

# CONSUMER CONFIDENCE REPORT

1 Jan 2024 – 31 Dec 2024

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 2024.

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. It can also 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 2024 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?

### **Nitrate**

Although the level of nitrate is below the health effect level (as shown in the Results Table), the EPA requires the following information be included in this report: "Nitrate in drinking water at levels above 10 mg/L 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."

### **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](http://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 industrial 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, food packaging, and cookware. They are also contained in some fire-fighting foams such as aqueous film-forming foam, or AFFF, used for fighting petroleum fires.

### **Is there a federal regulation for PFAS in drinking water?<sup>1</sup>**

Yes. On April 26, 2024, the Environmental Protection Agency (EPA) published a final National Primary Drinking Water Regulation for certain per- and polyfluoroalkyl substances (PFAS) under the Safe Drinking Water Act (SDWA). This rule went into effect on June 25, 2024 with a compliance deadline of April 26, 2029, five years from the date of publication. While the rule requires routine sampling for certain PFAS by no later than 2027, DoD has been sampling drinking water for PFAS compounds at all DoD-owned and operated water systems since 2017. Under the new rule, the following limits, called Maximum Contaminant Levels (MCL), were established, and DoD water systems will need to meet these levels by April 2029.

PFAS	MCL
PFOA	4.0 ppt
PFOS	4.0 ppt
PFHxS	10 ppt
HFPO-DA (GenX)	10 ppt
PFNA	10 ppt
PFBS	n/a

Mixture of two or more: PFHxS, PFNA, HFPO-DA, and PFBS <sup>2</sup>	HI of 1 (unitless)
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<sup>1</sup> This language and language may need to change to reflect any promulgated state standards applicable to the installation. Any language changes should be vetted through respective headquarters and public health centers.

<sup>2</sup> The sampling point is above the HI MCL if the HI exceeds the MCL and if two or more Hazard Index analytes had an observed sample analytical result at or above the PQL in any of the quarterly samples.

For systems where DoD provides drinking water, the Department is collecting the necessary sampling information and is taking actions to ensure compliance within the required 5-year timeframe. Currently, DoD is finalizing a policy on how to apply the EPA rule OCONUS.

### **Has Aviano Air Base tested its water for PFAS?**

Yes. Samples were collected from all six wells on Aviano AB during a prior monitoring period. We are informing you that drinking water testing results were below the MCL for all 6 PFAS compounds covered by the EPA drinking water rule, including PFOA and PFOS. The water system will be periodically resampled as required by the pending DoD OCONUS drinking water policy to ensure continued compliance.

## **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.

### **Health-Based Drinking Water Violations**

**Date:** 17 April 2024

**Summary:** Routine monthly Bioenvironmental Engineering sampling detected E. coli contamination in the Area F/G water system (wells 2, Z2, and Z3) serving Building 1411 and the BX food court, impacting a population of 4000. A single positive E. coli sample constitutes a violation. The root cause was determined to be low chlorine levels within the system. Corrective action, implemented on 18 April 2024, included flushing the system and increasing the chlorine dose. A boil water notice was issued as a health precaution.

**Date:** 6 June 2024

**Summary:** Quarterly Bioenvironmental Engineering sampling, analyzed by a local laboratory, revealed the presence of Enterococci bacteria in the Area E/D water system (well 3), serving a population of 100. A subsequent routine sample taken on June 11th in Building 600 also tested positive for bacteria. As two positive samples constitute a violation, the root cause, identified as low system chlorine, was addressed on 12 June 2024. Corrective actions included flushing the system and increasing the chlorine dose. A boil water notice was issued as a precautionary health measure.

**Date:** 13 June 2024

**Summary:** Following reports of illness from a local hospital, water samples from Buildings 1135 and 1143 in Area F/G tested positive for Legionella bacteria, affecting 20 personnel out of a population of 4000. While no routine sampling is required for Legionella, the positive results prompted building isolation, flushing, and super chlorination. Although the Legionella contamination did not pose a direct drinking water threat, alternate water sources were provided to building occupants as a highly conservative risk-avoidance measure at the commander's discretion. Remediation efforts occurred on July 24th and 31st, with follow-up sampling yielding initial negative results on September 11th. Local public health officials conducted confirmatory sampling on September 18th, with negative results reported on October 4th. Water was declared potable after the initial negative results on September 11th, effectively resolving the

issue after a 90-day period. The root cause was attributed to warm summer temperatures, low system use, and low chlorine levels.

**Date:** 22 November 2024

**Summary:** Routine monthly Bioenvironmental Engineering sampling detected E. coli contamination in the Area C water system, affecting a population of 350. All buildings within Area C tested positive for E. coli, constituting a violation. The root cause was identified as low system chlorine resulting from issues with the chlorine pumps, which were unable to maintain proper levels. High initial chlorine levels, caused by a pump malfunction, delayed sampling and prolonged the issue until residuals stabilized. Corrective action, implemented and resolved on November 27th, included flushing the system and adjusting the chlorine dose. A boil water notice was issued as a health precaution during the five-day period.

**Analyte Groups and Monitoring Frequency Table**

Analyte/Contaminant Group	Monitoring Frequency
Microbiological Contaminants	Monthly
Lead	Triennially
Copper	Triennially
Inorganic Contaminants	Annually <sup>1</sup>
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 <sup>2</sup>
Nitrate	Quarterly
<b>Note:</b>	
1. Ammonium/Ammonia is sampled quarterly	
2. Total Trihalomethanes for Well 1 (Area A1/A2) are sampled Quarterly	

## **Compliance with the National Primary Drinking Water Regulations**

### **Total Trihalomethanes (TTHMs)**

Elevated Total Trihalomethanes (TTHMs) were previously detected in Area A1/A2, exceeding the Italian Environmental Final Governing Standards (FGS) Maximum Contaminant Level (MCL). A notice was issued, and an action plan was implemented that included replacement of water system filters and increased flushing in Area A1/A2. In August 2024, subsequent sampling demonstrated that TTHM levels returned to within acceptable limits.

Bioenvironmental Engineering has initiated increased monitoring for Area A1/A2 and will complete a full year of quarterly monitoring data to establish the annual average and determine eligibility for reduced monitoring moving forward.

Some people who drink water containing TTHM 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.

### **Nitrate**

Due to an administrative oversight, nitrate samples were not analyzed for part of the required monitoring period in the past. A review of historical data showed that nitrate levels in all wells have triggered the action level (50% of the MCL) at various times. In response, Bioenvironmental Engineering initiated increased monitoring, which will continue for at least one year or until nitrate levels consistently remain below the action level.

Although nitrate levels triggered the action level, this does not represent a health concern. The action level is designed to prompt increased monitoring well before levels approach the MCL, the regulatory limit established to protect health. Nitrate concentrations remain below the MCL, and the water continues to meet safety standards.

## Detected Contaminants with Regulatory Limits

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

Contaminant	IFGS MCL	EPA MCL	EPA MCLG	Highest Level	Violation	Typical Sources
Chlorides	250 mg/L	250 mg/L <sup>1</sup>	N/A	4 mg/L Cl	NO	weathering of soils, salt-bearing geological formations, deposition of salt products, wastewater runoff
Colony Counting at 22C	No abnormal changes	N/A	N/A	>3000 UFC/mL	YES	Naturally occurring soil and aquifer microorganism
Colony Counting at 36C	0	N/A	N/A	>3000 UFC/mL	YES	Naturally occurring soil and aquifer microorganism
Conductivity @ 20°C	2,500 µScm-1 (microSiemens per centimeter)	N/A	N/A	524 µS/cm	NO	Measure of the ability of water to pass an electrical current
Enterococci	0	N/A	N/A	12 UFC/100 mL	YES	Fecal contamination from human and animal waste, as well as environmental reservoirs such as soil and sediments
Lead	0.010 mg/L	0.015 mg/L	Zero	0.006 mg/L	NO	Corrosion of household plumbing systems; erosion of natural deposits
Manganese	0.05 mg/L	0.05 mg/L <sup>1</sup>	N/A	0.0024 mg/L	NO	Dissolved minerals
Nickel	0.02 mg/L	N/A	N/A	0.007 mg/L	NO	Corrosion of household plumbing systems; erosion of natural deposits
Nitrate	44.3 mg/L (as NO <sub>3</sub> ) 10 mg/L (as N)	10 mg/L (as N)	10 mg/L (as N)	33 mg/L (as NO <sub>3</sub> )	NO	Runoff from fertilizer use; leaking from septic tanks, sewage; erosion of natural deposits

Nitrite	0.5 mg/L (as NO <sub>2</sub> ) 0.15 mg/L (as N)	1 mg/L (as N)	1 mg/L (as N)	0.18 mg/L (as NO <sub>2</sub> )	NO	Runoff from fertilizer use; leaking from septic tanks, sewage; erosion of natural deposits
Oxidizability	5 mg/L (as O <sub>2</sub> )	N/A	N/A	1.2 mg/L (as O <sub>2</sub> )	NO	Sum of all chemically oxidizable organically bound compounds present in water
PCBs (as decachlorobiphenyls)	0.0005 mg/L	0.0005 mg/L	0	66 pg/L	NO	Industrial discharges and leaching from contaminated soils or sediments
Pesticides- Total	0.0005 mg/L	N/A	N/A	0.00006 mg/L	NO	Agricultural runoff and leaching from contaminated soils.
Sodium	200 mg/L	N/A	N/A	2.20 mg/L	NO	Erosion of natural deposits
Sulfates	250 mg/L	250 mg/L <sup>1</sup>	N/A	11 mg/L (as SO <sub>4</sub> )	NO	Naturally present in the environment
Total coliforms/E. Coli	1 positive sample/month <sup>2</sup>	1 positive sample/ month	0	4 positive samples/ year	YES	Naturally present in the environment
Total Dissolved Solids	N/A	N/A	N/A	352 mg/l	NO	Natural mineral dissolution, agricultural runoff, industrial discharges, and wastewater from septic system.
Total hardness	15-50 °F (French Degree)	N/A	N/A	30.6 °F	NO	Erosion of natural deposits
Total Trihalomethanes (TTHM)	0.03 mg/L	0.08 mg/L	N/A	0.004 mg/L	NO	Byproduct of drinking water disinfection
Vanadium	0.140 mg/L	N/A	N/A	0.002 mg/L	NO	Natural leaching of vanadium-rich rocks and industrial activities

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. IAW IFGS Microbiological Requirements: The MCL is no more than 5% positive samples per month for a system examining 40 or more samples a month, and no more than one positive sample per month when a system analyzes < 40 samples per month. Further, the MCL is exceeded whenever a sample is positive for fecal coliforms, E. coli, Enterovirus, anti-E. coli bacteriophages, Pathogenic enterobacteria and Pathogenic staphylococci or any repeat sample is positive for total coliforms.

## 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	0.1 mg/L	NO	Sewage, animal wastes or fertilizer runoff
Taste	N/A	N/A	N/A	1 Cc	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
pg/l	Picograms of substance per liter of solution, and is equivalent to 10 <sup>-15</sup> kilograms per liter or parts per quadrillion, assuming unit density.
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.
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