

# Water Quality Report PMRF Kauai Water System



(Mana Well Source)

**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 Pacific Missile Range Facility (PMRF) Kauai Water System.

This document provides information about the water delivered to you over the past year. It describes where your water comes from, what it contains, and how it compares to standards for safe drinking water.

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

## Water Provider

The water system serving your area is managed by Naval Facilities Engineering Systems Command (NAVFAC) Hawaii; but operated and maintained by Koa Lani, LLC. As the Navy water provider in the State of Hawaii (State), we primarily supply water to military installations and housing.

## Drinking Water Standards

Last year, as in years past, your drinking water met all Environmental Protection Agency (EPA) and State regulations. The 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, we conducted tests for over 70 regulated 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 concentrations of regulated contaminants found. In all cases, the levels measured were well within both 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

Your on-base drinking water comes from ground water sources: Mana Well and the County of Kauai's Waimea-Kekaha system. Mana Well is located at the base of the cliffs in Mana. Ground water is naturally filtered as it travels from the surface to the aquifer below ground. The water is pumped up from the aquifer, disinfected, fluoridated, and piped into the PMRF drinking water distribution system.

Information on the Waimea-Kekaha system is shown in Table 1-2. For more information, please refer to County of Kauai's annual report by calling 808-245-5400 or visiting their website at:

[www.kauaiwater.org/ce\\_waterqualityrpt.asp](http://www.kauaiwater.org/ce_waterqualityrpt.asp)

## 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 wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at: [www.epa.gov/safewater/lead](http://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. We try to maintain the Navy's recommended concentration of approximately 0.2 parts per million (ppm) for chlorine and 0.7 ppm for fluoride throughout the distribution system.

## Planned Upgrades to Mana Well

A sanitary survey of the PMRF drinking water well was conducted on July 24, 2019. One of the findings of the inspection pertains to the opening at the bottom of the shaft. The DOH inspector recommended that the floor opening be temporarily sealed off to prevent debris from falling into the water and contaminating the drinking water supply as an interim solution until a permanent, DOH-approved solution could be identified. The Navy is required to report this as an uncorrected significant deficiency to consumers of the PMRF water system even though the water continues to be safe to drink. Currently, the well system is fully operational, and the well has been temporarily sealed off at the bottom and top of the shaft in response to DOH's request. The design for an extensive project to permanently upgrade the entire well and replace the pumps was initiated. When repairs to the well are performed, an alternative water source will be required for the downtime period. The design was put on hold until an alternative water source is determined. Alternative solutions have been proposed and will be evaluated with DOH prior to implementation.

## Concerns/Additional Copies

NAVFAC Hawaii does not have routine meetings about the water system. For questions and or information, please contact NAVFAC Hawaii Public Works Department Barking Sands Office, 808-335-4628 or NAVFAC Hawaii Public Affairs, 808-457-7497. For additional copies of this and other Navy water reports, go to:

- <https://cnrh.cnic.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 directly.*

## Official Address

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

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# Water Quality Data Tables

The following tables list contaminants which were detected during the latest round of sampling required by EPA and State regulations. The water samples were collected from either the source water or distribution system and analyzed by the State and/or Navy. The presence of contaminants does not necessarily indicate that the water poses a health risk. You may 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
<b>Inorganic Contaminants</b>							
Chromium (ppb)	100	100	5.9	5.9 <sup>1</sup>	2020 <sup>2</sup>	Erosion of natural deposits	No
Fluoride (ppm)	4	4	nd	nd <sup>1</sup>	2022	Erosion of natural deposits; Water additive which promotes strong teeth	No
Nitrate (ppm)	10	10	1.1	1.1 <sup>1</sup>	2022	Runoff from fertilizer use; Erosion of natural deposits	No
<b>Unregulated Contaminants<sup>3,8</sup></b>							
Chlorides (ppm)	250 <sup>4</sup>	n/a	0.524	0.516 – 0.524	2020 <sup>2</sup>	Naturally-occurring	n/a
Sodium (ppm)	n/a <sup>3</sup>	n/a	27	27 <sup>1</sup>	2020 <sup>2</sup>	Naturally-occurring	n/a
Sulfate (ppm)	250 <sup>4</sup>	n/a	11	11 <sup>1</sup>	2022	Naturally-occurring	n/a

**Contaminants in the County of Kauai's Source Water**

**Table 1-2**

Contaminants (units)	MCL (Allowed)	MCLG (Goal)	Highest Level Detected	Range of Detection	Year of Sample	Typical Sources of Contaminants	Violation
<b>Inorganic Contaminants</b>							
Chromium (ppb)	100	100	12	2 – 12	2022	Erosion of natural deposits	No
Nitrate (ppm)	10	10	2.4	1.9 – 2.4	2022	Runoff from fertilizer use; Erosion of natural deposits	No
Copper (ppm)	AL = 1.3	1.3	0.18 <sup>5</sup>	nd – 0.2	2021	Corrosion of household plumbing systems; Erosion of natural deposits	No
Lead (ppb)	AL = 15	0	nd <sup>5</sup>	nd	2021	Corrosion of household plumbing systems; Erosion of natural deposits	No
<b>Organic Contaminants</b>							
Total Trihalomethanes (ppb)	80	n/a	1.9	1.9 <sup>1</sup>	2022	Byproduct of drinking water disinfection	No
<b>Unregulated Contaminants<sup>3,8</sup></b>							
Silica (ppm)	n/a <sup>3</sup>	n/a	69	69 <sup>1</sup>	2020 <sup>2</sup>	Naturally-occurring	n/a
Sodium (ppm)	n/a <sup>3</sup>	n/a	111	83 – 111	2022	Naturally-occurring	n/a
Sulfate (ppm)	250 <sup>4</sup>	n/a	32	11 – 32	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
Copper (ppm)	AL = 1.3	1.3	0.251 <sup>5</sup>	nd – 0.251 <sup>6</sup>	2022	Corrosion of household plumbing systems; Erosion of natural deposits	No
Lead (ppb)	AL = 15	0	nd <sup>5</sup>	nd <sup>6</sup>	2022	Corrosion of household plumbing systems; Erosion of natural deposits	No
Fluoride (ppm)	4	4	0.61	0.39 – 0.61	2021	Erosion of natural deposits; Water additive which promotes strong teeth	No

**Disinfection Agent**

**Table 1-4**

Contaminants (units)	MRDL (Allowed)	MRDLG (Goal)	Highest Average	Range of Detection	Year of Sample	Typical Sources of Contaminants	Violation
Residual Chlorine (ppm)	4	4	0.44 <sup>7</sup>	0.23 - 0.61	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	1.3	1.3 <sup>1</sup>	2022	Byproduct of drinking water disinfection	No

## Table Definitions:

**AL Action Level.** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which 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.

**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:

**nd** not detected  
**n/a** not applicable.

**ppb** parts per billion or micrograms per liter.  
**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 most recent 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.
- This is a Secondary Maximum Contaminant Level not enforced by EPA.
- Per the Lead and Copper Rule, results are measured as 90<sup>th</sup> percentile value of the samples collected.
- Confirmation samples were taken and the results were below the action level. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.
- After each quarter, a running average is calculated using the preceding 12 months of data. The posted amount 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 PMRF tested its water for PFAS?

Yes. In November 2021, samples were collected from the Mana Shaft Chlorinator and in December 2022, samples were collected from the closest sampling point to the County of Kauai's water interconnection.

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 for both sampling events. This means that PFAS were not detected in your water system. In accordance with DoD policy, the Navy water system will be resampled every three years for your continued protection.

**2021 PFAS Sampling Results at Mana Shaft Chlorinator**

**Table 1-6**

Contaminants (ppt)	MCL (Allowed)	Health Advisory (ppt)	Highest Level Detected	Range of Detection	Year of Sample	Violation
Perfluorooctanoic acid (PFOA)	n/a <sup>3</sup>	70	nd	nd <sup>1</sup>	2021	n/a
Perfluorooctanesulfonic acid (PFOS)	n/a <sup>3</sup>	70	nd	nd <sup>1</sup>	2021	n/a
Perfluorobutanesulfonic acid (PFBS)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2021	n/a
Perfluoroheptanoic acid (PFHpA)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2021	n/a
Perfluorohexanesulfonic acid (PFHxS)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2021	n/a
Perfluorononanoic acid (PFNA)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2021	n/a
Perfluorodecanoic acid (PFDA)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2021	n/a
Perfluorohexanoic acid (PFHxA)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2021	n/a
Perfluorododecanoic acid (PFDoA)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2021	n/a
Perfluorotridecanoic acid (PFTDA)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2021	n/a
Perfluoroundecanoic acid (PFUnA)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2021	n/a
N-ethyl perfluorooctanesulfonamidoacetic acid	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2021	n/a
N-methyl perfluorooctanesulfonamidoacetic acid	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2021	n/a
Hexafluoropropylene oxide dimer acid (HFPO-DA)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2021	n/a
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2021	n/a
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2021	n/a
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2021	n/a
Perfluorotetradecanoic acid (PFTA)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2021	n/a

**2022 PFAS Sampling Results at County of Kauai's Water Interconnection**

**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 <sup>3</sup>	70	nd	nd <sup>1</sup>	2022	n/a
Perfluorooctanesulfonic acid (PFOS)	n/a <sup>3</sup>	70	nd	nd <sup>1</sup>	2022	n/a
Perfluorobutanesulfonic acid (PFBS)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2022	n/a
Perfluoroheptanoic acid (PFHpA)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2022	n/a
Perfluorohexanesulfonic acid (PFHxS)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2022	n/a
Perfluorononanoic acid (PFNA)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2022	n/a
Perfluorodecanoic acid (PFDA)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2022	n/a
Perfluorohexanoic acid (PFHxA)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2022	n/a
Perfluorododecanoic acid (PFDoA)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2022	n/a
Perfluorotridecanoic acid (PFTDA)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2022	n/a
Perfluoroundecanoic acid (PFUnA)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2022	n/a
N-ethyl perfluorooctanesulfonamidoacetic acid	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2022	n/a
N-methyl perfluorooctanesulfonamidoacetic acid	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2022	n/a
Hexafluoropropylene oxide dimer acid (HFPO-DA)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2022	n/a
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2022	n/a
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2022	n/a
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2022	n/a
Perfluorotetradecanoic acid (PFTA)	n/a <sup>3</sup>	n/a	nd	nd <sup>1</sup>	2022	n/a