2019 Annual Drinking Water Quality Report

(Consumer Confidence Report)

LAJES FIELD, PORTUGAL

Introduction

We are pleased to present this year's Annual Drinking Water Quality Report (Consumer Confidence Report – CCR) as required by the Final Governing Standards for Portugal (FGS-P) and Air Force Instruction 48-144, Drinking Water Surveillance Program. 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. Our goal is to provide you with a safe, quality and reliable drinking water supply. We are committed to providing you with this information because informed customers are the best allies.

Water Sources

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, which 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 storm water runoff, industrial or domestic waste water discharges, oil and gas production, mining, or farming.

- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water 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 storm water runoff, and septic systems.

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

Where Do We Get Our Drinking Water?

Lajes Field operates one potable water system; this system is defined as a Public Water System (PWS) according to the FGS-Portugal. The USAF water distribution at Lajes Field is supplied by eight active wells. Seven wells are located off the base between the nearby communities of Lajes and Fontinhas and well 8 is located within the base boundary. The raw water is pumped to building T-925 on the base where it is disinfected using sodium hypochlorite. The disinfected water from T-925 is then pumped and stored in 60,000-gallon tanks (T871R and T-826) where it is again disinfected and discharged into the distribution system.

Drinking Water and Your Health

All 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 the water poses a health risk. More information on contaminants and potential health effects can be obtained by calling BE at DSN 479-2220 (0049-6371-46-2220). According to the Environmental Protection Agency, some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised individuals such as those with cancer undergoing chemotherapy, those who have undergone organ transplants, those with HIV/AIDS or other immune system disorders, some elderly, and infants are at a higher risk of waterborne illness. These people should seek advice about drinking water from their health care providers.

A Final Word on Water Quality

Your water quality team at Lajes Field works around the clock to provide safe, dependable water at every tap. But they can only ensure the success of today's mission if everyone contributes. Tomorrow's success will depend on all of us, working together, to protect our vital water resources. Remember, the water we use does not quickly return to the aquifer, but is, for the most part, "consumed" by our actions. The military installation (Lajes Field) and many nearby villages draw water from the same aquifer. Conservation is therefore essential to protect our water supply. You should also consider ways you can reduce your water consumption, i.e., don't let the water run while brushing your teeth, take a shower vs. a bath. There are numerous ways to save our most valuable natural resource for us and the future of our children. If you have ideas to reduce usage and contamination of this valuable resource submit it to the Ramstein AB Drinking Water Quality Working Group (POC – 86 AMDS Bioenvironmental Engineering) via the Lajes Field IDMTs. These efforts will help protect the future water supply by reducing the overall consumptive use.

Customer Views Welcome

For more information on this report or base drinking water quality, please call the 86 MDG BE Flight at DSN 479-2220 (0049-6371-462220) or the 86 CES Environmental Management Flight at DSN 480-7712.

Definitions and Abbreviations

Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
Average: Regulatory compliance with some MCLs are based on running annual average of monthly samples.
Maximum Contaminant Level (MCL): 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.
Maximum Contaminant Level Goal (MCLG): 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.
Maximum Residual Disinfectant Level (MRDL): The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
Maximum Residual Disinfectant Level Goal (MRDLG): 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 contamination.
ppb: micrograms per liter (ug/L) or parts per billion – or one ounce in 7,350,000 gallons of water.
ppm: milligrams per liter or parts per million – or one ounce in 7,350 gallons of water.

About the Following Pages

The table below lists all of the drinking water contaminants that we detected during the calendar year of this report. Although more than **115 contaminants** were tested, only those substances listed below were detected in our water. The FGS 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.

Coliform Bacteria

Maximum Contaminant Level Goal	Total Coliform Maximum Contaminant Level	Highest No. of Positive	Fecal Coliform or E. Coli Maximum Contaminant Level	Total No. of Positive E. Coli or Fecal Coliform Samples	Violation	Likely Source of Contaminant
0	1 positive monthly sample.	0	0	0	N	Naturally present in the environment.

Lead and Copper

Lead and Copper	MCLG	Action Level	90th Percentile	# Sites Over AL	Units	Violation	Likely Source of Contaminant
Copper	1.3	1.3	0.98	0	ppm	N	Erosion of natural deposits; leaching from wood preservatives; corrosion of household plumbing systems.
Lead	0	15	5	0	ppb	N	Corrosion of household plumbing systems; erosion of natural deposits.

Required Additional Health 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. Lajes Field 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.

Regulated Contaminants

Disinfectant Residual	Average Level	Minimum Level	Maximum Level	MRDL	MRDLG	Unit of Measure	Source of Contamination
Chlorine (Free)	1.1	0.15	2.2	4.0	<4.0	ppm	Water additive used to control microbes.

Inorganic Contaminants	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
Barium	0.0079	Sampled once	2	2	ppm	N	Discharge of drilling wastes; discharge from metal refineries; Erosion of natural deposits.
Bromate	0.04	0 - 0.04	0	0.01	ppm	Y	By-product of drinking water disinfection
Nitrate (measured as Nitrogen)	4.9	0 - 4.9	10	10	ppm	N	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.

Violation

Bromate			
A life time of drinking bromate at these levels has an increased lifetime cancer risk of 2 in 10,000 – if consumed every day over the life time. Some people who ingested large amounts of bromate had gastrointestinal symptoms such as nausea, vomiting, diarrhea and abdominal pain. Some individuals who ingested very high concentrations of bromate also experienced kidney effects, and nervous system effects and hearing loss. However, these people were exposed to bromate levels thousands of times the amount the amount in the FGS-S.			
Violation Type	**Violation Begin**	**Violation End**	**Violation Explanation**
MCL	08/13/2019	TBD	The 86 AMDS Bioenvironmental Engineering Flight performed sampling of Lajes Field drinking water system for Bromates on 28 June 2019. Bromate levels from this monitoring event were found to be in exceedance of the 0.01 mg/L (equivalent to ppm) of the MCL. Water sampling results from Lajes Field Air Base are compared to the FGS-P criteria of 0.01mg/L. Bromate is a byproduct of the water treatment disinfection process and we believe the exceedance of Bromate is due to the high level of free available chlorine (FAC) in the water system for CY2019. While not over the MCL of 4 mg/L, the levels of FAC were greater than the FGS-P recommended limits of 0.2-0.6 mg/L. Working with Lajes Field CE Environmental personnel, we have reduced the level of FAC to the recommended level for the installation. Also, we have put a process in place to verify the FAC to be in the recommended limits before collecting the water samples to analyze for Bromate. We followed this procedure/method in our last sampling event and the Bromate results were all “non-detected”. In an effort to provide statistical data and/or provide a data trend, the BE office will continue to sample for Bromate on a quarterly basis. This also serves as a precautionary measure to detect any changes in Bromate levels more expediently. This is not driven by regulatory requirement. Violation ends when four consecutive quarterly samples are below the MCL.