Consumer Confidence Report

Marine Corps Air Station Iwakuni
Main Base, Atago & Monzen Drinking Water System

This report reflects monitoring data collected in July-December 2022 and will be updated biannually.

Marine Corps Air Station (MCAS) Iwakuni is pleased to provide you with this annual Consumer Confidence Report (CCR) for the Drinking Water System which supports MCAS Iwakuni, Japan. This report provides information about the water delivered to MCAS Iwakuni in July-December 2022. It describes where your water comes from, what it contains, and how it compares to standards for safe drinking water.

Our goal is to provide safe and dependable drinking water. During the period reported in 2022, drinking water at MCAS Iwakuni met all Japan Environmental Governing Standards (JEGS) drinking water health standards.

Source of Water

The source of the drinking water at MCAS Iwakuni is the Nishiki River. The raw water is treated at the Nishimi Water Purification Plant, run by the Iwakuni City Waterworks, and then conveyed via pipelines to MCAS Iwakuni. The plant employs full conventional water treatment including chemical coagulation, flocculation, sedimentation, filtration, and disinfection (chlorination). The Nishimi Water Purification Plant provides MCAS Iwakuni data on the raw water processed by the plant, as well as the finished water it sends to the installation for human consumption. Pump stations on the North, South, Monzen, and Atago areas of the base distribute the water throughout the MCAS Iwakuni distribution system.

Drinking Water Standards

Our drinking water is required to meet the water quality standards established in the Japan Environmental Governing Standards (JEGS). The JEGS are Department of Defense (DoD) governing standards intended to ensure DoD activities and installations in Japan protect human health and the environment, and to ensure safe drinking water is provided to all DoD personnel and their families.

To continually ensure that our water is safe to drink, the JEGS require us to regularly monitor and test our water for contaminants. MCAS Iwakuni vigilantly safeguards its water supplies, and we received the results of recent testing. We are proud to report that our system did not violate any JEGS maximum contaminant levels (MCLs) during this reported period of 2022.

Possible Source of Contaminants

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 about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's (EPA) Safe Drinking Water Hotline (800-426-4791) or visiting the EPA website at https://www.epa.gov/dwstandardsregulations.

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.

Potential Contaminants in Drinking Water

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.

Other Potential 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. MCAS Iwakuni routinely monitors and tests the 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 the water for drinking or cooking. If you are concerned about lead in your water, information on lead in drinking water, and steps you can take to minimize exposure is available at *https://www.epa.gov/safewater/lead.*

Special Health Considerations

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as those 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. Environmental Protection Agency/Centers for Disease Control and Prevention guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

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., for decades. Due to their widespread use and environmental persistence, most people in the United States have been exposed to certain PFAS. 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 (aqueous film-forming foam or AFFF) used for fighting petroleum fires.

Is there a federal regulation for PFAS in drinking water?
There is currently no federal drinking water standard for any PFAS compounds. In May 2016, the U.S. Environmental Protection Agency (EPA) established a lifetime drinking water health advisory (HA) level at 70 parts per trillion (ppt) for individual or combined concentrations of perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). Both chemicals are types of PFAS.
The Department of Defense (DoD) issued a policy in 2020 to monitor drinking water for PFAS at all DoD owned

and operated water systems at a minimum of every three years. The DoD policy states that if water sampling results confirm that drinking water contains PFOA and PFOS at individual or combined concentrations greater than the 2016 EPA HA level of 70 ppt, water systems would 1) take immediate action to reduce exposure to PFOS or PFOA, to include providing alternative drinking water; and 2) undertake additional sampling to assess the level, scope, and localized source of contamination.]
The Department of Defense (DoD) issued a policy in 2020 to monitor drinking water for PFAS at all DoD owned and operated water systems at a minimum of every three years. This policy states that where State regulations for PFAS are more stringent than the guidance provided in the memorandum, the more stringent regulations apply. That is, if water sampling results confirm levels of PFAS compounds (including PFOS or PFOA) in drinking water above the State standard, water systems would 1) take immediate action to reduce exposure to elevated levels of PFAS compounds, to include providing alternative drinking water; and 2) undertake additional sampling to assess the level, scope, and localized source of contamination.

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 is expected to issue a proposed regulation on PFAS drinking water standards for public comment in the next few months. DoD looks forward to the clarity that a nationwide regulatory standard for PFOS and PFOA in drinking water 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 MCAS Iwakuni tested its water for PFAS?
Yes. In 2022 samples were collected from three main base locations and we are pleased to report that drinking water testing results were below the Method Reporting Limit (MRL) for all 29[1] PFAS compounds covered by the sampling method, including PFOA and PFOS. This means that PFAS were not detected in your water system. In accordance with DoD policy, the water system will be resampled every three years for your continued protection.

Abbreviations and Definitions:

AL: Action Level. The concentration of a contaminant in water that establishes the appropriate treatment for a water system.

DBP: Disinfection by products are chemicals that can be formed when chlorine is used for disinfecting drinking water to prevent disease.

MCL: Maximum Contaminant Level. The highest level of a contaminant allowed in drinking water.

MRDL: Maximum Residual Disinfectant Level. The level of a disinfectant added for water treatment measured at the consumer's tap, which may not be exceeded without the unacceptable possibility of adverse health effects.

mrem: Millirem, or milli roentgen equivalent man. It is one thousandth of a rem, and is used for the dosages encountered regarding radiation received from various sources.

ND: Not Detected.

pCi/L: Picocuries per liter. Radioactivity results are usually shown in picocuries (pCi). A picocurie is one trillionth of a curie. The higher the number, the more radiation released by the material.

ppb: Parts per billion or micrograms per liter. One ppb is the equivalent of one drop of impurity in 500 barrels of water or 1 cent out of $10 million (Navy PFAS Regulatory Framework).

[1] Total number of analytes must be validated against your sample results.

ppt: Parts per trillion or nanograms per liter. One ppt is the equivalent of one drop of impurity in 500,000 barrels of water (Navy PFAS Regulatory Framework).

ppm: parts per million or milligrams per liter. Analogous to putting four drops of ink in a 55-gallon barrel of water and mixing it thoroughly. This procedure would produce an ink concentration of 1 ppm. (National Oceanic and Atmospheric Administration-NOAA).

RAA: Running Annual Average. A moving average smooths out any irregularities (peaks and valleys) from data to easily recognize trends.

TOC: Total Organic Carbon. Represents the concentration of organic carbon in a sample and is a non-specific indicator of water quality.

Water Quality Data Table

The following table lists all the drinking water contaminants detected at MCAS Iwakuni during this reporting period. The presence of contaminants does not necessarily indicate that the water poses a health risk. All substances detected in MCAS Iwakuni's drinking water meet DoD JEGS requirements.

CONTAMINANT (UNITS)	AL MCL	Highest Level Detected	Lowest Level Detected	Year	Possible Source of Contamination	Violation
INORGANIC CHEMICALS / METALS/ VOC's/ HYDROCARBONS						
Barium (ppm)	2	0.0087	0.0085	2022	Discharge of drilling wastes metal refineries, and erosion of natural deposits.	No
Fluoride (ppm)	4	0.24	0	2022	Water additive which may promote dental health.	No
Sodium (ppm)	N/A	5.6	4.9	2022	Highly water-soluble metal that exists in numerous minerals, is commonly found in water.	No
Total Nitrite and Nitrate (ppm)	10	0.47	0.29	2022	Runoff from fertilizer use, leaking from septic tanks, sewage, and erosion of natural deposits.	No

CONTAMINANT (UNITS)	AL	Area	90th Percentile Value	Sites Exceeding Action Level/ # of Sites	Year	Possible Source of Contamination	Violation
LEAD & COPPER							
Copper (ppm)	1.3	Atago	0.058	0/10	2022	Internal corrosion of household plumbing systems, erosion of natural deposits.	No
		Monzen	0.11	0/5			No
Lead (ppm)	0.015	Atago	0.0018	0/10	2022	Internal corrosion of household plumbing systems, erosion of natural deposits.	No
		Monzen	0.0023	0/5			No

CONTAMINANT (UNITS)	AL/ MCL/ MRDL	RAA	Highest Level Detected	Lowest Level Detected	Year	Possible Source of Contamination	Violation
DISINFECTION BYPRODUCTS							
Residual Chlorine (ppm)	4	N/A	0.89	<0.05*	2022	Water additive used to control Microbes.	No*
Total Trihalomethanes (ppb)	80	28	50	1.5	2022	Byproduct of drinking water disinfection.	No
Haloacetic Acids (HAA5) (ppb)	60	7.3	14	1.6	2022	Byproduct of drinking water disinfection.	No
DBP Precursor TOC	N/A	N/A	1.2	0.3		Not a contaminant. TOC may be used as a non-specific indicator of water quality	No
DBP Precursor Alkalinity	N/A	N/A	31	19		Not a contaminant, it is the capacity of water to resist acidification	No

CONTAMINANT (UNITS)	AL MCL	Highest Level Detected	Lowest Level Detected	Year	Possible Source of Contamination	
RADIONUCLIDES						
Gross Beta (mrem)	50 pCi/L*	3.07 pCi/L** (±1.67)	1.85 PCi/L (±1.55)	2022	Detection of radioactive releases from nuclear facilities and weapons tests, analysis of gross-beta activity is widely used in studies of naturally occurring radioactivity in ground water.	No.
Strontium-90 (pCi/L)	N/A	1.19 pCi/L (±0.11)	0.65 pCi/L (±0.10)	2022	Spent nuclear fuel from reactors, fallout, nuclear testing.	No
Tritium (pCi/L)	N/A	283 pCi/L (±272)	86 pCi/L (±271)	2022	Used in medical, scientific settings, nuclear fusion fuel.	No

* The MCL for beta particles is 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for beta particles.
** Because the beta particle results were below 50 pCi/L, no testing for individual beta particle constituents was required.

Summary of Compliance Discrepancies

Discrepancy	Consumer Health Impact	Corrective Action
*Low chlorine residual has been detected at a distant location from the pump house.	None – chlorine is added to drinking water to eliminate bacteria. No bacteria have been detected.	Flushed water pipes to increase the amount of fresh water containing higher levels of chlorine.

Constituent	Frequency
pH, conductivity, turbidity, chlorine residual, water temperature, and water pressure	Twice daily Monday-Friday by MCAS Iwakuni staff. Twice monthly by contractor.
Turbidity	Daily
Disinfection byproducts (Total Trihalomethanes (TTHM) and Haloacetic Acids (HAA5)	Quarterly
Total coliform	Monthly
Inorganic chemicals	Annually
Lead and Copper Rule (housing)	Annually
Lead in Priority Areas (LIPA)	Once every 5 years
Nitrate and Nitrite	Quarterly
Synthetic Organic Chemicals	Four consecutive quarterly samples every 3 years
Volatile Organic Compounds	Annually
PCBs, Herbicides, and Pesticides	Once every 3 years
Radionuclides	Once every 4 years
Asbestos	Once every 9 years
Per- and polyfluoroalkyl substances (PFAS)	Once every 3 years

The table on page four shows constituents detected during July-December 2022 water sampling. Only those constituents detected are listed. The presence of a contaminant does not necessarily indicate the water poses a health risk. As such, MCAS Iwakuni's drinking water is deemed fit for human consumption. For more information on this report or water quality in general, please contact the MCAS Iwakuni Environmental Division, Water Program Manager- at 253-5388 or hoeft.christopher@usmc.mil.