

Draft Collection, Holding, and Transfer (CHT) Tank Site Characterization Work Plan Addendum,
 Red Hill Bulk Fuel Storage Facility, JBP HH, O’ahu HI
 Reviewer: DOH/EPA
 Date: February 12, 2024

Many of the comments in the October 6, 2023 letter were either adequately addressed or acknowledged in the RTCs. However, there are several RTCs that warrant a response; these are addressed below.

#	Section No.	Comments
1	Response 11 (Section 2.3(b))	Rather than removing the conflicting text about cleaning agents being used after the May 2021 release, this information should be replaced with the types and amounts of cleaning agents used. Cleaning agents used in the tunnel are still relevant to this investigation, whether they were used historically or in response to the May 2021 and November 2021 releases.

Response: The previous text that was removed implied that cleaning agents other than water might have been used after the May 2021 release. The Navy confirms that only water was used to wash the tunnel after the May 2021 release; therefore, the conflicting text was erroneous and was removed. No additional revisions have been made to the document.

2	Section 5.2.1 (a)	<p>Please analyze all soil samples for the analytes and methods specified in the October 6, 2023 letter. In addition, please analyze all soil and water samples, and sludge samples from the frac tanks, for PFAS via EPA Method 1633. Please use a Coliwasa to sample sludge and liquids in the frac tanks.</p> <p>The fuel that flowed into the sanitary sewer sump in Adit 3 may have come into contact with other contaminants (e.g., any liquids in the aqueous film forming foam [AFFF] piping system, contaminants present on the Adit 3 tunnel floor, the sanitary sewage itself) or PFAS potentially present in the fuel released (the fuel samples collected from the underground storage tanks were not analyzed for PFAS). In addition, PFAS detected in groundwater near Adit 3 and south of the freeway during the September 2023 Baseline Sampling Event (which exceeded EPA Regional Screening Levels and proposed Maximum Contaminant Levels) are longer-chain PFAS compounds more commonly associated with legacy AFFF releases, distinctly different from the short-chain PFAS associated with the AFFF-concentrate release at Adit 6 November 2022.</p>
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Response: The Navy will conduct the petroleum-related analyses that the RAs have requested in their February 12, 2024 letter, as listed in revised Table 2-1 and throughout the document. In regards to PFAS sampling and analysis, the Navy is coordinating the response with higher headquarters.

Table 2-1: Summary of Target Analytes for Contaminated Media

Project Location	Medium	Analytical Methods
CHT Tank, Red Hill Bulk Fuel Storage Facility	Soil	VOCs by USEPA Method SW8260 (GC/MS) SVOCs by USEPA Method SW8270 (GC/MS) including 22MEE, phenol PAHs by USEPA Method SW8270 (GC/MS SIM) TPH-g by USEPA Method SW8260 (GC/MS) TPH-d/o by USEPA Method SW8015 modified (GC/FID)
Frac tanks, Joint Base Pearl Harbor, Hickam	LNAPL	Saturated Hydrocarbons : alkalines (C9-C40), and selected isoprenoids. Alkylated (PAHs): Priority Pollutant List parent PAH compounds and alkylated homologs of the parent PAHs
	Sludge, Water,	TPH-g by USEPA Method SW8260 (GC/MS) TPH-d/o by USEPA Method SW8015 modified (GC/FID) SVOCs by USEPA Method SW8270 (GC/MS), 22MEE and phenol only

Due to the depth to the bottom of the frac tanks, a coliwasa will not be effective. The Navy is confident that the correct tools for the sample collection are specified in the WP. Water and sludge samples from the frac tanks will be collected with a Super Bailer, tubing with a peristaltic pump, and a Sludge Judge.

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Item	Section No.	Comment
3.	Section 1.0, pg 1	It is stated that during the November 20, 2021 release, JP-5 jet fuel flowed down the Adit 3 tunnel and into the sanitary sewer sump, and that during heavy rains, the contents from this sump were pumped into the collection, hold, and transfer (CHT) tank, which subsequently overflowed. As we were not initially aware that the discharge from the CHT tank contained anything other than rainwater and sewage, please describe the line(s) that discharged into or other routes for solids or liquids to enter the Adit 3 sanitary sewer sump/CHT tank, the potential sources of waste, and potential types of contamination that may be present.

Response: Section 1.0 has been revised to include the paragraph *“The sanitary septic tank in Adit 3 does not drain/leach into the subsurface as it is pumped to the CHT Tank. This septic tank has been used to drain the bathrooms in Adit 3 tunnel and the lower access tunnel to the Red Hill tank farm. Water, human waste, and bathroom cleaning products move thru the piping system to the sanitary septic tank before being pumped to the CHT Tank.”*

4.	Section 2.3, pg 4	During the initial stage of an investigation into a release, the results are to be preliminarily screened against the most conservative RSLs and DOH Tier 1 Environmental Action Levels (EALs) for unrestricted land and water uses for all potential hazards and exposure routes (e.g., leaching, vapor intrusion, direction exposure, gross contamination, terrestrial ecotoxicity) to determine the list of contaminants of potential concern (COPCs). Following complete delineation of the release, an Environmental Hazard Evaluation should be prepared that screens current and potential future human health and environmental risks. Table 2-2 should be revised to include the most conservative Tier 1 EAL (unrestricted land use where groundwater is a potential drinking water source, and the nearest surface water body is within 150 meters) for screening contaminant detections and identifying COPCs. Please refer to Table A-2 of the Fall 2017 DOH EAL Surfer at https://health.hawaii.gov/heer/files/2019/11/HDOH-EAL-Surfer-Fall-2017.xlsx .
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Response: Table 2-2 has been replaced by Table B.1-2 in Appendix B, which references the most conservative EALs and RSLs as screening values, described in Section 2.3.

5.	Section 5.1, pg 6	It is recommended that decision unit 1 (DU1) be broken into two decision units (DUs) to create a primary spill DU (immediately adjacent to the CHT tank) and a bounding DU (at least towards the north). If contaminants of interest (COIs) are detected above screening levels in the soil samples collected from DU1, additional lateral and vertical delineation may be necessary.
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Response: The work plan addendum has been revised as recommended. DU1 has been split laterally, into two DUs (DU1 and DU2) for more resolution near the CHT Tank for the first phase of the investigation. If the outer DU exceeds the screening levels, the Navy will step out with additional DU(s), as necessary.

6.(a)	Section 5.1.1, pg 8	A near surface multi increment (MI) soil sample is proposed to be collected just below the asphalt at an estimated depth interval of 1 to 1.5 feet (ft) below ground surface (bgs) and a shallow subsurface MI soil sample is proposed to be collected at a depth interval of 2.5 to 3 ft bgs. An additional shallow subsurface MI soil sample is to be collected from a depth interval of 1.5 to 2.5 ft bgs. If an additional shallow subsurface MI soil sample is not collected from 1.5 to 2.5 ft bgs and COCs are detected at concentrations above the DOH EALs and/or EPA RSLs in the near surface soil MI soil sample, then it must be assumed COCs are present at concentrations above the DOH EALs and/or EPA RSLs to at least 2.5 ft bgs since there will be no data available between 1.5 to 2 ft bgs.
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Response: The revised work plan includes a third vertical DU MI sample from an intermediate depth of 1.5–2.5 feet as described in Section 5.1.1 bullet point two.

6.(b)	Section 5.1.1, pg 8	The last paragraph on the page indicates: “If soil contamination is observed at the vertical or lateral extent of the proposed limits, the Navy will consider additional step-out borings in a second characterization phase.” Due to the proposal of only two lateral DUs, if a COPC is detected at a concentration above the DOH Tier 1 EAL or EPA RSL, additional delineation will be required through the use of step-out DU(s).
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Response: The Navy reserves the option to move directly to remedial action if results indicate the feasibility. Revisions to the text for clarification are provided below.

“If delineation of soil contamination is not achieved, the Navy may choose to complete additional step-out sampling until delineation is complete or may choose to evaluate remedial options. Later phases will also require MI sampling to assess risk and determine removal action objectives.”

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Item	Section No.	Comment
7	Section 6.3, pg 18	If the laboratory deliverables for the frac tank characterization are used to estimate the amount of JP-5 that was recovered in the frac tanks, then these deliverables (Level 2 reports and electronic data deliverables) need to be uploaded to the Environmental Database Management System.

Response: The level 2 laboratory result reports and electronic data deliverables of water and sludge samples from the FRAC Tanks will be uploaded into the Environmental Database Management System (EDMS). Please note revisions in Section 6.3, second paragraph.