the public notification to Guam EPA on June 2, 2023. c). Submitted a copy of the "All Clear" notice to Guam EPA on June 5, 2023. d). Submitted to the Guam EPA a certification notice on June 5, 2023. e). Conducted a Level 2 Assessment and associated corrective actions before the deadline of July 1, 2023. Guam EPA verified the NWS returned to compliance on June 2, 2023. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.
Note 10: MCL = A routine sample that is *E.Coli* positive triggers repeat samples. If any repeat sample is total coliform-positive, the system has an acute MCL violation.
Note 11: On May 30, 2023, *E.Coli* was detected in the system following a TC positive result in a routine TCR distribution site. A TC positive repeat sample was detected on May 31, 2023. We had a total coliform-positive repeat sample following an E.coli-positive routine sample. E.coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely-compromised immune systems. During the past year, one Level 2 assessment was required to be completed for our water system and one Level 2 assessment was completed. All corrective actions were completed as described above and were verified by Guam EPA as having been completed in accordance with the Guam Safe Drinking Water Act Regulations.
Note 12: TT ≤ 0.05% dosed at 1 ppm. The combination (or product) of dose and monomer level of acrylamide should never exceed 0.05% dosed at 1 ppm (or equivalent).



DEFINITIONS:

- Action Level (AL) - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- Maximum Contaminant Level (MCL) - 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.
- 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 contaminants.
- Treatment Technique (TT) - A required process intended to reduce the level of a contaminant in drinking water.
- Level 2 Assessment - A Level 2 Assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an *Escherichia coli* (E.Coli) MCL violation has occurred and/or why total coliform bacteria have been found in our system on multiple occasions.

SPECIAL MONITORING FOR PER-AND POLYFLUOROALKYL SUBSTANCES (PFAS)

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 federal 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 with the three years of the publication date and implementation of any required treatment within five years.

Chemical	Maximum Contaminant Level Goal	Maximum Contaminant Level
Perfluorooctanoic acid (PFOA)	0	4.0 ppt
Perfluorooctanesulfonic acid (PFOS)	0	4.0 ppt
Perfluorononanoic acid (PFNA)	10 ppt	10 ppt
Perfluorohexanesulfonic acid (PFHxS)	10 ppt	10 ppt
HFPO-DA (GenX chemicals)	10 ppt	10 ppt
Mixture of two or more: PFNA, PFHxS, HFPO-DA, and PFBS	Hazard Index of 1	Hazard Index of 1
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 and are non-enforceable public health goals.		

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 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 Naval Base Guam and the Navy Water System tested its water for PFAS in 2023?

Yes. In June and September 2023, samples were collected from entry points in the distribution of the US Navy Water System. We are informing you that 5 of the 29 PFAS compounds 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. PFOS and PFHxS were detected above the new MCLs. There is no immediate cause for concern, but we will continue to monitor the drinking water closely. For regulated PFAS above the new MCL and in accordance with DoD policy, Navy is coordinating with DoD to plan and program operational controls or additional treatment to ensure the drinking water meets the MCLs as soon as practicable at all of our impacted installations.

NBG PFAS FY23 Baseline Summary Monitoring Results						
Sample Date	Analyte	UCMR 5 MRL (ppt)	NWTP Clearwell (ppt)	Well NCS 10 (ppt)	Well NRMC 1 (ppt)	Well NRMC 2 (ppt)
6/22/2023	Perfluorohexanoic acid (PFHxA)	3	<3	<3	<3	7.1
	Perfluorohexanesulfonic acid (PFHxS)	3	<3	<3	16	11
	Perfluorooctanesulfonic acid (PFOS)	4	<4	<4	35	40
9/18/2023	Perfluorohexanoic acid (PFHxA)	3	<3	<3	<3	6.7
	Perfluorooctanesulfonic acid (PFHxS)	3	<3	3.1	19	11
	Perfluorooctanesulfonic acid (PFOS)	4	5.3	<4	44	56
	Perfluoro(2-ethoxyethane) sulfonic acid (PFESA)	3	<3	<3	<3	5.4