



UNITED STATES MARINE CORPS
MARINE CORPS BASE HAWAII
BOX 63002
KANEHOE BAY HAWAII 96863-3002

IN REPLY REFER TO:
5090
LFE/097-21

From: Commanding Officer, Marine Corps Base Hawaii
To: Residents, Marine Corps Base Hawaii

Subj: MARINE CORPS BASE HAWAII 2021 ANNUAL WATER QUALITY REPORT

Encl: (1) Board of Water Supply, City and County of Honolulu, 2021 Annual Water Quality Report
(2) Joint Base Pearl Harbor-Hickam Water System 2021 Annual Water Quality Report

1. Marine Corps Base Hawaii (MCBH) Water System receives potable water from the City and County of Honolulu (CCH) Board of Water Supply (BWS); chlorination is then added as disinfectant, prior to customer delivery. Maintenance and oversight of the MCBH potable water system is a joint effort between base utility personnel and the Environmental Compliance and Protection Division (ECPD).
2. In 1998, the U.S. Environmental Protection Agency (EPA) put into effect regulations that require community water system operators to provide their customers an annual report on the quality of their drinking water. This letter describes where your water comes from, what was detected in the water in the past year, and how those results compare to standards for safe drinking water.

Test results show your drinking water meets all Federal and State standards and is safe to drink.

3. The BWS office has identified the source(s) of the water which goes to MCBH. They consist of the following groundwater wells or aquifers on the Island:
 - Kaluanui Wells
 - Maakua Well
 - Punaluu Wells II
 - Punaluu Wells III
 - Waihee Tunnel

Prior to delivering the water to MCBH, it was tested and met all federal and state standards.

4. MCBH is required to monitor the following constituents in its water system that are vulnerable to change:
 - a. Lead (Pb) and Copper (Cu)
 - b. Tri-halomethanes (THMs), Total halo acetic acid (HAA5)
 - c. Asbestos
 - d. Total Coliform Bacteria
 - e. Escherichia Coliform Bacteria (E-coli)

Constituents (a – c), along with total chromium and nitrates are primary regulated contaminants. Additionally, MCBH monitors levels of other constituents reported by the BWS. These include trace metals, anions such as chlorates and microbial constituents. MCBH also tested for perfluoroalkyl substances (PFAS).

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Tables 1 and 2 below list the most recent testing results. The concentration amounts are expressed in terms of ppm or ppb as described below. For regulated substances (Table 1), allowable levels and goals are expressed in terms of Maximum Contaminant Level (MCL) and Maximum Contaminant Level Goals (MCLG) as described below. For unregulated substances (Table 2), the limits are expressed in terms of action levels or health advisories. Note that certain substances are monitored less frequently, as they are not expected to change significantly from year to year. If a substance is not listed, it was not detected.

Table 1 - Regulated Substances, MCBH K-Bay

Substance	Sample Year	Unit	Range		Allow	Goal	Common Sources
			Min	Max			
<i>TTHM</i>	2020	<i>ppb</i>	1.80	2.30	< 80	None	<i>Water disinfection byproduct</i>
<i>HAA5</i>	2020	<i>ppb</i>	ND	ND	< 60	None	<i>Water disinfection byproduct</i>
<i>Total Chromium</i>	2020	<i>ppb</i>	1.2	2.5	< 100	100	<i>Erosion of natural deposits</i>
<i>Nitrate</i>	2020	<i>ppm</i>	0.160	0.190	< 10.0	10.0	<i>Rainfall & agricul-tural activity</i>
<i>Barium</i>	2020	<i>ppb</i>	0.003	0.006	< 2.00	2.00	<i>Natural erosion</i>

Cont., Table 1

Substance	Sample Year	Unit	90 th Percentile Reading	Allow	# Samples Above Allow	Common Sources
<i>Copper</i>	2018	<i>ppb</i>	59	< 1,300	0	<i>Corrosion of household plumbing systems</i>
<i>Lead</i>	2018	<i>ppb</i>	5.66	< 15	1	

Table 2 - Unregulated Contaminants, MCBH K-Bay

Substance	Sample Year	Unit	Range		Health Advisory	Common Sources
			Min	Max		
<i>Chromium-6</i>	2020	<i>ppb</i>	1.3	2.4	13.0	<i>Naturally and manmade source</i>
<i>Strontium</i>	2020	<i>ppm</i>	0.046	0.19	4.00	<i>Naturally occurring trace metal</i>
<i>Vanadium</i>	2020	<i>ppb</i>	7.2	10.0	21.0	<i>Naturally occurring trace metal</i>

5. The rules require that MCBH report on cryptosporidium, radon and any other relevant contaminants. Cryptosporidium is associated with surface water sources, whereas MCBH only receives potable ground water. There is currently no federally-enforced drinking water standard for radon. Detailed information on the sampling and analytical results can be obtained from Richard Mestan, MCBH ECPD, richard.mestan@usmc.mil, (808) 257-3694.

6. Educational Information:

As discussed, potable water supplied to MCBH comes from groundwater sources managed by the BWS. As water travels both above and below ground, it can come in contact with naturally and/or manmade substances. In some cases naturally occurring radioactive material can be dissolved in water. Substances

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from human activity are usually considered as a contaminant by virtue of its nature or amount. These include:

- a. Viruses and bacteria, which may come from sewage treatment plants, septic systems, livestock, and wildlife.
- b. Salts and metals, which can be natural or may result from storm runoff, wastewater discharges, and farming.
- c. Organic chemicals, which originate from industrial processes, petroleum processes, petroleum production, gas stations, storm runoff and septic systems.
- d. Radioactive substances, which can be naturally occurring.
- e. Pesticides and herbicides, which can come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.

The EPA Safe Drinking Water Act (SDWA) assigns regulatory standards to water contaminants based on human health, while the Food and Drug Administration (FDA) establishes limits for contaminants in bottled water. Some people may be more vulnerable to contaminants in drinking water than the general population. These include individuals with compromised immune systems and infants. More information about health risks associated with contaminants can be obtained by accessing the EPA's drinking water web site (www.epa.gov/safewater/).

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 most often 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 at <http://www.epa.gov/safewater/lead>.

7. EPA Issued Drinking Water Health Advisories for Per- and Polyfluoroalkyl Substances (PFAS):

Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals that includes PFOA, PFOS, Gen-X, and many other chemicals. The EPA has established health advisories for PFOA and PFOS based on the agency's assessment of the latest peer-reviewed science to provide drinking water system operators, and state, tribal and local officials who have the primary responsibility for overseeing these systems, with information on the health risks of these chemicals, so they can take the appropriate

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actions to protect their residents. The EPA is committed to supporting state and public water systems as they determine the appropriate steps to reduce exposure to PFOA and PFOS in drinking water.

To provide Americans, including the most sensitive populations, with a margin of protection from a lifetime of exposure to PFOA and PFOS from drinking water, the EPA has established the health advisory levels at 70 parts per trillion.

PFAS in AFFF (Aqueous Film Forming Foam) has historically been used on MCBH in firefighting training and response. The historic use of AFFF on MCBH does not pose a threat to MCBH drinking water; all water used on base comes from the City and County of Honolulu (off-installation).

MCBH Sampling:

MCBH Facilities conducted independent sampling for PFAS in the drinking water system. Samples of drinking water entering the distribution system were collected on 30 November 2020 for analysis. **PFAS was NOT DETECTED in MCBH drinking water.**

8. A source water assessment for the CCH wells serving MCBH Kaneohe Bay was completed in 2003 and is available from MCBH ECPD. MCBH does not conduct public meetings about the drinking water system, however questions regarding the MCBH Annual Water Quality Report can be directed to MCBH ECPD, Attention Major Hart, Director, 257-5640 or Ed Zuelke, Compliance Chief, 257-7142.

9. Resolution of Deficiencies:

In 2020, the Hawaii Department of Health (HDOH) Safe Drinking Water Branch (SDWB), conducted a sanitary survey at MCBH. Three significant deficiencies were found, which were not corrected by the end of the calendar year (i.e.12-31-20). For this reason they are included in this report, along with documentation of their resolution0 below;

Deficiency 1 - Tank 1519: Remove piece of gasket or construction material observed on the bottom of the tank.

Resolution – HDOH approved a plan to empty the tank and remove the object by 2/12/21. This was completed 1/26/21.

Deficiency 2 - Tank 4087: HDOH found center vent louvers and inside mesh screens to be significantly deteriorated. A recommendation was made to either refurbish or replaced with a better design (i.e. given the harsh and windy sea spray conditions). This was likely contributing to particulate matter and discoloration (sheen) observed on the tank surface.

Resolution – HDOH approved a plan with a completion date of 3/15/21 to purchase a new vent to replace the existing one. MCBH completed the replacement of the vent and received HDOH approval on 3/12/21.

Deficiency 3 - Tank 4087: HDOH determined a need to remove or refurbish both conduit connections at exterior level gage location on the roof of the tank.

Resolution – HDOH approved a plan to correct the deficiency and MCBH completed these repairs on 1/25/21.

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10. Definitions:

< -"less than"

CFU/100ml - Colony forming units per 100 milliliters of water sample.

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.

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.

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 allows for a margin of safety.

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.

PFAS - Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals that includes PFOA, PFOS, GenX, and many other chemicals. PFAS is found in firefighting foam, Aqueous Film Forming Foam (AFFF).

ppb - Parts per billion or micrograms per liter of water sample.

ppm - Parts per million or milligrams per liter of water sample.

ppt - parts per trillion or nanograms per liter of water sample.

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By direction of the Commanding Officer