2016 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, 2016. Included as part of this report is the **"2016 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.

The U.S. Navy Water System

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

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 NCTS, Finegayan, Barrigada, and Naval Hospital further augment our water system supplying these areas and supplementing the surface water-fed areas.

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 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:

- **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 by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems.

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

Drinking Water Regulations

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 Water System met all primary water Maximum Contaminant Levels (MCL) in 2016.

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

In 2016, our system satisfied all monitoring and reporting requirements as set forth by the National Primary Drinking Water Regulations.

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.

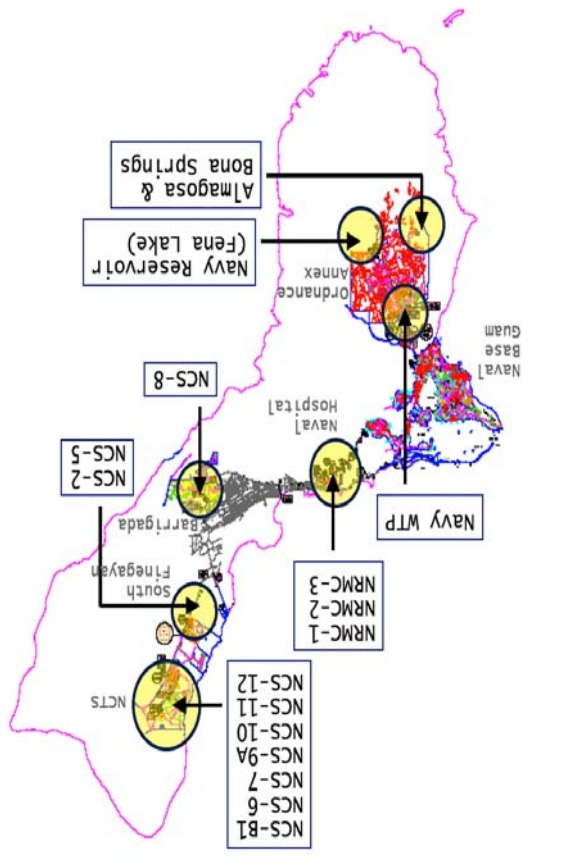
If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The U.S. Navy Water System is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When 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 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 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

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2016
U. S. NAVY WATER SYSTEM
WATER QUALITY REPORT

DEPARTMENT OF THE NAVY
U.S. Naval Base Guam
Navy Housing Office
PSC 455, Box 50
FPO AP 96540-0051

2016 U.S. Navy Water Quality Data

The table below presents the 2016 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. 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.
2. 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.
3. 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.
4. 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.
5. 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)

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

CONTAMINANT (Units)	Sample Year	MCLG	MCL	Your Sample	Range Low	Range High	Violation	Major Sources of Contaminant	Locations Detected
Synthetic Organic Compounds									
Pickram (ppb)	2016	500	500	0.42	0.35	0.42	No	Herbicide runoff	Well NCS-8 (Radio Barrigada)
Inorganic Compounds									
Selenium (ppb)	2/9/2016	50	50	0.61	nd	0.61	No	Discharge from petroleum; erosion of natural deposits; discharge from mines	Wells NCS-B1, NCS-10
Fluoride (ppm)	2/9/2016	4	4	0.21	nd	0.21	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories	Navy WTP
Nitrate (ppm)	4/12/2016	10	10	2.16	0.25	2.16	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
Disinfectant and Disinfection Byproduct (DBPs)									
HAA5 [Five Haloacetic Acids] (ppb)	2016	n/a *Note 1*	60	22.0	10.0	22.0	No	Byproduct of drinking water chlorination	Distribution system
TTHMs [Total Trihalomethanes] (ppb)	2016	n/a *Note 1*	80	43.0	23.4	43.0	No		
Chlorine (ppm)	2016	4 (MRDLG)	4 (MRDL)	3.0	nd	3.0	No	Water additive used to control microbes	Distribution system
Control of DBP Precursors [Total Organic Carbon, TOC]	2016	n/a	*TT ≥ 1.0 Note 2*	2.6	1.8	2.6	No	Naturally present in the environment	Navy WTP
Special Monitoring for Sodium									
Sodium (ppm)	2/09/2016	n/a	n/a	45.5	12.0	45.5	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
Radionuclides									
Gross Alpha Activity (pCi/L)	2014	0	15	5.3	4.0	5.3	No	Erosion of natural deposits.	Well NCS-8 (Radio Barrigada)

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 3*	1	0.269	None	No	Corrosion of household plumbing system, erosion of natural deposits	Distribution system
Lead (ppb)	2015	15 *Note 3*	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)	2016	0	5%	2.1%	No	Naturally present in the environment	NWTP Clearwell
Fecal Coliform [FC] (or E.coli)	2016	0	0 *Note 4*	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)	2016	n/a	TT ≤ 0.3 NTU for 95% of samples *Note 5*	100%	No	Soil runoff	Navy WTP
	8/30/2016		TT = 1 NTU *Note 6*	0.170	No		

CONTAMINANTS (Units)	Sample Date	MCLG	MCL	Violation	Major Sources of Contaminant	Locations Detected
Acrylamide						
Acrylamide (ppm)	2016	0	TT≤ 0.05% dosed at 1 ppm	No *Note 7*	Added to water during treatment	Navy WTP

NOTES:

Note 1: 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).

Note 2: TOC results are calculated monthly, as the % removal ratio 12-month ARA. The value must be >1.0

Note 3: 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 4: 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 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: The combination (or product) of dose and monomer level of acrylamide should never exceed 0.05% dosed at 1 ppm (or equivalent).