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STATE OF HAWAII
DEPARTMENT OF HEALTH
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In reply, please refer to:
File:

July 17, 2024

Rear Admiral Stephen Barnett
Navy Closure Task Force – Red Hill
850 Ticonderoga Street, Suite 110
Joint Base Pearl Harbor-Hickam, Hawaii 96860
[via email only: stephen.d.barnett.mil@us.navy.mil]

Dear Rear Admiral Barnett,

SUBJECT: DOH Concerns and Expectations Regarding NCTF-RH Natural Source-Zone Depletion Pilot Study

On June 20, 2024, the Hawaii Department of Health (DOH) received the Navy Closure Task Force – Red Hill's (NCTF-RH's) *Response to Comments on Draft Natural Source Zone Depletion [NSZD] Work Plan*, hereinafter the "RTCs." The RTCs reply to the DOH and U.S. Environmental Protection Agency's (EPA's) April 15, 2024, letter identifying major issues with the NCTF-RH's plan to immediately move forward with its *Draft Natural Source-Zone Depletion Work Plan*, dated February 2023. As stated in our April 15, 2024, letter, the DOH and EPA, hereinafter the "RAs," believe that conducting a NSZD study at this time is premature and will not yield useful results. However, because the NCTF-RH insists on conducting the study now, the DOH is providing the following comments to reiterate our previous concerns and outline our expectations for the study.

1. The effectiveness and rates of NSZD specifically in the aquifer system (fully saturated zone) and vadose zone should be determined, as they are expected to be different.
 - a. The fuel mass distribution in different vadose and water table zones needs to be considered, as the rates and mechanics are expected to differ in each area.
2. The estimated NSZD rates/efficiencies must be related to the mass in-place within each zone of fuel release(s) when being used for decision making purposes.
 - a. For example, a hypothetical NSZD rate of 1,000 gallons per year area is substantial if there is only 1,000 gallons of fuel released in that area, while the same rate is inconsequential if there is over a million gallons of fuel released. Without knowing the approximate mass in-place – which the NCTF-RH does not – the estimated NSZD rate is unlikely to be useful when evaluating potential remedial options.
3. The study needs to take into consideration thermal sources and sinks from structures and operations currently and historically present at the Red Hill Facility (Facility). Cooling through ventilation is one such example.

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4. Temperature measurements are useful but should not be used as a stand-alone data set to determine the rates and efficiencies of NSZD. Additional information should be used when determining the rates and efficiencies of NSZD, such as oxygen degradation and carbon dioxide production in the various zones of interest.
 - a. The study also needs to consider whether the thermal signatures are from a newer/closer release, an older/distal release, or a combination of both, as multiple fuel types have been released over the Facility's history.
5. It is well-known that certain compounds in the fuels historically stored at the Facility are amenable to biodegradation, while others are less so. Consequently, evaluation of NSZD rates should focus on identifying the mass that may remain at the practical end-point of NSZD, the composition of that mass, and the time to reach that end-state.
 - a. The study should also consider that rates of mass depletion may vary over time.
6. Many of the degradation products of fuel hydrocarbons are polar metabolites that can be more mobile and more toxic than the parent fuel compounds. Consequently, the implications and the source of degradation products should be evaluated in the study and not dismissed or assumed to be from other potential sources.
7. The limitations of the study should be described. As stated in our April 15, 2024, letter, the study area is small, and the results are unlikely to be representative of the larger area. In addition, the results of the study should be used to plan future NSZD studies in other release areas due to differing conditions.
8. As NSZD and attenuation did not eliminate plume migration observed following the 2021 releases, this study should demonstrate if and when NSZD can prevent such migration.

If you have any questions regarding this letter, please contact me at KellyAnn.Lee@doh.hawaii.gov or (808) 586-4226.

Sincerely,



KELLY ANN L. LEE
Red Hill Project Coordinator

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