

# Davis-Monthan AFB Annual Water Quality Report for Calendar Year 2022

## **Is my water safe?**

Yes, your water is safe! We are pleased to present this year's Annual Water Quality Report (Consumer Confidence Report) as required by the Safe Drinking Water Act (SDWA). This report is designed to provide details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. This report is a snapshot of last year's water quality.

## **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 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 risk from infections. These people should seek advice from their health care providers if they have any concerns about their drinking water. Environmental Protection Agency (EPA)/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Water Drinking Hotline (800-426-4791).

## **Where does my water come from?**

Davis-Monthan AFB supplies drinking water to approximately 16,000 consumers and base residents each day. This water is pulled directly from the Fort Lowell Aquifer via eight groundwater wells located across the installation and is monitored by the Bioenvironmental Engineering Flight from the 355th Operational Medicine Readiness Squadron.

## **Source water assessment and its availability**

All drinking water is chlorinated for disinfection purposes. Disinfection involves the addition of chlorine to kill bacteria and microbes that may be present in the water. Throughout each month, the Bioenvironmental Engineering Flight monitors the base drinking water to ensure chlorination and acidity levels are within an acceptable range and that 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 EPA and Arizona Department of Environmental Quality (ADEQ).

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, 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.

## **Why are there contaminants in my drinking water?**

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 EPA's Drinking Water Hotline (800-426-4791).

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 human activity. This could include:

- 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, 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; and radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

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

## **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 the 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

## **Water Conservation Tips**

Did you know that the average U.S. household uses approximately 400 gallons of water per day or 100 gallons per person per day? Luckily, there are many low-cost and no-cost ways to conserve water. Small changes can make a big difference - try one today and soon it will become second nature.

- Take short showers - a 5 minute shower uses 4 to 5 gallons of water compared to up to 50 gallons for a bath.
- Shut off water while brushing your teeth, washing your hair and shaving and save up to 500 gallons a month.
- Use a water-efficient showerhead. They're inexpensive, easy to install, and can save you up to 750 gallons a month.

- Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons a month.
- Water plants only when necessary.
- Fix leaky toilets and faucets. Faucet washers are inexpensive and take only a few minutes to replace. To check your toilet for a leak, place a few drops of food coloring in the tank and wait. If it seeps into the toilet bowl without flushing, you have a leak. Fixing it or replacing it with a new, more efficient model can save up to 1,000 gallons a month.
- Adjust sprinklers so only your lawn is watered. Apply water only as fast as the soil can absorb it and during the cooler parts of the day to reduce evaporation.
- Teach your kids about water conservation to ensure a future generation that uses water wisely. Make it a family effort to reduce next month's water bill!
- Visit [www.epa.gov/watersense](http://www.epa.gov/watersense) for more information.

### **Source Water Protection Tips**

Protection of drinking water is everyone's responsibility. You can help protect your community's drinking water source in several ways:

- Eliminate excess use of lawn and garden fertilizers and pesticides - they contain hazardous chemicals that can reach your drinking water source.
- Pick up after your pets.
- If you have your own septic system, properly maintain your system to reduce leaching to water sources or consider connecting to a public water system.
- Dispose of chemicals properly; take used motor oil to a recycling center.
- Volunteer in your community. Find a watershed or wellhead protection organization in your community and volunteer to help. If there are no active groups, consider starting one. Use EPA's Adopt Your Watershed to locate groups in your community, or visit the Watershed Information Network's How to Start a Watershed Team.
- Organize a storm drain stenciling project with your local government or water supplier. Stencil a message next to the street drain reminding people "Dump No Waste - Drains to River" or "Protect Your Water." Produce and distribute a flyer for households to remind residents that storm drains dump directly into your local water body.

### **What are per- and polyfluoroalkyl substances and where do they come from?**

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 U.S., 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 regulation 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 sampling and response actions go beyond EPA Safe Drinking Water Act requirements. In 2020 the DoD established a policy to monitor drinking water for PFAS at all service 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 quickly undertake additional sampling to assess the level, scope, and localized source of contamination, and take action to reduce exposure to PFOS or PFAS.

### **What about the EPA's 2022 Interim Health Advisories?**

Because the interim Health Advisories for PFOS and PFOA are based on draft analyses that are still undergoing review by the EPA's Science Advisory Board, are below quantifiable limits, and are non-regulatory levels, the DoD is instead looking to the EPA to establish a regulatory drinking water standard, which is anticipated by the end of calendar year 2023. The 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.

### **Is there PFAS in my drinking water?**

No, there have been no instances where PFAS contaminants were detected in the drinking water at Davis-Monthan AFB. Monitoring of the drinking water for these contaminants was accomplished in 2016 and 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 PFAS compounds in the ground water at the depth that Davis-Monthan AFB's drinking water wells pull water from (500 feet or deeper). Additional sampling for PFAS contaminants is projected to be completed at Davis-Monthan AFB during calendar year 2023 as part of the EPA's Fifth Unregulated Contaminant Monitoring Rule (UCMR5).

The Air Force continues to play an active role in groundwater sampling 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. This expanded site inspection began in August 2021 and no PFAS detection were found in the wells sampled. In April 2021 the first phase of field work for a Remedial Investigation began, led by the Air Force Civil Engineer Center, and sampling is expected to continue through the Fall of 2024. Additional information about PFAS 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/>.

### **Monitoring and reporting of compliance data violations**

On 31 January 2023, Davis-Monthan AFB received a monitoring and reporting deficiency which is visible on the AZ Safe Drinking Water Information System (AZSDWIS) and EPA database. This monitoring and reporting deficiency was for missed sampling for nitrates at sampling sites EPDS001, EPDS002, EPDS003, EPDS004, and EPDS005 (water lines from the respective wells) during the 2022 compliance monitoring period. This nitrate sampling was completed on 19 October 2022 for all required sampling sites; however, the results were not submitted to the state within the required timeframe. Once notified of this oversight, these Nitrate results were submitted on 9 February 2023 and full compliance was immediately achieved.

## Additional Information for Lead

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. Davis-Monthan AFB 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>.

## Additional Information for Arsenic

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 costs of removing arsenic from drinking water. EPA continues to research the health effects 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.

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## Water Quality Data Table

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of contaminants in water provided by public water systems. The table below lists all of the drinking water contaminants that we detected during the calendar year of this report. Although many more contaminants were tested, only those substances listed below were found in your water. All sources of drinking water contain some naturally occurring contaminants. 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. A few naturally occurring minerals may actually improve the taste of drinking water and have nutritional value at low levels. Unless otherwise noted, the data presented in this table is from testing done in the calendar year of the report. 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 vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. As such, some of our data, though representative, may be more than one year old. In this table you will find terms and abbreviations that might not be familiar to you. To help you better understand these terms, we have provided the definitions below the table.

Contaminants	MCLG or MRDLG	MCL, TT, or MRDL	Detect In Your Water	Range		Sample Date	Violation	Typical Source
				Low	High			
<b>Disinfectants &amp; Disinfection By-Products</b>								
(There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants)								
Chlorine (as Cl <sub>2</sub> ) (ppm)	4	4	1.08	.78	1.57	2022	No	Water additive used to control microbes.
Haloacetic Acids (HAA5) (ppb)	NA	60	3.1	NA	3.1	2022	No	By-product of drinking water chlorination
TTHMs [Total Trihalomethanes] (ppb)	NA	80	18	6.3	18	2022	No	By-product of drinking water disinfection.

Contaminants	MCLG or MRDLG	MCL, TT, or MRDL	Detect In Your Water	Range		Sample Date	Violation	Typical Source
				Low	High			
<b>Inorganic Contaminants</b>								
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	.072	NA	.072	2020	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Chromium (ppb)	100	100	.82	NA	.82	2020	No	Discharge from steel and pulp mills; Erosion of natural deposits.
Nitrate [measured as Nitrogen] (ppm)	10	10	1.2	.95	1.2	2022	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Sodium (optional) (ppm)	NA		32	25	32	2020	No	Erosion of natural deposits; Leaching.
<b>Radioactive Contaminants</b>								
Alpha emitters (pCi/L)	0	15	.7	.7	.7	2019	No	Erosion of natural deposits.
Uranium (ug/L)	0	30	2.3	1.3	2.3	2018	No	Erosion of natural deposits.
Contaminants	MCLG	AL	Your Water	Sample Date	# Samples Exceeding AL	Exceeds AL	Typical Source	
<b>Inorganic Contaminants</b>								
Copper - action level at consumer taps (ppm)	1.3	1.3	.091	2021	0	No	Corrosion of household plumbing systems; Erosion of natural deposits.	
Lead - action level at consumer taps (ppb)	0	15	0	2021	0	No	Corrosion of household plumbing systems; Erosion of natural deposits.	

Unit Descriptions	
Term	Definition
ug/L	ug/L : Number of micrograms of substance in one liter of water
ppm	ppm: parts per million, or milligrams per liter (mg/L)
ppb	ppb: parts per billion, or micrograms per liter (µg/L)
pCi/L	pCi/L: picocuries per liter (a measure of radioactivity)
NA	NA: not applicable
ND	ND: Not detected
NR	NR: Monitoring not required but recommended.

Important Drinking Water Definitions	
Term	Definition
MCLG	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	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.

**Important Drinking Water Definitions**

TT	TT: Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.
AL	AL: Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
Variations and Exemptions	Variations and Exemptions: State or EPA permission not to meet an MCL or a treatment technique under certain conditions.
MRDLG	MRDLG: Maximum residual disinfection level goal. 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 contaminants.
MRDL	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.
MNR	MNR: Monitored Not Regulated
MPL	MPL: State Assigned Maximum Permissible Level

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