2022 Annual Water Quality Report (for water quality in 2021)

U.S. ARMY GARRISON—HAWAII

Aliamanu Military Reservation

U.S. Army Garrison-Hawaii is providing an annual Consumer Confidence Report (CCR) to the community in conjunction with this Safe Drinking Water Act requirement. CCRs provide drinking water quality information, including information on the origin of the drinking water and any detected contaminants.

How does the CCR work? An essential part of the CCR is the water quality table on page 3 showing the level of each substance detected during 2021. There are three columns on the table which should be given special attention: the maximum contaminant level (MCL), the level detected, and whether a violation occurred. The Environmental Protection Agency (EPA) set MCLs for a number of substances which may be found in drinking water. All of the substances listed in the table are below the MCLs set by the EPA. U.S. Army Garrison-Hawaii continues to provide some of the cleanest and safest drinking water available in Hawaii.

What is the source of the water? Drinking water for Aliamanu Military Reservation (AMR) is supplied by the Joint Base Pearl Harbor Hickam Water System. The drinking water is obtained from three ground water sources: Waiawa Shaft, Red Hill Tunnel, and Halawa Shaft.

The susceptibility of the AMR water system to contamination has been evaluated under the Hawaii Source Water Assessment Program. The results of the Assessment, dated March 2004, are available for review by contacting the Directorate of Public Works, Environmental Division at (808) 656-3107. In order to ensure that tap water is safe to drink, the EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for the contaminants in bottled water, which must provide the same protection for public health as tap water.

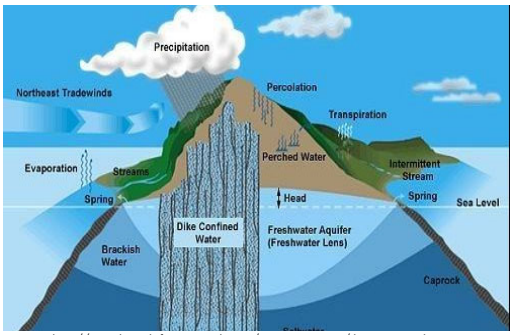
Red Hill Information:
In November 2021, a fuel release at the Red Hill Bulk Fuel Storage Facility was reported. The Department of Health (DOH) established a drinking water health advisory at both Joint Base Pearl Harbor-Hickam and Aliamanu Military Reservation in December 2021. Navy and Army efforts to restore the drinking water system included extensive flushing and testing at these installations. As of March 2022, the DOH has removed all health advisories on the drinking water at Joint Base Pearl Harbor-Hickam and AMR and is considered safe under regulatory guidelines.

The Navy initiated their long term monitoring plan within the first 30 days after a zone's health advisory had been amended by the DOH and includes continued sampling and monitoring over the next 24 months. For more information please go to: https://home.army.mil/hawaii/index.php/water or JBPHH-SAFEWATERS.ORG

Where Do Potential Ground Water Quality Problems Come From?

As water percolates through the ground, it dissolves naturally-occurring minerals. Substances resulting from the presence of animal or human activity can also be introduced to the ground water or the distribution system. 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 contaminants and potential health effects can be obtained by calling the EPA Safe Drinking Water Hotline (1-800-426-4791) or submitting a request through their online form at https://www.epa.gov/ground-water-and-drinking-water/safe-drinking-water-information.

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, the water dissolves naturally occurring minerals and, in some cases, radioactive material. The water can also pick up substances springs, and wells. As water travels over the surface of the land or through the ground, the water dissolves naturally occurring minerals and, in some cases, radioactive material. The water can also pick up substances resulting from the presence of animals or from human activity as indicated in the contaminant summary which can be seen on page 2.



http://www.boardofwatersupply.com/water-resources/the-water-cycle

2022 Annual Water Quality Report Information

Important Health Information

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/ Center for Disease Control 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). 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.

Lead Facts

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. The AMR Water System is responsible for providing high-quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at https://www.epa.gov/safewater/lead.

Cross Connection Information

Cross-connection is defined as an actual or potential connection between a drinking water supply and any source through which backflow may occur and introduce any substance other than the intended drinking water into the drinking water system. DO NOT connect hoses or equipment to fire hydrants, backflow preventers, or utility sink faucets to fill water buffaloes, water trucks, or other equipment. Unauthorized connections to the drinking water system may present a possible risk of chemical or microbiological contamination into our drinking water system.

To ensure a safe and secure drinking water system, all connections, including temporary water connections, must be approved by the DPW Plumbing Shop. To request a water connection, please submit information via ArMA.

If you encounter any cross connections that may have the potential to introduce contaminants into our drinking water system please contact us! The DPW Safe Drinking Water Program can be reached at (808) 656-3107.

This CCR is posted on the web at:
https://home.army.mil/hawaii/index.php/water-quality-report-amr

Contaminant Categories

Microbial contaminants, such as viruses and bacteria that 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 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 Hawaii Administrative Rules (HAR) 11-20-18(b)(1)(G) a public water system must provide Tier 1 public notice within 24-hour for all national primary drinking water regulation violations and other situations as determined by the State. USAG-HI was required to publish a Tier 1 public notification within 24 hours of confirmation of a fuel contamination in the drinking water system. The Army conducted ongoing public outreach to AMR/Red Hill water users throughout the incident notifying them of the contamination and recovery efforts. The Navy posted an administrative notice for both the JBPHH and AMR/Red Hill water systems on the Public Notice page at: ***https://jbphh-safewaters.org.*** This public notification includes an explanation of the drinking water contamination, actions taken to remediate the situation and identifies the point of contact for more information. The notification is available at page: ***https://jbphh-safewaters.org/public/administrative_notice_n00_amended_june_30.pdf***

THE DIRECTORATE OF PUBLIC WORKS DOES NOT HAVE ROUTINE PUBLIC MEETINGS ABOUT THE WATER SYSTEM. IF YOU HAVE QUESTIONS REGARDING THE WATER SYSTEM OR WATER QUALITY PLEASE CONTACT THE DPW ENVIRONMENTAL DIVISION, SAFE DRINKING WATER PROGRAM AT (808) 656-3107.

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Water Quality Table for Aliamanu Military Reservation

The tables below list all of the drinking water contaminants detected during calendar year 2021 unless otherwise indicated. The EPA allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not vary significantly from year to year, or our system is not considered vulnerable to this type of contamination. Some of our data, though representative, are more than one year old. Results of samples in the tables below identify low levels of contaminants detected below EPA limits. The presence of these contaminants does not necessarily indicate that the water poses a health risk. Fuel detections are not included in these test results, for additional information and lab results visit the Joint Base Pearl Harbor-Hickam's Safe Waters website at JBPHH-SAFEWATERS.ORG

Contaminants in the Distribution System (units of measurement)	MCL	MCLG	Average Level Detected	Range of Detection (multiple samples)	Likely Source of Contaminant	Violation
Inorganic						
Copper (ppm)	AL=1.3	1.3	NQ[1, 4] (2020)	0[2,4] (2020)	Corrosion of household plumbing systems; erosion of natural deposits	**NO**
Lead (ppb)	AL= 15	0	ND[1,4] (2020)	0[2,4] (2020)	Corrosion of household plumbing systems; Erosion of natural deposits	**NO**
Fluoride[3] (ppm)	4	4	0.65	0.29-1.06	Erosion of natural deposits; water additive to promote strong teeth	**NO**
Disinfectant & Disinfection Byproducts						
Residual Chlorine (ppm)	MRDL=4	MRDLG=4	0.59	0.21-0.85	Water additive used to control microbes	**NO**
Total Trihalomethanes (ppb)	80	N/A	6.8	No Range	By-product of drinking water chlorination	**NO**

Contaminants in the Plant Water (units of measurement)	MCL	MCLG	Highest Level Detected	Range of Detection (multiple samples)	Likely Source of Contaminant	Violation
Inorganic						
Barium (ppm)	2	2	0.02[4] (2017)	ND - 0.02	Erosion of natural deposits	**NO**
Chromium (Total) (ppb)	100	100	2.1[4] (2017)	ND - 2.1	Naturally-occurring	**NO**
Lead (ppb)	15	0	10.1[4] (2019)	ND - 10.1	Corrosion of household plumbing systems; Erosion of natural deposits	**NO**
Fluoride (ppm)	4	4	0.58	0.23-0.58	Erosion of natural deposits; water additive to promote strong teeth	**NO**
Nitrate (ppm)	10	10	2.1	0.51-2.1	Runoff from fertilizer use; erosion of natural deposits	**NO**
Organic						
Chlordane (ppb)	2	0	0.36[4] (2017)	ND - 0.36	Residue of banned insecticide	**NO**
Heptachlor epoxide (ppt)	200	0	20[4] (2017)	ND - 20	Residue of banned insecticide	**NO**
Unregulated[5]						
Bromide (ppb)	N/A	N/A	765 [4] (2018)	124 - 765	Naturally-occurring	**N/A**
Chloride (ppm)	250[6]	N/A	225	30-225	Naturally-occurring	**N/A**
Dieldrin (ppb)	N/A	N/A	0.05[4] (2017)	ND- 0.05	Residue of banned insecticide	**N/A**
Sodium (ppm)	N/A	N/A	124[4] (2017)	26 - 124	Naturally-occurring	**N/A**
Sulfate (ppm)	250[6]	N/A	47	ND - 47	Naturally-occurring	**N/A**

Table Definitions, Abbreviations, and Notes

Table Notes:

1. In accordance with EPA and State regulations, this number represents the 90th percentile value of the samples collected.
2. The number of samples above the action level.
3. Fluoride is added to the water system to help promote healthy teeth in children. The target level is 0.7 ppm.
4. The state and EPA require water systems to monitor certain contaminants less than once per year because the concentration is not expected to vary significantly from year to year. The date of the last sample collected is as indicated.
5. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted.
6. This is a Secondary Maximum Contaminant Level (SMCL). It is not enforced by the EPA and is not considered a risk to human health at SMCL.

Table Abbreviations:

ppb -parts per billion or micrograms per liter (µg/L)

ppm - parts per million or milligrams per liter (mg/L)

ppt - parts per trillion or nanograms per liter (ng/L)

N/A - not applicable.

ND - not detected at testing limits.

NQ - not quantifiable at test limits.

Table Definitions, Abbreviations, and Notes Continued

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.

Summary of Results

A number of different water samples are collected and analyzed for various contaminants throughout the year. The number and frequency of sampling events depends upon federal and state requirements. The water quality table on page 3 lists all of the drinking water contaminants detected during calendar year 2021. All of the substances listed in the table are below the MCLs set by the EPA. Contaminants not present in the drinking water or analyzed below detection limits are not included in the table. Remember, the presence of contaminants does not necessarily indicate that the water poses a health risk.

Contaminants in the Distribution System During DOH Health Advisory

The table below represents the highest level of contaminants in the Joint Base Pearl Harbor-Hickam water distribution system prior to flushing, and the subsequent contaminant levels after flushing. The data in the table below is a summary of the entire JBPHH system and not necessarily within the water supplied to AMR.

Table Contaminants (units)	MCL (Allowed)	Highest Contaminant Level Detected Prior to Flushing (Dec 30 2021- Feb 22 2022)	Contaminant Level After Flushing/Corrective Actions (Jan 23 - Mar 16 2022)
Beryllium (ppb)	4	8.4	ND
Cadmium (ppb)	5	23.1	ND
Dichloromethane / Methylene Chloride (ppb)	5	186	ND
Di(n-butyl)phthalate (ppb)	N/A	0.45	ND
Lead (ppb)	AL = 15	49	ND
Total Organic Carbon (ppm)	EAL = 2	14.5	ND
Total Petroleum Hydrocarbons (gasoline) (ppb)	EAL = 300	ND	ND
Total Petroleum Hydrocarbons (diesel) (ppb)	EAL = 400	268	ND
Total Petroleum Hydrocarbons (oil) (ppb)	EAL = 500	650	ND

Table Definitions, Abbreviations, and Notes

Table Definitions:

AL - Action Level - The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements which a water system must follow.

EAL Environmental Action Level (EAL) - 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.

Table Abbreviations:

ppb -parts per billion or micrograms per liter (µg/L)

ppm - parts per million or milligrams per liter (mg/L)

N/A - not applicable.

ND - not detected at testing limits.

Potential health effects from long-exposure above the MCL and EAL

Beryllium: Intestinal lesions

Cadmium: Kidney damage

Dichloromethane: Liver problems; increased risk of cancer

Di(n-butyl)phthalate: This chemical appears to have relatively low acute (short-term) and chronic (long-term) toxicity. No information is available regarding the effects in humans from inhalation or oral exposure to dibutyl phthalate, and only minimal effects have been noted in animals exposed by inhalation. No studies are available on the reproductive, developmental, or carcinogenic effects of dibutyl phthalate in humans. Animal studies have reported developmental and reproductive effects from oral exposure. EPA has classified dibutyl phthalate as not classifiable as to human carcinogenicity.

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.

Total Organic Carbon: A form of disinfection byproduct precursors and has no health effects.

Total Petroleum Hydrocarbons (gasoline, diesel, oil): Consumption can cause upset stomach, stomach cramping, nausea, vomiting, and diarrhea. Your throat and mouth may also get irritated. Petroleum hydrocarbons can irritate the skin (dermal exposure). Continuous exposure can cause itchy rash with red and peeling skin. Breathing petroleum vapors (also called inhalational exposure) can cause headaches, dizziness, tiredness and respiratory problems like cough and difficulty breathing. Nosebleeds are possible. Evaluation of the possibility of long-term health effects is ongoing. Based on current information, people exposed to contaminated drinking water from the Joint Base Pearl Harbor-Hickam Drinking Water System in this incident are not expected to experience long-term health effects.

Corrective Actions Taken for Contaminant Exceedances

High-volume flushing of the Navy and AMR 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 and AMR Water System users. Extensive testing to confirm that flushing worked was conducted. Actions taken to address exceedances included re-flushing and re-sampling. Additional testing efforts are ongoing as part of the Long Term Monitoring Plan to ensure that the Navy and AMR drinking water system continues to be safe and fit for consumption.