



STATE OF HAWAII  
DEPARTMENT OF HEALTH  
P.O. BOX 3378  
HONOLULU, HAWAII 96801-3378

In reply, please refer to:  
File: SDWB  
Delao03.docx

June 8, 2020

Captain Marc R. Delao  
Regional Engineer  
Navy Region Hawaii  
850 Ticonderoga St. STE 110  
Joint Base Pearl Harbor Hickam, Hawaii 96860  
[via [marc.delao@navy.mil](mailto:marc.delao@navy.mil) only]

Attention: CDR Darrel E. Frame  
[via [darrel.e.frame@navy.mil](mailto:darrel.e.frame@navy.mil) only]

Dear Captain Delao:

SUBJECT: Red Hill Shaft Drinking Water Sample Results and Analysis  
Joint Base Pearl Harbor-Hickam (JBPHH) Public Water System (PWS 360)

The Hawaii Department of Health (DOH) has reviewed your June 5, 2020 letter explaining the above subject and indicating your “plan to bring the Red Hill water shaft back online no later than June 8, 2020,” as well as the following laboratory analyses and maps:

1. *Eurofins Eaton Analytical Laboratory Report #483698CN*, dated 05/08/2020 (24 pages - Laboratory Job Number 280-135767-1; Client Project/Site: Drinking Water - 20-04964; JBPHH Red Hill 356-011, TP001 (2)).
  - a. Sample 4610931 (2) collected 4/15/2020; Method EPA 8015D & 3510C.
2. *Eurofins Eaton Analytical Report Job Number 280-135767-1*, dated 05/14/2020 (182 pages).
  - a. Sample 4610931 (2) collected 4/15/2020; Method EPA 8015D & 3510C.
3. JBPHH Water System map [For Official Use Only – FOIA and/or Privacy Act Protected], undated (1 page) - DBP1 and DBP2 sample points identified.
4. Red Hill drinking water vicinity map, Red Hill drinking water shaft sample points map and photos [PRIVILEGED; FOR OFFICIAL USE ONLY BY THE AOC PARTIES ONLY], undated (3 pages) - Pre-chlorination and Post-chlorination sample points identified.
5. *APPL, Inc. Data Validatable Report, Report of Data: Case 92186 Revision*, dated May 29, 2020 (71 pages – Project: 60571032 CV18F0126 Red Hill Fuel Storage. HI) [both from post-chlorination sampling point = PWS Sample ID 360-011].

- a. Sample ERH 1089 collected 5/13/2020; Method EPA 8015B-eHL.
  - b. Sample ERH 1090 collected 5/13/2020; Method EPA 8015B-eHL.
6. *APPL, Inc. Data Validatable Report, Report of Data: Case 92261*, dated June 1, 2020 (326 pages – Project: 60571032 CV18F0126 Red Hill Fuel Storage. HI).
- a. Sample ERH 1094 collected 5/20/2020; Method EPA 8260B.
  - b. Sample ERH 1095 collected 5/20/2020; Method EPA 8260B & 8015B-eHL.
  - c. Sample ERH 1096 collected 5/20/2020; Method EPA 8260B & 8015B-eHL.
  - d. Sample ERH 1097 collected 5/20/2020; Method EPA 8260B & 8015B-eHL.

The Safe Drinking Water Branch (SDWB) mission is to safeguard public health by protecting Hawaii's drinking water sources (surface water and groundwater) from contamination and assure that owners and operators of public water systems provide safe drinking water to the community. As such, the SDWB, Solid and Hazardous Waste Branch (SHWB), and Hazard Evaluation and Emergency Response (HEER) Office have the following comments and additional release response actions:

**Before restarting the pumps, the Navy shall:**

1. Provide scientific literature and/or studies to confirm the chemist's suggestions "that the results were due to disinfection byproducts from using chlorine as a disinfectant in our drinking water."
  - a. What changes to the chlorination process have occurred in the past 12-month period?
  - b. Have there been any other drinking water distribution process changes at Red Hill Monitoring Well (RHMW) 2254-01?
  - c. Clarify whether the Sample 360-011 [Methods 524.2 (VOCs), 525.2 (SVOCs), 8015B (JP-8/F-24 and TPH-o), and 200.8 (Lead)] referenced as collected in March 2020 in the *Quarterly Release Response Report Red Hill Bulk Fuel Storage Facility*, April 2020 (Quarter 1 Drinking Water Test Results) was actually the sample collected on 4/15/2020.
  - d. Clarify that the "JBPHH Red Hill 356-011" cited throughout the *Eurofins Eaton Analytical Laboratory Report #483698CN*, dated 05/08/2020, should be corrected to "JBPHH Red Hill 360-011."
  - e. Clarify that there were four (4) samples collected and received (pages 9 & 11) for *APPL, Inc. Data Validatable Report, Report of Data: Case 92261*, dated June 1, 2020 (326 pages – Project: 60571032 CV18F0126 Red Hill Fuel Storage. HI). The cover letter indicates that only three (3) samples were received.

- f. Confirm the locations of the four (4) samples collected on 5/20/2020:
  - i. Pre-chlorination sampling point = RHMW2254-01 = PWS Sample ID 360-001.
  - ii. Post-chlorination sampling point = Bldg. 287.
2. Provide a comparison of the chromatograph between the sample and the dissolved constituents of fresh fuel in contact with water. As the dissolved compounds weather, the chromatograph of a water sample will change dramatically. The fact that the sample does not fingerprint to fuel does not mean the parent compounds were not fuel-related hydrocarbons. A comparison of data and chromatograms for nonvolatile, dissolved organic compound (NVDOC) in samples from wells suspected to be impacted to data and chromatograms for unimpacted, background wells can help to better evaluate this issue.
3. Provide consumer messaging for DOH review and concurrence. We have enclosed a template which was based upon the February 5, 2014 DOH News Release No. 14-007.
4. Distribute DOH approved consumer messaging to PWS 360 JBPHH consumers.
5. Restart the pumps at a relative low pumping rate of 1.0 million gallons per day (MGD) for a period of 30 calendar days, unless otherwise directed by DOH. As of 9/24/2019, the flow reported by the Navy to the SDWB for the entire PWS 360 (Aiea-Halawa Shaft, Red Hill Shaft, and Waiawa Shaft) is 18.748 MGD. According to the Department of Land and Natural Resources, Commission on Water Resource Management, Island Water Use Permit Index, dated January 19, 2010, the allocation for the Navy's Red Hill Shaft is 4.659 MGD, the Aiea-Halawa Shaft is 0.697 MGD, and the Waiawa Shaft 14.977 MGD.

**After restarting the pumps, the Navy shall monitor and report:**

1. At three (3) Sample Points.
  - a. PWS Sample ID 360-011, Tap Outside Chlorine Building (SDWB regulatory sample point).
  - b. RHMW Sample ID 2254-01 = PWS Sample ID 360-001, Red Hill Shaft Pumphead (pre-chlorination sample point and SDWB regulatory sample point).
  - c. Bldg. 287 (post-chlorination non-regulatory sample point).
2. For the duration of the use of the Red Hill Shaft for drinking water purposes on the following frequencies:
  - a. Weekly for one (1) month.
  - b. Monthly for (6-12 additional months).

- c. Quarterly frequency, thereafter unless otherwise directed by DOH.
3. For the following parameters using the listed Test Method:
- a. VOCs full scan (include chlorinated compounds, alcohols, aldehydes, ketones; Method EPA 524.2).
  - b. SVOCs full scan (include chlorinated compounds, alcohols, aldehydes, ketones; Method EPA 525.2).
  - c. Gas Chromatography for JP-8/F-24 (Method EPA 8015, TPH-D).
  - d. Lead (Method EPA 200.8).
  - e. Dissolved Organic Carbon (DOC) with volatile fraction purged NVDOC (SM Method 5310C).

If you have any questions, please contact Ms. Joanna L. Seto, P.E., SDWB Engineering Program Manager, at 586-4258 or [sdwb@doh.hawaii.gov](mailto:sdwb@doh.hawaii.gov).

Sincerely,



KEITH E. KAWAOKA, D. Env.  
Deputy Director for Environmental Health

JS:mc

Enclosure: Suggested Consumer Messaging Template for the Navy

- c: Ms. Corine Li and Ms. Anna Yen, Drinking Water Section (WTR-4-1), EPA Region 9 Water Division (w/encl.) [via [li.corine@epa.gov](mailto:li.corine@epa.gov) and [yen.anna@epa.gov](mailto:yen.anna@epa.gov) only]
- Mr. Steven Linder, EPA Red Hill Project Coordinator, U.S. EPA Region 9 (w/encl.) [via [linder.steven@epa.gov](mailto:linder.steven@epa.gov) only]
- Ms. Lene Ichinotsubo and Ms. Roxanne Kwan, SHWB (w/encl.) [via email only]
- Ms. Gabrielle Grange and Dr. Roger Brewer, HEER (w/encl.) [via email only]

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## CHEMICALS DETECTED IN JOINT BASE PEARL HARBOR HICKAM WATER SYSTEM

*Findings do not represent health threat*  
*(insert date)*

JBPHH is notifying our consumers that chemicals have been detected in the Joint Base Pearl Harbor Hickam water system. The levels of total petroleum hydrocarbons as gasoline (TPH-g), also known as JP-8, and total petroleum hydrocarbons as diesel (TPH-d), also known as diesel and oil, at the Red Hill Shaft source were detected at levels below Department of Health (DOH) environmental action levels (EALs) and do not pose a health threat.

As a precaution after receipt of the first test result on May ##, 2020, the Red Hill Shaft pumps were turned off during the investigation. We will bring the pumps back online on June ##, 2020 under DOH conditions.

The April-May 2020 findings are as follows:

Finding	Sample Location	Sample Collection Date	Level Detected	Maximum Contaminant Level	DOH Environmental Action Level
JP-8 (C8-C12)	Red Hill Drinking Water Entry-Point-to-Distribution	4/15/2020	280 ppb J	n/a	400 ppb
Diesel (C10-C24)	Red Hill Drinking Water Entry-Point-to-Distribution	5/13/2020	300 ppb U	n/a	400 ppb
Oil (C24-C40)	Red Hill Drinking Water Entry-Point-to-Distribution	5/13/2020	300 ppb U	n/a	500 ppb
Acetone	ERH1095 (change to location)	5/20/2020	2.0 ppb J	n/a	1,500 ppb

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<b>Finding</b>	<b>Sample Location</b>	<b>Sample Collection Date</b>	<b>Level Detected</b>	<b>Maximum Contaminant Level</b>	<b>DOH Environmental Action Level</b>
Gasoline Range Organics	ERH1094 (change to location)	5/20/2020	18.0 ppb U	n/a	300 ppb

J = estimated value

U = compound was analyzed for but not detected

Detection levels are measured in parts per billion (ppb) or micrograms per liter (ug/l). Maximum Contaminant Levels (MCLs) are standards set by the United States Environmental Protection Agency (EPA) for drinking water quality. An MCL is the legal threshold limit on the amount of a substance that is allowed in public water systems under the Safe Drinking Water Act. As seen above, there are no MCLs for the found chemicals. DOH EALs are risk-based levels published by DOH for compounds that do not have promulgated MCL values. EALs are calculated using EPA models and are considered to be conservative estimates for the protection of human health.

Careful monitoring of the Red Hill Shaft source and the other wells within the Red Hill Bulk Fuel Storage Facility will continue for other petroleum compounds. Due to the increase in these chemical concentrations, DOH is requiring us to increased drinking water sampling and to provide plans for remedial actions. Further action will be based on the type and concentration of chemicals found.

To date, the Joint Base Pearl Harbor Hickam water system is in compliance with the DOH Environmental Action Levels for JP-8, diesel, oil, acetone, and gasoline range organics. The water system serves a population of about 65,000 people, and the Red Hill shaft where chemicals were detected contributes a percentage of the water to the system.