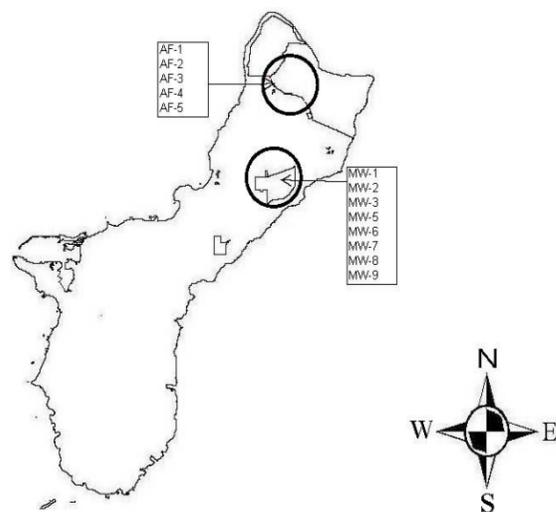


2015 ANDERSEN AIR FORCE BASE WATER QUALITY DATA

This is the 2015 annual report on the quality of Andersen Air Force Base drinking water. The *Consumer Confidence Report Rule* of the federal Safe Drinking Water Act (SDWA) requires this information to 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 (USEPA), designed to further public understanding about public water systems and potential hazards.

The 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 13 wells (see map below).



Why are contaminants found in Drinking 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 organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater, 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 be 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 EPA's Safe Drinking Water Hotline (1-800-426-4791).

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 chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, 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. The 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/lead>.

Water Quality Monitoring

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 established limits for contaminants in bottled water which 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. These regulations also require us to monitor your drinking water for specific contaminants on a regular basis.

DEPARTMENT OF THE AIR FORCE 36TH MEDICAL OPERATIONS SQUADRON ANDERSEN AIR FORCE BASE



ANNUAL DRINKING WATER QUALITY REPORT

WATER QUALITY MONITORING RESULTS

The following data presented in these tables are the results of monitoring for the reporting period of 1 January 2015 — 31 December 2015. Andersen Air Force Base monitors for some contaminants less than once per year because the levels do not change frequently. Therefore, some of the reported water quality data may be more than one year old. Contaminants that are not present on table were below detection levels as specified in 40 CFR 141.151(d). Detection of contaminants in drinking water does not necessarily indicate that water poses a health risk. If you would like a complete listing of the Andersen AFB Water System test results, or if you have questions or require additional information about this water quality report, please contact the Bioenvironmental Engineering office at (671) 366-7166.

PRIMARY STANDARDS - MANDATORY HEALTH-RELATED STANDARDS ESTABLISHED BY GEPA/USEPA

Contaminant	Unit	MCL	MCLG	Your Water	Range Low	Range High	Violation	Sample Date	Typical Source	Locations Detected
Inorganic Chemicals										
Fluoride	ppm	4	4	0.811	nd	0.811	No	8/19/2014	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories	Booster Station 2
Arsenic	ppb	10	0	1	nd	1	No	8/12/2014	Erosion of natural deposits; Runoff from orchard; Runoff from glass and electronic production wastes	Building 61207 NWF Storage Tank
Chromium	ppb	100	100	2	1	2	No	8/12/2014	Discharge from steel and pulp mills; erosion of natural deposits	Booster Station 2, Booster Station 3, Building 9060, Building 61207 NWF Storage Tank
Nitrate	ppm	10	10	2.30	0.985	2.30	No	8/18/2015	Runoff from fertilizer use; leaching from septic tanks, sewage; Erosion of natural deposits	Booster Station 2, Booster Station 3, Building 9060, Building 61207 NWF Storage Tank
Special Monitoring for Sodium										
Sodium	ppm	n/a	n/a	58	21	58	No	8/12/2014	Salt water intrusion from aquifer/salt water interface	Booster Station 2, Booster Station 3, Building 9060, Building 61207 NWF Storage Tank
Radionuclides										
Alpha emitters	pCi	15	0	3.4 <small>Note 1</small>	nd	3.4	No	2014	Erosion of natural deposits	Building 9060
Beta emitters	pCi	50 <small>Note 2</small>	0	3.3 <small>Note 3</small>	nd	3.3	No	2014	Decay of Natural and man-made deposits	Building 61207 NWF Storage Tank
Radium 226	pCi	5 <small>Note 4</small>	0	1.82 <small>Note 5</small>	0.876	2.3	No	2011	Erosion of natural deposits	Booster Station 2, Booster Station 3, Building 9060, Building 61207 NWF Storage Tank
Radium 228	pCi	5 <small>Note 4</small>	0	nd	nd	nd	No	2011	Erosion of natural deposits	Booster Station 2, Booster Station 3, Building 9060, Building 61207 NWF Storage Tank
Uranium	µg/L	30	0	1.16 <small>Note 1</small>	nd	1.5	No	2011	Erosion of natural deposits	Building 61207 NWF Storage Tank

DISINFECTION BYPRODUCTS AND DISINFECTANT RESIDUALS

Contaminant	Unit	MCL	MCLG	Your Water	Range Low	Range High	Violation	Sample Date	Typical Source	Locations Detected
Total Trihalomethanes (TTHMs)	ppb	80	n/a <small>Note 6</small>	13.5 <small>Note 7</small>	nd	13.5	No	8/18/2015	Byproduct of drinking water disinfection	Det 2 Building 32, NWF Building 61235
Five Haloacetic Acids (HAAs)	ppb	60	n/a <small>Note 6</small>	4.40 <small>Note 7</small>	nd	4.40	No	8/18/2015	Byproduct of drinking water disinfection	Det 2 Building 32, NWF Building 61235
Chlorine	Unit	MRDL	MRDLG	Your Water	Range Low	Range High	Violation	Sample Date	Typical Source	Locations Detected
	ppm	4	4	0.981 <small>Note 8</small>	nd	3.30	No	2015	Drinking water standards added to control microbes	Within the distribution system

LEAD AND COPPER

Contaminant	Unit	AL	MCLG	Your Water	Number of Samples Exceeding AL	Violation	Sample Date	Typical Source	Locations Detected
Copper	ppm	1.3 <small>Note 9</small>	1.3	0.642	Zero	No	Sep-13	Corrosion of household plumbing system, erosion of natural deposits	Within the distribution system
	Zero out of twenty samples was found to have copper levels in excess of the Action Level 1.3 ppm.								
Lead	ppb	15 <small>Note 9</small>	0	nd	Zero	No	Sep-13	Corrosion of household plumbing system, erosion of natural deposits	Within the distribution system
	Zero out of twenty samples was found to have lead levels in excess of the Action Level 15 ppb.								

MICROBIOLOGICAL CONTAMINANTS

Contaminant	Unit	MCL	MCLG	Your Water	Violation	Sample Date	Typical Source	Locations Detected
Total Coliform	Absent or Present	1 positive sample/month <small>Note 10</small>	0	1	No	3/3/2015	Naturally present in the environment	Building 2799 Entomology
Fecal Coliform or <i>E. coli</i> bacteria	Absent or Present	<small>Note 11</small>	0	0	No	3/3/2015	Human and animal fecal waste	

2013 RADON DATA SUMMARY

Contaminant	Unit	MCL	MCLG	Your Water	Range Low	Range High	Violation	Sample Date	Typical Source	Locations Detected
Radon	pCi/L	ne	ne	660	86	660	No	8/19/2013	Naturally occurring gas	Booster Station 2, Booster Station 3, Building 9060, Building 61207 NWF Storage Tank

We have detected radon in the finished water supply, as seen in the 2013 Radon Data Summary above. There is currently no federal regulation for radon levels in drinking water. Exposure to air-transmitted radon over a long period of time may cause adverse health effects.

Radon is a radioactive gas that you cannot see, taste, or smell. It is found throughout the United States. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Compared to radon entering the home through soil, radon entering the home through tap water will in most cases be a small source of radon in indoor air. Radon is a known human carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon may also cause increased risk of stomach cancer. If you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy. You should pursue radon removal for your home if the level of radon in your air is 4 pCi/L or higher. There are simple ways to fix radon problem that are not too costly. For additional information call your state radon program or call EPA's Radon Hotline (800-SOS-RADON).

NOTES:

- Compliance for alpha emitters at building 9060 storage tank and uranium at building 61207 NWF storage tank are calculated based on Annual Running Average (highest reportable average).
- The MCL for beta particles is 4 mrem/year. However, EPA considers 50 pCi/L to be the level of concern for beta particles.
- Because the beta particle results were below 50 pCi/L, no testing for individual beta particle constituents was required.
- The combined radium (total radium-226 and radium-228, pCi/L) MCL and MCLG are 5 and 0 respectively.
- Compliance for radium 226/228 uranium at building 9060 and building 61207 NWF storage tanks are calculated based on Annual Running Average (highest reportable average).
- 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).
- The Stage 2 Disinfection By-Product Rule focuses on calculating the annual average at each monitoring site. Andersen Air Force Base monitors for Stage 2 Disinfection By-Product annually, therefore the result at each site will be the Locational Running Annual Average for that respective site.
- Chlorine is calculated based on quarterly Annual Running Average (highest reportable average).
- 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.
- The MCL is violated if two or more total coliform-positive samples are collected in one month.
- Any fecal coliform-positive repeat sample or *E. coli*-positive repeat sample, or any total coliform-positive repeat sample following a fecal coliform-positive or *E. coli*-positive routine sample.

DEFINITIONS:

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. 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 highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for 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.

ABBREVIATIONS:

mrem/year: millirems per year
n/a: not applicable
nd: not detected (contaminant levels are below detection capabilities)
ne: not established
ppb: parts per billion or micrograms per liter (µg/L); a unit of measure equivalent to a single penny in \$10,000,000
ppm: parts per million or milligrams per liter (mg/L); a unit of measure equivalent to a single penny in \$10,000.
pCi/L: picocuries per liter (a Curie is the measurement of radioactivity)

Water Quality Reporting

Results of regular monitoring are an indicator of whether or not your drinking water meets health standards.

In 2015, the Andersen Air Force Base Water System met all primary drinking water quality standards. We are proud to report that we did not violate 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.



How Can You 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 Bio Environmental 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 Can You 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. This report can be accessed on the Andersen Air Force Base web page by 1 July 2016. Printed copies of this report can be obtained at the base library, or at the Bioenvironmental Engineering office. For electronic copies, please contact Bioenvironmental Engineering at (671) 366-7166.