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October 6, 2023

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)

Subject: Comments on *Site Characterization Plan Addendum, Collection, Hold, and Transfer Tank Overflow Site Characterization, November 2021 Release, Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i*, dated November 2022.

Dear Rear Admiral Barnett:

Thank you for submitting the *Site Characterization Plan Addendum, Collection, Hold, and Transfer Tank Overflow Site Characterization*, hereinafter referred to as the "Addendum," dated November 2022. We understand this deliverable was submitted under Section 6.0 in Attachment A, Statement of Work, of the 2015 Administrative Order on Consent. The purpose of the Addendum is to describe a planned investigation to determine the magnitude and extent of potential impacts to the environment following the overflow of petroleum from the Collection, Hold, and Transfer (CHT) tank onto the surrounding ground surface. The Hawai'i Department of Health (DOH) and U.S. Environmental Protection Agency (EPA), collectively the Regulatory Agencies (RAs), have reviewed the Addendum, and do not believe the planned site characterization presented in the Addendum will allow for adequate assessment of potential impacts to the environment from the release. We are, therefore, providing the following comments.

General Comments:

1. The purpose of the site characterization is to determine the magnitude and extent of impacts from the overflow of the CHT tank to the environment, not to simply characterize light non-aqueous phase liquid (LNAPL) as mentioned throughout the document.

- a. The Addendum states the Draft 2018 DOH Hazard Evaluation and Emergency Response (HEER) Office Technical Guidance Manual (TGM) Update, Section 9.3: LNAPL/Petroleum Guide, which primarily contains guidance for preparing a conceptual site model for LNAPL, is the basis for the tasks presented in the Addendum. However, this is not the appropriate guidance document to base a surface release assessment on because it is a draft guidance document that focuses on LNAPL floating on the groundwater.
- b. The site characterization should instead be based on the guidance outlined in the current DOH HEER Office TGM, which can be found at <https://health.hawaii.gov/heer/tgm/>. This includes guidance regarding the use of spill area decision units outlined in Section 3.4.3 and the collection of multi increment soil samples in Section 5.0.

Specific Comments:

1. Section 2.3, Evaluation of Environmental Hazards at Sites with Contaminated Soil and Groundwater (Volume 2), PDF Page 16:

- a. The document references Appendix A, Section 4.1.6 (LNAPL Plume Delineation) of the Evaluation of Environmental Hazards at Sites with Contaminated Soil and Groundwater document. However, there is no Appendix A in this document, so it is unclear what guidance document the stated delineation methods for soil are based on.
 - i. Instead of collecting discrete soil samples from individual borings that are spaced approximately 15 feet apart, decision units are to be established and multi increment soil samples collected in accordance with the DOH HEER Office TGM to ensure that potential impacts from the release are adequately assessed.
 - ii. Data collected from soil samples should initially be screened against the DOH Tier 1 Environmental Action Levels (EALs) for unrestricted land use where groundwater is a potential drinking water source, and the nearest surface water body is less than 150 meters. The data may then be further screened using site-specific EALs when evaluating potential hazards that may be posed by contamination. It is premature to determine what the relevant potential hazards are and subsequently limit the applicable EALs until data has been collected and an Environmental Hazard Evaluation is prepared.
 1. This comment is relevant to Table 2-B as well.
 2. Please note the EALs listed in Table 2-B do not necessarily match the screening criterion presented in Table B.1-2 in Appendix B.1.
 - iii. It is unclear why groundwater EALs are included in the Addendum if only soil samples and samples from the Frac tanks are to be collected.
 1. This comment is relevant to Table 2-B as well.
- b. Clarify “cleaning agents that might have been used to clean the tunnel after the initial May 2021 release.” The Navy’s June 30, 2023 response to the DOH’s Request for Information on tunnel cleanup methods states, “[n]o other cleaning agent other than water was used” following the May 6, 2021 release.

2. Section 5.0, Phased Site Characterization Plan, PDF Page 18:

- a. Please provide specifics regarding sample collection methodology. As previously stated in General Comment 1b., multi increment samples are to be collected when assessing potential impacts from a surface release. It is recommended that in addition to multiple lateral decision units, multiple vertical decision units are also used as part of the assessment.
- b. Ensure the following information is included in this section:
 - i. The approximate dimensions of each decision unit.
 - ii. Number of increments to be collected per sample.
 - iii. Approximate sample mass.
 - iv. Sample collection containers (e.g., will the volatile portion be preserved using methanol, etc.).
 - v. How will the volatile portion of the sample be collected compared to the non-volatile portion?
 1. The use of hand drills to collect soil samples for volatile analysis may lead to volatile loss and may result in analytical results that are biased low.
 - vi. Number of replicate samples to be collected (a frequency of at least 10%).

3. Section 5.2.1 Frac Tank Characterization Work Requirements, PDF Page 21.

- a. Section 2.3 of the Addendum discusses the need to evaluate samples for additives known or suspected to have been pre-blended into the fuel stored in the Red Hill tanks, as well as cleaning agents that might have been used to clean the tunnel after the May 2021 release to conduct a risk evaluation. These analyses were not included in the proposed analyte list for the fuel samples in Section 5.2.1. Additionally, on June 28, 2023, EPA requested the U.S. Department of the Navy sample fuel remaining in the Red Hill tanks for additional analytical methods to understand risk and fate and transport prior to defueling. Additional analysis of fuel recovered from the frac tanks would also help to understand risks related to the fuel released during the 2021 releases. The workplan shall be updated to include the additional analytical methods below:
 - i. Saturated Hydrocarbons (EPA Method 8015M via GC/FID)
 1. Analysis should include Alkanes C9-C40, pristane, phytane, and other selected isoprenoids.
 2. These data are useful for basic characterization and fingerprinting.
 - ii. Alkylated polycyclic aromatic hydrocarbons (PAHs) (EPA Method 8270M via GC/MS-SIM)
 1. Analysis should include parent and alkyl PAHs including naphthalenes.
 2. These data are useful for characterization and fingerprinting.
 - iii. SVOCs (Method SW8270 via GC/MS)
 1. Analysis should include 2-(2-methoxyethoxy)-ethanol and phenol.
 2. These data are useful for detecting fuel additives.
 - iv. VOCs w/ methylbenzenes (Method SW8260 via GC/MS)
 1. Analysis should include methylbenzenes.
 2. These data are useful for detecting tri- and tetra-methylbenzenes.

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- b. In the event that any analyte(s) associated with the additional analyses listed in Comment 3a are detected in the aqueous sample(s) collected from the Frac tanks, the multi increment soil samples collected as part of the site characterization will need to be analyzed for these analytes in addition to those listed in Table 2-A. If the Navy chooses not to initially analyze all soil samples via the additional analytical methods described in Section 3 a, the Navy may refine the soil analyte list based on Frac tank results. The RAs would accept the following approaches:
 - i. Mobilize twice. Collect and analyze the samples from the Frac tanks prior to conducting the soil sampling, or
 - ii. Collect soil samples during the initial mobilization and request that the laboratory hold the excess soil samples for further analysis after the Navy receives the Frac tank results (so long as the hold times will not be exceeded).

Please revise the Addendum based on our above-mentioned comments and resubmit to the RAs. If you have any questions regarding this letter, please contact Matthew Cohen, EPA Red Hill Project Coordinator, at Cohen.Matthew@epa.gov or (415) 972-3691; or Kelly Ann Lee, DOH Red Hill Project Coordinator, at KellyAnn.Lee@doh.hawaii.gov or (808) 586-4226.

Sincerely,

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U.S. Environmental Protection Agency, Region 9

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cc: VADM John Wade, Commander, Joint Task Force – Red Hill
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