Consumer Confidence Report for Calendar Year 2023
Luke AFB, AZ

Public Water System ID Number	Public Water System Name
AZ04-07305	Luke Air Force Base

Contact Name and Title	Phone Number	Workplace
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We are pleased to present the 2023 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. We are committed to providing you with information because informed customers are our best allies.

ENSURING YOUR WATER IS SAFE:

In order to ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations which limit the amounts 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?

- Protection of drinking water is everyone's responsibility. You can help protect your community's drinking water source in several ways; some examples are:
    - Eliminate excess use of lawn and garden fertilizers and pesticides - they contain hazardous chemicals that can reach your drinking water source.
    - Dispose of chemicals properly.
    - Contact 56 CES/CEIE at 623-856-3621 if you find an unmarked storm drain.

Drinking Water Sources

Your drinking water source is supplied through base groundwater wells from the West Salt River Valley sub-basin within the Phoenix Active Management Area. The water goes through arsenic filtration and then is treated with chlorine to disinfect the water and prevent bacteriological growth. Additionally, Luke AFB receives water from three off-base water providers: Valley Utilities, Liberty Utilities, and EPCOR Utilities-Agua Fria. The off-base water providers also supply groundwater from the West Salt River Valley sub-basin, and EPCOR Utilities also provides surface water from Lake Pleasant.

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 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 that 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 that can be naturally occurring or be the result of oil and gas production and mining activities.

Disinfection Byproducts: potable water systems add disinfectants, like chlorine, to drinking water to kill or inactivate harmful organisms in a process called 'disinfection' to ensure high quality water for drinking purposes. When disinfectants are used in the treatment of drinking water, disinfectants react with naturally occurring organic matter present in water, resulting in the formation of Disinfection Byproducts such as: trihalomethanes (TTHMs) and haloacetic acids (HAAs).

Nitrate in drinking water at levels above 10 ppm is a health risk for infants of 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, you should ask for advice from your health care provider.

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 United States 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. The Environmental Protection Agency (EPA) established Maximum Contaminant Levels (MCLs) for 6 PFAS chemicals (PFOA, PFOS, PFHxS, PFNA, HFPO-DA (GenX), and PFBS, set to take effect in 2029. Under the Fifth Unregulated Contaminant Monitoring Rule (UCMR-5), your drinking water was sampled for the presence and concentration of 29 different PFAS. Only those PFAS that were found at levels above the Minimum Reporting Level (MRL) are listed in the Unregulated Contaminant Monitoring Rule tables below, or the samples collected were deemed not valid by the EPA and therefore not available for 2023.

Consecutive Connection Sources

A public water system that receives some or all of its finished water from one or more wholesale systems by means of a direct connection or through the distribution system of one or more consecutive systems. Systems that purchase water from another system report regulated contaminants detected from the source water supply in their own CCR in a separate table.

The following systems provide us a consecutive connection source of water, and their CCR's can be found here:
EPCOR Water system – PWS# AZ04-07695 - https://www.epcor.com/products-services/water/water-quality/water-quality-reports-usa/Pages/water-quality-reports-agua-fria.aspx
Liberty Utilities – PWS# AZ04-07046 - https://arizona.libertyutilities.com/avondale/residential/safety/water/water-safety.html
Valley Utilities – PWS# AZ04-07079 - https://hearthstonewater.com/valley-utilities-water-company/

Vulnerable Population

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. 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 about drinking water from their health care providers.

For more information about contaminants and potential health effects, or to receive a copy of the U.S. Environmental Protection Agency (EPA) and the U.S. Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and microbiological contaminants visit the EPA *Safe Drinking Water website* at www.epa.gov/sdwa.

Lead Informational Statement:

Lead, in drinking water, is primarily from materials and components associated with service lines and home plumbing. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Luke 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. 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 www.epa.gov/safewater/lead.

Definitions/ Abbreviations

Level Found: is highest level detected of all test results for a particular contaminant.

Detection Range: Shows the lowest and highest levels found during a testing period, if only one sample was taken, then this number equals the Level Found.

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

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health.

Maximum Residual Disinfectant Level (MRDL): the maximum level of a disinfectant added for water treatment that may not be exceeded without an unacceptable possibility of adverse health effects.

Maximum Residual Disinfectant Level Goal (MRDLG): the maximum level of a disinfectant added for water treatment at which no known or anticipated health effects occur, and which allows an adequate margin of safety.

Running Annual Average (RAA): The average of sample analytical results for samples taken during the previous four calendar quarters. Sample results from CY2022 are included in the RAA value until all 4 quarters in 2023 are collected.

EPA**:** Environmental Protection Agency

90th percentile: For lead and copper testing. 10% of test results are above this level and 90% are below this level.

Not Applicable (N/A): Sampling was not completed by regulation or was not required.

Not Detected (ND or <): Not detectable at reporting limit

ppm: Parts per million or Milligrams per liter (mg/L)

ppb: Parts per billion or Micrograms per liter (μg/L)

ppt: Parts per trillion or Nanograms per liter (ng/L)

pCi/L: PicoCurie per liter

[1] ***HAA5*** **(**Haloacetic Acids)***/TTHM*** (Total Trihalomethanes) the running annual average (RAA) is a calculation that consists of the current quarter and prior 3 quarters. For 2023, the highest RAA calculated for Luke was in the 2nd quarter. The RAA value shown is higher than the 'High' in Range of All Samples because the average included results from the last three quarters in 2022.

[2] ***Arsenic*** is a mineral known to cause cancer in humans at high concentration and is linked to other health effects, such as skin damage and circulatory problems. If arsenic is less than or equal to the MCL, your drinking water meets EPA's standards. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water and continues to research the health effects of low levels of arsenic.

[3] ***Nitrate*** in drinking water at levels above 10 ppm is a health risk for infants of 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, and detected nitrate levels are above 5 ppm, you should ask advice from your health care provider.

[4] ***Per- and Polyfluoroalkyl Substances*** **(*****PFAS)*** are a family of widely used, long lasting chemicals; components of which break down very slowly over time. Most people in the United States have been exposed to some PFAS through touching, drinking, eating, or breathing in materials that contain these chemicals. PFAS may be found in drinking water, food (such as fish caught from contaminated water, dairy and livestock exposed to PFAS), electronics, consumer products (such as stain/water-repellent or non-stick products, food packaging, personal care products, paints and sealants), fire extinguishing foam, fertilizers and waste sites. Research is still ongoing but there are studies that shown exposure of certain levels of PFAS may lead to certain cancers, immune, developmental, and reproductive effects. See Arizona Department of Environmental Quality's PFAS 101 Fact Sheet at the end of this document for further information.

[5] ***PFAS Hazard Index (HI)*** is a unitless sum of fractions of two or more of PFHxS, PFNA, HFPO-DA, and PFBS. These fractions are a ratio of the measured levels and their MCL for PFHxS, PFNA, HFPO-DA. For PFBS, the EPA uses a Health-Based Water Concentration (HBWC) of 2000 ppt since the EPA did not identify an MCL for PFBS. The Final MCL is a HI of 1.

[6] ***Fifth Unregulated Contaminant Monitoring Rule (UCMR-5) y***our drinking water was sampled for the presence and concentration of 29 different PFAS. Only those PFAS that were found at levels above the Minimum Reporting Level (MRL) are listed in the Unregulated Contaminant Monitoring Rule tables below, or the samples collected were deemed not valid by the EPA and therefore not available for 2023. For more information, visit: https://www.epa.gov/dwucmr/fifth-unregulated-contaminant-monitoring-rule

Water Quality Data – Regulated Contaminants

Microbiological (RTCR)	Violation Y or N	Number of Positive Samples	Positive Sample(s) Month & Year	MCL	MCLG	Likely Source of Contamination
Total Coliform	N	0	N/A	0	0	Human and animal fecal waste
Fecal Indicator (coliphage, enterococci and/or E. coli)	N	0	N/A	0	0	Human and animal fecal waste

Disinfectants	MCL Violation Y or N	Running Annual Average (RAA)	Detection Range	MRDL	MRDLG	Sample Year	Likely Source of Contamination
Chlorine (mg/L)	N	0.63	0.2 - 1.41	4	4	2023	Water additive used to control microbes

Water Quality Data – Regulated Contaminants Continued

Disinfection By-Products	MCL Violation Y or N	Highest Running Annual Average (RAA)	Range of All Samples-Low-High	MCL	MCLG	Sample Year	Likely Source of Contamination
Haloacetic Acids[1] (HAA5) (ppb)	N	5.2	ND - 13	60	N/A	2023	Byproduct of drinking water disinfection
Total Trihalomethanes[1] (TTHM) (ppb)	N	32.2	6.7 – 76.8	80	N/A	2023	Byproduct of drinking water disinfection

Lead & Copper	MCL Violation Y or N	90th Percentile	Number of Samples Exceeds AL	AL	ALG	Sample Year	Likely Source of Contamination
Copper (ppm)	N	0.055	0	1.3	1.3	2022	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb)	N	ND	0	15	0	2022	Corrosion of household plumbing systems; erosion of natural deposits

Radionuclides	MCL Violation Y or N	Level Found	Detection Range	MCL	MCLG	Sample Year	Likely Source of Contamination
Gross Alpha Activity (pCi/L)	N	2.2	N/A	15	0	2022	Erosion of natural deposits

Inorganic Chemicals (IOC)	MCL Violation Y or N	Level Found	Detection Range	MCL	MCLG	Sample Year	Likely Source of Contamination
Arsenic2 (ppb)	N	1.3	ND -1.3	10	0	2023	Erosion of natural deposits, runoff from orchards, runoff from glass and electronics production wastes
Barium (ppm)	N	0.039	N/A	2	2	2023	Discharge of drilling wastes; discharge from metal refineries; Erosion of natural deposits
Chromium (ppb)	N	0.024	N/A	100	100	2023	Discharge from steel and pulp mills; Erosion of natural deposits
Fluoride (mg/L)	N	2.0	N/A	4.0	4.0	2023	Erosion of natural deposits, water additive which promotes strong teeth
Nitrate3 (ppm)	N	5.3	N/A	10	10	2023	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Selenium (ppb)	N	0.0024	N/A	50	50	2023	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines
Sodium (mg/L)	N	100	N/A	3000	N/A	2023	Erosion of natural deposits

Water Quality Data – Unregulated Contaminant Monitoring Rule (UCMR)[6]

Analyte (metal)	MCL Violation Y or N	Average of Results (ppb)	Detection Range (ppb)	Proposed 2029 MCL (ppb)	MCLG (ppb)	Sample Year	Likely Source of Contamination
Lithium	N/A	80.6	80 – 81.2	N/A	N/A	2023	Naturally occurring metal that may concentrate in brine waters; lithium salts are used as pharmaceuticals, used in electrochemical cells, batteries, and in organic syntheses.

Analyte (PFAS)[4]	MCL Violation Y or N	Average of Results (ppt)	Detection Range (ppt)	Proposed 2029 MCL (ppt)	MCLG (ppt)	Sample Year	Likely Source of Contamination
Perfluorooctanesulfonic acid (PFOS)	N/A	ND	N/A	4	0	2023	[4]Man-made chemicals widely used in industry and consumer products since 1940s. See above definition for PFAS.
Perfluorooctanoic acid (PFOA)	N/A	ND	N/A	4	0	2023	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	N/A	ND	N/A	10	10	2023	
Perfluorobutanesulfonic acid (PFBS)[5]	N/A	ND	N/A	[5]2000	N/A	2023	
Perfluorohexanesulfonic acid (PFHxS)	N/A	ND	N/A	10	10	2023	
Perfluorononanoic acid (PFNA)	N/A	ND	N/A	10	10	2023	
PFAS Hazard Index[5] (HI)	N/A	0	N/A	1	1	2023	

LIBERTY UTILITY WATER CONSECUTIVE CONNECTION SOURCE

Analyte (metal)	MCL Violation Y or N	Average of Results (ppb)	Detection Range (ppb)	Proposed 2029 MCL (ppb)	MCLG (ppb)	Sample Year	Likely Source of Contamination
Lithium	N/A	92.2	N/A	N/A	N/A	2023	Naturally occurring metal that may concentrate in brine waters; lithium salts are used as pharmaceuticals, used in electrochemical cells, batteries, and in organic syntheses.

Analyte (PFAS)[4]	MCL Violation Y or N	Average of Results (ppt)	Detection Range (ppt)	Proposed 2029 MCL (ppt)	MCLG (ppt)	Sample Year	Likely Source of Contamination
Perfluorooctanesulfonic acid (PFOS)	N/A	*	N/A	4	0	2023	[4]Man-made chemicals widely used in industry and consumer products since 1940s. See above definition for PFAS.
Perfluorooctanoic acid (PFOA)	N/A	*	N/A	4	0	2023	
Perfluorohexanesulfonic acid (PFHxS)	N/A	*	N/A	10	10	2023	
Perfluorobutanesulfonic acid (PFBS)[5]	N/A	*	N/A	[5]2000	N/A	2023	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	N/A	ND	N/A	10	10	2023	
Perfluorononanoic acid (PFNA)	N/A	ND	N/A	10	10	2023	
PFAS Hazard Index[5] (HI)	N/A	N/A	N/A	1	1	2023	

* Samples were taken for these PFAS chemicals in 2023, however due to analysis errors at the EPA's lab, results are not available for 2023.

Water Quality Data – Unregulated Contaminant Monitoring Rule (UCMR)[6] Continued

EPCOR UTILITY WATER CONSECUTIVE CONNECTION SOURCE

Analyte (metal)	MCL Violation Y or N	Average of Results (ppb)	Detection Range (ppb)	Proposed 2029 MCL (ppb)	MCLG (ppb)	Sample Year	Likely Source of Contamination
Lithium	N/A	56.6	52.8-60.4	N/A	N/A	2023	Naturally occurring metal that may concentrate in brine waters; lithium salts are used as pharmaceuticals, used in electrochemical cells, batteries, and in organic syntheses.

Analyte (PFAS)[4]	MCL Violation Y or N	Average of Results (ppt)	Detection Range (ppt)	Proposed 2029 MCL (ppt)	MCLG (ppt)	Sample Year	Likely Source of Contamination
Perfluorooctanesulfonic acid (PFOS)	N/A	ND	N/A	4	0	2023	[4]Man-made chemicals widely used in industry and consumer products since 1940s. See above definition for PFAS.
Perfluorooctanoic acid (PFOA)	N/A	ND	N/A	4	0	2023	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	N/A	ND	N/A	10	10	2023	
Perfluorobutanesulfonic acid (PFBS)[5]	N/A	ND	N/A	[5]2000	N/A	2023	
Perfluorohexanesulfonic acid (PFHxS)	N/A	ND	N/A	10	10	2023	
Perfluorononanoic acid (PFNA)	N/A	ND	N/A	10	10	2023	
PFAS Hazard Index[5] (HI)	N/A	0	N/A	1	1	2023	

VALLEY UTILITY WATER CONSECUTIVE CONNECTION SOURCE

Analyte (metal)	MCL Violation Y or N	Average of Results (ppb)	Detection Range (ppb)	Proposed 2029 MCL (ppb)	MCLG (ppb)	Sample Year	Likely Source of Contamination
Lithium	N/A	129	N/A	N/A	N/A	2023	Naturally occurring metal that may concentrate in brine waters; lithium salts are used as pharmaceuticals, used in electrochemical cells, batteries, and in organic syntheses.

Analyte (PFAS)[4]	MCL Violation Y or N	Average of Results (ppt)	Detection Range (ppt)	Proposed 2029 MCL (ppt)	MCLG (ppt)	Sample Year	Likely Source of Contamination
Perfluorooctanesulfonic acid (PFOS)	N/A	*	N/A	4	0	2023	[4]Man-made chemicals widely used in industry and consumer products since 1940s. See above definition for PFAS.
Perfluorooctanoic acid (PFOA)	N/A	*	N/A	4	0	2023	
Perfluorohexanesulfonic acid (PFHxS)	N/A	*	N/A	10	10	2023	
Perfluorobutanesulfonic acid (PFBS)[5]	N/A	*	N/A	[5]2000	N/A	2023	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	N/A	*	N/A	10	10	2023	
Perfluorononanoic acid (PFNA)	N/A	*	N/A	10	10	2023	
PFAS Hazard Index[5] (HI)	N/A	N/A	N/A	1	1	2023	

* Samples were taken for these PFAS chemicals in 2023, however due to sampling errors the results were invalidated and are not available for 2023.

ADEQ
Arizona Department of Environmental Quality
Katie Hobbs, Governor • Karen Peters, Director
azdeq.gov

FACT SHEET

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PFAS 101

What are PFAS?

PFAS stands for per- and polyfluoroalkyl substances. PFAS are man-made chemicals that are resistant to heat, water, and oil. They have been used since the 1940s to manufacture various consumer products, including fire-fighting foam and stain-resistant, water-resistant, and nonstick items.

Many PFAS do not break down easily and can build up in people, animals, and the environment over time. This is why they are often referred to as "forever chemicals".

Scientific studies have shown that exposure to certain PFAS can be harmful to people and animals, depending on the level and duration of exposure.

Pending PFAS Regulation

PFAS are not currently regulated nationally or in Arizona. The U.S. Environmental Protection Agency (EPA) has proposed a national regulation for PFAS in drinking water. The proposed regulation includes "Maximum Contaminant Levels" for six common PFAS, which are based on long-term, chronic exposure to low levels. EPA expects to finalize the drinking water regulation by 2024, and then water systems will be given three years to address PFAS contamination.

In addition to PFAS drinking water regulations, EPA has proposed other actions like designating some PFAS as hazardous substances, which would allow the state and federal government to hold polluters accountable. EPA also proposed aquatic life standards to help protect wildlife in our streams and rivers.

What We Are Doing to Protect Public Health:

ADEQ has conducted targeted testing since 2018 to understand the impact of PFAS in Arizona. This testing has included drinking water, groundwater, wastewater, and biosolids.

To prevent PFAS from entering the environment, we launched a pilot program to help fire departments stop using PFAS-containing aqueous film-forming foams. We have worked with 52 fire departments across Arizona to replace and safely discard almost 10,000 gallons of foam to date.

Testing Arizona's Drinking Water

EPA is requiring that public water systems serving 3,300 people or more test their drinking water for PFAS. However, most systems in Arizona serve fewer than 3,300 people. Therefore,

we are testing the smaller water systems even though the EPA does not require it. Our goal is to make sure that all regulated water systems are tested for PFAS as soon as possible.

What Happens if PFAS are Detected?

If PFAS are detected, we ask systems to follow EPA recommendations to inform customers, examine steps to limit exposure, and take more samples to assess the level, scope, and source of contamination. When a system's PFAS concentrations exceed EPA's proposed limits, we help the systems perform additional testing, begin exploring potential solutions and even apply for federal funding, if needed. We also provide systems with a PFAS Toolkit to help them meet the challenges. The toolkit includes information about funding, customer communication and next steps.

Benefits of ADEQ's Drinking Water Testing Program

ADEQ's PFAS drinking water testing program offers several benefits to small drinking water systems and their customers. It provides free PFAS testing to these systems, potentially saving them significant costs. It also offers assistance with next steps if PFAS are detected. With many systems across the country facing similar challenges, it is important that Arizona's drinking water systems begin planning to meet the new rules as soon as possible.

Want to learn more?

Visit **azdeq.gov/PFAS-Resources** to:

- Contact us
- Watch our *Intro to PFAS in Arizona* video
- Explore other resources

You can also find our PFAS Interactive Data Map at **bit.ly/myPFASmap** to see results from our testing since 2018.