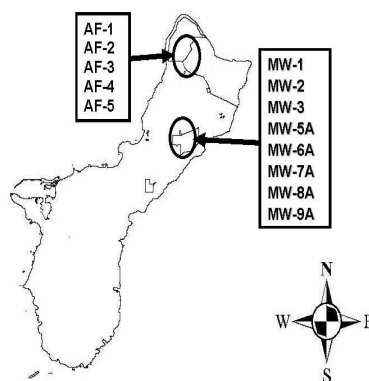


## 2022 ANDERSEN AIR FORCE BASE WATER QUALITY REPORT

This is the 2022 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 copy of this report on the Andersen Air Force web page which will be published by 1 July 2023. Printed copies of this report may be obtained at the Bioenvironmental Engineering Office.

# 2022

## DRINKING WATER QUALITY REPORT ANDERSEN AIR FORCE BASE



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

## 2022 Water Quality Data

The following data presented are results of monitoring for the reporting period of January 1— December 31, 2022 and results of the most recent sampling for certain contaminants. As authorized and approved by EPA, the state has reduced monitoring requirements to less often than once per year for certain contaminants because concentrations of these contaminants do not change frequently. Some of our data though representative, are more than a year old. For those contaminants, the date of the last sample is shown in the table. 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).

### 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 (ppb)	2020	100	100	1.3	2.1	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)	2022	10	10	0.62	2.1	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								
Alpha emitters (pCi/L)	2017	0	15	nd	4.0	No	Erosion of natural deposits	Booster Station 2
Uranium (ppb)	2017	0	30	nd	1.0	No	Erosion of natural deposits	Building 61207 NWF Storage Tank
Radium 226 (pCi/L)	2017	0 <i>Note 1</i>	5 <i>Note 1</i>	nd	1.8	No	Erosion of natural deposits	Booster Station 2, Booster Station 3, Building 61207 NWF Storage Tank
	2020	0 <i>Note 1</i>	5 <i>Note 1</i>	nd	1.7	No	Erosion of natural deposits	Building 9060 Storage Tank
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
DISINFECTANT AND DISINFECTION BYPRODUCTS								
Five Haloacetic Acids [HAA5] (ppb)	2022	n/a <i>Note 2</i>	60	nd	4.3	No	Byproduct of drinking water disinfection	Det 2 Building 32, NWF Building 61235
Total Trihalomethanes [TTHM] (ppb)	2022	n/a <i>Note 2</i>	80	6.0	10.4	No	Byproduct of drinking water disinfection	Det 2 Building 32, NWF Building 61235, WRM Building 51104
Free Chlorine (ppm)	2022	4 [MRDLG]	4 [MRDL]	1 <i>Note 3</i>	0.04-2.2	No	Drinking water standards added to control microbes	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)	2022	15 <i>Note 4</i>	0	1.0	None	No	Corrosion of household plumbing system, erosion of natural deposits	Distribution system
Copper (ppm)	2022	1.3 <i>Note 4</i>	1.3	0.33	None	No	Corrosion of household plumbing system, erosion of natural deposits	Distribution system

### DEFINITIONS AND ABBREVIATIONS

**Action Level (AL):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

**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.

**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 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.

**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.

**n/a :** not applicable

**nd:** not detected (above laboratory detection limit)

**ppm:** parts per million (or milligrams per liter)

**ppb:** parts per billion (or micrograms per liter)

**pCi/L:** picoCuries per liter

### 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: monochloroacetic acid (70ppb), dichloroacetic acid (zero), tri-chloroacetic acid (20 ppb).  
THM: bromodichloromethane (zero), bromoform (zero), chloroform (70 ppb), dibromochloromethane (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.



## MONITORING, REPORTING, AND VIOLATIONS

Monitoring results indicate whether or not your drinking water meets health standards. **For the year 2022, 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 levels 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 recent Guam EPA Sanitary Survey conducted in March 2022. Andersen Air Force Base has existing rehabilitation projects complete with approved corrective actions plans to address the following:

- Reconstruction of production wells MW-1, MW-2, and MW-3 to meet regulatory measurements of concrete pads and well casings.
- Reconstruction of Storage Tank South Ramp 19008 to replace corroded ladder and cage, repair the slow leak on the exterior of tanks walls, and seal the opening at the top of storage tank connected to the staff of the water level gauge.
- Reconstruction of Storage Tank 9060 to repair slow leaks on the exterior of the tank walls contributing to calcium buildup.
- Reconstruction of Storage Tank DET 2 Tank 26 to repair the corroded roof and walls, convert cell hatches to shoe box type lids, and correct height measurement and screen replacement of air vents on the roof of tank.
- Reconstruction of Storage Tank 20029 to seal openings from the cathodic protection access plates and repair areas of corrosion on the exterior of tank walls.

On December 29, 2022, Andersen Air Force Base was granted an extension agreement by Guam EPA to address all outstanding deficiencies by July 1, 2023.

## 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 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 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.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

### 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 industrial and consumer products around the globe, including in the U.S., for decades. Due to their widespread use and environmental persistence, most people in the United States have been exposed to certain PFAS. 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 .

#### *Is there a federal or Guam regulation for PFAS in drinking water?*

There is currently no federal drinking water standard for any PFAS compounds. In May 2016, the U.S. Environmental Protection Agency (EPA) established a lifetime drinking water 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. In Guam, there is not a PFAS drinking water regulation. The Department of Defense (DoD) issued a policy in 2020 to monitor drinking water for PFAS at all DoD owned and operated water systems at a minimum of every three years. The DoD policy states that if water sampling results confirm that drinking water contains PFOA and PFOS at individual or combined concentrations greater than the 2016 EPA HA level of 70 ppt, water systems would 1) take immediate action to reduce exposure to PFOS or PFOA, to include providing alternative drinking water; and 2) undertake additional sampling to assess the level, scope, and localized source of contamination.

#### *What about the EPA's 2022 interim Health Advisories or proposed regulations?*

EPA issued interim Health Advisories for PFOS and PFOA in 2022. However these newer levels are below quantifiable limits (i.e., below detection levels). EPA is expected to issue a proposed regulation on PFAS drinking water standards for public comment in the next few months. DoD looks forward to the clarity that a nationwide regulatory standard for PFOS and PFOA in drinking water will provide. In anticipation of this EPA drinking water regulation and to account for emerging science that shows potential health effects of PFOS and PFOA at levels lower than 70 ppt, DoD is evaluating its efforts to address PFAS in drinking water, and what actions we can take to be prepared to incorporate this standard, such as reviewing our current data and collecting additional sampling where necessary. DoD remains committed to communicating and engaging with our communities throughout this process.

#### *Has Andersen Air Force Base tested its water for PFAS?*

Yes. On December 15 2022, samples were collected from Booster Station 2, Booster Station 3, Bldg. 61207 NWF Storage Tank, and Bldg. 9060 Storage Tank. **We are informing you that PFOA and PFOS were detected but below the 2016 EPA HA.** Other PFAS compounds covered by the sampling method were detected above the method reporting limit (MRL) but EPA does not have a HA for these compounds at this time. The results are provided in the table below. PFOA and PFOS were below the 2016 EPA HA of 70 parts per trillion, we will continue to monitor the drinking water quarterly. 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 2016 EPA HA.

SUMMARY OF PER-AND POLYFLUOROALKYL SUBSTANCES MONITORING RESULTS				
Location	Detected Contaminant	Detected Level (ppt)	Above 2016 EPA HA?	Sampling Point Status Update
Booster 2	Perfluorooctane sulfonic acid (PFOS)	0.37*	No	Continuous monitoring
Booster 3	Perfluorooctanoic acid (PFOA)	0.49*	No	Continuous monitoring. Although detected, the combined PFOA & PFOS concentration at Booster 3 is below the 2016 EPA HA.
	Perfluorooctane sulfonic acid (PFOS)	1.0*	No	

#### **NOTES:**

- All samples were collected on December 15, 2022.  
- Values with (\*) reported below method reporting limit.