

2020 U.S. NAVY WATER SYSTEM Water Quality Data

The table below presents the 2020 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 interval 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.

DEFINITIONS:

1. Action Level (AL) - The concentration which, when exceeded, triggers treatment or other requirements which a water system must follow.
2. Maximum Contaminant Level (MCL) - The highest level of a contaminant allowed in drinking water; MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
3. 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.
4. Maximum Residual Disinfectant Level (MRDL) - The level of a disinfectant that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects.
5. Maximum Residual Disinfectant Level Goal (MRDLG) - The maximum level of a disinfectant added for water treatment at which no known or anticipated adverse health effect will occur; MRDLGs allow for a margin of safety.
6. Treatment Technique (TT) - A required process intended to reduce the level of a contaminant in drinking water.

ABBREVIATIONS:

ARA - annual running average
 ppb - parts per billion (or micrograms per liter)
 ppm - parts per million (or milligrams per liter)
 ppt - parts per trillion (or nanogram per liter)

NTU - Nephelometric Turbidity Unit
 IOC - Inorganic Compound
 SOC - Synthetic Organic Compound
 MRL - Minimum Reporting Level

nd - not detected (above laboratory detection limit)
 NRMC - Navy Regional Medical Center
 NCTS - Naval Computer and Telecommunication Station
 NCS - Naval Communication Station

n/a - not applicable

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

Contaminants	Sample Year	MCLG	MCL	Detection Range low	Detection Range high	Violation	Sources of Contamination	Locations Detected
SYNTHETIC ORGANIC COMPOUNDS								
Chlordane (ppb)	2020	2.00	2.00	nd	0.140	No	Termiticide runoff	Well NRMC-2
Picloram (ppb)	2020	500	500	nd	0.530	No	Herbicide runoff	Well NCS-8 (Radio Barrigada)
INORGANIC CHEMICALS								
Barium (ppm)	2020	2	2	nd	0.0029	No	Discharge from petroleum; erosion of natural deposits; discharge from mines	NWTP Clearwell, Well NRMC-2
Nitrate (ppm)	2020	10	10	0.23	3.6	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, NCS-11, NCS-12, NRMC-1, NRMC-2
RADIONUCLIDES								
Gross Alpha Activity (pCi/L)	2017	0	15	nd	6.4	No	Erosion of natural deposits	Wells NCS-10, NRMC-2
Radium 226 (pCi/L)	2017	0 Note 1	5 Note 1	nd	2.3	No	Erosion of natural deposits	Wells NCS-B-1, NCS-6, NCS-9A, NCS-10, NCS-11, NCS-12
SPECIAL MONITORING for SODIUM								
Sodium (ppm)	2020	n/a	n/a	11	52	No	Salt water intrusion from aquifer/salt water interface; sodium hydroxide reaction for pH control in water treatment	NWTP Clearwell, Wells NCS-B1, NCS-8, NCS-9A, NCS-10, NCS-11, NCS-12, NRMC-1, NRMC-2
DISINFECTION BY PRODUCTS								
Five Haloacetic Acids [HAA5] (ppb)	2020	n/a Note 2	60	8.1	19	No	Byproduct of drinking water chlorination	Distribution system
Total Trihalomethanes [TTHM] (ppb)	2020	n/a Note 2	80	24	48	No	Byproduct of drinking water chlorination	Distribution system
Control of DBP Precursors [Total Organic Carbon, TOC]	2020	n/a	TT>1.0 Note 3	3.0	3.7	No	Naturally present in the environment	Navy WTP
DISINFECTANT RESIDUALS								
		MRDLG	MRDL					
Chlorine (ppm)	2020	4	4	nd	3.5	No	Water additive used to control microbes	Distribution system, NWTP Clearwell
Contaminants (Units)								
	Sample Year	AL	MCL	YOUR WATER	Number of samples exceeding AL	Violation	Sources of Contamination	Locations Detected
LEAD and COPPER								
Lead (ppb)	2018	15 Note 4	0	nd	None	No	Corrosion of household plumbing system, erosion of natural deposits	Distribution system
Copper (ppm)	2018	1.3 Note 4	1.3	0.28	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)	2020	n/a	TT ≤ 0.3 NTU for 95% of samples Note 5	100%	No	Soil runoff	Navy WTP	
	3/7/2020	n/a	TT = 1 NTU Note 6	0.420	No	Soil runoff	Navy WTP	
Contaminants (Units)								
	Sample Year	MCLG	MCL	YOUR WATER	Violation	Sources of Contamination	Locations Detected	
ACRYLAMIDE								
Acrylamide (ppm)	2020	0	Note 7	< 0.05% dosed at 1 ppm	No	Added to water during treatment	Navy WTP	

- NOTES:**
- 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), Dibromochloromethane (60 ppb). Compliance with MCL is based on LRAA calculated quarterly (highest reported average).
- Note 3: TOC results are calculated quarterly, as the % removal ratio 12-month ARA. The value must be >1.0
- Note 4: 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 5: TT = At least 95% of monthly filtered water samples must be <0.3 NTU, measured every four hours.
- Note 6: TT = No filtered water sample should exceed 1 NTU.
- Note 7: 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).

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 United States, 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) used for fighting petroleum fires at airfields and in industrial fire suppression processes because they rapidly extinguish fires, saving lives and protecting property. 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? There is currently no established federal water quality regulation for any PFAS compounds. In May 2016, the EPA established a health advisory (HA) level at 70 parts per trillion (ppt) for individual or combined concentrations of **Perfluorooctanoic acid (PFOA)** and **Perfluorooctanesulfonic acid (PFOS)**. Both chemicals are types of PFAS. Out of an abundance of caution for your safety, the Department of Defense's (DoD) PFAS testing and response actions go beyond EPA Safe Drinking Water Act requirements. In 2020 the DoD promulgated a policy to monitor drinking water for PFAS at all service owned and operated water systems at a minimum of every three years. The EPA's health advisory states that if water sampling results confirm that drinking water contains PFOA and PFOS at individual or combined concentrations greater than 70 parts per trillion, water systems should quickly undertake additional sampling to assess the level, scope, and localized source of contamination to inform next steps.

Has NBG tested its water for PFAS? Yes. In July 29, 2020, samples were collected from NWTP Clearwell and Wells NCS-B1, NCS-8, NCS-9A, NCS-10, NCS-11, NCS-12, NRMC-1, and NRMC-2. Based on the sampling results, the total PFOS and PFOA from Well NRMC-2 tested higher than the EPA HA. The results are provided in the Table below. Public notification of this sample result was initially provided on August 27, 2020 via letter distributed to all building occupants and posting on the CNIC website. The EPA HA is a health-based concentration above which action should be taken to reduce exposure to PFOA and PFOS. In accordance with DoD policy, alternate water is provided until the drinking water is tested and is consistently below the HA. PFAS levels at wells NRMC-1 and NRMC-2 remains elevated and both wells remain offline and are not in use. Naval Base Guam is sampling quarterly to monitor the situation, and periodic updates are available on the region website: <https://www.cnic.navy.mil/content/dam/cnic/jrm/pdfs/Environmental/PFAS%20Sampling%20for%20Naval%20Base%20Guam%20March%202021.pdf>

Summary of Perfluorooctanoic acid (PFOA) and Perfluorooctanesulfonic acid (PFOS) Monitoring Results							
Sampling Point	Sampling Date	Detected Level (ppt)			Health Advisory (HA) Level (ppt)	Above HA Levels?	Sampling Point Status Updates
		PFOS	PFOA	Total			
Well NRMC-1	07/29/20	73.0	2.5	75.5	70	Yes	Wells NRMC-1 and NRMC-2 were taken off-line and currently not in use. Alternative drinking water source provided. Continuous monitoring.
Well NRMC-2	07/29/20	62.0	2.8	64.8	70	No	
NWTP Clearwell	07/29/20	2.3	0	2.3	70	No	Continuous monitoring