

CONSUMER CONFIDENCE REPORT

1 Jan 2023 – 31 Dec 2023
Aviano Air Base, Italy

Introduction

This is the annual report on the quality of drinking water delivered by Aviano Air Base (AB). Under the “Consumer Confidence Reporting Rule” of the Federal Safe Drinking Water Act, community water systems are required to report this water quality information to the consuming public. The Consumer Confidence Report (CCR) presents information on the source of our water, its chemical/biological makeup, and the health risks associated with any contaminants. It also contains extensive technical language required by the Environmental Protection Agency (EPA), which is designed to further public understanding about public water systems and potential hazards across the country. Air Force Instruction, 48-144, *Drinking Water Surveillance Program*, requires overseas installations to also prepare a water quality report that can be modeled after the CCR. This year’s report covers results from drinking water surveillance conducted during calendar year 2023.

Sources of drinking 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, naturally occurring radioactive minerals, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include: (A) Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife. (B) 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. (C) Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses. (D) Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, can come from gas stations, urban storm water runoff, and septic systems. (E) Radioactive contaminants, which can be naturally occurring or the result of oil and gas production and mining activities.

In order to ensure tap water is safe to drink, the EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. In addition, Italian Final Governing Standards (IFGS) prescribe limits on contaminants, some of which may be more stringent than those set by the EPA. At Aviano AB, we are required to analyze for and meet the most stringent requirements of both the EPA and the IFGS. The Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain 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) or by visiting the following website <http://www.epa.gov/safewater/index.html>.

We continually monitor the drinking water for contaminants of concern. Our water is safe to drink. However, as with any water supply, 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.

Where does my on-base water come from?

Aviano AB's drinking water in 2023 was supplied through six groundwater wells: These six wells provided all the water for Aviano AB Areas A1/A2, C, D, E, F, and G. Groundwater, not under the influence of surface water, is the primary source of water for each well system.

What should I know about certain contaminants?

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. 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 www.epa.gov/safewater/lead.

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 such as aqueous film-forming foam, or AFFF, used for fighting petroleum fires at airfields and in industrial fire suppression processes. PFAS compounds 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 federal regulation for PFAS in drinking water?

In May 2016, the Environmental Protection Agency (EPA) established a lifetime health advisory (LHA) level at 70 parts per trillion (ppt) for individual or combined concentrations of perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). Both compounds are types of PFAS. On 10 April 2024, the EPA published new drinking water standards for certain PFAS under the Safe Drinking Water Act (SDWA). AF is reviewing the EPA's new rule now, and will incorporate these standards into future sampling and analysis efforts.

Out of an abundance of caution, DoD pursued PFAS testing and response actions beyond EPA SDWA requirements. In 2020, the DoD established a policy to monitor drinking water for 17 PFAS compounds at all service owned and operated water systems. If results confirmed the drinking water contained PFOA and PFOS at individual or combined concentrations greater than 70ppt, water systems quickly took action to reduce exposures. While not a SDWA requirement, in 2023, DoD improved upon its 2020 PFAS drinking water monitoring policy by expanding the list of PFAS compounds monitored to 29, implementing continued monitoring of systems with detectable PFAS over the laboratory Method Reporting Limits (MRL), and requiring initial mitigation planning actions.

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 announced a proposed

regulation on PFAS drinking water standards for public comment on March 14, 2023. The Department supports EPA taking regulatory actions to address PFAS, including a drinking water standard for PFAS that will apply to all drinking water suppliers once final. DoD respects and values the public comment process on this proposed nationwide drinking water rule and looks forward to the clarity that a final regulatory drinking water standard for PFAS 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 Aviano Air Base tested its water for PFAS?

Yes. In December 2023 samples were collected from all six wells on Aviano AB.

We are informing you that PFAS were not detected in your water system. Drinking water testing results were below the Method Detection Limit (MDL) for all 29 PFAS compounds covered by the sampling method, including PFOA and PFOS. In accordance with current DoD policy, the water system will be resampled every two years for your continued protection.

Why are there boil water notices?

Water System and Infrastructure

The underground pipe system on Aviano AB is older and prone to leaks and breaks. When this happens, CE works to repair the issues as quickly as possible. If the break could potentially lead to foreign material, debris, or contaminated water entering the system, BE will test the water. These tests take 24 hours to complete. During this time the water system is repaired, but test results are not yet ready. Until the tests come back, the water must be boiled before drinking as a precaution.

Disinfection System Maintenance

Occasionally, the mechanisms that add chlorine disinfectant to the water become damaged or malfunction. In these cases, there can be either too much or too little chlorine entering the water system. Too little chlorine can allow microorganisms to grow, while too much chlorine can cause gastrointestinal problems. When these issues are detected, BE and CE work together to resolve the issue and return the water systems to normal.

Public Notification

BE works with Public Affairs, facility managers, and the AF Connect notification system to provide the most up to date information to consumers in order to keep all users of our water safe and healthy.

What is being done to ensure our water continues to meet standards?

Water Treatment

The use of chlorine/ultra-violet (UV) to disinfect the water and use of granular activated carbon (GAC) to filter the water ensures our water is potable and meets the standards. The water from all on-base wells is disinfected with chlorine at the well head before being distributed to the respective base areas. Water from Well 1 (Areas A1/A2) is also treated by a UV disinfection system. Well 2 (Areas F/G) has three GAC treatment towers. Well 1 (Areas A1/A2), Well 3

(Areas D/E), Well Z2 (Areas F/G), and Well Z3 (Areas F/G) each have two GAC treatment towers. Sampling results indicate these treatment processes are functioning properly.

Public Participation

Personnel can contact Bioenvironmental Engineering (BE) directly for drinking water quality information.

Questions

This CCR was prepared by the BE office. Public queries and additional information can be obtained by contacting the Aviano Public Affairs (31 FW/PA) at 632-7555 or BE (31 OMRS/SGXB) at Commercial: 0434-30-5532 or DSN: 632-5532.

Monitoring Our Drinking Water

Aviano AB's drinking water is managed by two base agencies. The 31st Civil Engineering Squadron Water and Fuels System Maintenance section maintains and operates the drinking water supply and distribution system. The 31st Operational Medical Readiness Squadron BE Flight monitors the quality of the drinking water provided to on-base consumers and addresses any health-related concerns.

At Aviano AB, BE monitors the contaminant groups listed in the following table, using certified laboratories and accredited methods. The table below specifies the monitoring frequency for contaminant groups of interest. To ensure your drinking water is of the highest quality, BE monitors for microbiological contaminants, lead and copper, inorganic contaminants, synthetic organic contaminants, volatile organic compounds, radionuclides, asbestos, and total trihalomethanes.

Analyte Groups and Monitoring Frequency Table

Analyte/Contaminant Group	Monitoring Frequency
Microbiological Contaminants	Monthly
Lead	Triennially
Copper	Triennially
Inorganic Contaminants	Annually ¹
Pesticides	Triennially
Volatile Organic Compounds	Annually
Radionuclides (Gross Alpha Activity)	Sampled for four consecutive quarters every 4 years
Asbestos	Once every 9 years
Total Trihalomethanes	Annually ²
Nitrate	Quarterly
Note:	
1. Ammonium/Ammonia is sampled quarterly	
2. Total Trihalomethanes for Well 1 for Area A1/A2 are sampled Quarterly	

Compliance with the National Primary Drinking Water Regulations

In September 2023, Total Trihalomethanes (TTHMs) were found to exceed the Italian Environmental Final Governing Standards (FGS) Maximum Contaminant Level (MCL) for Area A1/A2 only. A notice was sent out to consumers informing of the exceedance and interim measures to take. A corrective action plan was created to address the exceedance including a change out of water system filters, increased flushing for Area A1/A2, and increased monitoring frequency. Sampling for TTHMs in November 2023 showed levels were back within acceptable range. Bioenvironmental Engineering Flight will continue increased monitoring for this area for a minimum of one year after the exceedance. Some people who drink water containing

trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer. However, both EPA and Italian environmental regulations set advisory levels at very conservative action points and sampling protocols to find worst-case situations. The intent is to warn populations of potential health risk. In addition, the health advisory level is based on a lifetime exposure of an individual consuming 2 liters of water every day.

Due to an administrative error, samples were not analyzed for nitrate for 2 of 4 quarters of 2023, this omission presents a negligible health risk as nitrate levels were consistently below the MCL when measured in 2022 and 2023.

The contaminants presented in the Results Table below are those that were found in concentrations greater than the laboratory minimum detection limit. The monitoring results include the highest detected level along with the range of detected values. The tables also show the maximum contaminant level (MCL) and/or action level (AL) as published in the IFGS, EPA National Primary Drinking Water Regulations and EPA Secondary Drinking Water Standards.

Note: Aviano AB monitors for dozens of additional regulated contaminants; however, this report only cites contaminants that were detected in the water. For information on the full suite of chemicals analyzed, contact BE.

Results Table - Detected Contaminants with Regulatory Limits

Contaminant	IFGS MCL	EPA MCL	EPA MCLG	Highest Level	Violation	Typical Sources
Arsenic	0.010 mg/L	0.010 mg/L	0 mg/L	0.008 mg/L	NO	Erosion of natural deposits; runoff from orchards, runoff from glass and electronics production wastes
Cadmium	0.005 mg/L	0.005 mg/L	0.005 mg/L	0.0011 mg/L	NO	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints
Chlorides	250 mg/L	250 mg/L ¹	N/A	10 mg/L	NO	weathering of soils, salt-bearing geological formations, deposition of salt products, wastewater runoff
Chromium	0.05 mg/L	0.1 mg/L	0.1 mg/L	0.004 mg/L	NO	Discharge from steel and pulp mills; erosion of natural deposits
Monthly Bacterial Monitoring	No abnormal changes	No abnormal changes	N/A	15 UFC/ml	NO	Naturally present in the environment
Conductivity @ 20°C	2,500 µScm-1 (microSiemens per centimeter)	N/A	N/A	588 µScm-1	NO	Measure of the ability of water to pass an electrical current
Fixed residue @ 180°C	1500 mg/L (at 180 C)	N/A	N/A	317 mg/L	NO	Amount of residual mineral salts (in mg) after the evaporation of 1 L of water at 180°C
Lead	0.010 mg/L	0.015 mg/L	Zero	0.009 mg/L	NO	Corrosion of household plumbing systems; erosion of natural deposits
Manganese	0.05 mg/L	0.05 mg/L ¹	N/A	0.002 mg/L	NO	Dissolved minerals
Nickel	0.02 mg/L	N/A	N/A	0.004 mg/L	NO	Corrosion of household plumbing systems; erosion of natural deposits
Nitrate	44.3 mg/L (as NO ₃) 10 mg/L (as N)	10 mg/L (as N)	10 mg/L (as N)	22 mg/L (as NO ₃) 4.97 mg/L (as N)	NO	Runoff from fertilizer use; leaking from septic tanks, sewage; erosion of natural deposits
Nitrite	0.5 mg/L (as NO ₂) 0.15 mg/L (as N)	1 mg/L (as N)	1 mg/L (as N)	0.06 mg/L (as NO ₂)	NO	Runoff from fertilizer use; leaking from septic tanks, sewage; erosion of natural deposits
Oxidizability	5 mg/L (as O ₂)	N/A	N/A	0.1 mg/L (as O ₂)	NO	Sum of all chemically oxidizable organically bound compounds present in water
Sodium	200 mg/L	N/A	N/A	2.5 mg/L	NO	Erosion of natural deposits
Sulfates	250 mg/L	250 mg/L ¹	N/A	2.5 mg/L	NO	Naturally present in the environment
Total coliforms	1 positive sample/month	1 positive sample/month	0	3 positive samples/year	NO	Naturally present in the environment
Total hardness	15-50 °F (French Degree)	N/A	N/A	23.6 °F	NO	Erosion of natural deposits
Total organic carbon ²	No abnormal changes	TT	TT	0.007 mg/L	NO	Naturally present in the environment

Total Trihalomethanes (TTHM) 29 °F	0.03 mg/L	0.08 mg/L	N/A	0.0337 mg/L	YES	Byproduct of drinking water disinfection
Turbidity	N/A	¹ Nephelometric Turbidity Unit (NTU)	N/A	0.11 NTU	NO	Soil runoff

Notes:

1. Indicates a guidance level established by the EPA National Secondary Drinking Water Regulation that sets non-mandatory water quality standards. They are established as guidelines to assist public water systems in managing their drinking water for aesthetic considerations and are not considered to present a risk to human health.
2. Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection by products. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects,

Results Table - Detected Parameters with no Regulatory Limits

Contaminant	IFGS MCL	EPA MCL	EPA MCLG	Highest Level	Violation	Typical Sources
Ammonia	N/A	N/A	N/A	0.09 mg/L	NO	Sewage, animal wastes or fertilizer runoff
Taste	N/A	N/A	N/A	Chlorine Taste	NO	Aesthetic measure of drinking water

Additional Acronyms/Terms/Concepts/Definitions Used In This Report

Below is a listing of acronyms and terms used in this Consumer Confidence Report:

AL	Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
CCR	Consumer Confidence Report
CU	Color Units
DoD produced water	Any water used for drinking where the raw water is extracted by DoD
EPA	Environmental Protection Agency
GAC	Granular Activated Carbon
IFGS	Italian Final Governing Standards, a compilation of US EPA and Italian/European Union environmental standards
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. Values are published in Chapter 3 of the Final Governing Standards-Italy.
MDL	Minimum Detection Limit. This is the lowest concentration of a contaminant that an analytical method is able to detect in a water sample.
mg/L	Milligrams per liter; a unit of measure equivalent to parts per million (ppm)
mrem/yr	Millirem per year; the annual acceptable exposure limit to radioactivity in drinking water
NTU	Nephelometric Turbidity Unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
TT	Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.
NOD	No Odor Detected
ppm	parts per million; a unit of measure equivalent to a single penny in \$10,000
Range	The range of the highest and lowest analytical values of a reported contaminant. For example, the range of reported analytical detections for an unregulated contaminant may be 10.1 mg/L (lowest value) to 13.4 mg/L (highest value). EPA requires this range to be reported.
TON	Threshold Odor Number
90th Percentile Rule	The 90th percentile rule is a mathematical calculation that determines what sample value represents the 90th percentile. For example, 10 samples are collected, the highest sample value would be thrown out and the next highest would represent the 90th percentile. This 90th percentile is then compared to the AL to evaluate the distribution system materials.

