

JOSH GREEN, M.D.  
GOVERNOR OF HAWAII  
KE KAA'ĀNA O KA MOKU'ĀINA 'O HAWAII



KENNETH S. FINK, MD, MGA, MPH  
DIRECTOR OF HEALTH  
KA LUNA HO'ŌKELE

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

In reply, please refer to:  
File:

March 24, 2023

Rear Admiral John Wade  
Joint Task Force, Red Hill  
1025 Quincy Avenue, Suite 900  
Joint Base Pearl Harbor Hickam, Hawaii'i 96860-5101  
[via email only: john.f.wade2.mil@us.navy.mil]

Dear RDML Wade:

**SUBJECT:** Response Regarding the DOH's Conditional Approval of Two Requested Repair/Enhancement List Deviations

Thank you for your letter, dated February 22, 2023, responding to the Hawaii'i Department of Health's (DOH's) additional comments on the "Defueling Consolidated Repair/Enhancement List" and conditional approval of two out of the three deviations from the "Consolidated List of Repairs for Safe Defueling" requested by the Joint Task Force – Red Hill (JTF-RH). In addition to the responses enclosed in your letter, we received the following attachments:

- Reference (a): Simpson Gumpertz & Heger, Inc. (SGH) memorandum, subject "Hotel Pier PVC FOR Line Replacement Prior to Defueling the Red Hill Underground Bulk Fuel Storage Facility," dated November 30, 2022;
- Reference (b): "Release Event Tree Analysis;"
- Reference (c): Enterprise Engineering, Inc. memorandum, subject "Clarification of Statement Regarding Suge Impacts on Stress Analysis as made in the Pipeline Stress Analysis and Structural Evaluation Report, Red Hill Lower Access Tunnel," dated January 30, 2023;
- Reference (d): "Borescope Inspection Report, Fuel Transfer Infrastructure Assessment: Buried FOR Piping Internal Inspection ADIT 3 Entrance, Red Hill Bulk Storage Facility, Hawaii (RHL)," dated January 2023;
- Reference (e): SGH memorandum, subject "Red Hill Fuel Pipelines – Surge Assessment," dated January 17, 2023; and
- Reference (f): the DOH letter, titled "DOH Response to 'JTF-RH Response to DOH Requests for Information Regarding Red Hill Bulk Fuel Storage Facility Defueling Plan,'" dated January 13, 2023.

We are awaiting the final document redactions mentioned in your letter.

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We understand, based on the responses enclosed in your letter, that JTF-RH continues to seek approval of the third proposed deviation in the "Defueling Consolidated Repair/Enhancement List," dated October 24, 2022, which is "to defer work on the four SGH AFFF [aqueous film forming foam] reclamation line recommendations which involve protecting low point drains."

Our concern is that this request conflicts with the JTF-RH's proposal to use the AFFF retention line to remove fuel in the event of a release. As stated in numbers 3.a and 5 in your letter's enclosed responses, "[t]he Response Directorate is...developing the potential use of the AFFF sumps into one of the four most likely discharge scenarios." This means the AFFF retention line must be repaired for safe defueling. In addition, a fire plan for defueling has not yet been determined, thus the design of the AFFF retention line should also take this design and response into consideration.

Accordingly, we reiterate our suggestion to consider repairing damaged portions of the AFFF retention line, as opposed to only considering full replacement or no repairs at all.

In addition, we also offer comments on References b, c, and e of your February 22, 2023 letter.

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](mailto:kellyann.lee@doh.hawaii.gov).

Sincerely,

*Kathleen Ho*

KATHLEEN S. HO  
Deputy Director for Environmental Health

Enclosure

c: Mr. Grant Scavello, U.S. Environmental Protection Agency (w/encl.) [via email only]

**Enclosure**

**Hawai'i Department of Health Comments on February 22, 2023  
Letter Titled "JTF-RH's Responses to DOH's Additional Requests for  
Information Regarding Red Hill Bulk Fuel Storage Facility Defueling Plan"  
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**Reference (b): "Release Event Tree Analysis"**

1. The "Frequency (per year)" caption should be changed to "Probability of Fuel Release" or something similar.
2. The caption under the "One-year Odds" box says "> 1 million so acceptable." Is this a typo?

**Reference (c): Enterprise Engineering, Inc. (EEI) memorandum, subject "Clarification of Statement Regarding Suge Impacts on Stress Analysis as made in the Pipeline Stress Analysis and Structural Evaluation Report, Red Hill Lower Access Tunnel," dated January 30, 2023**

3. **General comment:** EEI's recommendation states, "[p]ressure surges can create damaging impulses that cannot be mitigated by structural or piping modifications and must be prevented by operational procedures or mitigated by pressure control and relief systems[,]" which in part contradicts the probability analysis performed by the U.S. Department of the Navy (Navy). However, we understand the Navy is still planning to complete Simpson Gumpertz & Heger, Inc.'s (SGH's) recommended repairs, which include installing pressure indicator transmitters (PITs), equalization lines, as well as piping supports. We understand the Navy is currently preparing detailed operations procedures that incorporate the use PITs and equalization lines to minimize pressure surges. We look forward to reviewing the Navy's Concept of Operations that also address EEI's comments.
4. **Page 2, Clarification:** The second paragraph states "the use of the butterfly valves in the Underground Pumphouse as the recommended primary means...of flow control and transfer-shutdown effectively eliminates the risk of damaging surge pressures due to valve closures...." However, the *Root Cause Analysis of the JP-5 Pipeline Damage, Assess [REDACTED] Piping For Return To Service At Red Hill Bulk Fuel Storage Facility, Joint Base Pearl Harbor-Hickam (JBPHH), Honolulu, HI*, dated September 7, 2021, states:

When all of the valves between a tank's closed skin valve at the RHTF [Red Hill Tank Farm] and [REDACTED] are open except the butterfly valves in the UGPH, the closed butterfly valves leak. [REDACTED]  
[REDACTED]  
[REDACTED] The resulting void, technically a vacuum, created in the piping at upper portions of the RHTF will collapse rapidly if subjected to a high pressure source.

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The report concluded that this is likely what caused the May 2021 incident. Please take this into consideration when developing your operational procedures.

5. **Page 2, Clarification:** The third paragraph states, "based on EEI's experience with modeling surge cause by similar slack-line vapor cavity collapses, pressure spikes of well above 1,000 psig [pound-force per square inch] are common." While 1000 psig pressure spikes may be common in some systems, this statement conflicts with SGH's recommendation to design against a surge of 320 psi [pound per square inch] for the piping and supports to prevent excessive pipe movement, based on their stress analysis of the May 6, 2021 event. Please clarify the Navy's basis of design for the piping and support repairs and verify that the Navy considers this sufficient for any expected surges.

**Reference (e): SGH memorandum, subject "Red Hill Fuel Pipelines – Surge Assessment," dated January 17, 2023**

6. **Page 1, 1. Introduction:** The first paragraph states that if the flow rates are low enough, the axial restraints (repairs) will not be necessary. While this may be true, there are no analyses showing this. It is also inconsistent with the current recommendations by SGH and the Navy's Consolidated List of Repairs for Safe Defueling submitted on October 24, 2022. The DOH's understanding from subsequent meetings is that the Navy still intends to complete the repairs in the Consolidated List of Repairs unless deviations are approved by the DOH.
7. **Page 32, 7. Conclusions and Recommendations:** The DOH understands from our meeting on March 9, 2023 that the Navy intends to incorporate SGH's recommendation to "replace the lower skillet in the F-24 line near [REDACTED] with a pressure-rated blind flange and that the upstream portion of the F-24 pipeline be reconnected." We also understand this repair will be incorporated into one of the existing repairs. Please confirm our understanding and identify which repair number on the Consolidated List of Repairs for Safe Defueling this recommendation will be incorporated with.