CONSUMER CONFIDENCE REPORT (CCR)

1 Jan 17 – 31 Dec 17
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 (SDWA), community water systems are required to report this water quality information to the consuming public. This report 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, *Safe 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 2017.

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, 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: (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, and can also 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 that 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, 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. This report is also available in Italian.

Where does my on base water come from?

Aviano AB's drinking water in 2017 was supplied through six groundwater wells: Wells 1, 2, 3, 4, Z2, and Z3. 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 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

Aviano AB holds a semiannual Environmental Safety, and Occupational Health Council where drinking water issues and concerns are discussed. Personnel can also 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 AMDS/SGPB) at Commercial: 0434-30-5532 or DSN: 632-5532.

What should I know about certain contaminants?

Nitrate

Although the level of nitrate is below the health effect level (as shown in Table 1), the EPA requires the following information be included in this report: "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."

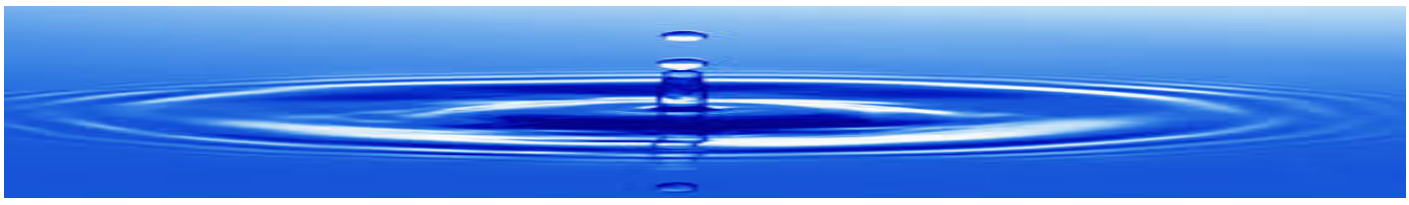
Lead

In May 2017, there was an elevated lead level in a sample taken from Area 2 (unoccupied), which was caused from a lack of use. These pipes are now being flushed regularly and BE has increased monitoring of water to ensure the flushing schedule is sufficient. All subsequent samples have been within acceptable, safe ranges. Population at risk for heightened lead levels consist of children who attend the CDC, AYP, EDIS, and DoDEA. If you have any questions or concerns, please seek additional information from your health care provider.

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
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)
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.
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.
SDWA	Safe Drinking Water Act; Federal law which sets forth drinking water regulations
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.



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 Aerospace Medicine Squadron Bioenvironmental Engineering (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 in the following table using EPA-certified laboratories and EPA approved methods. Column 2 of the table specifies the monitoring frequency for these contaminant groups. 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 (VOC), radionuclides, asbestos, and total trihalomethanes (TTHM).

Analyte Groups and Monitoring Frequency Table

Analyte/Contaminant Group	Monitoring Frequency
Microbiological contaminants	Monthly
Lead	Triennially
Copper	Triennially
Inorganic Contaminants	Annually[1]
Pesticides	Four quarters over a 3 year period during the most likely period of their presence
Volatile Organic Compounds (VOC)	Annually
Radionuclides (Gross Alpha Activity)	Sampled for four consecutive quarters every 4 years
Asbestos	Once every 9 years
Total Trihalomethanes (TTHM)	Annually
Nitrate	Quarterly
Note:	
1. Ammonium/Ammonia is sampled quarterly	

Compliance with the National Primary Drinking Water Regulations

The contaminants presented in Tables 1 - 3 are those that were found in concentrations greater than the laboratory minimum detection limit (MDL). 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.

Note: Aviano 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 Tables - Detected Contaminants

Table 1. Organic/Inorganic/Physical Parameters

Contaminant	Exceeded Standard?	FGS Limit	EPA MCL	EPA MCLG	Highest Level	Range	Units	Frequency	Likely Source
Barium	No	2	2	2	<0.001	<0.001	mg/L	Triannual	Discharge of drilling wastes/discharge from metal refineries/erosion of natural deposits
Chloride	No	250	250	N/A	5.9	2.7 - 5.9	mg/L	Annually	
Color	No[2]	N/A[1]	N/A	N/A	<5	<5	CU	Quarterly	Soil runoff/bacteria/organic material/ suspended particles
Copper	No	1	1.3	1.3	0.059	0.0029 - 0.059	mg/L	Annually	Erosion of natural deposits/leaching from wood preservatives
Dry Residues	No	1,500	N/A	N/A	290	130 - 290	mg/L	Annually	
Lead	Yes[3]	0.01	0.015	0.015	0.02	<0.0002-0.02	mg/L	Annually	Corrosion of plumbing systems/erosion of natural deposits
Manganese	No	0.05	0.05	0.05	0.011	<0.002 - 0.011	mg/L	Annually	
Nitrate	No	10	10	10	6.2	0.6 - 6.2	mg/L	Quarterly	Runoff from fertilizer/leaching from septic tanks, sewage/erosion of natural deposits
Odor[2]	No	N/A	N/A	N/A	2	NOD - 2	TON	Quarterly	
Sodium	No	200	N/A	N/A	51	1.1 - 51	mg/L	Annually	Erosion of natural deposits
Sulfate	No	250	250	250	11	2.2 - 11	mg/L	Annually	
Total Hardness	No	150-500	N/A	N/A	310	15 - 310	mg/L	Annually	Erosion of natural deposits
Total Nitrate/Nitrite	No	10	10	10	6.2	0.69 - 6.2	mg/L	Annually	Runoff from fertilizer/leaching from septic tanks, sewage/erosion of natural deposits
Total Organic Carbon (TOC)	No	N/A[1]	N/A	N/A	1.7	<1 - 1.7	mg/L	Annually	Erosion of natural deposits
Total Trihalomethanes (TTHM)	No	0.03	0.08	N/A	0.0027	<0.0005 - 0.0027	mg/L	Annually	By-product of drinking water chlorination
Turbidity	No[2]	N/A	N/A	N/A	2.3	<0.2 - 2.3	NTU	Quarterly	Soil runoff/bacteria/organic material/ suspended particles

Notes:

1. FGS states the limit as “No Abnormal Changes”
2. These parameters do not have an established standard since they are indicators rather than a health concern. BE continues to monitor to ensure water quality.
3. See page 2 - “What should I know about certain contaminants?”

Table 2. Radiation

Distribution System	Radionuclide	Exceeded Standard	FGS Limit	EPA MCL	EPA MCLG	Highest Value	Range	Unit	Likely Source
Area C	Gross Alpha	No	15	15	0	1.341	0.001 - 1.341	pCi/L	Erosion of natural deposits
	Radium 226	No	5	5	0	0.055	0.001 - 0.055	pCi/L	Erosion of natural deposits
	Radium 228	No	5	5	0	0.428	0.002 - 0.428	pCi/L	Erosion of natural deposits

Table 3. Lead and Copper Rule								
Distribution System	**Contaminant**	**Number of Samples**	**Number of Samples >AL**	**90th percentile**	**Units**	**Sampling date**	**FGS AL**	**Exceeded standard?**
Area A1	Lead	10 faucets	0	0.007	mg/L	August 2017	0.015	No
	Copper	10 faucets	0	0.16	mg/L	August 2017	1.3	No
Area C	Lead	5 faucets	0	0.0025	mg/L	August 2017	0.015	No
	Copper	5 faucets	0	<0.01	mg/L	August 2017	1.3	No