



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

January 10, 2023

Rear Admiral Stephen Barnett
Commander, Navy Region Hawai'i
850 Ticonderoga Street, Suite 110
Joint Base Pearl Harbor Hickam, Hawai'i 96860-5101
[via email only: stephen.d.barnett.mil@us.navy.mil]

Dear RDML Barnett:

SUBJECT: Red Hill Bulk Fuel Storage Facility, Tank Closure Plan

On November 1, 2022, the Hawai'i Department of Health (DOH) received from the U.S. Department of the Navy (Navy) documents including:

- Tank Closure Plan (Plan);
- Enclosure (1) Red Hill Tank and Pipeline Closure Gantt Chart;
- Enclosure (2) Red Hill Tank and Pipeline Closure Network Diagram; and
- Enclosure (3) Appendix C: Defense Critical Infrastructure Security Information.

The DOH finds the Plan, as submitted on November 1, 2022, did not comply with the requirements of the May 6, 2022 Emergency Order. In accordance with the project schedule provided in Enclosure 2, we do not anticipate the submission will be complete until April 2023.

The Navy's submission lacks the requisite detail and specificity needed for the DOH to fully evaluate how the Navy will safely and expeditiously close the Red Hill Bulk Fuel Storage Facility (Facility). For example, the Navy did not select a closure alternative, but only stated that it "intends to seek DOH approval for Closure in Place as the permanent closure method for the Red Hill underground storage tanks and associated piping systems." Additionally, a plan for site assessment under closure has not been provided. The environmental work described in the Plan is only related to the recent releases and does not support the entire Facility's closure.

We offer our initial comments and concerns in the enclosed document. We anticipate additional comments on the environmental work to be forthcoming. We received the *Red Hill Tank Closure Plan Analysis of Alternatives & Concept Design to Close In Place* report on

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December 22, 2022 and will continue to review this document. We understand the Navy intends to submit a supplement to the Plan in February 2023, among other supporting studies. The DOH expects the Navy to address our attached and future comments in these upcoming submittals. We believe multiple supplements are necessary to address the deficiencies in the current Plan.

Given the nature of the project schedule and the number of comments we have on the original submission, we recommend seeking the DOH's approval by task, similar to what is being done for defueling. At the minimum, the Navy shall submit a revised cleaning plan, waste management plan, and associated release response plan that addresses our comments within 45 days of receipt of this letter. If a timely response is not provided, we will refer this case to the Department of Attorney General.

Should you have any questions regarding this letter or the enclosed comments, please contact Ms. Kelly Ann Lee, Red Hill Project Coordinator at (808) 586-4226 or kellyann.lee@doh.hawaii.gov.

Sincerely,

Kathleen Ho

KATHLEEN S. HO
Deputy Director for Environmental Health

Enclosure

c: Ms. Gabriela Carvalho, U.S. Environmental Protection Agency (w/encl.) [via email only]

Red Hill Bulk Fuel Storage Facility, Tank Closure Plan
Office of the Secretary of the Navy, November 1, 2022

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.
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.
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.
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.
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.

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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.

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.
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.
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).
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.
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.

SPECIFIC COMMENTS

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

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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.
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.
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.
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.
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.
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).

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

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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.
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.
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.
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?
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?
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.
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?

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

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speaks to cleaning using water. However, in section 3.2.4. Pipelines, the report states the pipelines will be cleaned by ventilation. Please clarify.

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

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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.
43. **Page 30, 4.3 Waste Accumulation Management:** This section further states, "if the quantity of 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.
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.
45. **Page 32, 4.4 Waste Determination:** Please clarify which waste streams are expected to be hazardous.
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.
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."
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.
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.

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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.
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.
52. **Page 37, 5.2.1 ALT 1:** How will the pipelines be addressed in Alternative 1?
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.
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?
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.
56. **Page 38, 5.2.2 ALT 2:** “Potential” should be removed from the title of this alternative to distinguish it from Alternative 1.
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.

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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.
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?
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?
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.
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.
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.
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.

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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?
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.
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, out of use. Please clarify the timeline of statuses for Tanks 1 and 19.
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.
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.
70. **Page 40, 5.3 Tank Closure in Place, item 6:** Pipe cleaning, other than "ventilation," is not described in this plan.
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).
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.

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

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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.
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.
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.
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.
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.