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In reply, please refer to:
File:

June 18, 2026

Rear Admiral Brad Collins
Commander, Navy Closure Task Force – Red Hill
850 Ticonderoga St., Ste. 110
Joint Base Pearl Harbor Hickam, HI 96860-5101
[via email only: brad.j.collins.mil@us.navy.mil]

Dear Rear Admiral Collins:

SUBJECT: DOH In-Part Conditional Approval of *Groundwater Sampling Frequency Reduction Request for the Red Hill Bulk Fuel Storage Facility at Joint Base Pearl Harbor Hickam Hawaii*

On March 4, 2026, the Hawai'i Department of Health (DOH) received the subject letter from the Navy Closure Task Force – Red Hill (NCTF-RH) requesting to reduce groundwater sampling conducted under the April 2024 *Consolidation and Optimization of the Groundwater Sampling Programs, Red Hill Bulk Fuel Storage Facility*[1] (Groundwater Sampling Plan) to a quarterly frequency. On March 11, 2026, the NCTF-RH submitted *Groundwater Sampling Frequency Recommendations, Red Hill Bulk Fuel Storage Facility*[2] to support the subject request.

After reviewing these documents, DOH is unable to fully evaluate the request to reduce sampling in all wells. NCTF-RH has not sufficiently characterized total petroleum hydrocarbon (TPH) detections in all groundwater monitoring wells except RHMW02, RHMW03, and RHMW01R. Therefore, we are only conditionally approving reducing sampling frequency to quarterly in RHMW02, RHMW03, and RHMW01R. All other wells must continue to be sampled in accordance with the April 2024 Groundwater Sampling Plan. DOH will reconsider sampling reduction in other wells once NCTF-RH implements a forensics plan approved by regulators, as outlined below and referenced in the U.S. Environmental Protection Agency's letter responding to the subject request, dated May 15, 2026. At this time, NCTF-RH may eliminate trigger

[1] https://health.hawaii.gov/about/files/2024/04/DOH-Response-to-Navy-Request-to-Reduce-RHS-Pumping-v2-part-1.pdf
[2] https://health.hawaii.gov/ust/files/2026/03/Enclosure-1-Groundwater-Sampling-Frequency-Recommendations.pdf

notifications for all wells, as there has been no observed plume migration associated with the reduction in the average pumping rate of Red Hill Shaft since April 2024.

Conditions for reduced sampling for RHMW02, RHMW03, and RHMW01R are as follows:

1. NCTF-RH may not reduce groundwater sampling frequency before July 15, 2026. Given the heavy storm events in March 2026, collecting data at the current frequency will help to characterize potential impacts from heavy rainfall events.

2. NCTF-RH must coordinate with University of Hawai‘i and its contractor(s) to ensure the dye tracer study and its sampling requirements are not disrupted by sampling frequency reductions for contaminants of potential concern (COPC).

3. Quarterly groundwater monitoring must continue to utilize extended extraction method SW3520C for TPH-o and TPH-d.

For the DOH to reconsider your request to reduce monitoring at the other wells, the NCTF-RH must:

1) Provide satisfactory responses to the enclosed comments; and

2) Develop and submit a forensics plan for DOH’s approval to better characterize detections, including identifying sources of detections, in all monitoring wells except RHMW02, RHMW03, and RHMW01R.

In order for petroleum forensics to be feasible at monitoring locations with sporadic or low-level TPH detections, samples must be collected at a frequency sufficient to reliably obtain detectable TPH concentrations in the same samples adequate for conclusive forensic analysis. For locations where TPH detections are sporadic — defined here as occurring at a frequency between zero and that observed at RHMW02, RHMW03, and RHMW01R — the NCTF-RH must use a statistical approach, based on the site-specific detection frequency at each monitoring location, to calculate the minimum sampling frequency required to obtain and process suitable samples for forensic analysis by January 1, 2028, or another reasonable timeframe approved by DOH. DOH will consider approving a reduction in sampling frequency for individual monitoring wells where NCTF-RH's statistical analysis demonstrates a 90% or greater probability of obtaining at least one TPH detection per monitoring well suitable for forensic split sample collection within the period of July 15, 2026, through January 1, 2028.

Forensics must be performed on the same sample where TPH was detected. Conducting forensics on samples where TPH is non-detect is unacceptable. The intent of the forensics plan is to characterize and determine the sources of TPH detections. Therefore, in addition to the actual forensics’ chemistry, additional lines of evidence to support the source of TPH may be

considered. The forensics plan must include advanced forensic methodology (e.g., PIANO, alkyl-PAH, ancient carbon forensic analyses, or functional equivalents). The forensics plan should consider including the following:

A. Improved assessment of chromatograms by comparison with chromatograms that are more likely to represent the state of fuel currently contaminating the site, such as weathered fuel. Fresh fuel is no longer stored at the site, so fuel in the groundwater at Red Hill is more than likely weathered.
B. Better characterization of local O‘ahu background TPH in uncontaminated, pristine groundwater for comparison and reference.
C. Seeking lower detection/reporting limits for TPH.
D. Biomarker analysis, using ELIPs or other methods.
E. Carbon isotopic analysis (radioactive and stable isotopic approaches).
F. Improved extraction/recovery using more efficient preparation methods (e.g., 3520).

If you have any questions regarding this letter or its enclosure, please contact Ms. Kelly Ann Lee, Acting Red Hill Project Coordinator, at KellyAnn.Lee@doh.hawaii.gov or (808) 586-4226.

Sincerely,

Kathleen Ho

KATHLEEN S. HO
Deputy Director for Environmental Health

Enclosure

c (w/encl.) [via email only]:
Jamie Marincola, EPA
Ash Nieman, EPA
Tonya Russi, EPA
RDML Lester Ortiz, NCTF-RH
CDR Benjamin Dunn, NCTF-RH
CAPT Gregory deWindt, NCTF-RH
Joshua Stout, NCTF-RH

Enclosure
DOH Comments on *Groundwater Sampling Frequency Recommendations, Red Hill Bulk Fuel Storage Facility*, Received March 11, 2026
June 18, 2026 Letter to Rear Admiral Brad Collins

1. **Page 1, 1. Introduction, bullet 6:** States, "Comparison of COPC [chemicals of potential concern] detection frequencies in quarterly sampling events to higher-frequency sampling events (twice a week, weekly, twice-monthly and monthly) shows no significant differences in trends and demonstrates that a return to quarterly sampling will not result in missed trends that could indicate uncontrolled migration (Section 6)."

   Groundwater monitoring needs to be able to identify temporal trends in contamination and also spatially identify the extent of contamination, especially the edge of the plume including delineation of plume boundaries, to ensure that impacts are not migrating beyond the established footprint. Less frequent quarterly sampling reduces the likelihood of capturing short-duration or intermittent contaminant detections on the outer edges of the plume. Transient detections can fall between quarterly sampling dates and go unobserved. When sampling intervals exceed the duration of these short-lived occurrences, the monitoring program could effectively under-sample, creating a systematic bias toward non-detection. Forensics are needed to reduce spatial uncertainty; once a regulator-approved plan is underway DOH will reconsider additional sampling reductions.

2. **Page 1, 1. Introduction, bullet 7:** States, "Detections of total petroleum hydrocarbons (TPH) at wells other than onsite wells RHMW01R, RHMW02, and RHMW03 (and at RHMW2254-01 following the November 2021 release event) show sporadic, mostly low-level concentrations that are not consistent with fuel impacts from the recent releases that prompted increased NOI [Notice of Interest] monitoring, and in any case may continue to be detected via quarterly sampling as they were prior to NOI sampling (Section 6)."

   A brief examination of the data finds this conclusion is false and raises substantial questions regarding the analyses. Detections at wells other than RHMW01R, RHMW02, and RHMW03 and RHMW2254-01 indicate fuel-related groundwater contamination. NCTF-RH has not shown otherwise. While recent releases may not be the source of some low-level concentrations, characterizing contamination, whether historic or more recent, is essential to site assessment and investigation. It is unclear how NCTF-RH defines "sporadic" or "low-level" detections. It is also unclear how NCTF-RH deems detections are "not consistent with fuel impacts from the recent releases." RHP03, RHP04C, RHP05, RHP06, and RHMW04 all had recent TPH-d detections above 500 ug/L. Additionally, RHMW09 and RHMW11-05 had TPH-d detections above 1,000 ug/L. RHP04B had consistent TPH detections in April, May, July, September, November, and December in 2025, as well as January, February, and March in 2026. To provide additional examples, since January 1, 2025, the following monitoring wells had TPH detections above the detection limit with either an NA Qualifier (flag) or a "J" Qualifier:

HDMW2253-03	RHMW04	RHMW13-04	RHMW21	RHP05
NMW25	RHMW06	RHMW14-03	RHP03	RHP06
NMW26	RHMW09	RHMW15-05	RHP04A	RHP08
NMW30	RHMW10	RHMW17	RHP04B	
OWDFMW08A	RHMW11-05	RHMW19	RHP04C	

3. **Pages 4-5, 6. Analyses of COPC Detection Frequency:**
    a. It is unclear how flagged data or qualifiers were addressed in the analyses. Provide details on how qualifiers were addressed.
    b. It is unclear why the time period October 18, 2016, to May 31, 2025, was selected. It is also unclear how it was determined that, "groundwater concentrations are now similar to conditions prior to the 2014 and 2021 releases" (page 5), if the dataset analyzed started from 2016.
    c. The analysis lacks a comparison of quarterly sampling to higher frequency sampling for wells that experience sporadic detections, making it unclear how less frequent quarterly sampling would capture sporadic detections. Less frequent quarterly sampling is unlikely to align with sporadic detections.

4. **Page 4-5, 6. Analyses of COPC Detection Frequency, paragraph 3:** It appears that including sentinel wells was not deemed appropriate to aggregate with the other wells in the analysis of detection frequency: "Table 2 considers only wells that were in operation during the entire referenced period because the addition of new delineation and sentinel wells with a significant count of non-detect analyses would skew the frequency of detections downwards."

    However, it is important to examine how quarterly sampling would affect our knowledge of conditions at sentinel wells. Since low-level TPH detections at offsite wells such as NMW26 are very unlikely to come from Red Hill, it is essential to perform additional forensics to rule out or determine sources of TPH at these sites. If sampling frequency is reduced, it will be more difficult to conduct forensic analysis on samples with low level and infrequent TPH detections.

5. **Page 5, 7. Fuel-Related Detections, paragraph 1:** This section states, "An analysis of all detections of DRO [diesel range organics] and ORO [oil range organics] in groundwater samples dating from the May 6, 2021, release to present has been conducted to determine whether these detections indicate any conclusive relation to fuels previously stored at the Facility."

    Was the analysis time period from May 6, 2021, to when this report is dated (March 6, 2026) or from October 18, 2016, to May 31, 2025? Page 4, 6. Analyses of COPC Detection Frequency, paragraph 1 states, "Between October 18, 2016, and May 31, 2025, more than 5,400 groundwater samples have been analyzed under the Red Hill monitoring programs for at least DRO and ORO." Were additional tests conducted and if so, provide methods and results.

6. **Page 5, 7. Fuel-Related Detections, paragraph 1, sentence 2:** This section states that analyses "compared the laboratory-provided chromatograms of detections of DRO and ORO to chromatograms of fresh and weathered Jet Fuel Propellant (JP)-5 fuels."

    Specifically, what were the various TPH reference chromatograms that were used for comparison for Red Hill groundwater samples? Provide a list and description of all reference

chromatograms. Describe how the chromatograms of weathered jet fuel were developed and what samples were used to develop these chromatograms.

7. **Page 5, 7. Fuel-Related Detections, paragraph 1, sentence 3:** How was additional information considered, i.e., "Additionally, other evidence was considered, including headspace readings, gauging of light nonaqueous-phase liquid (LNAPL), and the presence or absence of fuel-related PAHs, BTEX, and other fuel-related compounds analyzed under the Red Hill groundwater sampling programs." Provide more detail. Provide a decision flow chart, if used.

8. **Page 5-6, 7. Fuel-Related Detections, paragraph 2:** NCTF-RH dismisses all TPH-o and TPH-d at locations other than RHMW01R, RHMW02, and "RHMW2254-01 immediately following the November 2021 release event. Detections of DRO and ORO at all other sampling locations are sporadic in nature, and associated chromatograms do not resemble fuel."

   Many chromatograms that have been provided are not in a reviewable format, therefore cannot be independently validated by DOH. Screen shots of chromatograms are not a reviewable format because they cannot be properly overlaid and cannot be zoomed in sufficiently. Sporadic and inconsistent concentrations do not indicate that the detections are not due to the plume or other petroleum contamination. Other factors affecting the sporadic nature of these detections could include groundwater fluctuations (smearing), mobilization of contaminants in the vadose zone, or other groundwater movement leading to remobilization, in addition to historic releases that have not been well constrained. RHMW04 (2/10/2026), RHMW17 (12/8/2025, 6/23/2025), RHMW18 (1/3/2024), and RHMW21 (8/4/2025) all had TPH-o detections above 300 ug/L.

9. **Page 6, 7. Fuel-Related Detections, continuation of page 5, paragraph 2:** This section states, "Inconsistent, low-level detections of DRO and ORO near or below reporting limits are generally not confirmed by split samples."

   Which split samples? Which preparation and test methods were used for each split sample? Were holding times met for both split samples? Note that the DOH environmental action level for TPH middle distillates is 91 ug/L; TPH = GRO + DRO + RRO – (BTEX + PAHs).

10. **Page 6, 7. Fuel-Related Detections, paragraph 1:** States, "Additionally, comparison of TPH analyses with and without SGC [silica gel cleanup] (i.e., removal of polar constituents) from samples collected at wells not located in the source areas indicates that these TPH detections are primarily composed of polar, non-petroleum components (Attachment 5)."

    Comparison of TPH analyses with and without SGC does not determine non-petroleum components.