



STATE OF HAWAII  
DEPARTMENT OF HEALTH  
KA 'OIHANA OLAKINO  
P. O. BOX 3378  
HONOLULU, HI 96801-3378

In reply, please refer to:

February 11, 2025

Rear Admiral Stephen Barnett  
Commander, Navy Region Hawai'i  
850 Ticonderoga St., Ste. 110  
Joint Base Pearl Harbor Hickam, HI 96860-5101  
(Sent via Electronic Mail)

Dear Rear Admiral Barnett:

**SUBJECT: DOH Comments on *Draft Shallow Soil Vapor Extraction Pilot Study, Red Hill Bulk Fuel Storage Facility*, dated December 2024**

The Hawai'i Department of Health (DOH) received the U.S. Department of the Navy's (Navy's) *Draft Shallow Soil Vapor Extraction Pilot Study, Red Hill Bulk Fuel Storage Facility* report, dated December 2024, hereinafter the "Shallow SVE Pilot Report." We understand the Shallow SVE Pilot Report was submitted in support of release response activities associated with the November 2021 release and closure of the underground storage tank system that includes the Red Hill Bulk Fuel Storage Facility (Facility), in accordance with the DOH's May 2022 Emergency Order and Hawai'i Administrative Rules Chapter 11-280.1. The shallow SVE pilot study was conducted to evaluate SVE as a potential remedial option in the shallow subsurface in the Adit 3 portion of the Facility tunnel.

As stated in our November 6, 2024, response to the *Draft Soil Vapor Extraction System Step and Constant Rate Testing Technical Memorandum*, submitted on August 2, 2024, the results of the shallow SVE pilot study indicate this method is unlikely to be viable for remediation as applied. In the Shallow SVE Pilot Report, the Navy acknowledged this and recommended another pilot study to evaluate the use of shallow SVE combined with air sparging (AS). The DOH disagrees with this recommendation for the following three reasons:

1. Based on the high ambient oxygen levels observed during the shallow SVE pilot study, it is implied there is already sufficient oxygen in the system, meaning AS will likely have a minimal effect.
2. As stated in the DOH and U.S. Environmental Protection Agency's (EPA's) August 23, 2023, disapproval of the Navy's original SVE and AS pilot study proposal, we are concerned about potential migration of free phase product by AS and the inability to capture all vapors with the SVE system. Although the Navy is unaware of any scientific literature documenting the spread or redistribution of free product outside the zone of influence of air injection during AS, the DOH is concerned AS on the perched aquifer near Red Hill Shaft (as the Navy

proposes) could migrate and impact the basal aquifer the Shaft draws upon. In addition, because the proposed treatment location is beneath the tunnel system, there is a potential for uncontrolled vapor migration through subsurface conduits leading to the tunnel, which would create a risk to workers.

3. Based on our review of the Shallow SVE Pilot Report, it appears the Navy did not consider the following guidance documents before identifying AS as a potentially viable remedial option that does not pose a risk to human health and the environment. The DOH recommends that the Navy review the following guidance documents.

- 2017 EPA *How to Evaluate Alternative Cleanup Technologies for Underground Storage Tank Sites* (EPA 510-B-17-003, 2017).
  - When free product is present, AS can create groundwater mounding which could cause free product to migrate and contamination to spread.
  - If there are nearby basements, sewers, or other subsurface confined spaces, potentially dangerous constituent concentrations could accumulate in these areas, unless an adequate vapor extraction system is used to control vapor migration.
- 2001 Naval Facilities Engineering Command *Air Sparging Guidance Document* (NAVFAC, 2001).
  - Site geological conditions such as stratification, heterogeneity, and anisotropy will prevent uniform airflow through the medium, thus reducing AS effectiveness. For in situ AS applications, good characterization of the geology in the area where the AS system is to be installed is critical.

In conclusion, based on the results of the shallow SVE pilot study and the reasons stated above, the DOH does not agree with the Navy's recommendation to conduct a SVE and AS pilot study. We continue to recommend that the Navy instead focus on evaluating other remedial options to address the contamination present in the perched aquifer area, such as those related to extraction or removal. If you have any questions regarding this letter, please contact me at [KellyAnn.Lee@doh.hawaii.gov](mailto:KellyAnn.Lee@doh.hawaii.gov) or (808) 586-4226.

Sincerely,



KELLY ANN L. LEE  
Red Hill Project Coordinator

c [via email only]:

Jamie Marincola, EPA  
Ash Nieman, EPA  
Tonya Russi, EPA  
RDML Marc Williams, NCTF-RH  
CDR Benjamin Dunn, NCTF-RH  
Noor James, NCTF-RH  
Joshua Stout, NCTF-RH