

2020 Davis-Monthan Annual Water Quality Report

IS MY WATER SAFE?

Yes, your water is safe! We are pleased to present the 2020 Annual Water Quality Report (Consumer Confidence Report) as required by the Safe Drinking Water Act (SDWA). This report is intended to provide a detailed look at the Davis-Monthan AFB drinking water program, Public Water System ID# AZ0420549, and what the Davis-Monthan AFB drinking water team does for you every day to provide safe drinking water.

WHERE DOES MY WATER COME FROM?

Davis-Monthan AFB supplies drinking water to around 14,300 customers/base residents each day. This water is pulled directly from the Fort Lowell Aquifer via eight groundwater wells located throughout the base and is monitored by personnel from the Bioenvironmental Engineering Flight, 355th Operational Medicine Readiness Squadron, 355th Medical Group, 355th Wing.

SOURCE WATER ASSESSMENT AND ITS AVAILABILITY

All drinking water is chlorinated for disinfection purposes. Disinfection involves the addition of chlorine to kill bacteria and microorganisms that may be in the water. On a monthly basis, the Bioenvironmental Engineering Flight monitors the base drinking water to ensure chlorination and acidity levels fall within an acceptable range and bacteriological contamination is non-existent. Additional sampling is performed on a periodic basis for other contaminants to ensure our drinking water remains compliant with safety regulations set by the Environmental Protection Agency (EPA).

Based on the information currently available on the hydrogeological settings and the adjacent land uses that are in the specified proximity of the drinking water source(s) of this public water system, the Arizona Department of Environmental Quality (ADEQ) has given a high risk designation for the degree to which this public water system drinking water source(s) are protected. A designation of high risk indicates there may be additional source water protection measures which can be implemented on the local level. This does not imply that the source water is contaminated nor does it mean that contamination is imminent. Rather, it simply states that land use activities or hydrogeological conditions exist that make the source water susceptible to possible future contamination. Further source water assessment documentation can be obtained by contacting ADEQ.

HOW CAN I GET INVOLVED?

We would like you to understand the efforts we make to continually improve the water treatment process and protect our water resources. If you would like additional information concerning this report, or if you have any questions about our drinking water program, please feel free to contact the Davis-Monthan Drinking Water team members and we will be happy to assist you in any way we can.

Bioenvironmental Engineering Flight—520-228-5369
Civil Engineer Customer Service—520-228-3171
Soaring Heights—520-748-3339

WHY ARE THERE CONTAMINANTS IN MY DRINKING WATER?

The sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels across the surface of the land and seeps through the ground, it picks up naturally occurring minerals and, in some cases, naturally occurring radioactive materials. Additionally, it can pick up any number of substances resulting from the presence of animals or human activity. These range from viruses or bacteria found in water treatment plants and septic systems, inorganic and organic compounds, either naturally occurring or occurring as a result of industrial operations, and chemical contaminants such as pesticides and herbicides from farms.

The EPA sets safety limits on these contaminants in public water systems in order to ensure safe drinking water is provided to the customer. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants; however, this does not necessarily indicate that the 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).

DO I NEED TO TAKE SPECIAL PRECAUTIONS?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as individuals with cancer undergoing chemotherapy, individuals 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.

WERE THERE ANY MONITORING FAILURES OR VIOLATIONS?

On 23 February 2021, Davis-Monthan received a monitoring and reporting deficiency that was marked as “compliance not achieved,” which is visible on the AZ Safe Drinking Water Information System (AZSDWIS) and Environmental Protection Agency (EPA) database. This monitoring and reporting deficiency was for a missed sampling for Synthetic Organic Compounds (SOCs) at sampling site EPDS005 (water well) during the 2018-2020 compliance monitoring period. Additionally, SOC sampling was completed in 2018 for sampling sites EPDS001, EPDS002, and EPDS003 as required; however, the results were not submitted to the state within the required timeframe. Once notified of this oversight, the SOC results for EPDS001, EPDS002, and EPDS003 were submitted on 22 March 2021 and full compliance was immediately achieved.

MONITORING AND REPORTING OF COMPLIANCE DATA VIOLATIONS.

During the monitoring period, EPDS005 was down for maintenance therefore, Bioenvironmental Engineering (BE) was unable to sample at the site. The site did come back up in 2019 and BE then sampled the site in February 2019; however, SOCs need to be sampled two times within the sampling year. Since BE did not sample the site again (3rd Quarter), a missed monitoring and reporting deficiency was issued. Davis-Monthan takes these oversights very seriously and remains committed to ensuring the continued safety of the installation’s drinking water. Precautions have been taken to ensure sampling events are not missed in the future and results are submitted within the time frames required by the state. EPDS005 will be back in compliance by 31 December 2021 after reporting the 3rd quarter SOC sampling event, while reporting violations for EPDS001, EPDS002, and EPDS003 have already been returned to a compliant status.

WERE THERE ANY CONTAMINANTS DETECTED IN MY DRINKING WATER?

All sources of drinking water contain some naturally occurring contaminants. In order to ensure that tap water is safe to drink, the EPA prescribes regulations which limit the amount of contaminants allowed in water provided by public water systems. At low levels, these substances are generally not harmful in our drinking water. Removing all contaminants would be extremely expensive, and in most cases, would not provide increased protection of public health. The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change frequently.

IS THERE PFOS/PFOA IN MY DRINKING WATER?

No, there have been no instances where the contaminants known as PFOS/PFOA (perfluorooctane sulfonate and perfluorooctanoic acid respectively, both members of the perfluorinated compounds (PFC’s) family) were detected in the drinking water at Davis-Monthan AFB. Monitoring of the drinking water for these contaminants was accomplished in 2020 and the results showed no detectable levels. No tests conducted by Davis-Monthan AFB or the surrounding area that Tucson Water is responsible for have found PFC’s in the ground water at the depth that Davis-Monthan AFB’s drinking water wells pull water from (660 feet or deeper). The Air Force continues to play an active role in groundwater testing and we are working closely with our partners at Tucson Water and the Arizona Department of Environmental Quality. An initial site survey report conducted in 2017 recommended an expanded site survey at the deeper aquifer monitoring wells located down-gradient of the Stormwater Outfall Canal, on the north side of installation property. To conduct the expanded site inspection, two wells were installed in that area this past spring. This expanded site inspection is currently ongoing. Results from the expanded site inspection will be published to the Air Force Civilian Engineer Center’s Administrative Record website <http://afcec.publicadmin-record.us.af.mil/> when available. Additional information about PFOS/PFOA and the Air Force’s response in the Davis-Monthan community can be found on the Davis-Monthan Air Force Base website: <https://www.dm.af.mil/About-DM/Environmental-Stewardship/>

WATER QUALITY DATA TABLE

The Water Quality Data table lists all of the drinking water contaminants that we detected. Unless otherwise noted, the data presented in this table is from testing done within 5 years of the report. A majority of regulated contaminants that were not detected are not included in the table. Thus, only those substances listed below were found in your water.

Regulated Contaminates Detected

Disinfectants and Disinfection By-Products							
<u>Contaminant</u>	<u>MRDLG</u>	<u>MRDL</u>	<u>RAA</u>	<u>Range</u>	<u>Sample Year</u>	<u>Violation</u>	<u>Typical Source</u>
Chlorine (ppm)	4	4	1.33	0.81 - 2.28	2020	No	Water additive used to control microbes.
<u>Contaminant</u>	<u>MRDLG</u>	<u>MRDL</u>	<u>Highest Level Detected</u>	<u>Range</u>	<u>Sample Year</u>	<u>Violation</u>	<u>Typical Source</u>
Haloacetic Acids (HAA5) (ppb)	N/A	N/A	4.9	<2 – 4.9	2020	No	Byproduct of drinking water disinfection
Total Trihalomethanes (TTHM) (ppb)	N/A	N/A	22	4.1 - 22	2020	No	Byproduct of drinking water disinfection

Inorganic Contaminant							
<u>Contaminant</u>	<u>MCLG</u>	<u>MCL</u>	<u>Highest Level Detected</u>	<u>Range</u>	<u>Sample Year</u>	<u>Violation</u>	<u>Typical Source</u>
Chromium (ppb)	100	100	0.82	<0.5 – 0.82	2020	No	Discharge from steel and pulp mills; Erosion of natural deposits
Arsenic (ppb)	0	10	3.2	1.5 - 3.2	2020	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes.
Barium (ppm)	2	2	0.072	<0.05 - 0.072	2020	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Nitrate (ppm) [measured as Nitrogen]	10	10	1.2	1.0 - 1.2	2020	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Sodium (ppm)	N/A	N/A	32	25 - 32	2020	No	Erosion of natural deposits
Radioactive Contaminant							
Alpha emitters (pCi/L)	0	15	0.7	0.7	2019	No	Erosion of natural deposits.
Uranium (ug/L)	0	30	2.3	0.00018 - 2.3	2018	No	Erosion of natural deposits.

Unregulated Contaminants Detected

PFOS/PFOA					
<u>Contaminants</u>	<u>Regulation Limit</u>	<u>MRL (ng/L)</u>	<u>Result (ng/L)</u>	<u>Sample Date</u>	<u>Typical Source</u>
Perfluorooctanesulfonic Acid (PFOS)	N/A	2.0	<2.0	2020	Manmade chemical not naturally found in the environment. Mainly known in the manufacturing of aqueous film forming foam (AFFF), which is used to extinguish liquid hydrocarbon fires.
Perfluorooctanoic Acid (PFOA)	N/A	2.0	<2.0	2020	

Unit Descriptions	
<u>Term</u>	<u>Definition</u>
ppm	Parts Per Million. One ppm equals one milligrams per liter (mg/L) or 1,000 times more than a ppb
ppb	Parts Per Billion. Some constituents in water are measured in very small units. One ppb equals one micrograms per liter (µg/L)
pCi/L	Picocurie Per Liter. It is defined as the quantity of radioactive material in one liter which produces 2.222 nuclear disintegrations per minute
ug/L	Number of micrograms of substance
ng/L	Nanogram per liter
NA	Not Applicable
ND	Not detected
NR	Monitoring not required, but recommended

Lead and Copper						
<u>Contaminants</u>	<u>MCLG</u>	<u>AL</u>	<u>90th percentile</u>	<u># Samples Exceeding AL</u>	<u>Sample Date</u>	<u>Typical Source</u>
Copper (ppm) - action level at consumer taps	1.3	1.3	0.095	0	2018	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems.
Lead (ppb) - action level at consumer taps	0	15	0.79	0	2018	Corrosion of household plumbing systems; Erosion of natural deposits

Important Drinking Water Definitions	
Term	Definition
MRDLG	Maximum Residual Disinfectant Level Goal: The level of drinking water disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants
MRDL	Maximum Residual Disinfectant Level. 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
RAA	Running Annual Average of the Results
MCLG	Maximum Contaminant Level Goal: 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
MCL	Maximum Contaminant Level: 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
AL	Action Level. The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements which a water system must follow
Definitions provided by the Safe Drinking Water Act and utilized by the Arizona Department of Environmental Quality	

DETAILED INFORMATION ON CONTAMINANTS

Chlorine Residual Disinfection is maintained throughout the distribution system. Chlorine is added to the drinking water supply at well sites to provide assurance that water delivered to customers will remain free of microbiological contamination. This also ensures that the water meets microbiological drinking water standards from the time it is pumped from the ground until it reaches the customer's tap. Chlorine Residual Disinfectant is measured seven days a week from each well and monthly from the sample stations where the bacteriological samples are collected. The annual chlorine residual disinfectant is calculated using the monthly chlorine averages for the past 12 months.

Disinfection Byproducts are the unintended reactions of disinfectants with naturally occurring materials in the water (e.g., natural organic matter, bromide, or disinfection by-product precursors).

Arsenic is a naturally occurring substance commonly found in groundwater in the southwestern United States. While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects

against the cost of removing arsenic from drinking water. USEPA continues to research the health effect of low levels of arsenic which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

Microbial Contaminants: Such as viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife

Inorganic Contaminants: Such as salts and metals that 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: Such as agriculture, urban storm water runoff, and residential uses that may come from a variety of sources

Barium occurs naturally at very low concentrations in our groundwater.

Organic Chemical Contaminants: Such as synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and also may come from gas stations, urban storm water runoff, and septic systems.

Radioactive Contaminants: That can be naturally occurring or be the result of oil and gas production and mining activities.

Nitrate is a form of nitrogen and an important plant nutrient. Nitrate in drinking water at levels above 10 ppm is a health risk for infants less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, ask advice from your health care provider.

Alpha Emitters are a measure of radioactivity due to naturally occurring minerals in groundwater. This excludes the radioactivity contributed by either radon or uranium.

Uranium is a metallic element which is highly toxic and radioactive.

Lead and Copper are naturally occurring metals which are generally found at very low levels in source waters. 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 BEF is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. If water in your home 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>.

Coliform Bacteria are commonly found in the environment and in the digestive tract of animals. While rarely harmful, coliform bacteria in drinking water are indicators that the water may also contain harmful microorganisms.

For more information please contact:

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Please share this information with other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.