



Marine Corps Base Hawaii Annual Drinking Water Consumer Confidence Report Public Water System No. 356

2023

**MCBH drinking water meets all
Federal and State standards
and is safe to drink.**

This Consumer Confidence Report (CCR) is provided in accordance with U.S. Environmental Protection Agency (EPA) regulations that require community water system operators to provide their customers an annual report on the quality of their drinking water. This report describes where your water comes from, what was detected in the water in the past year (Jan 1 – Dec 31, 2022), and how those results compare to standards for safe drinking water. **Test results confirm MCBH drinking water meets all Federal and State standards and is safe to drink.**

Water Source

MCBH serves over 10,000 military personnel, families, and civilians.

Marine Corps Base Hawaii (MCBH) receives potable water from the **City and County of Honolulu** (CCH) **Board of Water Supply** (BWS), which is responsible for monitoring primary regulated constituents and a rotating list of secondary, unregulated constituents. **The BWS 2023 Annual Water Quality Report is included as Enclosure 1** and indicates the groundwater sources supplying water to the MCBH water system include:

- Kaluanui Wells
- Ma'akua Well
- Punalu'u Wells II
- Punalu'u Wells III
- Waihee Tunnel

A source water assessment for the CCH wells serving MCBH Kaneohe Bay was completed in 2003 and is available from the MCBH Environmental Compliance and Protection Division (ECPD). MCBH does not conduct public meetings about the drinking water system, however questions regarding the assessment and in general, can be directed to MCBH ECPD.

The areas identified below are served by the Joint Base Pearl Harbor Hickam (JBPHH) water system. The JBPHH 2023 Annual Water Quality Report has not yet been released. It will be included as Enclosure 3 once it is released.

- Manana Housing
- Camp Smith
- Pu'uloa Rifle Range
- Pearl City Annex (PCA) (warehouses only)
- Marine Barracks is a Navy neighborhood on JBPHH that is the historical location of the marine barracks during WW2. (i.e., not a MCBH neighborhood).

Should you have any questions, please feel free to contact Patrick Crile, MCBH ECPD at **808-257-4358** or Patrick.Crile@USMC.mil

Terms Used in this Report

AL

- **Action Level:** a level that triggers additional treatment or other requirements that a water system must follow.

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.

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.

MFL

- Million fibers per liter

MRDL

- **Maximum Residual Disinfectant Level:** The highest level of a disinfectant allowed in drinking water.

MRDLG

- **Maximum Residual Disinfectant Level Goal:** The level of a drinking water disinfectant below which there is no known or expected risk to health.

ND

- Not Detected

NQ

- Not Quantifiable (<means "less than")

pCi/L

- Picocuries Per Liter (A measure of Radioactivity)

ppb

- Parts per billion or Micrograms per Liter

ppm

- Parts per million or Milligrams per liter

ppt

- Parts per Trillion or Nanograms per liter

TT

- **Treatment Technique:** a required process intended to reduce the level of a contaminant in drinking water.

Public Notice

Important Information about your drinking water

Consumer Confidence Report (CCR) Rule requirements not met for the Marine Corps Base Hawaii water system

Our water system violated Consumer Confidence Report (CCR) Rule requirements in 2022. Even though this was not an emergency, as our customers, you have a right to know what happened and what we are doing to correct this situation.

We are required to provide our customers with the Consumer Confidence Report (CCR) by July 1 annually. For 2022, we missed the deadline and distributed the CCR on September 14, 2022.

What Should I do?

There is nothing you need to do at this time.

What is being done?

The Hawaii Department of Health (HDOH) issued a Tier 3 violation to the MCBH potable water system on November 4, 2022 for failing to submit the 2021 CCR by July 1, 2022 (HAR 11-20-48.5). The 2021 CCR was delivered to customers on September 14, 2022 and indicated **MCBH drinking water meets all Federal and State standards and is safe to drink**. A Tier 3 notice of violation is the least serious tier. It occurs when a water system violates a drinking water standard that does not have a direct impact on human health and requires the water supplier to notify those affected. No further action regarding the 2022 Tier 3 violation is necessary at this time.

Should you have any questions, please feel free to contact Patrick Crile, MCBH ECPD at **808-257-4358** or Patrick.Crile@USMC.mil

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

State Water System ID#: 356

Date Distributed: July 1, 2023

Education

Possible Contaminants

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 found in source water:

- **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 byproducts 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.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA 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 at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk.

More information about drinking water contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking water Hotline at **1-800-426-4791** or visiting their website at <https://www.epa.gov/ground-water-and-drinking-water>





Some people may be more vulnerable to contaminants in drinking water than the general population. Immune system compromised persons, such as persons with cancer undergoing chemotherapy, people who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly and infants can be partially at risk from infections. Infants less than a year in age are vulnerable to nitrates. These people should seek advice about drinking water from their health care providers. Additional advice and guidelines about drinking water are available from their health care provider. EPA/CDC (Center for Disease Control) guidelines on appropriate measures to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from **the EPA's Safe Drinking Water Hotline (1-800-426-4791).**

The MCBH Public Water System (PWS) is responsible for providing **high quality drinking water and is in compliance with EPA action level standards for lead.** Lead is a toxic metal that can accumulate in the body upon exposure and is harmful to human health. Pregnant women, infants, children, and adults could experience various health problems if drinking water containing lead above action levels is consumed regularly. Examples of potential health effects are as follows:

- **Pregnant women:** Reduced fetus growth, Premature birth
- **Children, infants, fetuses:** Damage to nervous system, Physical and Mental development impairments, Impaired formation and function of blood cells
- **Adults:** Kidney function impairment, Increased blood pressure and incidence of hypertension, Reproductive problems

Lead detected in drinking water is attributed to materials and components associated with service lines and home plumbing. If you are concerned about lead in your drinking 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, are available from **the EPA's Safe Drinking Water Hotline (1-800-426-4791)** or at <http://www.epa.gov/safewater/lead>.

Chlorine is added as a disinfectant to the MCBH potable water system prior to delivering to customers on-base. **Disinfection kills bacteria, viruses, and other microorganisms that cause disease and immediate illness.** Chlorine is an effective disinfectant that keeps the water clean as it travels to the consumers tap.

Maintenance and oversight of the MCBH potable water system is a joint effort between base utility personnel and ECPD. MCBH also independently samples for the constituents in its system (Table 1).

Table 1 – Constituents Sampled by MCBH

Constituent	Frequency	Timeframe	No. of Locations
Lead and Copper	Every 3 years	August	30
Disinfection Bi-Products (THM and HAA)	Annually	February	4
Total Coliform Bacteria	Monthly	Twice per Month	15
Escherichia Coli Bacteria (E-Coli)	Monthly	Twice per Month	15
Asbestos	Every 9 years	August	1

THM = Trihalomethanes

HAA = Haloacetic Acids

The most recent BWS and MCBH drinking water quality results are summarized in Tables 2 and 3 (Regulated Contaminants) and Table 4 (Unregulated Contaminants). Tables list substances that were detected in the drinking water during 2022. The presence of these substances does not necessarily constitute a health risk.

Unregulated contaminants do not have designated maximum limits but require monitoring and are expressed in terms of action levels or health advisories.

Table 2 – Regulated Contaminants

Contaminant	Sample Year	Unit	Result		MCL	MCLG	Typical Sources
			Min	Max			
Total Coliform	2022	Y/N	N	N	N	N	Naturally occurring
E-Coli	2022	Y/N	N	N	N	N	Human and animal fecal waste or soil
Trihalomethanes (Total)	2022	ppb	2.1	5.19	80	None	Water disinfection byproduct
Haloacetic Acids (Total)	2022	ppb	ND	ND	60	None	Water disinfection byproduct
Beta/Photon Emitters	2021	pci/l	3.0	3.0	50	0	Naturally occurring in Hawaii
Nitrate	2022	ppm	0.16	0.18	10	10	Rainfall & agricultural activity
Barium	2022	ppb	0.002	0.008	2.0	2.0	Natural erosion
Chromium	2022	ppb	0.93	2.7	100	100	Erosion of natural deposits
Asbestos	2021	MFL	ND	ND	7.0	4.0	Natural and water main cement

ND = Not Detected above laboratory detection levels

ppm = parts per million

ppb = parts per billion

pci/L = Picocuries per liter

MFL = Million fibers per liter

Table 3 – Regulated Contaminants (Cont.)

Contaminant	Sample Year	Unit	90 th Percentile	Action Level	# Samples Above Action Level	Common Sources
Lead	2021	ppb	< 2.5	15	0	Corrosion of household plumbing systems
Copper	2021	ppm	< 0.05	1,300	0	Corrosion of household plumbing systems

Table 4 – Unregulated Contaminants

Contaminant	Sample Year	Unit	Range		Health Advisory	Common Sources
			Min	Max		
Chlorate	2022	ppb	12	39	210	Disinfection/with bleach
Chloride	2022	ppm	39	240	250**	Common environmental element
Chromium-6	2022	ppb	1.3	2.4	13	Naturally and manmade source
Sodium	2022	ppm	13	43	60	Common environmental element
Strontium	2022	ppb	52	270	4,000	Naturally occurring trace metal
Sulfate	2022	ppm	4.5	24	250**	Naturally occurring in minerals and rocks
Vanadium	2022	ppb	5.0	11	21	Naturally occurring trace metal

** Secondary Maximum Containment Levels (SMCLs) are standards established as guidelines to assist public water systems in managing the aesthetics quality (taste, odor, and color) of drinking water. The EPA does not enforce SMCLs.

Per- and Polyfluoroalkyl Substances (PFAS)

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. There are currently no federal or State of Hawaii drinking water standards for any PFAS compounds. However, 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 MCBH potable system was tested in November 2020 and **all 18 PFAS compounds covered by the sampling method were below the reporting limit.**

Results

Test results confirm that **MCBH drinking water meets all Federal and State standards and is safe to drink** in accordance with EPA regulations. Should you have any questions, please feel free to contact Patrick Crile, MCBH Environmental Compliance and Protection Division at **808-257-4358** or Patrick.Crile@USMC.mil

Enclosure 1: BWS 2023 Annual Water Quality Report

The water serving 600 Mokapu Road has been tested and meets all Federal and State standards.

The water quality monitoring results are presented below.

The water sources serving this address are:

Source Name	Origin of Water	Treatment	Region
a) Kaluanui Wells	Groundwater	Chlorination	2
b) Maakua Well	Groundwater	Chlorination	2
c) Punaluu Wells II	Groundwater	Chlorination	2
d) Punaluu Wells III	Groundwater	Chlorination	2
e) Waihee Tunnel	Groundwater	Chlorination	2

Source Water Monitoring

The substances detected in these sources are shown below. If a substance is not shown, then it was not detected.

Regulated Contaminants (2)

Contaminant	Sample Year	Unit	Highest Average	Range		MCL (Allowed)	MCLG (Goal)	Found in Sources
				Minimum	Maximum			
Barium	2022	ppm	0.008	0.002	0.008	2.000	2.000	All Sources
Beta/Photon Emitters	2021	pci/l	3.000	3.000	3.000	50.000	0.000	c
Chromium	2022	ppb	2.300	0.930	2.700	100.000	100.000	All Sources
Nitrate	2022	ppm	0.180	0.160	0.180	10.000	10.000	a,b,e

Definitions:	
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.
MCLG	Maximum Contaminant Level Goal. The level of a contaminant in drinking water below which there is no known or expected risk to health. MCGLs allows for a margin of safety.
GAC	Granular Activated Carbon Filtration
Health Advisory	An estimate of acceptable drinking water levels for a chemical substance based on health effects information. Health advisory is not a legally enforceable standard.
CFU/100ml	Colony forming units per 100 milliliter
mrem/yr	Millirems Per Year (A measure of Radiation)
pCi/L	Picocuries Per Liter (A measure of Radioactivity)
ppb	Parts per billion or Micrograms per Liter
ppm	Parts per million or Milligrams per liter
ppt	Parts per Trillion or Nanograms per liter
NQ	Not Quantifiable (<means "less than")
NYA	Not Yet Applicable
N/A	Not Applicable
ND	Not Detected
*	EPA considers 50 pCi/L to be the level of concern for beta particles
(1)	Analysis by the State of Hawaii Department of Health
(2)	Analysis by the Honolulu Board Of Water Supply. Questions, call 748-5370.
LRAA	Locational running annual average is the average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters.
MRDL	Maximum residual disinfectant level: The highest level of a disinfectant allowed in drinking water.
MRDLG	Maximum residual disinfectant level goal: The level of a drinking water disinfectant below which there is no known or expected risk to health.

Unregulated Contaminants (Do not have designated maximum limits but require monitoring)

Contaminant	Tested By	Sample Year	Unit	Highest Average	Range		Health Advisory	Found in Sources
					Minimum	Maximum		
Chlorate	(2)	2022	ppb	39.000	12.000	39.000	210.000	b,c,e
Chloride	(2)	2022	ppm	240.000	39.000	240.000	250 **	a,b,c
Chromium, Hexavalent	(2)	2022	ppb	2.400	1.300	2.400	13.000	All Sources
Sodium	(2)	2022	ppm	43.000	13.000	43.000	60.000	All Sources
Strontium	(2)	2022	ppb	270.000	52.000	270.000	4000.000	All Sources
Sulfate	(2)	2022	ppm	24.000	4.500	24.000	250 **	a,b,c
Vanadium	(2)	2022	ppb	11.000	5.000	11.000	21.000	All Sources

**Secondary Maximum Containment Levels (SMCLs) are standards established as guidelines to assist public water systems in managing the aesthetics quality (taste, odor, and color) of drinking water. EPA does not enforce SMCLs.

Distribution System Monitoring

Disinfection By-Products (2)

System Name	Contaminant	Unit	Min	Max	Highest LRAA	MCL (Allowed)	MCLG (Goal)
Honolulu-Windward-Pearl Harbor	Total Trihalomethanes	ppb	0.81	21.00	15.80	80	None
	Haloacetic Acids (HAA5)	ppb	0.00	0.00	0.00	60	None
		Unit	Min	Max	Average	MCL (Allowed)	MCLG (Goal)
	Haloacetic Acids (HAA6BR)	ppb	0.00	1.50	0.82	NYA	NYA
	Haloacetic Acids (HAA9)	ppb	0.00	1.50	0.82	NYA	NYA

Microbial Contaminants (2)

System Name	Contaminant	Number of positive E. coli samples found	Violation (Yes/No)	Number of assessments required to perform	Major sources in drinking water
Honolulu-Windward-Pearl Harbor	E. Coli	0	No	0	Human and animal fecal waste

Level 1 Assessment: A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.
Level 2 Assessment: A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

Residual Chlorine (2)

System Name	Sample Year	Unit	Lowest Monthly Average	Highest Monthly Average	Running Annual Average	MRDL	MRDLG
Honolulu-Windward-Pearl Harbor	2022	ppm	0.29	0.32	0.30	4	4

Lead/Copper Testing (2)

Contaminant	Sample Year	Unit	90th Percentile Reading	Action Level	# Samples Above Action Level
Lead	2021	ppb	<1.000	15.000	0
Copper	2021	ppm	0.039	1.300	0

Violations found for calendar year 2022

Date Report Printed: 5/04/2023

Supplemental Notice

On January 10, 2023, BWS received a Tier 3 notice of violation from the Hawaii Department of Health for failing to collect water samples from all seven (7) water sources that serve the Kalama Valley Park in response to detecting total coliforms in a sample collected on August 10, 2022. BWS collected only 5 of the 7 water sources and detected the error on September 8, 2022 during a routine record audit and notified DOH that day. A Tier 3 notice of violation is the least serious tier. It occurs when a water system violates a drinking water standard that does not have a direct impact on human health and requires the water supplier to notify the affected customers within one year of the violation. This is not an emergency. The water is continuously disinfected before it is served to the public. BWS is reporting this incident because as our customers you have a right to know that we incurred a rule violation. For more information on this violation, please call Ron Fenstemacher, Acting Water Quality Division Program Administrator at (808)748-5841.

PFA Fact Sheet

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.

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.

Is there a federal or Hawaii 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.

In Hawaii, there is not a PFAS drinking water regulation.

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.

Has Marine Corps Base Hawaii tested its water for PFAS?

Yes. In November 2020 samples were collected from the Marine Corps Base Hawaii potable water entry point where it receives potable water from the City & County of Honolulu Board of Water Supply.

We are pleased to report that drinking water testing results were below the Method Reporting Limit (MRL) for all 18 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.



Water Quality Report

Joint Base Pearl Harbor-Hickam Water System

(Waiawa, Aiea-Halawa & Red Hill Sources)

This report meets federal and state requirements for Consumer Confidence Reports. This report is updated annually and reflects monitoring data collected from Jan 1 - Dec 31, 2022.

The Navy is pleased to provide you with this year's annual Water Quality Report for the Joint Base Pearl Harbor-Hickam (JBPHH) Drinking Water System.

This pamphlet provides information about the water delivered to you during the 2022 calendar year. It gives information on where your water comes from, what it contains, and how it compares to established standards for safe drinking water.

Due to the November 20, 2021, release at Red Hill, all drinking water for JBPHH now comes from the Waiawa Shaft (see page 2).

For more information on the Red Hill Release, Response, and Restoration efforts, please see: <https://jbphh-safewaters.org/>

The Navy's goal is, and always has been, to provide you safe and dependable drinking water.

Water Provider

Naval Facilities Engineering Systems Command (NAVFAC) Hawaii operates the water system servicing your area. As the Navy water provider in the State of Hawaii (State), we primarily supply water to military installations and housing.

Drinking Water Standards

The Environmental Protection Agency (EPA) and State regulations require us to test your water for contaminants on a regular basis, making sure it is safe to drink, and to report our results accordingly.

To ensure that tap water is safe to drink, EPA regulations limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration does the same for bottled water.

In this latest compliance monitoring period (Jan 1 – Dec 31, 2022), we conducted tests for over 70 contaminants that have potential for being found in your drinking water. Tables **1-1**, **1-2**, **1-3**, **1-4**, and **1-5** show the concentration levels of regulated contaminants found in your water. In all cases, the levels measured were below EPA and State requirements for safe drinking water.

We are continually working to protect your drinking water from contaminants. The State's Department of Health (DOH) completed the Source Water Assessment in 2004 which identifies the susceptibility of your water supply to contamination. The source water assessment is available for review by contacting NAVFAC Hawaii Public Affairs, at 808-457-7497.

Source of Water

Historically, your drinking water comes from the Waimalu and Moanalua groundwater aquifer systems via three supply wells/shafts: Waiawa, Aiea-Halawa, and Red Hill. Groundwater is naturally filtered as it travels from the surface to the aquifers below ground. The water is pumped up from the aquifer, disinfected, fluoridated, and piped into the JBPHH drinking water distribution system.

Starting on 16 November 2021 and through March 2022, due to pump issues, the United States Marine Corps Manana

housing area was supplied with water from the Honolulu Board of Water Supply's (BWS) Pearl City Shaft and Well 1.

The Red Hill and Aiea-Halawa shafts were taken offline on November 28, 2021 and December 3, 2021, respectively, due to the Red Hill Shaft Incident (see page 2). Since December 3, 2021, drinking water for the JBPHH Water System has been supplied solely by the water from the Waiawa Shaft and will continue to be for the foreseeable future.

Possible Source of Contaminants

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. It can also pick up other substances resulting from the presence of animals or human activity. 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 EPA's Safe Drinking Water Hotline at 1-800-426-4791.

Potential Contaminants

Contaminants that may be present in your 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 byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.

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

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. NAVFAC Hawaii 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 two minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may request to have the Navy test your water. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at:

www.epa.gov/safewater/lead

Navy Water Requirements

In accordance with Navy policy, chlorine and fluoride are added to your water supply after the water is pumped from the ground. The Navy's goal is to maintain concentrations of approximately 0.7 parts per million (ppm) for fluoride and 0.2 ppm for chlorine throughout the distribution system.

2021 Red Hill Shaft Incident

On November 20, 2021, a mixture of JP-5 (jet fuel) and water was released from a fire suppression drain line into the drinking water in the Red Hill Shaft. The Red Hill Shaft has been isolated and offline since November 28, 2021. On November 29, 2021, DOH issued a Health Advisory for the JBPHH Public Water System recommending, “All Navy water system users to avoid using the water for drinking, cooking, or oral hygiene. Navy water system users who detect a fuel odor from their water should avoid using the water for drinking, cooking, bathing, dishwashing, laundry, or oral hygiene.”

As a result of the fuel release, the Navy, in cooperation with DOH, EPA, and the U.S. Army, has implemented a set of plans and corrective actions to ensure safe drinking water and restore/recover the aquifer and drinking water system. The plans include: [Red Hill Shaft Recovery and Monitoring Plan](#); [Drinking Water Distribution System Recovery Plan](#); and [Drinking Water Sampling Plan](#). PDFs of these documents are available at:

www.cpf.navy.mil/JBPHH-Water-Updates

The Drinking Water Distribution System Recovery Plan divided the JBPHH Water System and Aliamanu Military Reservation Water System into 19 zones and detailed standard operating procedures for the flushing and sampling of each of the zones. High-volume flushing of the Navy drinking water distribution system (all water mains/laterals/buildings) with 3 to 5 volumes of clean water from the Waiawa Shaft was conducted to restore safe drinking water to all Navy Water System users. Other corrective measures, such as fixture replacement, were also implemented where appropriate. Extensive contaminant testing was also conducted to confirm that system flushing was effective. Table 1-6 shows the levels of contaminants detected in samples collected while the DOH Health Advisory was still in effect, as well as the level of contaminants after flushing and other corrective actions.

On March 18, 2022, after verification of recovery efforts and a thorough review of sample results, the DOH amended the health advisory and declared the drinking water safe for all 19 zones. To ensure a continuous supply of safe drinking water, the Navy has implemented a Long-Term Monitoring plan and will continue to conduct testing in all zones over a two-year period. All drinking water sampling results are compiled and published on our Safe Waters website designed to provide the public access to the most recent data reports. Sampling results will also be included in future Water Quality Reports. Drinking water sampling results and updates to the ongoing efforts to maintain safe drinking water are available at:

<https://jbphh-safewaters.org>

Tier 1 Public Notification Rule

Per Hawaii Administrative Rules (HAR) 11-20-18(b)(1)(G) a public water system must provide Tier 1 public notice within 24-hours for all national primary drinking water regulation violations and other situations as determined by the State. JBPHH was required to publish a Tier 1 public notification within 24 hours of confirmation of a fuel contamination in the drinking water system. The Navy conducted ongoing public outreach to JBPHH water users throughout the incident notifying them of the contamination and recovery efforts. However, the Navy initially failed to provide a Tier 1 public notification with all required specific components to JBPHH water users and was issued a Notice of Violation by DOH on May 12, 2022. On June 30, 2022, the Navy posted an administrative notice on the Public Notice page at: <https://jbphh-safewaters.org>. This notice includes an explanation of the drinking water contamination, actions taken by the Navy to remediate the situation and identifies the point of contact for more information. The PDF notification is available at:

https://jbphh-safewaters.org/public/administrative_notice_no_o_amended_june_30.pdf

Concerns/Additional Copies

For questions and/or information, please contact NAVFAC Hawaii Public Affairs at 808-457-7497. For additional copies of this and other Navy water reports, go to:

- <https://cnrh.cnmc.navy.mil/Operations-and-Management/Environmental/Water-Quality-Information/>
- <https://pacific.navy.mil/Facilities-Engineering-Commands/NAVFAC-Hawaii/About-Us/Hawaii-Documents/Water-Quality-Reports/>

Please share this information with all other people who drink this water, especially those who may not have received this notice.

Official Address

**Naval Facilities Engineering Systems
Command, Hawaii
400 Marshall Road, JBPHH, HI 96860-3139**

Printed June 2023

Water Quality Data Table

The following tables list contaminants that were detected during the latest compliance sampling period (Jan 1 – Dec 31, 2022) required by EPA and State regulations. The water samples were collected from either the source water or distribution system and analyzed by the State, BWS and/or the Navy. The presence of contaminants does not necessarily indicate that the water poses a health risk. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. You can obtain more information about contaminants and potential health effects by calling the EPA’s Safe Drinking Water Hotline 1-800-426-4791 or the State’s Department of Health at 808-586-4258.

Contaminants in the Navy’s Source Water							Table 1-1
Contaminants (units)	MCL (Allowed)	MCLG (Goal)	Highest Level Detected	Range of Detection	Year of Sample	Typical Sources of Contaminants	Violation
Inorganic Contaminants							
Barium (ppm)	2	2	nd	nd ¹	2022	Erosion of natural deposits	No
Chromium (total) (ppb)	100	100	nd	nd ¹	2022	Naturally-occurring	No
Fluoride (ppm)	4	4	0.63	0.63 ¹	2022	Erosion of natural deposits; Water additive which promotes strong teeth	No
Lead (ppb)	AL = 15	0	nd	nd ¹	2022	Residue from man-made pollution such as auto emissions and paint; lead pipe, casing, and solder	No
Copper (ppm)	AL = 1.3	1.3	nd	nd ¹	2022	Corrosion of household plumbing systems; Erosion of natural deposits	No
Nitrate (ppm)	10	10	0.5	0.5 ¹	2022	Runoff from fertilizer use; Erosion of natural deposits	No
Organic Contaminants							
Chlordane (ppb)	2	0	nd	nd	2022	Residue of banned termiticide	No
Heptachlor epoxide (ppt)	200	0	nd	nd	2022	Breakdown of heptachlor (banned pesticide)	No
Unregulated Contaminants ^{3,7}							
Bromide ⁷ (ppb)	n/a	n/a	765	124 – 765	2018 ²	Naturally-occurring	n/a
Chloride ⁸ (ppm)	250 ⁴	n/a	35	35 ¹	2022	Naturally-occurring	n/a
Dieldrin (ppb)	n/a	n/a	nd	nd	2022	Residue of banned insecticide	n/a
Manganese ⁸ (ppb)	n/a	n/a	nd	nd	2020 ²	Naturally-occurring	n/a
Sodium (ppm)	n/a	n/a	25	25 ¹	2022	Naturally-occurring	n/a
Sulfate ⁸ (ppm)	250 ⁴	n/a	nd	nd ¹	2022	Naturally-occurring	n/a

Contaminants in the BWS Source Water (Serving Manana Housing)							Table 1-2
Contaminants (units)	MCL (Allowed)	MCLG (Goal) ²	Highest Average Level Detected	Range of Detection	Year of Sample	Typical Sources of Contaminants	Violation
Regulated Contaminants							
1,2,3-Trichloropropane (ppb)	0.6	0	0.050	0.049 – 0.050	2022	Fumigant previously used in agriculture	No
Barium (ppm)	2	2	0.004	0.003 – 0.004	2022	Erosion of natural deposits	No
Chromium (ppb)	100	100	0.975	nd – 1.200	2022	Naturally-occurring	No
Fluoride (ppm)	4	4	0.062	0.055 – 0.062	2022	Erosion of natural deposits; Water additive which promotes strong teeth	No
Nitrate (ppm)	10	10	0.840	0.670 – 0.890	2022	Runoff from fertilizer use; Erosion of natural deposits	No
Unregulated Contaminants ^{3,7}							
Chlorate ⁷ (ppb)	n/a	n/a	18.000	15.000 – 18.000	2022	Byproduct of the disinfection process	n/a
Chloride ⁸ (ppm)	250 ⁴	n/a	64.500	38.000 – 66.000	2022	Naturally-occurring	n/a
Chromium, hexavalent ⁷ (ppb)	n/a	n/a	1.300	1.100 – 1.300	2022	Naturally-occurring	n/a
Dieldrin (ppb)	n/a	n/a	0.009	nd – 0.014	2022	Residue of banned pesticide	n/a
Sodium (ppm)	n/a	n/a	36.000	31.000 – 36.000	2022	Naturally-occurring	n/a
Strontium ⁷ (ppb)	n/a	n/a	81.000	62.000 – 81.000	2022	Naturally-occurring	n/a
Sulfate ⁸ (ppm)	250 ⁴	n/a	12.500	9.100 – 13.000	2022	Naturally-occurring	n/a
Vanadium ⁷ (ppb)	n/a	n/a	10.000	9.300 – 10.000	2022	Naturally-occurring	n/a

Contaminants in the Distribution System							Table 1-3
Contaminants (units)	MCL (Allowed)	MCLG (Goal)	Highest Level Detected	Range of Detection	Year of Sample	Typical Sources of Contaminants	Violation
Lead (ppb)	AL = 15	0	nd ⁵	nd – 14.12	2022	Residue from man-made pollution such as auto emissions and paint; lead pipe, casing, and solder	No
Copper (ppm)	AL = 1.3	1.3	0.103 ⁵	nd – 0.132	2022	Corrosion of household plumbing systems; Erosion of natural deposits	No
Chloride ⁸ (ppm)	250 ⁴	n/a	45	35 – 45	2022	Naturally-occurring	n/a
Fluoride (ppm)	4	4	0.80	nd – 0.80	2022	Erosion of natural deposits; Water additive which promotes strong teeth	No

Disinfection Agent							Table 1-4
Contaminants (units)	MRDL (Allowed)	MRDL G (Goal)	Highest Average Level Detected	Range of Detection	Year of Sample	Typical Sources of Contaminants	Violation
Residual Chlorine (ppm)	4	4	0.6 ⁶	0.2 – 1.2	2022	Water additive used to control microbes	No

Disinfection Byproducts						Table 1-5	
Contaminants (units)	MCL (Allowed)	MCLG (Goal)	Highest Level Detected	Range of Detection	Year of Sample	Typical Sources of Contaminants	Violation
Total Trihalomethanes (ppb)	80	n/a	5.50	1.84 – 5.50	2022	Byproduct of drinking water disinfection	No

As previously described on page 2, after the November 20, 2021 fuel release and issuance of the DOH Health Advisory, extensive testing was conducted to initially determine the level of contamination present, and later to confirm that system flushing was effective. Table 1-6 shows the levels of contaminants detected in Long-Term Monitoring samples collected in 2022, as well as the level of contaminants after flushing and other corrective actions.

Contaminant Detections in Distribution System/Residences During Drinking Water Long-Term Monitoring Plan			Table 1-6
Table Contaminants (units)	MCL (Allowed)	Highest Contaminant Level Detected	Contaminant Level After Corrective Actions
Antimony (ppb)	6	4.80	n/a
Barium (ppm)	2	0.0375	n/a
Chromium (ppb)	100	19.6	n/a
Copper (ppm)	AL = 1.3	0.460	n/a
Lead (ppb)	AL = 15	63.4	Hydrant bracketing samples, flushing, and DOH/Navy split-sampling yielded non-detect.
Selenium (ppb)	50	25.3	n/a
Mercury (ppb)	2	3.9	Faucet replaced, flushed, and resampled. Resamples yielded non-detect.
Total Trihalomethanes (ppb)	80	68.7	n/a
Total Petroleum Hydrocarbons (diesel) (ppb)	ISP = 266	166	n/a
Total Petroleum Hydrocarbons (gasoline) (ppb)	ISP = 266	58.9	n/a
Total Petroleum Hydrocarbons (oil) (ppb)	ISP = 266	159	n/a

Potential health effects from long-term exposure above the MCL, EAL, or AL

- Lead:** Delays in physical or mental development in infants and children; children could show slight deficits in attention span and learning abilities; Adults can develop kidney problems and/or high blood pressure.

Table Definitions:

AL	Action Level. The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
DOH	Department of Health.
EAL	Environmental Action Level. Environmental Action Levels are concentrations of contaminants in drinking water and other media (e.g., soil, soil gas, and groundwater) below which the contaminants are assumed to not pose a significant threat to human health or the environment. Exceeding the EAL does not necessarily indicate that contamination at the site poses environmental hazards but generally warrants additional investigation.
ISP	Incident Specific Parameter. The Hawaii DOH uses multiple criteria to assess the safety of the drinking water including maximum contaminant levels (MCLs), previously established action levels (ALs), health advisory levels (HALs), and incident specific parameters (ISPs).
J	Estimated Value
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.
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.
MRDL	Maximum Residual Disinfectant Level. The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
MRDLG	Maximum Residual Disinfectant Level Goal. 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.

Table Abbreviations:

n/a not applicable.	ppb parts per billion or micrograms per liter.	ppt parts per trillion or nanograms per liter.
nd not detectable at testing limits.	ppm parts per million or milligrams per liter.	

Table Notes:

- Only one sample collected.
- The State and EPA require us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. The date of the last sample collected is as indicated.
- These results are for informational purposes. There are no set standards. EPA will use this data to help determine where certain contaminants occur and whether it needs to regulate these contaminants. At this time, these contaminants do not have MCLs or MCLGs.
- These are Secondary Maximum Contaminant Levels not enforced by EPA.
- Per the Lead and Copper Rule, results are measured as 90th percentile value of samples collected.
- After each quarter, a running average is calculated using the preceding 12 months of data. This value is the highest running average for the year.
- National Secondary Drinking Water Regulations (NSDWRs), or secondary standards, are non-enforceable guidelines regulating contaminants that may cause cosmetic or aesthetic effects in drinking water. EPA recommends secondary standards to water systems but does not require systems to comply with the standard.

Note: 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. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the EPA’s Safe Drinking Water Hotline 1-800-426-4791.

Additional Testing - 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 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 or Hawaii state 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.

In Hawaii, there is no PFAS drinking water regulation.

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.

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 has issued a proposed regulation on PFAS drinking water standards for public comment. 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 JBPHH tested its water for PFAS?

Yes. In November 2021, three samples were collected from the Aiea-Halawa Shaft Chlorinator.

We are informing you that PFOA and PFOS were detected, but were below the 2016 EPA HA. Other PFAS compounds covered by the sampling method were detected above the method reporting limit (MRL) but EPA does not have a HA for these compounds at this time. The results are provided in Table 1-7. PFOA and PFOS were below the 2016 EPA HA of 70 parts per trillion, but we will continue to monitor the drinking water. As mentioned previously, the Aiea-Halawa Shaft was temporarily taken offline on December 3, 2021. In accordance with DoD policy, JBPHH will continue to collect samples for PFAS once every three years at Waiawa Shaft as long as the results are below the MRL.

2021 PFAS Sampling Results at Aiea-Halawa Shaft Chlorinator						Table 1-7
Contaminants (ppt)	MCL (Allowed)	Health Advisory (ppt)	Highest Level Detected	Range of Detection	Year of Sample	Violation
Perfluorooctanoic acid (PFOA)	n/a ²	70	3.6	nd – 3.6	2021	n/a
Perfluorooctanesulfonic acid (PFOS)	n/a ²	70	5.6	nd – 5.6	2021	n/a
Perfluorobutanesulfonic acid (PFBS)	n/a ²	n/a	2.6	nd – 2.6	2021	n/a
Perfluoroheptanoic acid (PFHpA)	n/a ²	n/a	1.7	nd – 1.7	2021	n/a
Perfluorohexanesulfonic acid (PFHxS)	n/a ²	n/a	4.6	nd – 4.6	2021	n/a
Perfluorononanoic acid (PFNA)	n/a ²	n/a	nd	nd	2021	n/a
Perfluorodecanoic acid (PFDA)	n/a ²	n/a	nd	nd	2021	n/a
Perfluorohexanoic acid (PFHxA)	n/a ²	n/a	2.9	nd – 2.9	2021	n/a
Perfluorododecanoic acid (PFDoA)	n/a ²	n/a	nd	nd	2021	n/a
Perfluorotridecanoic acid (PFTTrDA)	n/a ²	n/a	nd	nd	2021	n/a
Perfluoroundecanoic acid (PFUnA)	n/a ²	n/a	nd	nd	2021	n/a
N-ethyl perfluorooctanesulfonamidoacetic acid	n/a ²	n/a	nd	nd	2021	n/a
N-methyl perfluorooctanesulfonamidoacetic acid	n/a ²	n/a	nd	nd	2021	n/a
Hexafluoropropylene oxide dimer acid (HFPO-DA)	n/a ²	n/a	nd	nd	2021	n/a
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	n/a ²	n/a	nd	nd	2021	n/a
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	n/a ²	n/a	nd	nd	2021	n/a
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	n/a ²	n/a	nd	nd	2021	n/a
Perfluorotetradecanoic acid (PFTA)	n/a ²	n/a	nd	nd	2021	n/a