2024 Annual Drinking Water Quality Report

(Consumer Confidence Report)

MORÓN AIR BASE, SPAIN

This report contains important information about your drinking water. If you do not understand it, please have someone explain or translate it for you.

Este informe contiene información importante sobre su agua potable. Si no lo entiende, pídale a alguien que se lo explique o lo traduzca.

Introduction

The Bioenvironmental Engineering (BE) Flight is pleased to present this year's Annual Drinking Water Quality Report (Consumer Confidence Report – CCR) for Morón Air Base (AB) as required by the Final Governing Standards for Spain (FGS-S) and Department of the Air Force Instruction 48-144, *Drinking Water Surveillance Program*. This report provides an overview of the 2024 drinking water quality from 1 January 2024 through 31 December 2024 and details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. 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. In order to ensure that tap water is safe to drink, the final governing standard for Spain, published in 2014, prescribes regulations which limit the number of certain contaminants in drinking water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

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 wastewater 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.

- Per- and Polyfluoroalkyl Substances (PFAS): a group of thousands of man-made chemicals used in a variety of industries and consumer products around the globe since the 1940s.

Where Do We Get Our Drinking Water?

Morón AB receives its water supply from a shallow regional aquifer. Groundwater that is not under the influence of superficial waters is the primary source of the water system. Six well fields pump water through a water treatment plant to a comprehensive distribution system. The water is treated using granular activated carbon and reverse osmosis filters to remove contaminants prior to disinfection with chlorine utilizing sodium hypochlorite. The water system supplies water to all facilities including the Spot Community Center, Military Family Housing, DoDEA School, dorms, dining facility, medical clinic and most Spanish Air Force facilities.

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 314-479-2220 (+49-6371-46-2220). 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 received 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. The Environmental Protection Agency (EPA) and Center for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

Is there Lead in my Water?

Although BE regularly tests lead levels in your drinking water, it is possible that lead and/or copper levels at your home are higher because of materials used in your plumbing. If present, elevated levels of lead can cause serious 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. Morón AB 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 and copper 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 at 1-800-426-4791 or http://www.epa.gov/safewater/lead.

What is PFAS?

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 regulation for PFAS in drinking water?

The Department of Defense (DoD) is in the initial sampling phase and must be completed by April 2027. For Morón AB, initial sampling requires two samples collected five to seven months apart. BE met the initial sampling requirement, sampling in December 2023 and in May 2024. Compliance monitoring for PFAS in the water system will begin in April 2027. The results for December 2023 were communicated in the previous edition of the water quality report for 2023 found here: https://www.ramstein.af.mil/Portals/6/documents/Drinking_Water_Quality_Reports/Tab%202%20-%20Moron%20CCR%202023_Final%20Draft.pdf.

The results for May 2024 can be found in the table towards the end of this report.

A Final Word on Water Quality

Your water quality team at Morón AB 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. Morón AB 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 versus taking 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 Morón AB Drinking Water Quality Working Group via Morón AB Independent Duty Medical Technicians (IDMTs). These efforts will help protect the future water supply by reducing the overall consumptive use.

Customer Reviews Welcome

We are available to address any questions or concerns you may have. Housing residents should contact the Housing Office with any water concerns. Dorm residents should contact their building manager.

For more information on this report or base drinking water quality, please call BE at DSN 314-479-2220 (+49- 6371-462220), the 496 ABS Civil Engineer Flight at DSN 314-722-8604, or 496 ABS IDMTs at 314-722-8069.

About the Following Pages

The tables below list all of the drinking water contaminants that we detected during the calendar year of this report. Although more than **80 contaminants** were tested, only those substances listed below were detected in our water, or were detected last year, but were no longer detected this year. The FGS-S 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. If this changes, and levels are elevated, increased monitoring frequency will occur in accordance with the FGS-S.

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 Maximum Contaminant Levels (MCLs) are based on running annual average of monthly samples.
Haloacetic Acids (HAA5): a type of disinfection byproduct when adding chlorine to the water as a treatment method.
Maximum Contaminant Level (MCL): the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the Maximum Contaminant Level Goal (MCLG) 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.
Milligrams per liter (mg/L): unit of measurement for concentration by weight of a substance in the water.
millirem per year (mrem/yr): a measure of radiation absorbed by the body.
Million Fibers per Liter (MFL): a measure of the presence of asbestos fibers that are longer than 10 micrometers.
Minimum Detection Limit (MDL): a detection limit for the lab to be able to detect the chemical of concern in the water.
Nephelometric Turbidity Units (NTU): measurement of the clarity, or turbidity, of water.
Non-Detect (N.D.): a measurement used when the sample result was below the detection capabilities of the lab.
Picocuries per Liter (pCi/L): measurement of the natural rate of disintegration of radioactive contaminants in water.

pH: measurement of acidity/basicity with7.0 being neutral.
parts per trillion (ppt): one part substance per trillion parts water, or nanograms per liter.
Running Annual Average (RAA): average results for the most recent four quarters.
Secondary Maximum Contaminant Level (SMCL): recommended level for a contaminant that is not regulated and has no MCL.
Total Trihalomethanes (TTHM): a set of chemicals that are disinfection byproducts.
Treatment Technique: a required process intended to reduce the level of a contaminant in drinking water.

How to Read the Data Tables

Starting with a substance, read across. The year sampled is 2024 (January through December). MCL shows the highest level of substance (contaminant) allowed. MCLG is the goal level for that substance, this may be lower than what is allowed, but generally does not trigger additional monitoring or action if exceeded. Average Amount Detected represents the measured amount (less is better). Range tells the highest and lowest amounts measured. A 'No' under Violation means the amount of the substance met government requirements. Typical Source tells where the substance usually originates. Unregulated substances are measured, but maximum allowed contaminant levels have not been established by the government.

Water Quality Results

Contaminant	Unit of Measure	MCLG[1]	MCL	Level Found	Violation	Typical Source
Total Coliform	# of Positives	0	5% of Monthly Samples	0	No	Naturally present in the environment
E. Coli	# of Positives	0	Any Positive	0	No	Contamination from sewage or animal waste
Trichloroethene	mg/L	0.005	0.005	N.D.	No	Discharge from factories and dry cleaners
Chloroform (TTHM)	Sum, mg/L	0.07	-	N.D.	No	By-products of drinking water chlorination
Bromodichloromethane (TTHM)	Sum, mg/L	0	-	N.D.	No	By-products of drinking water chlorination
Dibromochloromethane (TTHM)	Sum, mg/L	0.06	-	N.D.	No	By-products of drinking water chlorination
Tribromomethane (TTHM)	Sum, mg/L	0	-	N.D.	No	By-products of drinking water chlorination
Total TTHMs	mg/L	N/A	0.08	N.D.	No	By-products of drinking water chlorination
Boron	mg/L	N/A	1	0.10	No	Naturally occurring in the environment
Chloride	mg/L	N/A	250	28	No	Natural minerals dissolving due to weathering
Sulfates	mg/L	N/A	250	44	No	Drainage from artificial fertilizers or dissolved minerals from weathering
Nitrate	mg/L	10	10	5.5	No	Runoff from fertilizer use; leaking from septic tanks, sewage; erosion of natural deposits
Gross Alpha	pCi/L	2.7	2.7	0.22	No	Naturally occurring radiation within the ground that seeps into groundwater
Gross Beta	mrem/yr	4	4	1.4	No	Naturally occurring radiation within the ground that seeps into groundwater

Contaminant	Unit of Measure	MCLG[1]	MCL	Level Found	Violation	Typical Source
Tritium	pCi/L	2702	2702	21	No	Byproduct of nuclear reactors, or after nuclear weapons explosion

Notes:
1: Each individual TTHM and HAA5 have an MCLG, but the MCL is for the sum of all TTHMs and HAA5s respectively. There is no violation for exceeding an MCLG.

Residual Disinfectants	Unit of Measure	MRDL	MRDLG	Average Level	Minimum Level	Maximum Level	Violation	Typical Source
Free Available Chlorine	ppb	4000	4000	518	100	1600	No	Water additives used to control microbes
Bromate	mg/L	0.010	<0.010	0.080	0.0025	0.133	**Yes[1]**	Disinfectant byproduct when treating the water

Notes:
1: See the violations section below for more details on the actions taken to mitigate the exceeded MCL.

Lead and Copper	Units	AL	AL Exceeded?[1]	90th Percentile	# Sites Over AL	Violation	Typical Source
Lead	mg/L	0.010	No	0.0023	0[2]	No	Corrosion of household plumbing systems; erosion of natural deposits.
Copper	mg/L	1.3	No	0.24	0	No	Erosion of natural deposits; leaching from wood preservatives; corrosion of household plumbing systems.

Notes:
1: To exceed the AL with lead and copper, over 10% of the samples need to exceed the AL. BE collects 20 samples per event in accordance with the FGS-S in relation to the base population. Greater than 10% would be 3 samples per sampling event. If the AL of either lead or copper is exceeded, BE will need to collect confirmation samples within 24 hours to confirm the exceedance. If the confirmation results are below the AL, no action is needed. If the AL is exceeded with confirmation samples, it will be considered a violation and documented below.
2: Four sites were over the AL during the first quarter sampling event - Bldgs: 641 (0.020 mg/L), 647 (0.016 mg/L), 649 (0.053 mg/L), 692 (0.011 mg/L). All four sites and the entry point to the distribution system were resampled within 24 hours and were under the action level, therefore the AL was not exceeded since confirmation sampling results were below the AL. No additional action required.

PFAS[1]	Unit of Measure	Level Found	Violation
Perfluorobutanesulfonic Acid (PFBS)	ppt	N.D.	No
Perfluorohexanesulfonic Acid (PFHxS)	ppt	N.D.	No
Perfluorooctanoic Acid (PFOA)	ppt	N.D.	No

PFAS[1]	Unit of Measure	Level Found	Violation
Perfluorononanoic Acid (PFNA)	ppt	N.D.	No
Perfluorooctanesulfonic Acid (PFOS)	ppt	N.D.	No
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ppt	N.D.	No

Notes:
1: The six chemicals listed will be the primary chemicals monitored in accordance with the new DoD policy.

Violations

Violation: Bromate MCL Exceedance			
A lifetime of drinking bromate at higher levels has an increased lifetime cancer risk of 2 in 10,000. 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 adverse effects in kidney, nervous system, and hearing loss. The violation was detected and reported in accordance with the FGS-S. The MCL for bromate is a running annual average.			
Violation Type	**Violation Begin**	**Violation End**	**Violation Explanation**
MCL	16 December 2024	TBD	BE performs quarterly sampling of Bromate in Morón AB's drinking water system. During the first, second and third quarter sampling periods for 2024, it was identified that Morón AB's drinking water system had exceeded the MCL of 0.01 mg/L. The running annual average was 0.080 mg/L. The fourth quarter, BE received a non-detect, however the running annual average is still above the MCL and is considered a violation until the annual average is below the MCL. Bromate is normally a requirement when ozone is used as the disinfectant, however in DAFI 48-144, *Drinking Water Surveillance Program,* BE is required to follow the technical guidance published by the Defense Center for Public Health-Dayton (DCPH-D). The technical guidance from DCPH-D states that when sodium hypochlorite used to disinfect the water, it contains bromine, which can oxidize in to bromate and lead to unacceptable levels of bromate in the drinking water. Thus, sampling for bromate will continue while sodium hypochlorite is used as a disinfectant. BE is working with Civil Engineering (CE) at Morón AB on reducing the levels of Bromate in the water. BE received a non-detect in the fourth quarter and will attempt to emulate that sample event to see if results are still below the MCL. The new water treatment plant is expected to be finished with construction in 2025 and the filtration system within that plant should be sufficient on reducing the levels of Bromate in the drinking water. BE will continue to monitor Bromate in the drinking water quarterly.