

ANDERSEN AIR FORCE BASE WATER SYSTEM

CONSUMER CONFIDENCE REPORT
PWS ID: GU0000009

CALENDAR YEAR 2021

prepared by:



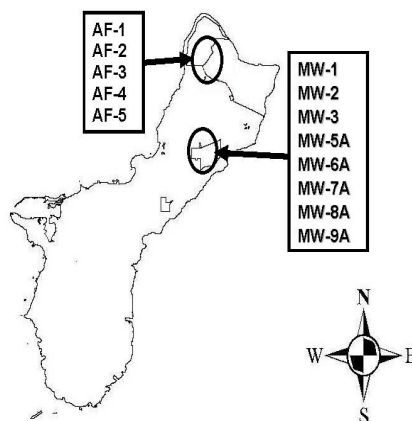
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2021 ANDERSEN AIR FORCE BASE WATER QUALITY REPORT

This is the 2021 annual report on the quality of Andersen Air Force Base drinking water. The *Consumer Confidence Report Rule* of the federal Safe Drinking Water Act requires this information be provided to the public. This report includes information on the source of our water and health risks associated with any contaminants that were found. This report contains technical language required by the United States Environmental Protection Agency (US EPA) designed to further public understanding about public water systems and potential hazards.

ANDERSEN AIR FORCE BASE WATER SYSTEM

Andersen Air Force Base provides drinking water to all base housing and facilities derived from the Northern Guam Lens Aquifer, which is a groundwater source underlying the northern portion of Guam. Groundwater is pumped from the underground aquifer into the water distribution system by thirteen (13) wells (see map to the right).



DRINKING WATER REGULATIONS

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits to contaminants in bottled water, which must provide the same protection for public health.



The *National Primary Drinking Water Regulations* set 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. Bioenvironmental Engineering and the Water and Fuels Maintenance Shop at Andersen Air Force Base monitor chlorine and fluoride levels in drinking water on a daily basis.

HEALTH PRECAUTIONS

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemo-therapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders and some elderly and infants can be particularly at risks 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 (1-800-426-4791).

LEAD IN DRINKING WATER

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. Bioenvironmental Engineering at Andersen Air Force Base 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 TO REPORT A WATER QUALITY COMPLAINT

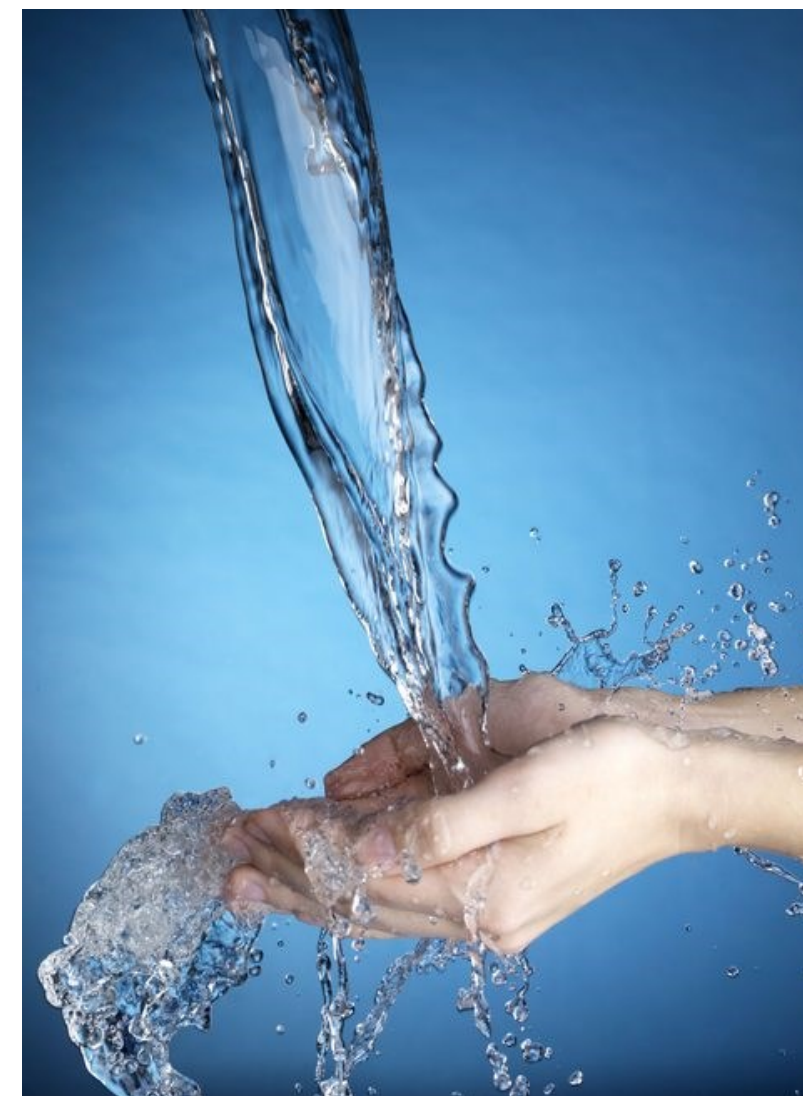
Should you notice that your water is discolored, has a funny taste, or if you have any concerns about your drinking water, we strongly encourage you to contact Bioenvironmental Engineering at (671) 366-7166. Arrangements can be made to have your water sampled and analyzed to ensure that it is safe to drink.

HOW TO OBTAIN ADDITIONAL INFORMATION

Team Andersen is committed to ensuring the quality of Andersen Air Force Base drinking water to the highest standards possible. Public queries and additional information regarding this report can be obtained by contacting the Andersen Public Affairs Office at (671) 366-4202. You may download an electronic copies of this report on the Andersen Air Force web page which will be published by 1 July 2022. Printed copies of this report can be obtained at the Bioenvironmental Engineering Office.

2021 ANDERSEN AIR FORCE BASE

DRINKING WATER QUALITY REPORT



DEPARTMENT OF THE AIR FORCE
36TH OPERATIONAL MEDICAL READINESS SQUADRON
ANDERSEN AIR FORCE BASE
PWS ID No. GU0000009

2021 Water Quality Data

The following data presented in these tables are results of monitoring for the reporting period of 1 January 2021 — 31 December 2021 and results of the most recent sampling for certain contaminants. As authorized and approved by EPA, the state has reduced monitoring requirements for certain contaminants to less often than once per year. The EPA driven frequency of sampling may vary between 1 to 3 years as the levels of some contaminants are not expected to vary significantly from year to year. Some of our data [inorganic contaminants, radionuclides, sodium, and lead and copper], though representative, are more than a year old. Contaminants are reported based on the range of detected levels. Contaminants that are not present on table were below the detection levels specified in 40 Code of Federal Regulations 141.151(d). Detection of contaminants in drinking water does not necessarily indicate that water poses a health risk.

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

Contaminants (Units)	Sample Year	MCLG	MCL	Detection low	Range high	Violation	Major Sources of Contamination	Locations Detected
INORGANIC CONTAMINANTS								
Chromium (ppm)	2020	0.100	0.100	0.0013	0.0021	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits	Booster Station 2, Booster Station 3, Building 9060 Storage Tank, Building 61207 NWF Storage Tank
Nitrate (ppm)	2021	10	10	1.1	8.6	No	Runoff from fertilizer use; leaching from septic tanks, sewage; Erosion of natural deposits	Booster Station 2, Booster Station 3, Building 9060 Storage Tank, Building 61207 NWF Storage Tank
RADIONUCLIDES								
Radium 226 (pCi/L)	2020	0	5	nd	1.7	No	Erosion of natural deposits	Building 9060 Storage Tank
Radium 228 (pCi/L)	2020	Note 1	Note 1	nd	nd			
SPECIAL MONITORING for SODIUM								
Sodium (ppm)	2020	n/a	n/a	23	35	No	Salt water intrusion from aquifer/salt water interface	Booster Station 2, Booster Station 3, Building 9060 Storage Tank, Building 61207 NWF-Storage Tank
DISINFECTION BYPRODUCTS								
Five Haloacetic Acids [HAA5] (ppb)	2021	n/a	60	nd	2.8	No	Byproduct of drinking water disinfection	Det 2 Building 32, NWF Building 61235
Total Trihalomethanes [TTHM] (ppb)	2021	n/a	80	1.3	20	No	Byproduct of drinking water disinfection	Det 2 Building 32, NWF Building 61235, WRM Building 51104

DISINFECTANT RESIDUALS								
		MRDLG	MRDL	YOUR WATER	Range			
Free Chlorine (ppm)	2021	4	4	1	nd-1.6	No	Drinking water standards added to control microbes	Distribution system

Contaminants (Units)	Sample Year	MCLG	MCL	Highest total coliform samples per month	Violation	Major Sources of Contaminant	Locations Detected
MICROBIOLOGICAL CONTAMINANTS							
Total Coliform [TC]	2021	0	0	1 positive sample	No	Naturally present in the environment	Distribution system

Contaminants (Units)	Sample Year	AL	MCLG	YOUR WATER	Number of samples exceeding AL	Violation	Major Sources of Contamination	Locations Detected
LEAD and COPPER								
Lead (ppb)	2019	15	0	1.2	None	No	Corrosion of household plumbing system, erosion of natural deposits	Distribution system
Copper (ppm)	2019	1.3	1.3	0.221	None	No	Corrosion of household plumbing system, erosion of natural deposits	Distribution system

NOTES:
 Note 1: The combined radium (total radium-226 and radium-228, pCi/L) MCL and MCLG are 5 and 0 respectively.
 Note 2: Although there is no collective MCLG for this group, there are individual MCLGs for some of the individual contaminants. **HAA:** mono-chloroacetic acid (70ppb), dichloroacetic acid (zero), tri-chloroacetic acid (20 ppb). **THM:** bromodichloromethane (zero), bromoform (zero), dibromo-chloromethane (60 ppb).
 Note 3: Chlorine result is based on the highest calculated Running Annual Average (RAA).
 Note 4: The AL is exceeded if the concentration of more than 10 percent of tap water samples collected (the "90th percentile" level) is greater than 1.3 ppm for copper and 15 ppb for lead.

DEFINITIONS:

- 1. Action Level (AL):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- 2. 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.
- 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 Disinfection Level (MRDL):** The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for the control of microbial contaminants.
- 5. 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 contamination.

ABBREVIATIONS:

ppm: parts per million (or milligrams per liter) pCi/L: picoCuries per liter n/a: not applicable
 ppb: parts per billion (or micrograms per liter) nd: not detected (above laboratory detection limit)

MONITORING, REPORTING, AND VIOLATIONS

Monitoring results indicate whether or not your drinking water meets health standards. **For the year 2021, the Andersen Air Force Base Water System met all primary drinking water quality standards.** We are proud to report that we did not exceed any Maximum Contaminant Level or any other water quality standards. All safe drinking water reports, along with supporting laboratory reports were submitted on time as required by the Guam Environmental Protection Agency.

In accordance with the US EPA Ground Water Rule, we are required to report outstanding significant deficiencies identified during the 2019 Guam EPA Sanitary Survey. Andersen Air Force Base is working to address all significant deficiencies identified in the list below:

- Seal openings/holes observed on roof of Building 20029 Storage Tank
- Replace broken and corroded ladder, cage, and bolts of Building 19008 Storage Tank
- Replace water reservoir hatch cover of DET 2 Building 25 Storage Tank to shoe-box type lid to completely cover cell opening.
- Replace corroded air vent on DET 2 Building 25 Storage Tank.

All projects to correct the outstanding significant deficiencies are estimated to be completed by 01 September 2022.

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 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 source 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 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.
- **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 stormwater runoff, and septic systems.
- **Radioactive contaminants**, which can be naturally-occurring or be the result of oil and gas production and mining activities.

PER—AND POLYFLUOROALKYL SUBSTANCES

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 regulations 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 2021 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 Andersen Air Force Base tested its water for PFAS?

Yes. In February, June, and September of 2021, samples were collected from Booster Station 3. We are informing you that perfluorohexanesulfonic acid (PFHxS), perfluorohexanoic acid (PFHxA), perfluorooctanesulfonic acid (PFOS), and perfluorobutanesulfonic acid (PFBS) of the 18 PFAS compounds covered by the sampling method were detected above the method reporting limit (MRL) at Booster Station 3. The results are provided in the water quality data. As PFOA and PFOS were below the EPA HA, there is no immediate cause for concern but we will continue to monitor the drinking water closely to ensure that remains the case. In accordance with DoD policy, Andersen Air Force Base will collect quarterly samples for PFAS for one year and then every two years thereafter as long as the results are below the MRL. Booster Station 3 remains on continuous monitoring. All detected levels are below the EPA HA level of 70 ppt.

SUMMARY OF PFAS MONITORING RESULTS AT BOOSTER STATION 3				
Sample Date	Contaminant (ppt)	Detected Level (ppt)	Health Advisory Level	Above HA?
2/16/21	Perfluorohexanesulfonic acid (PFHxS)(ppt)	3.8	70	No
6/30/21	Perfluorohexanoic acid (PFHxA)(ppt)	1.0	70	No
	Perfluorooctanesulfonic acid (PFOS)(ppt)	1.4	70	No
9/21/21	Perfluorohexanesulfonic acid (PFHxS) (ppt)	3.6	70	No
	Perfluorohexanoic acid(PFHxA)(ppt)	0.91	70	No
	Perfluorobutanesulfonic acid (PFHBS) (ppt)	0.80	70	No
	Perfluorooctanesulfonic acid (PFOS) (ppt)	1.3	70	No