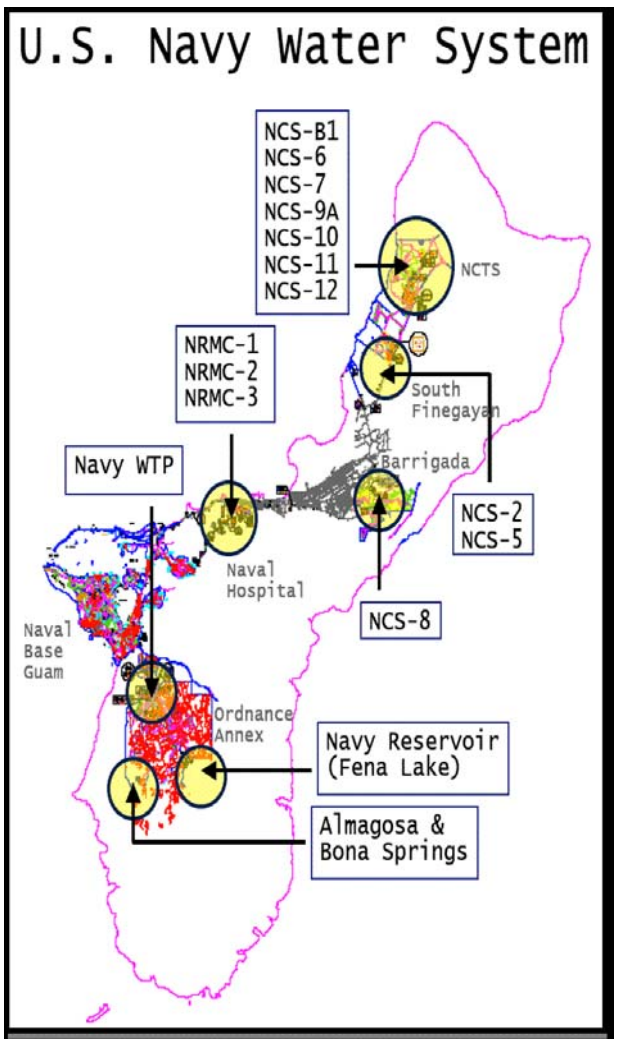
How Can You Report a Water Quality Complaint?

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 **333-2011**. Arrangements can be made to have your water sampled and analyzed to ensure that it is safe to drink.

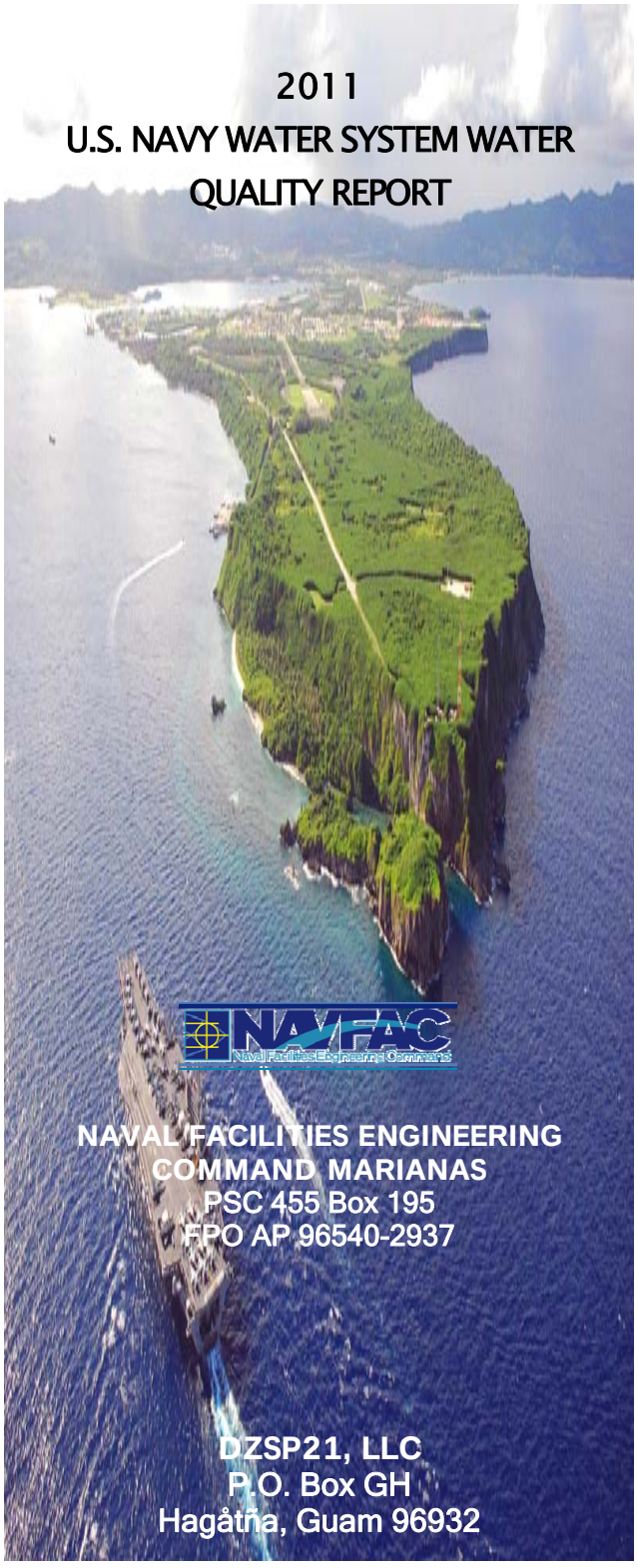
How Can You Obtain Additional Information?

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) 475-1628/38**.



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

2011 U.S. 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, 2011. Included as part of this report is a table entitled **"2011 U.S. Navy Water Quality Data"**, which provides details on 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.

The U.S. Navy Water System

The 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 Navy Water System is the Navy (Fena) Reservoir. It is supplemented by the Almagosa and Bona Springs and is processed at the Navy Water Treatment Plant prior to distribution. This water serves Naval Base Guam and surrounding areas.

Groundwater wells at NCTS, Finegayan, Barrigada, and Naval Hospital generally further augment our water system by supplying these 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 moves over 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 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 metals, which can be naturally occurring or 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;
- *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 come from gas stations, urban stormwater runoff, and septic systems.

In order to ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) created regulations that limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

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 EPA's Safe Drinking Water Hotline at 1-800-426-4791.

Monitoring, Reporting and Violations

The *National Primary Drinking Water Regulations* sets limits for contaminants in drinking water and standards for water treatment that primarily safeguard health. These regulations also require us 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.

During the second quarter of 2011, the synthetic organic contaminants (SOC) reporting deadline for monitoring of active wells was not met due to laboratory equipment failure and sample bottle breakage during shipment to an off-island laboratory.

In March, one monitoring site in the Navy Water System reported a Maximum Contaminant Level (MCL) violation for fecal coliform. The contaminant was later determined to be an isolated distribution system deficiency and confined to a single facility. Subsequent repeat samples taken after corrective actions were performed tested negative for total coliform.

Fecal coliforms and 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 illness such as diarrhea, cramps, nausea, headaches or other symptoms. They may pose a special health risk for infants, young children, some elderly and people with severely compromised immune systems.

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 Naval Facilities Engineering Command Marianas 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/lead.

2011 U.S. Navy Water Quality Data Water Quality Report

DEFINITIONS:

1. Action Level (AL) - The concentration of a contaminant 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 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: NTU - Nephelometric Turbidity Units; n/a - not applicable; nd - not detected; ppb - parts per billion or micrograms per liter; ppm - parts per million or milligrams per liter; pCi/L - picocuries per liter; ARA - annual running average

The data presented in the table below is from our monitoring conducted for the calendar year of this report, unless otherwise specified. GEPA allows us to monitor for some contaminants less than once a year as the concentration of these contaminants do not change frequently. Some of our data, though representative, are more than 1 year old.

I. PRIMARY STANDARDS - mandatory, health-related standards, established by GEPA/USEPA

CONTAMINANT (Units)	Sample Date	MCLG	MCL	Your Sample	Range Low	Range High	Violation	Major Sources of Contaminant	Locations Detected
Synthetic Organic Compounds (SOC)									
Chlordane (ppb)	10/13/2011	0	2	0.5	nd	0.5	No	Residue of banned termiticide	Well NCS-A/B1
Inorganic Compounds									
Barium (ppm)	1/10/2011	2	2	0.003	nd	0.003	No	Discharge of drilling wastes; discharge from metal refineries; and erosion of natural deposits.	NTWP Clearwell, Wells NCS-6, NCS-7, NCS-9A, NCS-10, NCS-11, NCS-12, NCS-A/B1, NRMC-1, NRMC-2
Chromium (ppb)	10/3/2011	100	100	8	nd	8	No	Discharge from steel and pulp mills; erosion of natural deposit.	Wells NCS-A/B1, NCS-6, NCS-7, NCS-9A, NCS-10, NCS-11, NCS-12
Fluoride (ppm)	1/10/2011	4	4	0.7	nd	0.7	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories	NWTP Clearwell
Nitrate (ppm)	4/11/2011	10	10	2.1	0.3	2.1	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	NWTP Clearwell, Wells NCS-A/B1, NCS-6, NCS-7, NCS-9A, NCS-10, NCS-11, NCS-12, NRMC-1, NRMC-2
Radionuclides									
Alpha emitters (pCi/L)	10/3/2011	0	15	7	nd	7	No	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation	Well NCS-A/B1
Radium-226 (pCi/L)	10/3/2011	0 *Note 1*	5 *Note 1*	2	nd	2	No	Erosion of natural deposits	Well NCS-A/B1
Beta emitters (pCi/L)	10/3/2011	0	50 *Note 2*	4	nd	4	No	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation	Well NCS-A/B1
Disenfectant and Disinfection Byproduct (DBPs)									
HAA5 [Five Haloacetic Acids] (ppb)	2011	n/a *Note 3*	60	51 *Note 4*	nd	154	No	By-product of drinking water chlorination	Distribution systems
TTHMs [Total Trihalomethanes] (ppb)	2011	n/a *Note 3*	80	64 *Note 4*	nd	122	No	By-product of drinking water chlorination	Distribution systems
Chlorine (ppm)	2011	4 (MRDLG)	4 (MRDL)	1.8 *Note 4*	nd	4.1	No	Water additive used to control microbes	Distribution systems
Control of DBP Precursors									
Total Organic Carbon, TOC (% removal ratio ARA)	2011	n/a	TT ≥ 1.0 *Note 5*	2.0	1.3	2.7	No	Naturally present in the environment	Navy Reservoir, Amagosa Springs, Bona Springs

CONTAMINANT (Units)	Sample Year	AL	MCLG	Your Water	Number of Samples Exceeding AL	Violation	Major Source of Contamination	Locations Detected
Copper (ppb)	2010	1300 *Note 6*	1300	764 *Note 7*	None	No	Corrosion of household plumbing system, erosion of natural deposits	Distribution system
Lead (ppb)	2010	15 *Note 6*	0	2.9 *Note 7*	None	No	Corrosion of household plumbing system, erosion of natural deposits	Distribution system

CONTAMINANT	Sample Date	MCLG	MCL	Reporting Value	Violation	Major Sources of Contaminant	Locations Detected
Microbiological Contaminants							
Total Coliform [TC] (% positive per month)	March 2011	0	5%	3%	No	Naturally present in the environment	Distribution systems
Fecal Coliform [FC]	March 2011	0	1 *Note 8*	1	Yes	Human and animal fecal waste	Distribution systems

CONTAMINANT (Units)	Year	MCLG	MCL	Your Water	Violation	Major Sources of Contaminant	Locations Detected
Turbidity as an Indicator of Filtration Performance							
Turbidity (NTU) *Note 9*	2011	n/a	TT ≤ 0.3 NTU for 95% of samples	100%	No	Soil runoff	Navy Water Treatment Plant
			TT = 1 NTU	0.3	No		

CONTAMINANT (Units)	Year	MCLG	MCL	Your Water	Violation	Major Sources of Contaminant	Locations Detected
Acrylamide							
Acrylamide (ppm)	2011	0	TT ≤ 0.05% Dosed at 1 ppm	In Compliance	No *Note 10*	Added to water during treatment	Navy Water Treatment Plant

II. SUMMARY OF REQUIRED MONITORING AND REPORTING

CONTAMINANT	Period	Date(s) Sampled	Violation	Remarks
SOC	2nd Qtr	7/11, 8/22	yes	Reporting deadline for monitoring of active wells during the 2nd quarter of 2011 was not met due to laboratory equipment failures and sample bottle breakages during shipment to an off-island laboratory.
Fecal Coliform [FC]	March	3/02	yes	Tier 1 acute MCL violation for Fecal Coliform. The contamination was later determined to be an isolated distribution system deficiency and confined to a single facility. Subsequent repeat samples taken after corrective actions were performed tested negative for total coliform.

NOTES:

1. The combined Radium (total Radium-226 and Radium-228, pCi/L) MCL and MCLG are 5 and 0 respectively
2. The MCL for beta particles is 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for beta particles.
3. Although there is no collective MCLG for this group, there are individual MCLGs for some of the individual contaminants. **HAA**: monochloroacetic acid (70 ppb), dichloroacetic acid (zero), trichloroacetic acid (20 ppb) **THM**: bromodichloromethane (zero), bromoform (zero), dibromochloromethane (60 ppb).
4. Compliance with MCL is based on ARA calculated quarterly (highest reportable average).
5. Percent removal ratio 12-month ARA, calculated quarterly, must be ≥ 1.0.
6. The AL is exceeded if the concentration of more than 10 percent of tap water samples collected (the "90th percentile" level) is greater than 1300 ppb for copper and 15 ppb lead.
7. 2010 results reported, Guam EPA waived the Lead and Copper analysis requirement for 2011 (40 CFR part 141.153(d)(3)(i)).
8. MCL = a routine sample followed by a TC negative repeat sample. A TC positive repeat sample is a violation of the MCL.
9. Turbidity is a measure of water cloudiness and used to indicate water quality and filtration effectiveness. Turbidity has no health effects but can interfere with the disinfection process and provide a medium for microbial growth.
10. The combination (or product) of dose and monomer level of acrylamide should never exceed 0.05% dosed at 1 ppm (or equivalent).