

Responses to 11 Jan 2023 DOH comments on the Tank Closure Plan

GENERAL COMMENTS

1. *The Tank Closure Plan (Plan) does not select a closure alternative but only states “the Navy [U.S. Department of the Navy] intends to seek DOH [Hawai‘i Department of Health] approval for Closure in Place [Alternative 1] as the permanent closure method for the Red Hill underground storage tanks and associated piping systems.” However, the differences between Alternatives 1 and 2 are unclear. On page 37, the Navy states it “has identified [Alternative 1] as the best alternative for permanent closure because it would allow for beneficial non-fuel reuse of the tanks....” However, this rationale also applies to Alternative 2, Closure in Place for Potential Non-Fuel Reuse. It is unclear what distinguishes Alternatives 1 and 2, other than the inner tank coating and third-party beneficial reuse study proposed in Alternative 2. The DOH received the Red Hill Tank Closure Plan Analysis of Alternatives & Concept Design to Close In Place report on December 22, 2022 and will continue to review this document to determine whether greater clarity between these two options was provided.*

Response: As noted in the comment, the Tank Closure Plan did not select a closure alternative, but instead expressed the intent to seek DOH approval for Alternative 1: Closure in Place. The purpose of this language was to express the Navy’s intent, but to delay the formal request for approval until the DOH had the opportunity to see the detailed “Red Hill Tank Closure Plan Analysis of Alternatives & Concept Design to Close In Place,” submitted on December 22, 2022. The cover letter for the analysis of alternatives confirms that the Navy has identified Closure in Place as the optimal closure method, and it says, “The Navy formally seeks DOH approval of this method....” Thus, as of December 22, 2022, the Navy is formally seeking DOH approval for Alternative 1: Closure in Place.

The Red Hill Tank Closure Plan Analysis of Alternatives & Concept Design to Close In Place provides clarifying information to distinguish between Alternatives 1 and 2.

2. *The DOH cannot approve the Plan in full until the Navy selects a closure alternative (and beneficial non-fuel reuse option, if applicable). The end fate of the Red Hill Bulk Fuel Storage Facility (Facility) will dictate key portions of the Plan, including but not limited to, what infrastructure is kept versus removed; design criteria for inspecting and repairing infrastructure; long-term operations and maintenance (O&M); and measures taken to render the Facility unusable for fuel or other hazardous substance storage.*

Response: As clarified in the response to Comment 1, with the December 22, 2022 submittal of the analysis of alternatives, the Navy formally requested DOH approval for Alternative 1: Closure in Place. A significant advantage of Closure in Place is that it will allow the greatest flexibility for beneficial non-fuel reuse of the tanks. The Navy expects that any potential beneficial reuse will not significantly impact the tank closure process. As agreed during the July 14, 2022, Meet and Confer Session between DOH and Navy, the Navy addressed beneficial non-fuel reuse in the Tank Closure Plan; however, we note that beneficial reuse, while subject to DOH review, is not part of the tank closure process defined under the Hawaii Administrative Rules (HAR). Beneficial non-fuel reuse will be based on the following screening criteria:

- a. The Red Hill Bulk Fuel Storage Facility will no longer be used to store fuel, chemicals, or other hazardous materials.
- b. Potential beneficial reuse must be viable assuming the DOD will continue to own the

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- property.
- c. Potential beneficial reuse must be considered viable based on the current closure plan (i.e. tanks and pipeline are clean and remain in place and surge tanks are filled with inert material).

The Navy's proposed plan to collect information on potential beneficial non-fuel reuse options currently involves collecting input from three different sources:

- a. Awarding a contract to Nakapuna Companies, a local Hawaiian firm, to solicit input from the local public on Oahu.
- b. Utilizing a grant from the Office of Naval Research (ONR) to the University of Hawaii to investigate potential energy-related uses from the Department of Defense, academia, and the public.
- c. Input for a study required by the National Defense Authorization Act for Fiscal Year 2023 (NDAA) to collect ideas from Department of Defense stakeholders.

The Navy, in partnership with the three above entities, will review the collective list of ideas for duplication and conduct an initial evaluation based on feasibility and challenges and prepare a recommended list of the top five to six options. Additional analysis will be conducted on these final options in accordance with the requirements of the NDAA study, including such items as design and construction costs, life-cycle costs (including operation and maintenance costs and disposal costs), potential benefits to the military and local economy, and analysis of environmental impacts.

On January 31st, the Navy awarded a contract to Nakapuna Companies to actively engage the Oahu community and obtain public input on beneficial non-fuel reuse options. DOH will receive original results and a summary, both of which will be made available to the public. In the meantime, the Navy has prepared Supplement 1 to specify the details of the cleaning portion of the tank closure process.

3. *The schedule in Enclosure 2 indicates the Plan will remain incomplete until April 2023, at the earliest, when the Navy completes the Final Closure Alternates Report (ID 6), Structural Analysis (ID 7), and Beneficial Use Alternatives Public Engagement (ID 16). In the interest of time, we recommend the Navy seek approval by task, similar to what is being done for defueling.*

Response: The Navy agrees with a phased approach and is submitting Supplement 1 for DOH approval that provides more detail on the cleaning process, including waste disposal and spill response.

4. *Sections 2 and 3: Section 2 describes infrastructure to be cleaned and closed, but Section 3 – which describes the cleaning sequence – does not include all of the infrastructure mentioned in Section 2, including but not limited to, the Fuel Oil Recovery (FOR) lines, the FOR aboveground tank, and the sumps.*

Response: Section 2 describes all infrastructure associated with the Red Hill Bulk Fuel Storage Facility (RHBFSF), and it outlines the procedures and repairs that need to take place prior to cleaning. As such, it includes more infrastructure than Section 3, which focuses only on the tanks and pipelines that must be cleaned. The Fuel Oil Recovery (FOR) lines and the FOR above ground storage tank will be used throughout the closure process to collect rinsate from the tanks as they are cleaned. After the underground tanks are closed, the FOR lines and

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tank will continue to be needed for drainage and collection of condensate or other water from the tanks. The sumps will be cleaned, and this process is included in Supplement 1.

5. **Section 3:** *The Plan lacks executional details on how the tanks and pipelines will be cleaned, including but not limited to: Where material from tanks will be pumped, how material will be transported to storage, storage capacity, planned spill prevention and control measures, procedures planned to ensure no fuel or sludge remains in the pipelines, source of rinse water, how many times the tanks will be rinsed, and how rinsate will be disposed. We understand from meetings with the Navy, U.S. Environmental Protection Agency (EPA), and DOH that the Navy is considering submitting a Cleaning Plan to provide more details on this subject. Based on the current Plan's deficiencies, and in the interest of time, the DOH highly recommends this deliverable.*

Response: The Navy is submitting Supplement 1 in order to provide the requested details on tank and pipeline cleaning. Based on previous meetings among DOH, EPA, and Navy, Supplement 1 includes detailed specifications based on the EPA and DOH approved Clean, Inspect, and Repair (CIR) process the Navy has used over the years for routine maintenance of the tanks. In addition, Supplement 1 includes a statement of work for the pigging process used to clean the pipelines. These specifications establish the performance standards the contractor is required to meet for cleaning, waste characterization, and disposal. The contractor will be responsible for developing the specific methods and means for cleaning, removing, characterizing, containerizing, transporting and selection of the disposal facility for ultimate disposition of the waste generated.

Once the contractor has provided the specific methods and means for tank cleaning and waste management, the Navy will prepare an addendum to the Red Hill Fuel Storage Facility Response Plan (FRP) for DOH and EPA review and comment. The FRP addendum will cover spill prevention and control measures related to tank cleaning and waste management.

6. **Section 6:** *As this section states, under Hawai'i Administrative Rules (HAR) Chapter 11-280.1, the Navy must conduct 1) a site assessment and 2) a release investigation and response for soil and groundwater cleanup for the Facility to be closed. However, the Plan only describes site assessment and investigation work associated with the 2014, May 6, 2021, and November 21, 2021 releases. The Navy must describe site assessment for the entire Facility that will be closed, taking into account all prior releases from the tanks and pipelines during the Facility's operational life, and include all of the infrastructure described in Section 2.*

Response: In the site assessment section, the Navy described historical investigations prior to the May 6 and November 21 releases. Additional information describes facility-wide efforts, including groundwater modeling and sentinel wells to delineate the extent of the plume. Once EPA comments are available, the Navy would like to schedule a meeting to discuss with DOH and EPA the specific areas that may need additional details in Section 6 of the closure plan.

7. **Section 6:** *Many of the references to past investigations name other documents but do not provide information on the results. Please provide a brief summary of results, so readers can understand how each document is related to the investigation and where there are potential gaps. For example, it is unclear from this document whether leaks under the twenty tanks have been discovered.*

Response: Section 6.2, Table 6-1 provides a brief summary of cited documents from 1996 to 2022. Section 6.4 provides detailed discussion of investigations pertaining to the May 6 and November 20,

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2021 releases, along with specific project documents (listed in Section 6.3.2) developed during these investigations. The Navy believes the best understanding of the site will come from the past documents themselves, rather than a brief summary. Nevertheless, the Navy is open to discussion and can compile summary information as needed in support of ongoing meetings with DOH and EPA.

8. **Section 6:** *Discussion of dissolved-phase groundwater plumes should be mentioned earlier in the Plan, for example, in the Executive Summary. This topic is not mentioned until Section 6, and it is not clear before then whether the dissolved-phase groundwater plumes will be investigated or addressed. Additionally, most of the planned activities listed in Section 6 focus on light non-aqueous phase liquids (LNAPLs) but do not mention the dissolved-phase contaminants of potential concern (COPCs).*

Response: The Navy suggests that additional discussion of dissolved-phase groundwater plumes can be included in a later supplement focusing on the Site Assessment and Release Investigation and Response aspect of tank closure. As currently noted in Section 6, the dissolved-phase contaminants of potential concern (COPCs) will be identified as part of site assessment. For example, Section 6.5.1, states, “The principal objective of the Site Investigation is to identify COPCS and determine the extent of release from RHBFSF which will be used to establish Site Cleanup Criteria (HAR § 11-280.1-65.3) and developing a Corrective Action Plan (HAR § 11-280.1-66), if necessary to achieve tank closure.” Section 6.7.1, provides a list of known COPCs to exist at RHBFSF which were approved by EPA and DOH. Further, Section 6.12 mentions the Fate and Transport Model, which “will address the potential migration of dissolved COPCs from the RHBFSF during anticipated pumping scenarios.” As discussed in this subsection, dissolved phased modeling is not specific to just LNAPL contaminants and will evaluated dissolved COPCs as identified during investigation.

9. **National Environmental Policy Act (NEPA):** *In a meeting with the Navy, DOH, and EPA on December 15, 2022, the Navy stated closure may be subject to review under NEPA, if a beneficial reuse is selected. Producing an environmental impact statement requires significant time and expert resources. However, the Plan does not mention NEPA or how it may affect the Navy’s procurement needs or closure timeline.*

Response: To clarify, the Navy believes the NEPA process is not required for closure of the Red Hill tanks under the Hawai‘i Administrative Rules (HAR). Therefore, the Navy does not expect NEPA to delay the closure process. However, a NEPA evaluation may be needed prior to initiating a non-fuel reuse of the RHBFSF. The NEPA evaluation level cannot be determined until further information is obtained, including identification of the beneficial non-fuel reuse.

10. **Enclosure 3 Appendix C:** *Many of these figures have been reduced in size to the point that they are not legible. Please provide legible figures in the next supplement.*

Response: All figures in Enclosure 3, Appendix C are included as an enclosure in Supplement 1 in a larger, more legible format with one figure per page.

SPECIFIC COMMENTS

11. **Page 8, Executive Summary:** *The last sentence of the first paragraph incorrectly refers to the*

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underground storage tank (UST) rules on release response actions as HAR § 11-280.1-60 to 11-280.1-65. The correct citation is HAR § 11-280.1-60 to 11-280.1-67.

Response: Supplement 1 notes this correction.

12. ***Page 8, Executive Summary:*** *The Plan refers to June 2024 as when defueling will be complete, however, this date is subject to change as the defueling team continues to compress the timeline. Accordingly, some of our comments below recommend that closure planning occur sooner in the schedule than currently proposed, so the Navy will be prepared to begin closure work immediately after defueling is complete, even if the end date moves forward considerably.*

Response: The Navy closure team coordinates with the defueling team, and we are aware the defueling timeline may be accelerated. As a result, we are reviewing the closure schedule for opportunities to accelerate, with the goal of being able to begin tank closure field activities as soon as defueling is complete. However, until the defueling team and the regulators agree on an updated defueling timeline, the closure team is using June 2024 as the date for completion of defueling.

13. ***Page 8, Executive Summary:*** *The Plan mentions “the Navy assembled a team of experts with in-depth knowledge of fuel systems and significant experience with permanent closure of large fuel tanks.” If the Navy is using consultants to perform this work, please identify the contractors. If the Navy is using in-house experts, please provide technical point of contacts who will be able to discuss closure issues. We understand the Navy is developing an organizational chart for closure planning. Please submit this information as soon as possible.*

Response: The Navy technical experts are and have been the experts that have previously met with the regulators and attend the bi-monthly Closure Plan technical working group meetings with the regulators. The minutes of those meetings identify who attends, topics discussed, along with some action items. As requested, the Navy will submit an organizational chart as soon as it is developed.

14. ***Page 9, Executive Summary:*** *The Plan mentions “[t]he Navy will perform tank and pipeline closure activities in accordance with the Red Hill Fuel Storage Facility Response Plan [FRP] (previously submitted on September 7, 2022, as Enclosure d. to the Defueling Plan Supplement 1.A), which provides information and detailed procedures for responding to a potential fuel spill at the [Facility].” However, we understand the FRP will be updated, such as with an addendum, to specifically address potential spill scenarios and planned spill control and mitigation and release response actions associated with cleaning and tank closure. The Plan does not discuss this planned addendum. Please include.*

Response: To initiate tank closure, the Navy will procure a contractor who will be required to develop the methods and means for cleaning and waste management, including an Environmental Protection Plan (EPP). A section of the EPP will be the contractor’s specific spill prevention and response plan, which will be submitted for Navy approval. In addition, once the contractor has provided its specific methods and means, the Navy will prepare an addendum to the Red Hill FRP. The FRP addendum will cover all spill prevention, control measures, and response actions related to the contractor’s selected means and methods for tank cleaning and waste management. The Navy will provide the FRP addendum to DOH and EPA for review and comment.

The Navy also notes that we revised the Red Hill Fuel Storage Facility Response Plan (FRP) to address comments received from EPA and DOH during the February to March, 2022 inspection.

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We submitted the revised FRP to DOH and EPA on January 11, 2023.

15. **Page 9, Executive Summary:** *The last sentence states “[o]nce the non-fuel reuse option has been selected, the Navy will take appropriate steps to render the tanks unusable for fuel storage....” The final version of the Plan must describe in detail what measures will be taken to achieve this.*

Response: The Navy will take the appropriate steps (i.e. tanks and pipeline are clean and remain in place and surge tanks are filled with inert material) to render the tanks unusable for fuel storage, while still supporting a planned reuse. This effort will be documented in a later supplement to the closure plan.

16. **Page 10, Executive Summary, Table E-1:** *It is unclear how the rough order of magnitude (ROM) cost for Alternative 2 was determined to be ten times the ROM cost for Alternative 1, when the beneficial non-fuel reuse for Alternative 2 has not been chosen yet.*

Response: Alternative 2 includes a minimal level of very preliminary cost estimating and advanced preparation for a beneficial non-fuel reuse of the tanks. Because a non-fuel reuse has not yet been determined, the scope of Alternative 2 is based on the assumption that the tanks will be used to store products other than fuel. Thus, Alternative 2 included a rough estimate of the cost to apply a protective coating over all tank internal surfaces and nozzles that may not be relevant or feasible depending on the options, and it includes no other work related to reuse. There is significant uncertainty associated with this alternative. A more complete cost breakdown for all Alternatives was included in the “Red Hill Tank Closure Plan Analysis of Alternatives & Concept Design to Close In Place,” submitted to DOH on December 22, 2022 by Commander, Navy Region Hawaii. In this December 2022 document, the title of Alternative 2 was changed to Closure In Place & Preparation for Non-Fuel Reuse. As agreed during the July 14, 2022, Meet and Confer Session between DOH and Navy, the Navy addressed beneficial non-fuel reuse in the Tank Closure Plan; however, we note that beneficial reuse, while subject to DOH review, is not part of the tank closure process defined under the Hawaii Administrative Rules (HAR).

17. **Page 10, Executive Summary, Table E-1:** *Environmental Impacts are assumed to be negligible for Alternative 1. However, later in the document the Navy states failure of the tank cylinder may cause catastrophic failure, hence the critical safety concerns for Remove Tank Steel Liner and Fill (Alternative 4). If so, structural failure due to earthquakes or corrosion over time may cause significant environmental impact. If the tank liner is necessary for long-term structural stability of the empty tanks, the Plan should outline the Navy’s plans for long-term maintenance and structural inspections of the tanks, including catwalks and central towers (i.e., post-closure monitoring and maintenance).*

Response: Plans for long term maintenance and structural inspections are outlined in the “Red Hill Tank Closure Plan Analysis of Alternatives & Concept Design to Close In Place,” submitted to DOH on December 22, 2022. Additional information will be provided in the tank structural analysis, which is currently planned for completion in April, 2023.

18. **Page 10, Executive Summary, Table E-1:** *It is unclear why Local Area Impacts for Closure with Fill (Alternative 3) are moderate, while those for Alternative 4 are critical. The main difference between Alternatives 3 and 4, in terms of Local Area Impacts, is removing and transporting the tank steel liner in Alternative 4. This should only represent a small increase in Local Area Impacts,*

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relative to the heavy traffic caused by transporting fill material in both Alternatives 3 and 4.

Response: The difference in Local Area Impacts is due to the potential for the removal of the tank steel liners to destabilize the surrounding geology. Additional information is provided in the “Red Hill Tank Closure Plan Analysis of Alternatives & Concept Design to Close In Place,” submitted to DOH on December 22, 2022.

19. **Page 10, Executive Summary, Table E-1:** *It is unclear why Engineering Feasibility for Alternatives 3 and 4 are the same. Considering the Navy’s position on the potential for catastrophic failure and the engineering and construction methods required to prevent such failure while removing the steel, Alternative 4 appears to be significantly more difficult than Alternative 3.*

Response: The Engineering Feasibility was evaluated as “Possibly Constructible” for Alternatives 3 and 4. The Navy agrees that Alternative 4 would be significantly more difficult than Alternative 3, and Alternative 4 would have significant safety risk. Considering the safety risk, the Navy would be willing to change the evaluation of Alternative 4 to “Not Constructible.”

20. **Page 13, Table 2-1:** *According to this table, Tanks F-13, F-14, F-17, and F-18 are “clean and empty.” Will these tanks be cleaned again, using the same cleaning methods for the tanks that are not currently clean? If the tanks are to remain in place, the Navy should demonstrate contaminants of concern that may remain on the tank surfaces or trapped behind the steel tank liners will not cause an environmental impact of concern.*

Response: The Navy is not proposing to clean Tanks F-13, F-14, F-17, and F-18 again because these tanks were cleaned previously using the Clean, Inspect, Repair (CIR) process, which involves a rigorous cleaning, accompanied by testing to show the tanks are safe for worker occupancy. The Site Assessment and Release Investigation and Response are designed to address environmental impact of contaminants of concern, regardless of the source.

21. **Page 15, 2.1.1 Underground Storage Tanks:** *The third paragraph references Figure 2-2 in Appendix C (Enclosure 3) for the surge tanks’ interior dimensions. However, the correct citation appears to be Figure 2-3 “Underground Surge Tanks 1,” which is directly under the paragraph. Figure 2-2 in Appendix C is not a drawing, as mentioned in the text.*

Response: Agreed – the citation will be corrected in Supplement 1.

22. **Page 20, 2.1.2 Above-Ground Storage Tank:** *This section states the fuel oil reclamation (FOR) line must stay in place post-closure to manage condensate expected to form in the tanks. Will the FOR line be sufficiently clean to transport clean condensate, and will it be necessary to pump clean condensate into a tank? How much condensate is expected? The Navy should evaluate the following alternatives that would allow the FOR line to close and may require less maintenance: 1) Allow the condensate to gravity drain, or 2) use ventilation to prevent or evaporate condensate.*

Response: Based on our understanding of the regulatory requirements, the Navy believes the condensate will need to be characterized, transported, and disposed of at an appropriately permitted wastewater treatment facility or solid waste management facility. At this time, the Navy has not yet estimated the amount of condensate that may be generated. The Navy would like to have further discussions on this issue.

23. **Page 21, 2.1.3 Pipelines:** *The last paragraph states pig cleaning (“cylindrical devices placed inside the pipes”) was performed on the fuel lines in 2005 and 2019, and the lines may contain minimal debris and sludge. How will this be verified, and how will the remaining debris and sludge be removed? Also, was the cleaning performed for the entire length of the lines in 2019? Was the FOR line also cleaned in the same way?*

Response: During the defueling phase, pipeline unpacking will immediately follow the removal of the flowable tank bottoms. At this time, only sludge and other non-flowable material will remain in the tanks. The unpacking of the pipelines will mimic the operations previously employed to facilitate the Phase Three Defuel repairs.

Once the unpacking of the lines is complete, the residual fuel will be removed from the low point drains, valves, transitions, flanges, and other areas that could potentially hold small amounts of fuel. Typically, this action is completed using barrels, buckets, and other collection methods with secondary containment for the collection vessel and other spill protection measures (absorbent boom, pads, etc.) placed for nearby sensitive areas. As noted in our response to Comment 14, these spill protection measures will be described in the contractor spill plan and the Navy FRP addendum.

In addition to the pipeline cleaning described in the Tank Closure Plan, the pipelines will also be cleaned by pigging, with a detailed statement of work provided in Supplement 1.

To complete the closure of the pipelines and associated components, the pipelines will be cracked open at various points to gas-free the system (i.e., remove all fuel vapors and residue), and a ventilation system will be used to accelerate the gas-free process, as described in the Tank Closure Plan. A certified marine chemist (sometimes referred to as an industrial hygienist) will verify the cleaning of the pipelines and certify the piping as gas-free. Supplement 1 provides additional information on the gas-free standards and process.

During pigging operations in 2015 and 2019 pipelines between Adit 2 sectional valves and the sectional valve at the bottom of the tank gallery were cleaned with pigs. The Navy does not believe the FOR line was pigged.

24. **Page 21, 2.1.3 Pipelines:** *The last sentence refers to inspection and closure of secondary containment for portions of the FOR line, however, the DOH is not familiar with the design and locations for the buried secondary containment sections. The DOH understands a portion of the line is buried outside of Adit 3. Please provide locations and descriptions for the FOR line’s secondary containment.*

Response: The Navy has observed evidence of abandoned or old FOR lines at Tanks F-2, 10 and 12. The Navy will investigate further to determine the location of these lines, including any secondary containment, and provide this information in a later supplement to the Tank Closure Plan.

25. **Page 21, 2.1.4 Sumps:** *Sumps are typically a prime location for leaks. Will sampling be performed under the tunnel sumps? The DOH requests copies of the tank tightness tests for the main containment and zone 7 exclusion sumps.*

Response: The Navy will revise Tank Closure Plan Section 6.13 Determine Light Non-Aqueous Phase Liquid Preferential Pathway to include sampling under the tunnel sumps during site assessment. Supplement 1 will revise the text to say, “This site assessment will evaluate known and potential release areas within the RHBFSF to include the fuel tanks, associated adit tunnels, within and below sumps, and the network of fuel distribution lines (including known and abandoned fuel

distribution lines).” Tank tightness tests will be performed on these sumps as part of defueling operations.

26. **Page 21, 2.2 Infrastructure Repairs Required for Tank Closure:** *The first sentence states the FOR line will not be used during defueling. However, it may be used because it is the planned emergency line to remove oil if there is a spill. Accordingly, the FOR line may be inspected and repaired by the defueling team prior to defueling. If the closure team also needs to inspect and repair the FOR line (e.g., to ensure it can manage condensate long-term, as described on page 20), the defueling and closure teams should consolidate their efforts to save time by repairing the FOR line for both purposes before defueling.*

Response: The closure team will coordinate with the defueling team as suggested.

27. **Page 21, 2.3 Infrastructure Repairs Required for Defueling:** *The last sentence states “[a]ny deficiencies in infrastructure required [for] defueling will be corrected prior to the Closure Phase.” Please note, the F-76 line will not be used during defueling, so it will not be repaired. This should be considered prior to the cleaning activities.*

Response: The Navy will consider the status of the F-76 line as suggested. During tank cleaning, the F-76 line will not be used for removal of any flowable material.

28. **Page 22, 2.4 Infrastructure Assessment:** *This section mentions the Navy intends to assess each tank after cleaning to identify and address any structural integrity issues before closure. However, no other information is provided. For instance, who will do the assessment, and what is the design criteria for the assessment and associated repairs?*

Response: The Navy is working to award a contract to evaluate the structural integrity of the tanks, under the assumption that the tanks will be closed in place. The results of this evaluation are currently planned to be delivered to DOH in April, 2023.

29. **Page 22, 2.4 Infrastructure Assessment:** *The criteria for infrastructure assessment will depend on the Navy’s final selection of closure alternative. However, the Enclosure 2 Closure Network Diagram states the “Structural analysis for close in place alternate [sic]” will be completed on March 30, 2023 (ID 7), which is two days prior to when the Final Closure Alternates Report will be submitted on April 1, 2023 (ID 6). Is this enough time for the Navy to incorporate the selected alternative into the infrastructure assessment criteria?*

Response: The structural analysis will evaluate the tanks under the closure in place alternative (please note that the Navy has changed the delivery date from March to April 2023). If a different alternative is ultimately selected, additional evaluation may be required. The “Final Closure Alternatives Report” refers to the final version of the “Red Hill Tank Closure Plan Analysis of Alternatives & Concept Design to Close In Place,” submitted to DOH on December 22, 2022. Although this report is still under review, it provides detailed information supporting the closure in place alternative.

30. **Page 23, 3.1.1 Cleaning Methodology:** *The first sentence lists Tank F-1 as “cleaned using the methodology described in the Tank Inspection and Repair (TIRM) Report.” However, in Table 2-1 on page 13, it is categorized as “Defueled in 1997,” instead of “Cleaned and Emptied.”*

Please clarify.

Response: The information in Table 2-2 is correct, and the first sentence of Section 3.1.1 will be corrected in Supplement 1. The Navy will complete a UV inspection of Tanks F-1 and F-19, and we will perform additional cleaning as needed.

31. **Page 23, 3.1.1 Cleaning Methodology:** *This section indicates several tanks are empty, but none have been closed. The DOH notes cleaning the tanks that are already empty will take significantly less time than the tanks that need to be defueled. Will all the tanks be cleaned for closure in accordance with American Petroleum Institute Recommended Practices (API RP) 1604 and Unified Facilities Guide Specifications (Section 3.2.1), as stated in the Plan?*

Response: Tanks F-13, F-14, F-17, and F-18 have been through the CIR process and were not refilled with fuel, so these tanks have already been cleaned in accordance with American Petroleum Institute Recommended Practices (API RP) 1604 and Unified Facilities Guide Specifications (UFGS) Section 3.2.1. Therefore, the Navy is not planning to clean these tanks again. Since Tanks F-1 and F-19 have not been documented as clean under the CIR process, the Navy will perform UV inspections and follow up with additional cleaning as needed to comply with API RP 1604 and UFGS Section 3.2.1. Under these combined efforts, all tanks will be cleaned in accordance with API RP 1604 and UFGS Section 3.2.1.

32. **Page 23, 3.1.2 Quality Assurance/Quality Control [QA/QC]:** *This section states “[t]he contractor performing the closure design and construction will be required to establish and maintain a QC program....” Please describe in detail the proposed design, construction, and associated QA/QC program that will be utilized, including whether a third-party QA or quality verification contractor will verify the closure work.*

Response: The tank closure contractor will be responsible for submitting a QC plan to the Navy for review and approval. The Navy will submit the QC plan to DOH and EPA for review and comment. In order to verify the proper completion of the tank closure work, the Navy will implement a 3rd party QA program that will involve Navy personnel or a separate QA firm. The Navy will submit the QA plan to DOH and EPA for review and comment.

33. **Page 24, 3.2 Sequence for Cleaning:** *According to this section, the twenty tanks will be cleaned four tanks at a time, implying four cleaning crews, starting with Tanks F-1 through F-4. The DOH offers the following considerations:*

- a. *Would it be more prudent to start with the upstream tanks and work downstream to 1) prevent accidental contamination of previously clean tanks downstream, and 2) allow for upstream pipelines to remain closed while downstream work is underway?*

Response: The Navy will take this comment under consideration as tank closure planning progresses. Ultimately, the tank closure contractor will determine the sequence for cleaning the tanks and will be responsible for preventing or addressing any accidental contamination.

- b. *Paragraph 3 of this section states a fifth crew will clean the surge tanks simultaneously with tanks F-1 through F-4. However, the surge tanks will not be used for defueling, so could those be cleaned and closed sooner?*

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Response: Given the need for strict safety procedures during defueling, the Joint Task Force-Red Hill (JTF-RH) and the Navy have determined that closure operations will not start until defueling is complete, currently estimated to be June, 2024.

- c. *Additionally, could this fifth crew be used to clean the large tanks to further reduce the closure timeline?*

Response: Given the logistical constraints of working within the Red Hill facility, the Navy believes a maximum of four crews will be able to work simultaneously on the large tanks. Ultimately, the closure contractor may find a way to use more than four crews.

- d. *The schedule in the Enclosure 2 Closure Network Diagram suggests the teams will clean tanks in the following groups: Tanks 1, 5, 9, 13, and 17; Tanks 2, 6, 10, 14, and 18; Tanks 3, 7, 11, 15, and 19; and Tanks 4, 8, 12, 16, and 20. If this is correct, some teams will finish much sooner than others because as many as three tanks assigned to a team could already be empty and previously cleaned, while another team is assigned tanks that all contain fuel. If work is distributed based on next available tank or level of effort, instead of tank numbers, closure could occur much faster. For example, if teams work on the next available tank, which is the method described on page 24, the estimated completion date for cleaning all twenty tanks could be reduced by about seven months (from December 1, 2026 to about May 10, 2026).*

Response: Due to safety considerations, tank closure operations cannot begin until defueling is complete. Although the schedule in the Tank Closure Plan is our current best estimate, the Navy will look for ways to optimize the tank closure process and reduce the actual time for cleaning the tanks. Ultimately, the closure contractor will be required to determine and implement the most efficient order for tank cleaning.

- e. *Can recently defueled tanks take priority for cleaning over tanks that are currently empty? Then, sludge and remaining petroleum could be removed from recently defueled tanks earlier than currently planned. This would be more efficient than basing the cleaning order strictly on tank numbers, as currently planned.*

Response: Comment noted. Ultimately, the closure contractor will be required to determine and implement the most efficient order for tank cleaning.

34. *Page 24, 3.2.1 Process for Cleaning of Storage Tanks Surge Tanks and Piping Systems: This section states, “[w]hile this UFGS [Unified Facilities Guide Specification 33 01 50.55] is written specifically for tanks, it will be adapted as necessary and appropriate to encompass cleaning of pipelines as well.” The guidance referenced speaks to cleaning using water. However, in section 3.2.4. Pipelines, the report states the pipelines will be cleaned by ventilation. Please clarify.*

Response: The Navy is not proposing to use water to clean the pipelines. The Navy will initiate pipeline cleaning using the same approach (approved by DOH and EPA) performed under defueling prior to performing repairs. The pipelines will be drained to the maximum extent possible using gravity flow. Pumps connected to the low point suction near Adit 1 will be used to pump out any remaining product to the maximum extent practicable. The pipelines will then be cleaned by pigging, with a detailed statement of work provided in Supplement 1 (the pigging

process is in addition to the pipeline cleaning described in the Tank Closure Plan). Low point valves will be opened or flanges disconnected in local areas to drain any remaining product into containers or totes. Finally, the pipelines will be ventilated using forced air to evacuate any remaining product. A marine chemist or industrial hygienist will certify the pipe is clean. Supplement 1 provides additional information on the pipeline cleaning standards and process.

35. **Page 24, 3.2.1 Process for Cleaning of Storage Tanks Surge Tanks and Piping Systems:** *This section states tank cleaning will conform to UFGS 33 01 50.55, while section 3.1.1 cites API RP 1604. The UFGS does not reference API RP 1604. Which is correct, or will the strictest requirements from either be used, as appropriate? The last sentence of this section states the UFGS will be adapted to clean the pipes. However, the procedures included in this specification are not appropriate for pipes. Please include specific cleaning procedures for the pipes in this Plan.*

Response: The strictest requirements of the UFGS or API document will rule. Supplement 1 notes this clarification. Please see the response to Comment 34 for details on how the Navy proposes to clean and close the pipelines.

36. **Page 24, 3.2.2.1 Preparing to Clean the Tanks, b. Unusable Fuel:** *This section states unusable fuel will be considered waste and characterized to determine if it is hazardous. However, Table 4.3 (page 34) states recovered oil will be disposed of as hazardous waste, and oil-contaminated waste will be evaluated to determine if it is hazardous. Please clarify.*

Response: None of the materials generated from the cleaning of the tanks are expected to be a hazardous waste based on the materials previously stored in the tanks. However, the contractor is required to complete a waste determination in accordance with state and federal requirements to confirm this expectation. In Supplement 1, Table 4.3 has been revised to add management of the recovered oil if it is confirmed that it is non-hazardous waste.

37. **Page 25, 3.2.2.2 Tank Interior Cleaning, item a:** *Explain what specific environmentally acceptable cleaning solution" will be used.*

Response: The contractor will be required to develop the methods and means to clean the tank interiors, including the selection of a specific cleaning solution. When the Navy receives this information, we will provide it to DOH and EPA for review and comment. We welcome the opportunity for further discussions.

38. **Page 25, 3.2.2.3 Wash Water, Detergent Solution, and Sediment Removal:** *This section states rinsate will be continuously removed with a section hose extending to the tank bottom. Where will this material be pumped to? What will the maximum allowable head in the tank be? How will any remaining material be removed?*

Response: The performance standard requires continuous removal of the liquid, and the specific methods and means of completing the removal will be developed by the contractor. The material will be pumped through the FOR line to the FOR tank (Tank 311) or placed in totes and removed in accordance with the waste management procedures. Minimal head is expected to be created in the tank as the cleaning solution is continuously to be removed during the operation. Any remaining material not removed by pumping will have to be removed using absorbent pads or be mopped out by hand.

39. **Page 26, 3.2.4 Pipelines:** *Cleaning the pipelines by “ventilation” is not sufficient for closure. Additionally, this ventilation procedure does not appear in API RP 1604 or UFGS 33 01 50.55. UFGS Section 3.7 states to clean the interior of the tanks (and other internal structures) to bare metal, free of rust, dirt, scale, loose material, fuel, oil, grease, sludge, and other deleterious substances. Please state how this (Section 3.2.1) will be adapted for pipelines to achieve and verify these results. Lastly, provide a detailed procedure for cleaning the pipelines for closure, as the methods listed in UFGS 33 01 50.55 do not seem appropriate.*

Response: In addition to the pipeline cleaning described in the Tank Closure Plan, the pipelines will be cleaned by pigging, with a detailed statement of work provided in Supplement 1. Please see the responses to Comments 23 and 34 for details on how the Navy will clean the pipelines. The Navy requests further discussion with DOH and EPA on this issue.

40. **Page 29, 4.2 Waste Generation:** *This section states rinsate and sludge “are to be removed through one of the nozzles in the bottom of the tank” because “[t]he existing Fuel Oil Reclaimed [sic] FOR lines were considered for waste transfer but cannot be used....” However, in meetings between the DOH, EPA, and Navy, the Navy has stated it will use the FOR lines for this purpose. Please confirm the current intent and provide detailed procedures.*

Response: Since the Tank Closure Plan was written, the Navy has determined that the FOR lines can be used to remove oily wastewater, rinsate, and flowable sludge. Supplement 1 will show this correction. The detailed methods and means of removing the material from the tanks will ultimately be developed by the contractor, subject to Navy approval and DOH and EPA review and comment. The Navy expects the contractor to use successful past procedures for removing waste and cleaning solution. These procedures include using the FOR line to move flowable material to the FOR tank (Tank 311), and containerizing sludge and other solids in totes and drums.

41. **Page 29, 4.2 Waste Generation:** *If rinsate and sludge will be removed via one of the nozzles, please explain which nozzle will be used, and provide a detailed description of the process, including planned spill prevention and control measures.*

Response: Based on past cleaning efforts it is expected that the FOR line nozzle will be used to remove oily wastewater, rinsate, and flowable sludge. Additional information is provided in Supplement 1 as requested.

42. **Page 30, 4.3 Waste Accumulation Management:** *This section states waste will be stored in areas determined by Joint Base Pearl Harbor-Hickam Environmental and shall be at or as practicably near the point where the waste is generated, but outside the tunnel. Please identify this location, explain how the waste will be moved from the point of generation to this location, and provide a layout of the environmental controls and storage capacity for the waste storage location.*

Response: Waste accumulation area(s) have not been selected at this time. Once the methods and means are selected by the contractor waste accumulation areas can be established. At this time the area inside the tunnels and adjacent to Adits 1, 2 and 6, as well as the FOR tank (Tank 311) outside of Adit 3 may be proposed for use by the contractor based on available access to the tunnel complex and previous cleaning operations.

43. **Page 30, 4.3 Waste Accumulation Management:** *This section further states, “if the quantity of*

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non-HW [non-hazardous waste] is large and the storage area interferes with the closure activities, it may be necessary to store the wastes farther from the RHBSF [sic] site.” If the quantity of non-HW is large, such that it exceeds a load for transportation purposes, can the full containers be sent directly for disposal, rather than stored at another location for a longer period of time? Non-HW, if to remain on-island, shall be transported to DOH-permitted solid waste management facilities.

Response: Since the Navy has recently determined that the contractor can use the FOR line and FOR Tank (Tank 311) for the movement and accumulation of liquid cleaning residuals, there is no longer a potential need to accumulate waste containers in a remote location. This change is documented in Supplement 1. Waste accumulated in FOR Tank (Tank 311) will be sent off site directly for treatment, recovery or disposal as required.

44. **Page 30, 4.3 Waste Accumulation Management:** *The second paragraph states, “[w]here liquids or sludge are stored, secondary containment shall be employed to prevent releases.” Please describe the secondary containment and the Navy's plans to clean up any releases.*

Response: Although secondary containment is not a state or federal solid waste management requirement, the Navy will implement secondary containment at waste accumulation areas as a best management practice in order to facilitate the cleanup of any potential releases and to prevent potential impacts outside of the accumulation area. As stated in the Tank Closure Plan Section 4.3, all containers that hold liquids shall be stored on spill pallets or within impervious berms to prevent any leaks from entering streams, storm drains or other waterways. Large containers of sludge and solids shall be placed on plastic sheets. Dumpsters, totes, and drums that hold oil-contaminated debris shall be lined with plastic to prevent leaks. Containers that hold flammable or combustible materials shall be stored per fire prevention regulations and National Fire Protection Association (NFPA) 30 fire prevention code and standard. Additionally, waste accumulation areas shall be inspected weekly, and the inspections must be documented as an additional performance best management practice above and beyond regulatory standards to address potential releases from containers in accumulation areas. As described in the response to Comment 41, the Navy will prepare an FRP Addendum once the contractor determines the methods and means they will employ to clean and remove the waste from the tanks. The Navy will provide the FRP addendum to DOH and EPA for review and comment.

45. **Page 32, 4.4 Waste Determination:** *Please clarify which waste streams are expected to be hazardous.*

Response: Based on the products stored in the tanks, no waste streams generated from tank cleaning are expected to be hazardous. However, in accordance with state and federal regulations, the Navy will perform a formal waste determination using knowledge or testing prior to offering the waste for disposal.

46. **Page 33, 4.4 Waste Determination:** *The Plan states, “[d]isposal of non-hazardous waste will be at appropriately permitted solid or National Pollution Discharge Elimination System (NPDES) recovery, treatment or disposal facility.” Please confirm “facility” refers to permitted wastewater treatment facilities.*

Response: Correct, in this context, “facility” refers to an appropriately permitted waste management facility or to an NPDES permitted wastewater treatment facility.

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47. **Page 36, 5.1 Introduction:** *The last sentence of the first paragraph states closure will be performed in compliance with UST “corrective action regulations” in HAR Chapter 11-280.1. While the Navy is subject to all applicable regulations, we believe the wording here should be “closure regulations.”*

Response: The Navy concurs, and the change will be made in Supplement 1.

48. **Page 36, 5.2 Analysis of Tank Closure Alternatives:** *The last sentence in the first paragraph states the ROM costs will be provided in the robust alternatives analysis. However, ROM costs for Alternative 2 cannot be estimated until the beneficial non-fuel reuse is identified.*

Response: Because the beneficial non-fuel reuse has not yet been determined, Alternative 2 includes only a minimal level of advanced preparation for a beneficial non-fuel reuse of the tanks. As described in the response to Comment 16, the cost estimate reflects the installation of a protective coating over all tank internal surfaces and nozzles, and Alternative 2 includes no other work related to reuse. A complete cost breakdown for all Alternatives were included in the Red Hill Tank Closure Plan Analysis of Alternatives & Concept Design to Close In Place, submitted to DOH on December 22, 2022. In this December 2022 document, the title of Alternative 2 was changed to Closure In Place & Preparation for Non-Fuel Reuse.

49. **Page 37, 5.2 Analysis of Tank Closure Alternatives:** *The first sentence states the “Schedule factor” includes “closure of the 20 tanks and associated pipelines.” Please clarify whether closure of the surge tanks was also factored into the alternatives discussion.*

Response: The Navy considered the closure of the surge tanks in the discussion of alternatives but this is not always explicitly stated because the four surge tank are relatively small compared to the 20 large tanks.

50. **Page 37, 5.2.1 ALT 1:** *Alternative 1 is referred to as Closure in Place. However, this section states “[t]he Navy has identified this as the best alternative for permanent closure because it would allow for beneficial non-fuel reuse of the tanks....” Please confirm that Alternatives 1 and 2 both include beneficial non-fuel reuse of the tanks. If correct, the only differences between Alternatives 1 and 2 are: 1) The proposed coating on the tanks’ inner surfaces in Alternative 2; and 2) the third-party beneficial reuse study conducted in Alternative 2, but not Alternative 1.*

Response: Please see the responses to Comments 16 and 48. In addition, the Red Hill Tank Closure Plan Analysis of Alternatives & Concept Design to Close In Place, submitted to DOH on December 22, 2022, contains information that completely describes and evaluates the alternatives. In this December 2022 document, the title of Alternative 2 was changed to Closure In Place & Preparation for Non-Fuel Reuse.

51. **Page 37, 5.2.1 ALT 1:** *Alternative 1 is titled Closure in Place but should more accurately be titled Closure in Place Without Fill to distinguish it from Alternative 3 (Closure with Fill). This would help to clarify that Alternative 1 does not involve filling the tanks, and the Navy is requesting an alternative closure method to be approved by the DOH.*

Response: The Red Hill Tank Closure Plan Analysis of Alternatives & Concept Design to Close In Place, submitted to DOH on December 22, 2022, contains information that completely describes the alternatives, and it clarifies that Alternative 1 does not involve filling the large tanks.

52. **Page 37, 5.2.1 ALT 1:** *How will the pipelines be addressed in Alternative 1?*

Response: Please see the responses to Comments 23 and 34 for details on how the Navy will clean the pipelines. These details on pipeline cleaning apply to Alternative 1 as well as the other alternatives.

53. **Page 38, 5.2.1 ALT 1:** *The last sentence states there would be a structural analysis to support Alternative 1, which the DOH assumes would include seismic analysis. Given the potential for serious failures described in Alternative 4, a corrosion study on the liner and concrete reinforcement should also be performed to determine the risk of long-term failure if the liner or concrete loses structural integrity and creates a risk for water intrusion. Under this scenario, discussion regarding post-closure monitoring of the infrastructure and maintenance may be prudent.*

Response: In the in the structural analysis, currently scheduled to be delivered in April, 2023, the Navy will address the risk of long-term failure. The analysis will consider seismic events of the anticipated magnitude on the island of Oahu. The Navy expects to perform post-closure monitoring and maintenance of the tanks.

54. **Page 38, 5.2.1 ALT 1:** *Provide detail on how the structural analysis would be conducted, and how often the Navy plans to evaluate the tanks' integrity. Will the structural analysis include the four surge tanks?*

Response: Please see the response to Comment 53. The structural analysis will include the 20 large tanks, but it will not evaluate the four surge tanks because the Navy intends to fill these tanks as described in the Red Hill Tank Closure Plan Analysis of Alternatives & Concept Design to Close In Place, submitted to DOH on December 22, 2022.

55. **Page 38, 5.2.2 ALT 2:** *This section states, “[c]ompared to ALT 1, this alternative receives similar scores for environmental impacts....” This statement seems premature considering the chosen beneficial use has not been determined.*

Response: Please see the responses to Comments 16 and 48.

56. **Page 38, 5.2.2 ALT 2:** *“Potential” should be removed from the title of this alternative to distinguish it from Alternative 1.*

Response: As noted previously, the Red Hill Tank Closure Plan Analysis of Alternatives & Concept Design to Close In Place, submitted to DOH on December 22, 2022, provides additional information to distinguish Alternative 1 from Alternative 2. In this December 2022 document, the title of Alternative 2 was changed to Closure In Place & Preparation for Non-Fuel Reuse.

57. **Page 38, 5.2.2 ALT 2:** *The second paragraph describes the Navy's intent to collect and analyze beneficial reuse ideas from stakeholders through a third-party consultant. The DOH agrees this should be done. As stated previously, the Navy must identify a selected beneficial reuse in the final Plan because this will affect how the tanks and systems are closed. Additionally, any work required for the chosen beneficial reuse should be included in the Plan's schedule and occur concurrently with cleaning and closure to the extent possible.*

Response: As requested, the Navy will coordinate beneficial reuse with cleaning and closure to the extent possible. Please see the response to Comment 2 for detailed information on the Navy efforts toward beneficial non-fuel reuse. As agreed during the July 14, 2022, Meet and Confer Session between DOH and Navy, the Navy addressed beneficial non-fuel reuse in the Tank Closure Plan; however, we note that beneficial reuse, while subject to DOH review, is not part of the tank closure process defined under the Hawaii Administrative Rules (HAR).

58. **Page 38, 5.2.2 ALT 2:** *For the third-party study, please clarify: 1) Who the third-party is, 2) the timeline for the study, 3) whether the DOH will receive the original results and/or a summary, and 4) whether the original results and/or a summary will be made available to the public.*

Response: The Navy awarded a contract to Nakapuna Companies on January 31st, 2023 to actively engage the Oahu community and obtain public input on beneficial non-fuel reuse options. The Navy expects the study to be completed on island no later than the first quarter of calendar year 2024. DOH will receive original results and a summary and the original results and a summary will be made available to the public.

59. **Page 38, 5.2.2 ALT 2:** *The final paragraph describes the tank design as a National Civil Engineering Landmark and states the Facility could be listed in the National Register of Historic Places. Does the Navy intend to pursue this listing? If so, will this take place before or after closure? This paragraph also states the Facility's preservation could serve the public interest. With this designation, will the public have access to the Facility (or significant parts of the Facility) through tours or other educational programs? This would also allow the public to fully recognize the many Navy personnel who constructed this unique facility and the remarkable engineering feat that was accomplished. Is the Navy suggesting something of this nature?*

Response: The Tank Closure Plan includes the paragraph on the National Civil Engineering Landmark only as an example of the kind of non-fuel reuse that could occur. Before making any decision related to non-fuel reuse, the Navy will conduct a beneficial reuse study, as described in the responses to Comments 57 and 58.

60. **Page 38, 5.2.3 ALT 3:** *This section describes filling the tanks with inert material. What material would this be, and where would it come from? Does the source have sufficient quantities to fill the twenty 12.5-million-gallon tanks and four 420,000-gallon surge tanks? Lastly, how would the pipelines be addressed in Alternative 3?*

Response: The Red Hill Tank Closure Plan Analysis of Alternatives & Concept Design to Close In Place, submitted to DOH on December 22, 2022, provided the requested information on filling the tanks under Alternative 3. The pipelines would not be filled under Alternative 3. Please see the responses to Comments 23 and 34 for details on how the Navy will clean the pipelines. These details on pipeline cleaning apply to Alternative 3 as well as the other alternatives.

61. **Page 38, 5.2.3 ALT 3:** *The DOH understands there are potential issues with implementing this alternative. However, filling the tanks would largely eliminate structural concerns and much of the O&M needed in Alternatives 1 and 2. The temporary local concerns described in Alternative 3 can be mitigated to some degree by thoughtful planning and engineering. At the very least, the cost of filling the tanks should be compared to O&M costs for the other alternatives, so a more informed decision can be made.*

Response: The Red Hill Tank Closure Plan Analysis of Alternatives & Concept Design to Close In Place, submitted to DOH on December 22, 2022, addresses these issues.

62. **Page 38, 5.2.3 ALT 3:** *An estimated 1.2 million cubic yards of fill would be needed to fill the twenty 12.5-million-gallon tanks. This equates to about 132,000 9-cubic-yard dump trucks (or about half as many roll-off boxes). How was the five-year time frame calculated? The time frame may be underestimated given the amount of fill and limited access.*

Response: The Red Hill Tank Closure Plan Analysis of Alternatives & Concept Design to Close In Place, submitted to DOH on December 22, 2022, addresses the estimates and calculations. The Navy believes the five-year time frame is the current best estimate, but it is possible that the timeframe could be longer.

63. **Page 38, 5.2.3 ALT 3:** *The last sentence states Alternative 3 does not allow for beneficial reuse. However, if an educational facility were selected, as suggested in the discussion for Alternative 2, not all tanks would need to remain open. Filling some tanks would allow the same reuse and reduce long-term O&M requirements.*

Response: Comment noted.

64. **Page 39, 5.2.4 ALT 4:** *The DOH agrees removing the steel liner prior to filling the tanks may compromise the structural integrity of the Facility, which is a cause for concern. However, these serious consequences also exist if the tanks remain unfilled, due to structural deterioration over time. Thus, discussion on post-closure monitoring and maintenance needs to be included in the Plan.*

Response: Please see the response to Comment 53.

65. **Page 40, 5.3 Tank Closure in Place:** *Provide detail on the proposed closure design. For example, in item 4.b, how will the tanks be isolated from the tank openings in the upper access tunnel and gaugers gallery? Will there be access to view the interior of the tank? If water draws are needed, will a visual of the tank interior be provided? How will maintenance be achieved if access is restricted?*

Response: Supplement 1 provides detail on the tank cleaning and waste management portions of tank closure. Future supplements will provide the additional details requested.

66. **Page 40, 5.3 Tank Closure in Place, item 4:** *"DOH EMD" stands for "DOH Environmental Management Division." Coordination shall be with the DOH-EMD's Underground Storage Tank Section within the Solid and Hazardous Waste Branch.*

Response: The change will be made in Supplement 1 as requested.

67. **Page 40, 5.3 Tank Closure in Place, item 4.a:** *The first sentence states "Tanks 1 and 19 have been out of service since 2007." However, Table 2-1 on page 13 lists them as "defueled in 1997." On the Navy's "Notification for Underground Storage Tank" form submitted to the DOH on January 11, 2007, Tanks 1 and 19 were marked permanently out of use as of March 2007. According to the form, Tank 1 was last used in October 1997, and Tank 19 was last used in December 1986. However, in 2015, the Navy informed the DOH that Tanks 1 and 19 were temporarily, rather than permanently,*

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out of use. Please clarify the timeline of statuses for Tanks 1 and 19.

Response: Available records indicate the Navy notified DOH in 2007 of the intent to permanently close Tanks 1 and 19. The Navy welcomes the opportunity for further discussion with DOH.

68. **Page 40, 5.3 Tank Closure in Place, item 4.b:** *It will likely not be clear which electrical or other systems are required or should be removed until the beneficial reuse determination is made.*

Response: Comment noted. Please see response to Comment 2.

69. **Page 40, 5.3 Tank Closure in Place, item 4.b.v:** *Please provide more detail on what these tunnels would be used for and which portions would be closed, if any.*

Response: The Red Hill Tank Closure Plan Analysis of Alternatives & Concept Design to Close In Place, submitted to DOH on December 22, 2022, provides additional detail on the use and status of the tunnels under the various closure alternatives.

70. **Page 40, 5.3 Tank Closure in Place, item 6:** *Pipe cleaning, other than “ventilation,” is not described in this plan.*

Response: In addition to the pipeline cleaning described in the Tank Closure Plan, the pipelines will also be cleaned by pigging, with a detailed statement of work provided in Supplement 1. Please see the responses to Comments 23 and 34 for details on how the Navy will clean the pipelines.

71. **Page 41, 5.3 Tank Closure in Place, item 8:** *The closure report should provide more detail on the work performed, including but not limited to, a description of the cleaning and closure actions, waste determination, and disposal manifests and receipts. As-built drawings of the closed underground tank system should be provided with final post-closure monitoring of, not only the environment, but also the underground tank system. Item 8 appears to be a simplified list for a gas station. If the tanks are to remain in place, how will the tank disposal receipts be provided? Closure must comply with HAR Chapter 11-280.1, and site characterization shall follow the DOH’s Technical Guidance Manual, with site-specific environmental action levels (EALs).*

Response: Supplement 1 provides detail on the tank cleaning and waste management portions of tank closure. Future supplements will provide the addition details requested.

72. **Page 41, 5.3 Tank Closure in Place, item 10:** *Long-term maintenance of the UST system must also be discussed. If the system is not filled with inert material, how will the structural integrity of the venting lines, fuel lines, and tanks be maintained? Discuss what post-closure monitoring and maintenance procedures will be performed to ensure structural integrity.*

Response: The Red Hill Tank Closure Plan Analysis of Alternatives & Concept Design to Close In Place, submitted to DOH on December 22, 2022, provides information on the post-closure monitoring and maintenance procedures to ensure structural integrity. In addition, the Navy is currently preparing a structural analysis, to be delivered in April, 2023, that will further address the concerns about structural integrity and long-term monitoring.

73. **Page 51, 6.4.4 Ongoing Groundwater Modeling:** *In an August 30, 2022 joint letter, the DOH and EPA conditionally approved a schedule extension for the Navy’s Groundwater Flow Model Report Addendum submission date to December 29, 2022, as requested by the Navy in a May 20, 2022 letter. Subsequently, the Navy submitted a July 1, 2022 Groundwater Flow Model Update, which revised the submission date to December 19, 2022. However, the Plan states “[g]roundwater modeling efforts are scheduled to be completed by September 2024.” The DOH and EPA did not approve another extension.*

Response: The Navy would welcome further discussion on this comment so we can collaborate on a path forward and schedule based on closure of the facility. Please see the response to Comment 80 for additional information.

74. **Page 52, 6.4.5.3 Adit 3 Soil Borings:** *This section appears to incorrectly reference Figure 6-7 in Enclosure 3 Appendix C.*

Response: Supplement 1 will revise this section to correctly reference Figure 6-5 in Enclosure 3 Appendix C.

75. **Page 57, 6.5.2 Principal Study Questions:** *A question(s) regarding dissolved-phase plume delineation should be included in this list.*

Response: Dissolved-phase plume delineation is captured broadly under “groundwater contamination” in current PSQs 4-8.

76. **Page 62, 6.8 Site-Specific Action Levels:** *The site-specific risk-based levels should be replaced with the EALs from the 2021 investigation or any subsequent updates. The DOH issued the most recent site-specific EALs for the Facility on April 20, 2022.*

Response: Supplement 1 will revise Section 6.8 to specify the DOH most recent Total Petroleum Hydrocarbon (TPH) EALS, issued on April 20, 2022. The text will be revised to, “Site-specific action levels used for decisions at the RHBFSF will utilize DOH most recent site-specific Total Petroleum Hydrocarbon (TPH) EALS for COPCs within impacted environmental media (soil, groundwater, surface water).”

77. **Page 64, 6.11 Update the Existing Groundwater Flow Model:** *The list of “[a]dditional data needs” includes Navy groundwater monitoring data collected since 2005. It is unclear why this is an additional data need. The Navy should have this data. Please confirm. If the Navy does not have this data, please explain why.*

Response: This section calls out data needs in the operational sense to run the groundwater model, not meaning to imply a data gap or missing information. The Navy has this data.

78. **Page 65, 6.11 Update the Existing Groundwater Flow Model:** *This section along with the previous sections seem to focus on LNAPL. However, there is very little discussion on the dissolved-phase plume delineation. Will this be included in the evaluations?*

Response: Investigation and delineation of dissolved-phase groundwater contamination will be

included, and it is currently captured in multiple subsection within Section 6 under investigation of groundwater contamination. As described in Section 6.12, the Navy is in the process of installing a network of ten new sentinel wells (S wells), as well as ten new plume delineation wells (P wells) to specifically address dissolved-phase contaminate migration. In addition, the following sections discuss investigations of dissolved-phase contaminants for ongoing and future efforts: 6.4.3.3 Ongoing Adit 3 Shallow Step-Out Soil and Groundwater Borings, 6.4.4 Ongoing Groundwater Modeling, 6.7.1 Contaminants of Potential Concern, 6.8 Site-Specific Action Levels, 6.9 Subsurface Light Non-aqueous Phase Liquid Investigation, 6.10.1 Groundwater Sampling and Analysis, 6.12 Update the Contaminant Fate and Transport Model, 6.14 Identify Data Gaps, 6.19 Making Decisions Based on Data Quality/Accuracy, and Table 6-4 under CSM Development.

79. **Page 67, 6.12 Update the Contaminant and Fate Transport Model:** *The second paragraph mentions “anticipated pumping scenarios.” Does this refer to drinking water pumping, remediation pumping, or something else?*

Response: The anticipated pumping scenarios refer to drinking water pumping and its influence on contaminant migration from the Red Hill Bulk Fuel Storage Facility.

80. **Page 67, 6.12 Update the Contaminant and Fate Transport Model:** *The second paragraph states “[o]ne question to be addressed by the updated CF&T [contaminant and fate transport] model is how far LNAPL could move from the RHBFSF before dissolved-phase COPC concentrations exceed the MCLs [maximum contaminant levels] or EALs at the nearest water supply well.” Due to the inherent inaccuracies associated with groundwater modeling, sufficient buffer or contingencies must be included around any drinking water wells to ensure they are not impacted during this modeling effort.*

Response: Comment noted. Given the inherent inaccuracies in modeling, the Navy is in the process of installing a network of ten new sentinel wells (S wells), as well as ten new plume delineation wells (P wells) to facilitate advance indications of groundwater impacts to drinking water wells and validate groundwater modeling efforts. These efforts are described in Section 6.4.3.1 Ongoing Groundwater Monitoring, Section 6.10 Expanding Groundwater and Soil Vapor Monitoring Network, and Section 6.11 Update the Existing Groundwater Flow Model.

81. **Page 68, Section 6.13 Determine Light Non-Aqueous Phase Liquid Preferential Pathway:** *This section discusses the feasibility of recovering LNAPL. Is any remediation anticipated for the dissolved-phase plume?*

Response: Remediation of the dissolved phase plume will occur as needed. As stated in Section 6.22 Corrective Action, remedial actions will be captured within the Corrective Action Plan, which follows completion of the Site Investigation effort. The Corrective Action Plan will be developed when site assessment and investigations are complete.

82. **Page 69, Section 6.14.1 Process to Identify Future Data Gaps:** *The process of submitting final reports and then responding to comments was inefficient during the initial defueling process, until additional meetings were held proactively to discuss questions and concerns before submissions were made. Based on this experience, the DOH recommends holding additional focused meetings early in the process.*

Response: Comment noted. The Navy always welcomes the opportunity for additional focused meetings with DOH and EPA.

83. **Page 73, Section 6.20 Communication Between Parties:** *This section states meetings between the Navy, DOH, and EPA will be held as provided in the Site Investigation Plan and on an as-needed basis. The DOH supports this, but it is unclear who determines the as-needed basis. For defueling activities, meetings have been held weekly and sometimes more often during the highly involved stages of planning. This should be considered for closure as well.*

Response: Comment noted. On November 17, 2022, the Navy closure team began holding bi-weekly technical working group meetings with DOH and EPA. As the focus shifts from defueling to closure, the Navy will welcome the opportunity to meet more often. If the regulators believe addition meetings are needed, the Navy will support this effort.

84. **Page 74, Section 6.22 Corrective Action Plan:** *The first sentence of this section seems to indicate that no tank closure activities will occur until after the site investigation. Does the Navy plan to wait until after the site investigation to start tank closure? It seems like the defueled tanks can be taken out of service and cleaned while the site investigation proceeds.*

Response: The Navy will not wait until after the site investigation to start tank closure. The Navy intent is to begin tank closure field activities as soon as defueling is complete.

85. **Page 84, 7.2 Closure Progress Stakeholder Meetings:** *Do these stakeholder meetings refer to the bi-weekly meeting series attended by the DOH, EPA, and Navy that began on November 17, 2022? If not, please provide more detail about these meetings.*

Response: Yes, these stakeholder meetings refer to the bi-weekly meeting series attended by the DOH, EPA, and Navy that began on November 17, 2022.

86. **Page 84, 7.4 Public Outreach:** *The second paragraph states “HAR §11-280.1-67 will guide the initiation of public participation throughout the closure process.” This rule requires public participation for corrective action plans and, therefore, does not apply to this Plan. Please explain how the Navy plans to conduct public outreach throughout closure.*

Response: Once defueling is initiated, the expectation is that public outreach will center on two activities: 1) release investigation and response (e.g., UST corrective action plans), and 2) potential beneficial non-fuel reuse. The Navy has begun the process for obtaining proposals from the public for the beneficial re-purposing of the Red Hill Bulk Fuel Storage Facility. The Navy plans to have a third party on-island public relations firm develop a process for obtaining proposals from the public for the beneficial re-purposing of the facility prior to the next regularly scheduled Fuel Tank Advisory Committee in the spring of 2023. The Navy expects the public relations firm to solicit input from the public for a period of approximately six months before collecting all information. The public relations firm will be responsible for delivering a final report to the Navy recommending the proposed beneficial reuse for the Red Hill Bulk Fuel Storage Facility. The Navy will announce the recommended proposed beneficial re-purposing option to the Regulatory Agencies and the general public. The public will be kept informed by press releases, website updates and during monthly neighborhood board meetings with the community. Additionally, updates will be provided during key leader engagements with political leaders at the local, state and national level.