

United States Environmental Protection Agency, Region 9
Drinking Water Complaints
Investigation Report #2

Joint Base Pearl Harbor-Hickam Public Water System
Aliamanu Military Reservation Public Water System

Onsite Investigation Date: February 14-16, 2024

Report Date: March 21, 2024

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REGION 9

SAN FRANCISCO, CA 94105

SECTION I – INTRODUCTION

In February 2024, EPA was notified of twenty-eight complaints with actionable contact information from residents served by the Joint Base Pearl Harbor-Hickam public water system (JBPHH System) and the Aliamanu Military Reservation public water system (AMR System). The United States Department of the Navy (Navy) owns and operates the JBPHH System and the United States Department of the Army (Army) owns the AMR system. The JBPHH and AMR Systems combined serve approximately 93,000 persons in Hawaii on the island of Oahu. As of the date of this report, the JBPHH System relies on one groundwater source, the Waiawa Shaft, and chlorinates the water before sending it through the distribution system. The AMR System is a consecutive system that receives all of its water from the JBPHH System. The AMR System has granulated activated carbon (GAC) filter treatment to treat drinking water it receives from the JBPHH System and then re-chlorinates the water after the GAC treatment prior to delivery to consumers.

I conducted a complaint investigation from February 14-16, 2024. Claire Ong, EPA drinking water inspector, accompanied me on all the home visits. I called all the residents of the homes prior to arrival to ensure availability and consent. We interviewed eight residents in-person and spoke with five residents over the phone. We conducted phone interviews in lieu of in-person interviews when required by illness, privacy concerns, or scheduling conflicts. Five of the residents interviewed were served by the AMR System, while the other eight residents were served by the JBPHH System. To protect personally identifiable information, any reference to names and addresses have been removed.

History

On November 20, 2021, there was a jet fuel release incident (Incident) at the Red Hill Bulk Fuel Storage Facility that led to the contamination of the JBPHH System. More information about fuel releases may be found at: <https://www.epa.gov/red-hill/about-red-hill-fuel-releases>.

In June 2022, the Navy, Hawaii Department of Health (DOH), Army and EPA agreed to the Drinking Water Long-Term Monitoring (LTM) Plan¹, which was developed as a surveillance tool to ensure water served by the JBPHH System meets all state and federal drinking water standards and is free of petroleum. The LTM Plan became an enforceable document when EPA, Navy and the Defense Logistics Agency signed an Administrative Order on Consent on June 2, 2023.² The LTM samples referenced in this report refer to the samples that were collected and analyzed for the constituents listed in Table 5 of the LTM Plan. Constituents analyzed pursuant to the LTM Plan include Total Petroleum Hydrocarbons, synthetic organic compounds, volatile organic compounds, metals, disinfection byproducts, total organic carbon, and free chlorine.

¹ Weblink to the LTMP: <https://health.hawaii.gov/about/files/2022/08/JBPHH-Drinking-Water-LTM-Plan-FINAL-20220823.pdf>

² Weblink to EPA's Administrative Consent Order: <https://www.epa.gov/red-hill/red-hill-2023-consent-order>. The provision about the LTMP may be found in Section 6.2 of the Statement of Work (pg. 59 of the pdf).

In October 2023, EPA received complaints from residents regarding their drinking water. I conducted an investigation on October 19, 2023 of the drinking water concerns and evaluated Navy's response to the concerns. EPA published the *EPA Drinking Water Complaints Investigation Report*³ on December 20, 2023.

SECTION II – OBSERVATIONS

The following observations are comprised of anecdotal statements made by interviewed residents, unless otherwise noted as personal observations from EPA inspectors, or are in reference to the data review included in the "LTM Results on Safe Waters Website" subsections.

The observations have been broken down into the following sections.

1. Current Concerns: Description of any drinking water concerns and/or symptoms the resident claims to be experiencing and believes may be related to drinking water within the previous two months (i.e., December 2023 – February 2024).
2. Historical Concerns: Description of any drinking water concerns and/or symptoms the resident claims to have experienced and believes may be related to drinking water prior to December 2023.
3. Navy Response: Description of how resident perceived the Navy's response to any of the complaints filed with the Emergency Operations Center (EOC).
4. LTM Results on Safe Waters Website: I reviewed the data posted on <https://ibpnh-safewaters.org/> for homes with known addresses and included the analytical results of TPH and lead sampling for each known home address. Analytical results were compared against the Safe Drinking Water Act's action level for lead is 15 ppb.⁴ EPA does not have a health-based standard for TPH. The analytical results of sampling for all other constituents that were analyzed were either non-detect or were far below any applicable EPA Maximum Contaminant Level or DOH Environmental Action Level.⁵

³ Weblink to the *EPA Drinking Water Complaints Investigation Report*: <https://www.epa.gov/system/files/documents/2023-12/r9-epa-red-hill-investigation-rpt-2023-10-drinking-water-complaints-2023-12-20.pdf>

⁴ The lead action level is a measure of the effectiveness of the corrosion control treatment in water systems. The action level is not a standard for establishing a safe level of lead in a home. To check if corrosion control is working, EPA requires water systems to test for lead at the tap in certain homes, including those with lead service lines. Systems compare sample results from homes to EPA's action level of 0.015 mg/L (15 ppb). https://www.epa.gov/sites/default/files/2019-10/documents/lcr101_factsheet_10.9.19.final_.2.pdf

⁵ Environmental Action Levels (EALs) are concentrations of contaminants in soil, soil gas, and groundwater that are used in decision making throughout DOH's Environmental Hazard Evaluation process. An Environmental Hazard Evaluation is the link between site investigation activities and response actions carried out to address hazards posed by the presence of contaminated soil and groundwater <https://health.hawaii.gov/heer/guidance/ehe-and-eals/>

5. Medical Care: This section was only included when appropriate and includes a description of any experiences a resident may have had, or claims to have had, when reporting their symptoms to a military-operated medical facility.

Resident #1 (Interviewed over the phone on February 14, 2024)

A) Current Concerns

The resident claimed to have periodically observed a sheen in the water and to have observed a sheen a week prior to our visit. Within the last few weeks, resident described having drier skin than usual. During January 2024, resident stated the home's sprinklers were changed by maintenance and this timing seemed to coincide with the water having something floating. The resident explained that when the water was hot, some pin drop-sized particles appeared to float in the water and also swirl near the bottom of a cup.

Resident stated no one cooked or drunk the tap water.

B) Historical Concerns

Resident claimed to have had gastrointestinal issues and hair loss the resident believed to be connected to the tap water since the Incident.

C) Navy Response

Resident recalled contacting the EOC on January 26, 2024 (Friday) and Navy sending out personnel to the resident's home on January 29, 2024 to collect water samples. DOH staff was present to oversee the sample collection. Resident was not sure precisely where the samples were collected except that it was from a location upstairs. In addition to the Navy personnel that arrived to conduct the sampling, another Navy representative came soon afterwards to speak with the resident about drinking water concerns and answer any questions.

The resident claimed the Navy representative did not offer alternative water, but that upon request the Navy provided alternative water within a few hours. Resident estimated receipt of approximately nine big boxes of boxed water. Resident estimated each big box contained a bit over three gallons. The resident has not consumed the boxed water as the resident expressed a suspicion the boxes were fairly old.

The resident received the results of the LTM sampling on February 13, 2024. The Navy conveyed the via email and Navy personnel also called the resident on the phone.

D) LTM Results on Safe Waters Website

The Navy collected two sets of samples on January 30, 2024. No TPH was detected. Lead was detected at 0.31 and 0.38 ppb.

Resident #2 (Interviewed in-person on February 14, 2024)

A) Current Concerns

Within the past two weeks, resident claimed to have experienced burning skin and sores on the top of the head after showering, and the feeling of burning skin on the face after increased face washing, with the skin turning red when irritated.

The resident's spouse claimed to have had gastrointestinal issues. The residents of this home claimed to have drunk water from the tap prior to the Navy's visit and provision of alternative water.

The resident had not observed any physical concerns with the water, such as with the color, odor, or the presence of sheen.

B) Historical Concerns

The resident recalled the water was cloudy one time approximately 5-6 months ago.

C) Navy Response

The resident called the EOC last week of January and Navy sent personnel early February. The Navy team took drinking water samples from the hallway bathroom and resident was not clear on why this location was selected. Resident recalled receiving some paperwork and that someone from DOH may have been present. A Navy representative offered alternative water and the resident received eight boxes of water. Resident had not received LTM sample results at the time of our conversation, but the resident did receive an email and phone call in regard to the results of the rapid response test, which was non-detect.

The resident did not have any concerns with the Navy's response.

D) LTM Results on Safe Waters Website

I was unable to find LTM results for this residence on the website.

Resident #3 (Interviewed over the phone on February 14, 2024)

A) Current Concerns

The resident claimed to have had persistent skin irritation when using the water and which the resident stated was continuing at the time of the interview.

B) Historical Concerns

The resident moved into the current home in 2019.

At the beginning of the Incident, the resident claimed to have observed a sheen in the water but has not observed a sheen in the water since then. Resident recalled that no one received appropriate notice of what was happening with the drinking water but resident believes it became apparent that something was wrong with the water.

Since the Incident, the resident claimed to have had skin issues such as eczema and hair loss in clumps. In addition, the resident claimed to have developed thyroid nodules. The resident believed that numerous neighbors also developed nodules and itchy skin. The resident claimed that resident's spouse did not have any symptoms.

The resident stated they used bottled water for drinking and cooking. Whenever resident has used the water from the tap, the resident claimed the skin gets itchy so resident has avoided water use to the extent possible. Water use was primarily for dishwashing and showering.

C) Navy Response

Resident stated Navy personnel visited on February 13, 2024, drained all the water from the hot water heater, and took samples before and after draining the water. Resident also received a factsheet and did not note any issues with the Navy's response.

In regard to alternative water, resident stated alternative water was not provided after sampling and that resident needed to pick up alternative water. The resident stated that the amount of alternative water provided was not sufficient for the whole family.

D) LTM Results on Safe Waters Website

One set of samples was collected January 15, 2024. No TPH was detected and lead was detected at 0.19 ppb. As of the date of this report, there were no results on the website for a February 13, 2024 visit.

Resident #4 (Interviewed in-person on February 14, 2024)

A) Current Concerns

In late December 2023, resident claimed to have experienced bloodshot eyes after showering. This symptom also occurred with shower steam when the water was running but the resident was not showering. Resident and spouse claimed to have experienced skin issues such as blistering. Resident also observed a sheen in the water in December 2023 and resident claimed the water could be lit on fire at that time. Resident stated that the water used to catch fire much more frequently right after the Incident. Resident explained that when sheen shows up in the tap water, its appearance would vary – sometimes the sheen would be murky, white, rainbow-y, and/or swirly. Lastly, resident observed a chemical odor from the water that resident suspected to be bleach. Resident has observed a chemical smell periodically in the water.

The week prior to our visit, resident received notice of a water main break and that water should be flushed.

While in the resident's home, I asked if we could observe the water from the kitchen tap. We pulled a cold water and hot water sample into two different trays – we did not observe a sheen in the water.

B) Historical Concerns

Resident and resident's spouse have lived in the house since 2019 with two kids and the resident's parent came to live in the home as well in February 2020.

Soon after the Incident, resident claimed to have experienced neurological issues such as memory loss. Throughout the end of 2021 and 2022, resident claimed skin felt inflamed after exposure to the tap water. In addition, the resident claimed other symptoms after the Incident, including, but not limited to vomiting, greasy hair after showering, rashes, scalp burning, and headaches. In addition, resident claimed to have a large growth on the roof of the mouth.

According to the resident, the resident's two dogs became very ill in December 2021 and the veterinarian diagnosed the dogs with hydrocarbon toxicity. The dogs passed away soon after the Incident. Resident recalled lawns dying after watering soon after the Incident. Resident believed that the neighborhood had an increased number of miscarriages after the Incident and that neighbors had many similar symptoms.

Resident recounted a meeting on November 30, 2021, where Navy stated that they did not know what was in the water, but it was safe to drink after running the water for 3-5 minutes. Resident expressed a lack of trust in Navy ever since being misled and lied to about the water quality during the Incident.

In January 2022, the resident stated the hot water heater was flushed but issues persisted.

C) Navy Response

In late December 2023, resident contacted the EOC and Navy personnel visited to collect samples from upstairs and downstairs. Resident stated alternative water was not offered but after requesting alternative water during the visit, six boxes of boxed water were provided. The test results came back fairly quickly and the resident also received a phone call. Resident claimed to request hot water heater testing and was declined.

The alternative water that was provided was a boxed water called Sofia. Resident stated that some of the boxes were past the expiration date. Resident also recalled having also possibly receiving Aquafina bottled water.

On February 6, 2024, resident claimed that Navy personnel visited the home to collect samples. Resident did not receive answers to questions posed to the Navy representative. One of the questions posed was why only cold water samples were collected and no answer was provided. Resident claimed that the Navy representative was going to inform a supervisor who would call back but that no supervisor ever contacted the resident. Resident also claimed a request for hot water samples instead of cold water samples was declined.

On February 10, 2024, a Navy representative reached out to the resident to inquire if there was anything Navy can do to assist. Resident requested enough alternative water to take a bath

(approximately 50-70 gallons) and the Navy representative stated this request would need supervisor approval. After repeated calls, the resident claimed not to have received a clear answer to the request as of the date of the interview.

D) LTM Results on Safe Waters Website

One set of samples was collected at this residence on December 24, 2023. No TPH was detected and lead was detected at 0.25 ppb. As of the date of this report, there were no results on the website for a February 6, 2024 visit.

E) Medical Care

Resident claimed to have sought medical care from Red Hill Clinic soon after it opened in January 2022 but that when resident showed up in-person no one was present, and that afterward resident was able to schedule an appointment but it was later canceled. Resident tried to schedule another appointment but it was again later canceled according to resident. Resident stated the Red Hill Clinic was advertised as always available but did not believe this to be the case. Resident claimed to have never successfully spoke to a doctor at Red Hill Clinic and gave up trying to do so.

Resident #5 (Interviewed in-person on February 15, 2024)

Resident had a neighbor (Resident #6) present to participate in the interview. Both residents claimed that they knew symptoms could not be proven to be linked to drinking water but circumstances of everything described have led them to believe that symptoms could likely be connected to the water. A member of the Community Representation Initiative (CRI) also visited in the middle of the interview to listen. This resident's home was located within the AMR System's service area.

A) Current Concerns

On January 26, 2024, resident claimed to feel ill and stomach was very aggravated. Resident recalled observing a sheen in the water during this time. Resident claimed having to have recently experienced hair loss in clumps and skin irritation but that the skin irritation was not outwardly visible like a rash. Resident noted the gastrointestinal issues had improved from a week prior.

Resident stated resident's child began to have bouts of vertigo and migraines on an almost daily basis starting in December 2023 or January 2024. These symptoms typically manifested after showering.

In early February 2024, resident recalled burning eyes while showering and speculated whether it was related to chlorine.

B) Historical Concerns

Resident claimed that resident, resident's spouse, and all kids have been drinking the water since August 2022. Resident noted an increase in UTIs since then. In addition, resident had blood in the urine for two weeks in October or November 2022.

Resident claims the resident's two-year old child had never had a solid stool movement since birth and that Resident's three-year old child has had gastrointestinal issues and loose stool most of the child's life. Resident noted that when the family went to the mainland for a couple of months in 2022 and 2023, the three-year old child's stool was normal. The resident's nine-year old child has also had gastrointestinal issues according to the resident.

Resident noted despite all the kids bathing before bedtime, all of the children have experienced itchiness, particularly during nighttime.

C) Navy Response

In March 2022, resident claimed to have contacted the EOC and that Navy representatives flushed the water within the home, collected samples, but that resident did not receive results.

In May or June 2022, resident claimed to contact the EOC again because the resident's guests who were visiting had become ill. Resident had asked for a new hot water heater but was declined.

On January 4, 2024, resident called the EOC and asked for a new hot water heater. The EOC representative stated that this request would need to be made to Island Palm Community (IPC). IPC is a contractor for the Army that manages all the homes in AMR. Navy also sent out representatives on January 8, 2024, to collect samples. By January 28, 2024, resident claimed results from the LTM samples still had not been sent so resident called EOC. The Navy representative attempted to help acquire results but was not successful. On February 8, 2024, resident received results. Resident showed a copy of the results and the TPH level was 52.7 ppb. The resident did not like the overall communication and the delay in getting results. Resident asked for results from the March 2022 sampling but was not successful. Instead, according to resident, the EOC noted that a total organic carbon test was collected on December 2, 2021. The resident found this disturbing because resident was confident that no one from Navy had visited the home during this timeframe and resident had not let anyone in to collect a sample on this date.

The resident received alternative water after Navy visited in January 2024. Resident received boxes of Sofia boxed water, which resident and Resident #6 both agreed did not taste good and they wouldn't drink it.

D) LTM Results on Safe Waters Website

Two sets of samples were collected on January 8, 2024. One sample location had a TPH detection of 52.7 ppb and lead detection of 0.21 ppb. The second sample was non-detect for TPH and lead.

E) Medical Care

Resident described going to Red Hill Clinic on January 24, 2024 to document concerns. Resident ultimately decided to decline care due to concern about getting flagged for identifying medical

issues which could potentially lead to splitting the family up when the spouse was sent for a permanent change in residence.

Resident explained the Exceptional Family Member Program (EFMP). Resident's understanding of the program was that family members can be separated if a family member is flagged, and it is deemed that appropriate medical care cannot be provided for the documented medical concerns at a new permanent duty station. Resident was scared to seek full medical care due to the chance that issues identified during medical care could lead to the spouse moving to a new permanent duty station while the rest of the family could not be relocated as well. Resident #6 agreed with the concern of family separation.

[Resident #6 \(Interviewed in-person on February 15, 2024\)](#)

This resident's home was located within the AMR System's service area.

A) Current Concerns

Resident moved into the current home on AMR in March 2021. Resident does not drink the water but does use it for showering. Resident described how spouse has had scalp irritation and hair loss, possibly linked to showering. Spouse prefers to shower on a naval ship instead, where there has been no scalp irritation while showering.

B) Historical Concerns

Since the summer of 2021, resident described how mastitis, frequent UTI and bladder infections began to occur. Resident did not know for sure if these were linked to the drinking water but believed this was the case. Resident stopped drinking the tap water in December 2021. Resident's child has had increased diaper rash, dry skin and eczema but resident acknowledged uncertainty about any linkage to the tap water. Resident's family has not had gastrointestinal issues similar to Resident #5.

C) Navy Response

Resident has not reached out to the EOC before.

D) LTM Results on Safe Waters Website

I was unable to check any results as I do not have resident's address. In addition, resident has not called the EOC to request samples.

[Resident #7 \(Interviewed in-person on February 15, 2024\)](#)

This resident's home was located within the AMR System's service area.

A) Current Concerns

Resident claimed to have had migraines within the past couple of weeks, which resident had been treated for since the Incident. Resident described how one of the resident's children has had an ongoing asthma flare-up. All of the resident's children had stomach aches the past two

weeks and persisted at the time of the inspection. None of the residents drink the tap water. Residents use the water for brushing teeth and bathing.

Resident stated the master bathroom sink had a chemical smell, but not chlorine, around 5-6 times over the past couple of months. Resident did not observe this odor prior to these instances. About a month prior, the smell was potent enough to cause a burning throat feeling. Resident has not noted any sheen in the water.

Resident also had outdoor air quality concerns and expressed interest in Navy providing real time results for any air quality monitoring. Resident observed the Navy install an air quality monitor in the neighborhood. I asked about specific concerns; resident did not have any specific air quality concerns, just concerns in general due to one of the children having asthma. Resident was not concerned about indoor air quality due to multiple air filters continuously running within the home.

B) Historical Concerns

Resident moved to the current residence in December 2020. Resident claimed to have migraines every day post-Incident. Resident managed to treat it with prescribed drugs but described how the migraines had made a resurgence in the past couple of weeks. Resident believed the migraines were more likely to occur after showering and the migraines could linger all day.

Resident described how resident's child was diagnosed in April 2022 with asthma and that child also has had recurring ear infections to the point of temporary hearing loss at one point.

C) Navy Response

Resident stated the Navy contacted resident on February 9, 2024, and subsequently visited the home on February 12, 2024. Navy personnel took samples from the kitchen and bathroom sink. Resident stated personnel took rapid response samples and left; maybe 20 minutes later another team visited to take a sample upstairs. Resident was offered alternative water but declined the offer. Resident was contacted the evening of February 12, 2024, regarding the results of the rapid response tests, and was informed the LTM results would be come in March 2024.

D) LTM Results on Safe Waters Website

I was unable to locate LTM results associated with the residence on the website. As of the date of this report, there were no results on the website for a February 9, 2024 visit.

E) Medical Care

Resident claimed to visit Makalapa Clinic to see a pediatrician in early 2022. According to resident, the doctor stated the total exposure to jet fuel was minimal enough that there should be no side effects.

Resident #8 (Interviewed in-person on February 15, 2024)

CRI members were present for the sample collection and interview.

A) Current Concerns

Residents do not drink the water and had installed a GAC filtration device at the point of entry into the home. The filter was installed in summer of 2022. The water was used for showering and cleaning dishes.

Within the last month, resident stated that all residents in the home had experienced skin irritation. The irritation typically manifested as red, inflamed skin and lasted most of the day.

Resident did not have any observations regarding the water itself such as sheen or odor.

B) Historical Concerns

Resident claimed to have persistent symptoms since the Incident, including, but not limited to gastrointestinal issues, gallbladder had to be removed, vision issues, tremors, and fatigue. Symptoms come and go. Resident had a toxicological screen done and stated the results included high PFAS and pesticide levels within the body. Resident stated any drinking water samples collected by Navy should include PFAS and pesticides.

Resident claimed resident's spouse was diagnosed with small fiber neuropathy sometime after the Incident. Resident did not know if it was related to contaminated water. Resident described how the pet dog became fatigued and had ragged breathing soon after the Incident and subsequently passed away in summer 2022.

C) Navy Response

Navy personnel were actively collecting LTM samples from the hallway bathroom when we arrived at the home. A Navy representative was onsite to answer any questions and discuss drinking water concerns. DOH staff was also present to oversee the sample collection.

In addition, in response to resident's request for a replacement hot water heater, Hickam Communities, a contractor that manages the homes located within Joint Base Pearl Harbor-Hickam, had personnel assessing the hot water heater at the time of visit and had drained the heater entirely.

Resident stated Navy had visited the home approximately six months prior and results were non-detect. The sampling was collected after resident had signed up from a booth that was set-up, not as a result of a direct complaint.

Resident expressed interest in hot water heater testing but had been declined previously.

D) LTM Results on Safe Waters Website

Two sets of samples were collected on September 8, 2023. Both samples did not detect TPH and lead was detected in both samples at 0.17 ppb. As of the date of this report, there were no results on the website for a February 15, 2024 visit.

Resident #9 (Interviewed over the phone on February 15, 2024)

This resident's home was located within the AMR System's service area.

A) Current Concerns

Beginning in February 2024, resident claimed resident's child had nausea and vomiting while resident has had nausea, a skin rash, and gastrointestinal issues. Resident's spouse has had vertigo.

Resident claimed to observe a sheen on the water on February 13, 2024. Resident added a sheen was not always present but did observe a sheen frequently.

Resident does not drink the water. Resident has water delivered from Menehune Water Company frequently and also has filters. The tap water was used for laundry and dishwashing.

B) Historical Concerns

I did not have a conversation with the resident about historical concerns due to limited time.

C) Navy Response

Resident stated Navy representatives visited the home in early February to collect rapid response samples and Navy was planning to visit the home on February 19, 2024 to collect LTM samples. Resident was offered alternative water (5 cases) and Navy was going to bring another five cases on February 19. Resident expressed interest in sampling at the utility tub and the downstairs bathroom sink.

Resident expressed frustration and anger over the lack of accountability for the Incident and overall mistrust of Navy. Resident stated the Navy should provide water filters to all homes and also reinstate the alternative water distribution centers that were set up during the Incident.

D) LTM Results on Safe Waters Website

I was unable to check the website for any samples collected as I did not receive the home address for this resident.

Resident #10 (Interviewed in-person on February 15, 2024)

A) Current Concerns

Resident did not express any recent concerns with the water. Resident has not noticed a sheen in the water lately but resident has also not examined the water in a long time as resident claimed it causes stress.

B) Historical Concerns

Resident moved in June 2021. According to resident, resident was diagnosed with contact dermatitis in May 2022. Resident's skin irritation was worse in May 2022 than the irritation immediately after the Incident. Resident stated showering felt like razor blades. Resident stated the pet cat became sick drinking the water in May 2022.

Resident showed us coffee mugs that resident claimed has been kept untouched since May 2022 – the mugs had previously stored water from May 2022 and had significant white build up. Resident explained that the calcium levels in the water would not leave the amount of white build up that we observed. Resident estimated a sheen or film on the water was last observed in October 2023.

Resident described flushing the home numerous times by running water for multiple hours in a row. Resident claimed to also have flushed the hot water heater many times; every time the hot water heaters were flushed, a bunch of white build up would come out of the hose (resident showed a video on the phone to us). After trying many different water filters, in November 2022 resident found a filter for the shower (called Hydrovive) that helped alleviate skin irritation. The resident's skin still becomes irritated occasionally since the filter was installed but overall symptoms have been OK.

Resident claimed to have other symptoms such as migraines, memory fog, and blurry vision, which the resident had never had prior to the Incident. Resident acknowledged uncertainty whether these symptoms were related to the water or possibly due to stress and post-traumatic stress disorder caused by the Incident.

C) Navy Response

Resident claimed to call the EOC in May 2022 for the skin irritation but never received the result for the rapid response test. After calling the EOC about the rapid response test result, resident claimed Navy informed resident the result was not entered into the database; Navy visited the home again a week later.

Resident noted Navy provided inconsistent messaging. One person on the phone stated no one has called the EOC with drinking water problems but then later a NAVFAC representative stated they were swamped with calls.

Resident claimed a Navy chemist visited the home to collect LTM samples on May 20, 2022, which included collecting cold and hot samples. The cold water sample results were posted online but there were no other results. Resident has requested hot water sample results but had not ever seen hot water sample results.

Resident lost trust in Navy after these responses and resolved to never call again. Resident did not want to trigger PTSD from the dissonance of being told the water was safe while personally observing concerns with the water and experiencing symptoms.

In March 2023, resident had the hot water heater replaced. Resident was uncertain whether conditions improved after replacement.

D) LTM Results on Safe Waters Website

One set of samples was collected on May 20, 2022. No TPH was detected in the sample and lead was detected at 0.32 ppb.

Resident #11 (Interviewed in-person on February 15, 2024)

A CRI member visited to listen to a portion of the interview.

A) Current Concerns

On January 3, 2024, resident described how resident's two children drank water from the refrigerator. The first child drank the water and screamed about a burning mouth and throat pain. Child's sibling subsequently tried the water and had a similar response. Resident recounted taking the two children to the emergency room; the doctor informed the resident the children were sick due to exposure to the water. The younger child has gastrointestinal issues for two weeks after ingesting the water. On the same night, resident noted a chemical odor from the water while showering.

Prior to this episode, residents used the water for cooking and drinking but now use bottled water. No one has drunk the water from the refrigerator since the children became sick.

On February 4, 2024, resident claimed to have observed a sheen in the water from the refrigerator. Resident installed a shower filter on February 5, 2024, and then a filter under the kitchen sink a week prior to our visit. The fridge filter was replaced on February 8, 2024.

Resident's spouse pulled a sample into a nonstick pan. We all observed a light sheen close to the edge of the pan. We dispersed the sheen with a toothpick and the sheen did not reform. I will note there was a high potential for localized contamination from using a nonstick pan.

B) Historical Concerns

Residents lived on Ford Island during the Incident. Resident claimed all the household members had respiratory issues after the Incident and random fevers, and that resident and the spouse both had rashes. Most symptoms disappeared after moving into the hotel room offered to residents from December 2021 through March 2022. The random fevers persisted through the hotel stay and only stopped in early 2023.

In April 2022, resident moved into their current home after living at Ford Island for one more month; resident stated that one child became ill with bloody stool, vomiting and rash on the body. The bloodwork was negative for virus and bacteria. The child spent four nights in the hospital, drank the water upon returning home, and then subsequently went back to the hospital for another three days.

Throughout their stay in the current home since April 2022, residents have noted a few observations. Resident has noticed a chemical odor to the water infrequently, sometimes

resembling chlorine, sometimes sulfur. Resident's spouse has had sporadic eczema on the back, chest and behind the ears. Resident has had periodic large bruises on the legs even though resident had not bumped into anything.

During December 2023, resident claimed to have had a stroke event and that doctors believed it was migraines while the radiologist believed it was stroke. The symptoms included blurry vision, slurring, and weakness on the left side of the body. This stroke/migraine had happened two times prior to this event. Resident acknowledged these symptoms could not be directly connected to the drinking water but resident stated there was no family history of stroke or migraines.

C) Navy Response

Resident called EOC on January 3, 2024, and the Navy representative on the phone informed resident that the home was not served by JBPHH. Resident noted that the representative was very rude and unprofessional. On January 4, 2024, a Navy representative called resident back stating Navy will move forward with sampling anyway; this representative was much kinder and professional. A rapid response test was collected on January 4, 2024, and resident was provided ten boxes of Sofia water. Housing maintenance crew flushed the house on January 5, 2024. On January 9, 2024, DOH confirmed the home was served by Navy and not the Honolulu Board of Water Supply. On January 22, 2024, Navy contacted resident regarding LTM sampling; LTM samples were collected January 24, 2024. On February 8, 2024, resident received the LTM results and also received a phone call.

Resident stated they have been apprehensive to report any issues to the EOC due to potential reprisal and retribution. The January 3, 2024 event was acute enough that resident felt the need to report anyway.

D) LTM Results on Safe Waters Website

Two sets of samples were collected on January 24, 2024. Both samples did not detect TPH and lead was detected at 0.41 ppb and .44 ppb.

[Resident #12 \(Interviewed over the phone on February 16, 2024\)](#)

This resident's home was located within the AMR System's service area.

A) Current Concerns

Resident noticed an increase in drinking water concerns on Facebook in January 2024.

Resident's spouse observed a sheen in the water on January 31, 2024. Resident and spouse began experiencing dry faces and scaly skin in January 2024. The face would sometimes feel like it was on fire while showering.

Resident hadn't looked for a sheen in the water since January 31, 2024. Residents don't drink, cook, or brush with the water. Residents did not observe any other concerns with the water.

B) Historical Concerns

Resident has lived in the home since summer 2021. In late November 2021, one child vomited right after bath. Three of the children developed rashes after bathing around this time. All the kids had hair falling off in clumps.

Child #4 had chemical burns after bathing on the torso area; this happened a few times. This child did not develop rashes like the other three children. Resident took this child to the doctor but the doctor was dismissive.

Resident had dandruff and neck rash periodically. Symptoms had mostly subsided by the end of 2022 and early 2023. In January 2024, symptoms began to appear again.

C) Navy Response

In 2022, resident stated the EOC sent representatives a handful of times to collect rapid response tests and flush the water. The Navy always said the water was OK.

Resident's spouse called EOC on January 31, 2024 and resident claimed the Navy representative was rude and doubtful of any of the claims. A different Navy representative called back later and was very kind and professional. Navy visited the home on February 5, 2024 to collect samples. A Navy representative came out to speak with the resident about concerns. Alternative water was offered but declined as resident already had bottled water.

D) LTM Results on Safe Waters Website

I was unable to check the website for any samples collected as I did not receive the address for this resident.

E) Medical Care

The resident experienced temporary paralysis (a couple of minutes) in one hand at the end of 2022 and went to Red Hill Clinic. Resident was washing more dishes than usual and the paralysis happened soon after. Resident acknowledged uncertainty about the linkage to water exposure. The doctor was dismissive of resident's concerns. This temporary hand paralysis had happened one additional time prior to the visit to the clinic and also was after dishwashing.

[Resident #13 \(Interviewed over the phone on February 16, 2024\)](#)

A) Current Concerns

Resident did not note any current concerns as resident does not typically touch the tap water except for washing clothes with cold water.

B) Historical Concerns

Resident has lived in the current home for 8-9 years.

Unlike other residents I spoke with, this resident described concerns starting from 2015. Resident's child had gastrointestinal issues, diarrhea, vomiting, chest pain, and headaches. The child visited Tripler Army Medical Center but the doctors were unsure of the cause and ruled

out viruses. In 2019, an Army specialist assessed the child and stated the child's symptoms were environmental related and ruled out allergies or mold exposure. Resident attempted to keep the air conditioning unit for the house clean and maintained good indoor air quality in case it was the cause. Resident believed that the child's health issues were most likely linked to the drinking water as all other potential causes were systemically ruled out (i.e., allergies, mold, virus, air quality) and the specialist believed it was environmental.

Resident first heard about the Red Hill Bulk Fuel Storage Facility in 2019 from another resident in a community meeting. Resident remembered other neighbors discussing a sheen and strong smell prior to 2021.

Resident discussed how no one had received any guidance in November/early December 2021 and everyone had to figure things out by themselves. In November 2021, resident was bedridden and the emergency room stated it was not a virus or COVID-19. Resident was lethargic, had vertigo, and difficulty breathing. Resident had hair loss in clumps. All symptoms disappeared after switching to bottled water.

Since December 5, 2021, resident has done everything possible to avoid exposure to the water. Resident only washes clothes with cold water because resident wants to avoid using the hot water heater. The hot water heater has been off since January 2022. Resident washes all dishes with gloves and bathed using alternative water.

Residents in the homes have had healthier skin and hair since they have stopped touching the tap water. The child's symptoms have mostly resolved with the exception of hives in February 2022 when the child used the water to face wash.

C) Navy Response

In January or February 2023, resident claimed to have called the EOC due to experiencing hives after touching cold water from the washer. The Navy representative was rude and dismissive according to the resident. Navy representatives came out and took LTM samples. Resident stated that dealing with the EOC was like "pulling out someone's tooth" and swore to never call again after the poor experience.

Resident stated appreciation for Navy leadership's recent statements compared to the initial response after the Incident but it was difficult to trust the statements although the resident would like to be able to trust them.

D) LTM Results on Safe Waters Website

I was unable to check the website for any samples collected as I did not receive the address for this resident.

SECTION III – SUMMARY AND RECOMMENDATIONS

After conducting an investigation into the drinking water concerns, a summary of the observations and recommendations are provided below for the Navy's consideration:

Summary

1. Navy has incorporated the recommendations from the December 2023 *EPA Drinking Water Complaints Investigation Report* into its complaint response protocol. Below, see the December 2023 report's recommendations and a description of Navy's response:

Recommendation #1: "Ensure that any representatives that engage with residents are trained to clearly communicate their mission and how residents will receive results. Results should be conveyed to the residents within 24-48 hours of Navy's notification of the sample results."

Response: Navy sent a representative with the sampling team to discuss drinking water concerns and answer any questions. Rapid response test results were typically conveyed to residents within 24-48 hours. Navy typically provided results via email and phone call. We were unable to verify delivery of LTM results within 24-48 hours but it appeared residents received LTM results within a couple weeks of sampling. Only one resident appeared to have a longer than normal wait period for the LTM sample results.

Recommendation #2: "A one-page pamphlet may be an effective way for representatives to easily convey a clear and consistent message to all residents."

Response: A number of residents reported receiving written information, which is consistent with the recommendation to provide a one-page pamphlet with important information. We did not observe a copy of the document to verify the contents.

Recommendation #3: "A number of complaints were associated with bathing, which may indicate an issue with water heaters at the homes. Inspection and/or sampling of water heaters and premise plumbing may help identify potential causes. Investigate whether flushing, maintenance and/or replacement of the water heaters at affected homes may resolve symptoms."

Response: Navy initiated a premise plumbing investigation in November 2021 and released a preliminary premise plumbing assessment on March 13, 2024⁶. This report does not evaluate the results of the premise plumbing investigation.

Recommendations #4, #5, and #6: These three recommendations pertain to investigating the root cause of the TPH detections, the occasional sheen seen in the water, and the cause of symptoms.

⁶ Weblink to the *Preliminary Premise Plumbing Assessment and Water Heater Sampling Summary*: https://jbphh-safewaters.org/public/Premise_Plumbing_Assessment_03072024.pdf

Response: In addition to the premise plumbing investigation, Navy has been conducting in-depth laboratory analysis of the TPH detections to understand the root cause of the TPH detections and whether these detections are actually related to JP-5 or if there is another cause. EPA and DOH have been working with Navy in an attempt to identify the potential root cause(s). Navy will continue to collect drinking water samples after the LTM Plan expires with a more targeted list of contaminants in an attempt to determine a root cause. This report does not evaluate the Navy's investigation into the root cause of TPH detections.

Recommendation #7: "Navy should consider providing alternative water to any residents that alert the EOC of drinking water concerns, especially if waiting for sampling results or longer investigations."

Response: Navy typically offered alternative water when representatives visited the home. A couple of homes were not initially offered alternative water but Navy promptly provided alternative water upon request.

2. While Navy's complaint response process has improved, Residents 11, 12, and 13 claimed to have encountered a Navy representative that was unprofessional over the phone.
3. Below is a summary of symptoms and water use based on descriptions provided by interviewed residents:
 - a. Six of the residents reported observing a sheen in the water within the last couple of months.
 - b. All thirteen residents claim to have experienced some manifestation of skin irritation between now and the Incident. Ten of the residents claimed to have had skin irritation within the past couple of months.
 - c. Six of the residents reported hair loss at some point since the Incident.
 - d. Ten of the residents reported only drinking alternative water.
 - e. Five of the residents reported gastrointestinal issues in the past couple of months. All three homes with residents who ingested the tap water reported gastrointestinal issues.
4. Five of the residents expressed dissatisfaction with the type of alternative water provided and/or the amount of alternative water provided.
5. Of the seven homes that had LTM sample results available on the Safe Waters website, one home had a TPH detection just above 50 ppb and the rest were non-detect for TPH.
6. Almost all of the residents discussed without prompting an overall lack of trust in Navy after their initial response to the Incident. Some residents were no longer regularly reporting concerns to the EOC either due to fear of reprisal or lack of confidence in any actual action taken besides stating the water was safe. Residents who went also described negative experiences with the Red Hill Clinic.
7. Four of the residents did not have LTM results available on the Safe Waters website for samples collected in February 2024 as of the date of this report.

Recommendations

1. A number of residents claimed to have observed a sheen, thus, Navy may want to add as part of its rapid response protocol the capability to collect drinking water sheen samples whenever Navy representatives visit a home following a drinking water complaint related to a reported sheen.
2. Residents of JBPHH and AMR lack trust in Navy to take action to protect human health and some are apprehensive of reprisal. Navy should consider developing an outreach plan to communicate to residents any protections that are in place to protect individuals from retaliation when filing a complaint to the EOC and/or receiving care from military-operated medical facilities.
3. Navy may want to consider developing a standard operating procedure for managing alternative water that takes the following into consideration:
 - a. An evaluation of alternative water provider(s);
 - b. Process to ensure that water delivered is not expired;
 - c. Evaluation of the amount provided per person and when exceptions may be warranted; and
 - d. Determine criteria for when alternative water distribution centers should be set up.

Should you have any questions regarding this report, please direct them to:

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