

2017
U. S. NAVY WATER SYSTEM
WATER QUALITY REPORT



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Naval Facilities Engineering Command Marianas

The U.S. Navy Water System

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. *All drinking water samples from the U.S. Navy System met all primary water Maximum Contaminant Levels (MCL) in 2017.*

Drinking Water Regulations

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.

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, 2017. Included as part of this report is the "2017 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.

2017 US NAVY WATER SYSTEM
WATER QUALITY REPORT



DEPARTMENT OF THE NAVY
U.S. Naval Base Guam
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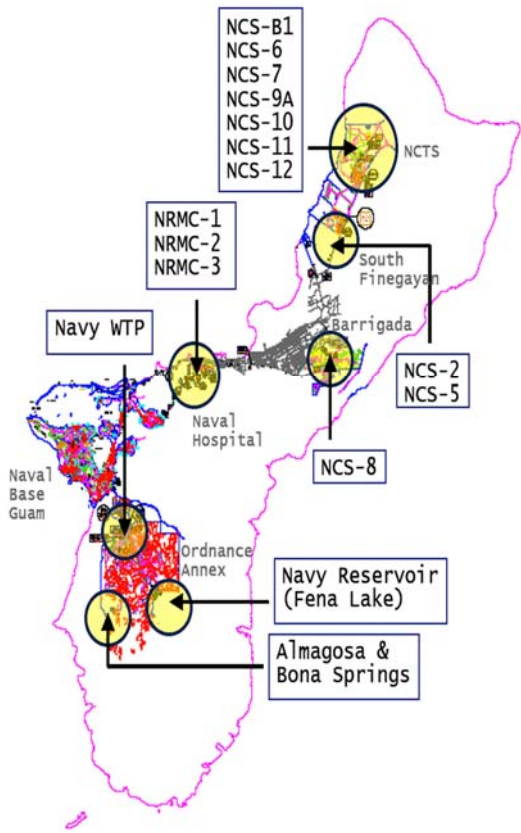
How Can You Obtain Additional Information?

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 Command Marianas Utilities Department at (671) 333-1321. Additionally, Guam EPA Safe Drinking Water Program may be reached at (671) 300-4796.

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, we strongly encourage you to call our Service Support Center 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.

U.S. Navy Water System



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 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 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 www.epa.gov/safewater/lead.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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.

Health Precautions

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

Monitoring, Reporting and Violations

health effects can be obtained by calling Environmental Protection Agency's (EPA) Safe Drinking Water Hotline at 1-800-426-4791.

Drinking water, including bottled water, may reasonably be expected to contain 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

- *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.
- *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.

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 can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in untreated water include:

Why are contaminants found in my water ?

The primary source of water for the U.S. Navy Water System is the Navy (Fena) Reservoir. It is supplied 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 NCTS, Finegayan, Barrigada, and Naval Hospital further augment our water system supplying these areas and supplementing the surface water-fed areas.

operates the U.S. Navy Water System with support provided by our Base Operations Support contractor DZSP21, LLC.

2017 U.S. Navy Water Quality Data

The table below presents the 2017 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:

- 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.
- 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 level of a disinfectant that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects.
- 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.
- 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)

NTU - Nephelometric Turbidity Unit
IOC - Inorganic Compound
SOC - Synthetic Organic Compound

n/a - not applicable
nd - not detected (above laboratory detection limit)
LRAA - Locational Running Annual Average

I. PRIMARY STANDARDS, Mandatory, Health-Related Standards, established by GEPA/USEPA

CONTAMINANT (Units)	Sample Year	MCLG	MCL	Range Low High		Violation	Major Sources of Contaminant	Locations Detected
Synthetic Organic Compounds								
Chlordane (ppb)	2017	0	2	0.14	0.31	No	Residue of banned termiticide	Well NCS-B1
Picloram (ppb)	2017	500	500	0.35	0.38	No	Herbicide runoff	Well NCS-8 (Radio Barrigada)
Inorganic Compounds								
Barium (ppm)	2017	2	2	nd	0.0028	No	Discharge from petroleum; erosion of natural deposits; discharge from mines	Well NRMC-2
Fluoride (ppm)	2017	4	4	nd	0.60	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories	Fluoride is tested annually throughout the system for compliance with the SDWA; these results are stated here. The Navy WTP is tested for fluoride levels daily. One result exceeded the SMCL as described under Section II, below.
Nitrate (ppm)	2017	10	10	0.29	2.54	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	Navy WTP, Wells NCS-B1, NCS-6, 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.	Well NCS-10, NRMC-2
Radium 226 (pCi/L)	2017	0 Note 1	5 Note 1	1.1	2.3	No	Erosion of natural deposits.	Wells NCS-B-1, NCS-6, NCS-9A, NCS-10, NCS-11, NCS-12,
Disinfectant and Disinfection Byproduct (DBPs)								
HAA5 [Five Haloacetic Acids] (ppb)	2017	n/a Note 2	60	5.7	35.0	No	Byproduct of drinking water chlorination	Distribution system
TTHMs [Total Trihalomethanes] (ppb)	2017	n/a Note 2	80	31.6	49.2	No		
Chlorine (ppm)	2017	4 (MRDLG)	4 (MRDL)	nd	3.4	No	Water additive used to control microbes	Distribution system
Control of DBP Precursors [Total Organic Carbon, TOC]	2017	n/a	TT ≥ 1.0 Note 3	3.4	4.0	No	Naturally present in the environment	Navy WTP
Special Monitoring for Sodium								
Sodium (ppm)	2017	n/a	n/a	13	117	No	Salt water intrusion from aquifer/salt water interface; sodium hydroxide reaction for pH control in water treatment	Navy WTP, Wells NCS-B1, NCS-6, NCS-8, NCS-9A, NCS-10, NCS-11, NCS-12, NRMC-1, NRMC-2

CONTAMINANTS (Units)	Sample Year	AL	MCLG	Your Water	Number of Samples Exceeding AL	Violation	Major Source of Contamination	Location Detected
Lead and Copper								
Copper (ppm)	2015	1.3 Note 4	1.3	0.269	None	No	Corrosion of household plumbing system, erosion of natural deposits	Distribution system
Lead (ppb)	2015	15 Note 4	0	nd	None	No	Corrosion of household plumbing system, erosion of natural deposits	Distribution system

CONTAMINANT (Units)	Sample Date	MCLG	MCL	Highest Monthly Percentage Total Coliform Positive Samples	Violation	Major Sources of Contaminant	Locations Detected
Microbiological Contaminants							
Total Coliform [TC] (% positive per month)	2017	0	5%	3.9%	No	Naturally present in the environment	Distribution System
Fecal Coliform [FC] (or E.coli)	2017	0	0 <i>Note 5</i>	0	No	Human and animal fecal waste	
CONTAMINANT (Units)	Sample Date	MCLG	MCL	Your Water	Violation	Major Sources of Contaminant	Locations Detected
Turbidity as an Indicator of Filtration Performance							
Turbidity (NTU)	2017	n/a	TT ≤ 0.3 NTU for 95% of samples <i>Note 6</i>	100%	No	Soil runoff	Navy WTP
	9/20/17		TT = 1 NTU <i>Note 7</i>	0.130	No		
CONTAMINANTS (Units)	Sample Date	MCLG	MCL	Violation	Major Sources of Contaminant	Locations Detected	
Acrylamide (ppm)	2017	0	TT≤ 0.05% dosed at 1 ppm	<i>no</i> <i>Note 8</i>	Added to water during treatment	Navy WTP	

II. SUMMARY OF REQUIRED MONITORING AND REPORTING

CONTAMINANT (Units)	Sample Date	Explanation	Steps Taken to Correct Violation	Potential Adverse Health Effect
Exceedance of the Fluoride Secondary Maximum Contaminant Level (SMCL)	7/29/17	Exceedance of the fluoride SMCL of 2 mg/L occurred at NWTP clearwell (2.59 mg/L) but did not exceed the MCL of 4.0 mg/L.	The system was thoroughly cleaned and is continuously monitored to avoid future exceedances.	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than 9 years old. Mottling also known as dental fluorosis, may include brown staining and/or pitting of the teeth, and occurs only in developing teeth before they erupt from the gums.

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 monthly, 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: MCL = A routine TC positive sample followed by a TC negative repeat . (A routine TC positive sample followed by a TC positive repeat sample is a violation of the MCL).
- Note 6: TT = At least 95% of monthly filtered water samples must be <0.3 NTU, measured every four hours.
- Note 7: TT = No filtered water sample should exceed 1 NTU.
- Note 8: The combination (or product) of dose and monomer level of acrylamide should never exceed 0.05% dosed at 1 ppm (or equivalent).