

Enclosure (6) to  
Red Hill Bulk Fuel Storage Facility, Oahu, Hawaii  
28 September 2022, Supplement 1.B

### **DoD Response to EPA Comments Regarding the Scope of the Defueling Plan**

*EPA's primary concern is that the Navy has not fully developed the requisite project planning tasks and organizational efforts needed to conduct defueling in a safe and time-efficient manner.*

1. *The Defueling Plan does not provide sufficient detail on individual timelines, statuses, inter-dependencies, and expected dates for completion of tasks identified as part of the Critical Path. Please provide a timeframe for when the Navy will submit a Critical Path Method (CPM) chart/schedule to EPA.*

Response: DoD provided a detailed CPM schedule as part of the September 07, 2022 supplement 1.A, including all the necessary information identified above. DoD will provide updates to the CPM schedule monthly and when significant changes occur.

2. *The Navy should present all key steps in the Defueling Plan in a graphic to be understood by anyone regardless of technical background. Please update Figure 1 of the current Defueling Plan to include planned Spill Prevention, Control, and Countermeasure (SPCC) and Facility Response Plan (FRP) preparedness (including spill response exercises); time periods for regulatory review; and anticipated community outreach events. Figure 1 may need to be updated regularly as the project progresses, and as such, EPA recommends that the creation date be clearly displayed to differentiate future versions of this figure.*

Response: Supplement 1.A., Enclosure 5(b) provides a graphic representation of all key steps in the defueling plan. It includes events and milestones related to SPCC and FRP preparedness, including spill response exercises, and community outreach events, and it contemplates time periods for regulatory review. Table 6 of Supplement. 1A. details the time periods that DoD proposes for regulatory review.

3. *Please provide a schedule for submitting future iterations of the Defueling Plan to the Regulatory Agencies.*

Response: DoD provided Supplement 1.A. on September 7, 2022 and will provide Supplement 1.B. on September 28, 2022. DoD may provide additional supplements to the plan, if additional supplements become necessary based on questions from regulators or changes in conditions. . DoD will also provide DOH and EPA monthly updates to the CPM defueling schedule.

4. *Community engagement should be a component of the Defueling Plan. Share how the Navy will keep the public informed in preparation for, and during, defueling. Please explain how this information will be shared and when community outreach is expected to occur. This should include outreach before the lines are unpacked and before defueling begins.*

Response: Part I.A. of Supplement 1.A. outlined how DoD proposes to incorporate community engagement in its defueling planning and implementation. The incoming Joint Task Force- Red Hill will enhance those community engagement efforts by providing continuity, not only of defueling operations, but also of community engagement, as the JTF-RH will be the primary point of contact for

community members seeking information on Red Hill and will work to build on the progress that DoD, and the Navy in particular, has made in its community engagement efforts over the past few months.

DoD is committed to providing timely, clear and accurate information to all stakeholders in the community of Hawaii throughout the defueling process. Using the many venues and methods of communications used during the recent water crisis and long-term potable water monitoring efforts, DoD will engage with the community to ensure the steps and progress of the defueling process are shared. DoD will have engagements tied to achieving milestones, and other engagements that will include periodic updates of progress and work completed to date. Engagement methods will include focused senior leader engagements; Facebook updates and other social media postings; updates to community, business, and civic groups; and new website updates. DoD views continued coordination and alignment with the regulators and the community as key to successful communication and welcomes any specific ideas from EPA on how to improve community engagement and information sharing.

5. *EPA understands that further studies and assessments may affect the final list of repairs and operational measures necessary to defuel in a safe manner. These include, but are not limited to, assessments made under the National Defense Authorization Act for Fiscal Year 2022 and the results of EPA inspections under the SPCC/FRP and UST programs. Explain the process by which the Navy will incorporate this information into the Defueling Plan, and how necessary repairs or identified changes will be added or removed from the Defueling Plan.*

Response: As explained in Section I.F. of DoD's September 7 Supplement 1.A, DoD is now reviewing these recently-received reports. Upon completion of DoD's assessments of the respective reports, DoD expects to adopt certain recommendations of the reports and add new recommended work items to the list of required repairs and enhancements for Phase 3 of the defueling plan. DoD will provide to the regulatory agencies updates on additions or changes to the list of required repairs and enhancements. DoD has included a milestone in the CPM schedule for regulator concurrence on the consolidated list of all repairs and enhancements, once all assessments are completed. *See Supplement 1.A., Table 6.*

Similarly, where the newly received EPA reports recommend changes to operational procedures or spill response plans, DoD will address them, both in its operational procedures to unpack and defuel and in future updates to the SPCC/FRP/ICP.

6. *Verify that the Navy has completed front-end engineering work to identify risks associated with the project. This work should be performed by individuals with expertise in construction, safety and spill response, engineering, and logistics. This work should be done before unpacking and any repair efforts begin, since the outcome of this front-end engineering work may impact the schedule of the unpacking and repair efforts.*

Response: DoD contracted with SGH, an independent third-party industry expert, to perform an analysis of facility and operational risks. The report from this assessment provides the foundation for infrastructure and procedural changes that DoD is implementing to ensure safe defueling. In addition to the SGH report, DoD has contracted with industry experts Risktec and Pond to assist in updated operational procedures that DoD will be implemented as part of unpacking and defueling operations. DoD contracted Austin Brockenbrough & Associates (ABA) to perform this detailed assessment. ABA recently completed a detailed assessment of

the pipeline from the Red Hill tanks to the underground pump house (UGPH), as required by Section 318 of the FY2022 NDAA. This assessment was provided as part of DoD's September 7, 2022 supplement 1.A. Furthermore, DoD contracted this same firm to perform a detailed assessment of the pipelines from the UGPH to hotel pier. The ABA reports complement the findings of the SGH report, providing recommendations for all of the pipeline infrastructure that DoD will use for defueling. .

All of these assessments will provide the basis for the complete list of repairs required to safely defuel, and these assessments, when recommending work, take into account the risks associated with that work. Further, DoD in its review of the various recommendations, uses its in-house expertise to perform its own assessments of risk and benefit of proposed projects. For example, as discussed in Supplement 1.A. Part II, Question 7.B. DoD, as part of its decision to adopt SGH's recommendation to install bypass lines around tank isolation valves, determined that the benefit associated with installing the bypass lines outweighed the corresponding risk. In making this determination, DoD considered which measures it could take to mitigate those risks.

DoD also assesses whether each of the recommendations in the various third-party reports provides a meaningful safety benefit to the defueling process. Where DoD, using its own expertise, assesses that a recommended work item does not provide a real safety benefit and significantly extends the construction schedule and therefore the overall defueling schedule, DoD is proposing to replace those work items with other measures that address the relevant risk without unnecessarily extending the defueling timeline. DoD addresses one SGH recommendation – enhancements to a fuel-oil recovery line at Hotel Pier in Part I.C. of the September 7 Supplement 1.A. See Supp. 1.A. at 6-7.

To assure that DoD completes all of the Phase 3 work for safe defueling, DoD is proposing to have all work verified by an independent 3<sup>rd</sup> Party Quality Assurance firm. DoD will submit this 3<sup>rd</sup> party verification plan to DOH for concurrence.

The following process outlines how an assessment repair recommendation is completed and ultimately culminates with DOH concurring that the recommendation has been addressed to support defueling activities.

Step 1: Each recommendation originated from either a Third Party Assessment or self-identified by DoD in order to support the Safe Defueling of Red Hill.

Step 2: DoD reviews and validates the recommendation is required for defueling with concurrence from DOH.

Step 3: DoD personnel either complete the work if it is minor and within their capability or contracts for the work.

Step 4: If contracted, the Contractor conducts quality control (QC) to ensure worked is performed appropriately. If not contracted, DoD technical experts conduct QC on the work completed.

Step 5: DoD contract oversight personnel conduct quality assurance (QA) to ensure contractor QC is performed appropriately and the work is completed to requirements. This QA is done by

assigned DoD construction managers and engineering technicians to each repair recommendation. The technical managers regularly observe the contract being performed and specifically during all critical construction activities or testing procedures.

Step 6: DoD 3rd Party contracted firm performs inspection and verification that the work is completed appropriately and addresses the recommendation.

Step 7: DoD submits 3rd Party QA inspection and verification to DOH for concurrence.

Step 8: DOH concurs the work performed addresses the recommendation.

For spill response, DoD has also contracted with PCCI to assist in updating our spill response plans to leverage their knowledge and expertise. Interim spill response plans were submitted on September 7, 2022 and DOD will submit final versions for review by DOH and EPA as soon as possible.

7. *The Navy should complete a risk analysis, in the form of a risk assessment matrix or equivalent method, to determine the benefit/risk of each repair intended to address hydraulic surge events. Since each repair presents inherent risks (e.g., delaying the overall timeline for defueling, complicating operational procedures, or potentially causing a direct release), the Navy should evaluate the trade-offs between implementing all possible repairs versus a subset of necessary repairs, which would allow defueling to occur more expeditiously. This evaluation should determine if defueling over a longer timeline and doing all repairs counterintuitively presents greater collective risk. EPA supports implementation of a plan to defuel the facility in the most expeditious manner without sacrificing safety and protection of the environment.*

Response: DoD assesses whether each of the recommendations in the various third-party reports provides a meaningful safety benefit to the defueling process, particularly if adoption of the recommended would significantly extend the overall defueling timeline. DoD contracted with SGH, the firm that completed the independent third-party assessment, and is working with SGH to review alternatives to certain recommended repairs or improvements that have long lead times but do not offer significant safety benefits. Where DoD, using its own expertise and that of SGH, assesses that a recommended work item does not provide a real safety benefit and significantly extends the construction schedule and therefore the overall defueling schedule, DoD is proposing to replace those work items with other measures that address the relevant risk without unnecessarily extending the defueling timeline. DoD addresses one SGH recommendation – enhancements to a fuel-oil recovery line at Hotel Pierin Part I.C. of the September 7 Supplement 1.A. See Supp. 1.A. at 6-7. DoD will continue to work with SGH and with DOH to create and implement a plan to defuel the facility in the most expeditious manner without sacrificing safety and protection of the environment.

8. *Prepare and submit piping flow diagrams and equipment plans (such as piping and instrumentation diagrams, or facility schematics) that clearly identify equipment and piping that will be used for the defueling process. EPA recommends developing plans, schematics, and/or inventory records that identify which facility structures will be decommissioned after defueling and which facility structures will remain in operation.*

Response: Pages 2-10 of the Unpacking Plan provide diagrams and schematics that show how

DoD will unpack the product lines. DoD's third-party consultant, Risktec will develop similar simplified configuration drawings for the defueling process. As with the unpacking diagrams, the defueling diagrams will clearly identify which equipment and piping will be used for each process. Senior operations and engineering personnel will verify each drawing. The drawings for Repacking and Defueling will be included in a subsequent CONOP submittal.

Specifying which facility structures will be decommissioned and which will remain is outside of the scope of the defueling plan and will be a part of the future closure plan. But the defueling plan indicates which facility structures will be suitable for decommission once defueling is complete: the initial defuel posture will include emptying all Red Hill Tanks and supporting pipeline systems down to the fire valves at in the lower harbor tunnel adjacent to the UGPH. The Surge Tanks located in the UGPH will also be defueled to prepare for decommissioning.

9. *Provide an organizational chart for the Navy's Joint Task Force Red Hill including information on position descriptions and types of specialized expertise. This organizational structure should include a lead Health and Safety Officer or equivalent position.*

Response: DoD will establish Joint Task Force Red Hill (JTF-RH) to be the single accountable DoD entity for the safe and expeditious defueling of the Red Hill Bulk Fuel Storage Facility (RHBFSF). JTF-RH will provide coordination with State and Federal stakeholders in order to rebuild DoD trust with the State of Hawaii, its residents, and the community. JTF-RH will be commanded by a Vice Admiral, and will be comprised of six Directors (O-6 level military officers) to oversee Operations, Response, Repairs, Planning, Training, and Quality Assurance. The JTF-RH Commander will also be supported by Safety, Public Affairs, Comptrollers, and Legal advisors. The JTF-RH organization also includes a Health and Safety Officer.

10. *Provide an estimated date by which the Navy will identify the Contractor Owned/Contractor Operated (COCO) facilities that will serve as a destination for fuel transfer.*

Response: DLA is responsible for identifying the Contractor Owned/Contractor Operated (COCO) facilities. DLA solicited for a COCO facility on West Oahu to serve as a destination for fuel transfer from RHBFSF. The contract solicitation closed in July 2022 and will be awarded in October 2022.

11. *EPA is aware that the Navy is preparing a plan to repair or replace the Aqueous Film Forming Foam Retention Line. Please provide an estimated date when this information will be submitted.*

Response: DoD provided a proposed solution in Part I.C. of DoD's September 7, 2022 supplement 1.A and will provide a further update on the September 28, 2022 supplement 1.B. DoD looks forward to working with DOH and EPA on the AFFF reclamation line solution to ensure safe and timely defueling.

12. *Verify if, and when, the dresser couplings in the main distribution piping at the Red Hill Gallery will be removed.*

Response: There are currently two existing dresser couplings located on the main pipelines in the Red Hill Tank Gallery. The first dresser coupling is located on the JP-5 main pipeline. DoD has assessed the use of the coupling in the JP-5 pipeline and elected to replace it with a solid piece of pipe welded in place. The second dresser coupling is located on the F-76 main pipeline, which will not be used to transfer fuel out of the RHBFSF. Instead, DoD intends to use the JP-5 pipeline to transfer F-76 fuel out of the RHBFSF. The F-76 coupling will remain in place since that pipeline will not be used to transfer fuel out of the RHBFSF.

## Comments Related to “Unpacking” Fuel Lines

*The Navy has yet to submit a final operational plan for unpacking the three fuel lines connecting the Red Hill (RH) tanks to the underground pump house. The following comments concern the anticipated unpacking process.*

13. *Provide a date for when the Navy will submit a written operational plan for unpacking fuel transfer pipelines (Unpacking Plan).*

Response: This information was included as part of DoD’s September 7, 2022 supplement 1.A.

14. *EPA requires an explanation of how spill risks associated with unpacking will be addressed by FRP- type elements, even if an approved FRP is not in place prior to unpacking. This must include discussion of appropriate spill response drills and account for “worst case” spill scenarios that could occur during unpacking. Please clarify whether this information will be included in the Unpacking Plan, or in other preparedness documents (e.g., the Red Hill Response Plan, the Joint Base Pearl Harbor-Hickam (JBPHH) Integrated Contingency Plan).*

Response: DOD included the draft updated FRP/ICP/SPCC in the September 7, 2022 supplement 1.A submission to DOH and EPA. These updated draft plans include the requirements and release scenarios required by the June 15, 2022 EPA letter. These additional scenarios were developed specifically for the Red Hill Facility pipeline systems and as required, incorporate worst-case release scenarios within the plans. The actions to address these scenarios are being included and then evaluated during the unpacking spill drill planning and exercise on September 22, 2022. DOH and EPA have representatives on the planning team to ensure appropriate actions for unpacking are included and evaluated within the unpacking spill drill exercise. DOH and EPA will have an opportunity to observe the spill exercise in advance of unpacking. Any lessons learned will be incorporated into the draft FRP/ICP prior to the commencement of unpacking.

15. *EPA requests that the Navy clarify the scope of the Red Hill Response Plan referenced in Table 1, Item f of the Defueling Plan, and describe the differences between this document and an FRP providing coverage for the pipeline that connects the RH tanks to the underground pump house.*

Response: The draft FRP/ICP/SPCC updates that DoD provided with its September 7, 2022 supplement 1.A specifically include coverage for the pipelines that connect the Red Hill Facility tanks to the underground pump house.

16. *Confirm that EPA will be provided reasonable time to review and comment on the Unpacking Plan.*

Response: DoD provided to EPA its Unpacking Plan as part of the September 7, 2022

supplement 1.A. The CPM schedule, provided with Supplement 1.A., builds in time for regulatory review and feedback for all major deliverables, including the unpacking plan. The CPM schedule allows for approximately four weeks for DOH and EPA review and concurrence of the unpacking plan. *See also*, Table 6 of Supp. 1.A., Defueling plan submittal and concurrence schedule.

17. *Confirm that the Unpacking Plan will include the total amount of fuel to be removed from the lines, an estimate of the time needed to move this fuel, a description of where the fuel will be moved, and a description of all operational procedures needed to conduct this work.*

Response: The unpacking CONOPS includes the amounts of each type of fuel that will be removed, estimated time needed to move this fuel, and the locations of where the fuel will be moved. OPOORDs describe and sequence operational procedures for unpacking. The above information was included as part of DoD's September 7, 2022 supplement 1.A. *See also*, Supplement 1.A. Part I.B at 2-4.

18. *When the Unpacking Plan is submitted, please briefly explain the reason(s) why unpacking is required, addressing the types of repairs that warrant the activity, flammability classification of the fuels, and corresponding risks.*

Response: The unpacking plan was provided as part of DoD's September 7, 2022 supplement 1.A. Unpacking is required to install pressure indicating transmitters and address pipeline repairs in the JP5 and F24 pipelines that were identified during the SGH assessment as well as possible repairs identified in the Section 318 FY22 NDAA pipeline assessment. DoD can complete some repairs or modifications to items, such as pipeline supports, without unpacking or draining the pipeline. However, any hot work (e.g., welding, grinding, etc.) necessary to complete repairs on the pipeline will require unpacking (i.e., draining) the pipeline before work can safely begin.

There is risk to schedule when unpacking the pipeline due to the additional time required to drain the pipeline rather than simply working on a pipeline containing fuel. However, conducting hot work on a pipeline filled with fuel has a higher risk to safety and impact to the environment due to potential ignition of fuel and subsequent release to the environment.

19. *During the February 28 – March 4, 2022, Underground Storage Tank System Inspection, EPA identified two Underground Storage Tanks in the Lower Access Tunnel with no release detection method in place: the Zone 7 Sump for Fuel Oil Reclamation (FOR) and the Main Containment Sump for FOR. Confirm that the Navy will conduct tightness testing on these two tanks before fuel lines are unpacked in accordance with HAR §11-280.1- 43(3).*

Response: DoD is reviewing EPA's characterization of the two referenced sumps as Underground Storage Tanks subject to DOH's UST regulations. However, notwithstanding DoD's ongoing review of that characterization, DoD agrees to conduct testing of these sumps that is equivalent to regulatory requirements, prior to defueling of the Red Hill tanks. DoD will submit the testing procedure for each of these sumps for review and concurrence prior to conducting the tests before defueling.

DoD does not assess that it is necessary to conduct HAR §11-280.1- 43(3)-equivalent testing

of the two referenced sumps *prior to unpacking*, as there are no indications of integrity issues with the sumps and DOD assesses unpacking of the fuel lines has minimal risk of spills that would cause significant quantities of fuel to enter to the sumps. Both of these sumps are intended for fuel oil reclamation and are not planned to be used for the unpacking evolution. DoD will remove all fuel from the pipelines using gravity flow to the UGPH to the maximum extent possible.

### **Comments on Spill Prevention, Response Readiness, and Operational Training**

20. *Explain how the Navy will prepare staff for changes to existing facility operations in a manner that will address the new operational risks. For instance, will the Navy conduct Management of Change (MOC) practices, or provide opportunity for future inclusion of MOC, in project planning efforts? MOC practices seek to ensure continued safety of workers and the environment through a systematic process that involves changes to operational procedures. Implementing an MOC or equivalent process would help ensure that new operational hazards are addressed, and existing hazards are not exacerbated.*

Response: DoD's third-party consultant for fuel operations has introduced Management of Change (MOC) practices into operational planning development and execution by implementing Hazard and Operability (HAZOP) analysis, system configuration evaluation, and revamping/integration of life-safety programs (Lock-out/Tag-out and Energy Control Procedures). The consultant, which has deep expertise in operational safety, is prioritizing MOC efforts based on associated risk through continuous evaluation of existing procedures and will develop formal written MOC procedures with a Pre-Start-up Safety Review (PSSR) program to complement MOC process. The MOC and PSSR are expected to be complete by May 31, 2023.

21. *Verify whether the Navy will implement new operational procedures addressing the use of butterfly valves as isolation valves at the underground pump house.*

Response: DoD added more detail to OPORDs to include specifying the valves that will be operated along with valve opening/closing sequences. Training on isolating fuel flow will be conducted as part of the evolution walkthrough for each fuel type/system identifying each valve to be operated in sequence. The throttle-valves in the UGPH will not be used as isolation valves. Throttle-valves are identified and a note specifying the butterfly valves (throttle-valves/t-valves) do not isolate fuel flow is included in the OPORDs.

22. *EPA and HDOH maintain authority to access the RHBFSF under paragraph 10. (b) of the AOC. Please describe the process by which EPA staff will be able to witness any repairs, upgrades, operational trainings, spill exercises, or other important on-site actions related to defueling.*

Response: DoD has invited EPA and HDOH to participate in spill exercises, operational training and other important activities. DoD conducted an initial spill response drill on August 23, 2022, with DOH in attendance. DoD is planning a second spill response drill for September 22, 2022, prior to commencement of pipeline unpacking. DoD will also conduct a final spill response drill prior to repacking the pipelines and transferring fuel out of RHBFSF. DOH and EPA are invited to witness all these drills. The detailed CPM schedule will be updated to reflect planned dates so regulators are



aware of specific planned events and dates and can request access to the site to observe important on-site actions. Additionally, DoD and the third-party quality assurance contractor will provide regulators dates of QA assessments so that EPA can request access to observe those assessments. DoD is working to improve the predictability and consistency of expeditiously meeting regulator access requests.

23. *Describe how the Navy will ensure fire prevention preparedness, specifically addressing how and when fire prevention and response authorities will be involved.*

Response: Fire Prevention and Response Authorities have been involved in updating DoD's Facility Response Plans and in the preparation and execution of drills to train/exercise the Facility Response Plans. In the case of an actual emergency, the Red Hill control room watchstander immediately calls 911/Fed Fire, the facility's emergency responder. 911/Fed Fire would respond to the scene in accordance with the Facility Response Plan. For all planned evolutions in Red Hill, emergency responders will be notified ahead of time and will be present at the facility while fuel movement evolutions take place. DoD has trained these responders on required response outlined in the SPCC/ICP/FRP efforts. As required by 33.154 CFR, Defense Fuel Support Point Joint Base Pearl Harbor Hickam maintains an Operation, Maintenance, Environmental, and Safety Plan (OMES) approved by the Coast Guard. Chapter 7 of the OMES Plan, Emergency Response Procedures, supplements the ICP and SPCC and addresses emergency events and responses, in compliance with OSHA.

24. *Briefly describe how the Navy plans to gather key operational and regulatory stakeholders to support and advise with operational readiness and spill prevention during the unpacking and defueling processes. This will include HDOH, EPA, U.S. Coast Guard (USCG), and industry partners identified as COCO Facilities.*

Response: DoD maintains frequent and in-depth ongoing coordination and communication with DOH and EPA. Key operational and regulatory stakeholders and partners were invited to observe and engage in the spill exercises on August 23, 2022 and September 22, 2022 and upcoming unpacking and defueling events. DoD will standup an incident command team, to include DOH, EPA, United States Coast Guard, and other applicable parties as required for upcoming drills.

25. *A Process Hazard Analysis performed by RiskTec and integrated into the SGH Final Assessment Report contains a list of 13 recommendations that should occur before defueling begins (Table 7, page 510 of 882). Six of these recommendations are not identified in the Defueling Plan. Clarify whether the Navy plans to address these six recommendations:*

- #1 - *Development of "...written procedures detailing operator actions, including which steps should be field verified by two individuals, in order to reduce the likelihood of loss of containment."*
- #9 – *"Consider adding observer and/or remote camera observation at Dresser Couplings during initial pressurization prior to defueling."*
- #25 – *"Include verification step in operations order that piping is restrained before starting any evolution involving transferring liquid from any tank in the Red Hill*

*Gallery.”*

- #38 – *“Develop a car-seal or lock administrative control system and identify safety-critical manual valves which should be controlled to reduce the likelihood of human error.”*
- #99 – *“The roles, staffing, and resources for [NAVSUP FLCPH/Region Spill Management Team/Facility Response Team] need to be clearly defined, drilled and aligned prior to defueling operations.”*
- #107 – *“Consider additional operators and technical support for defueling operations.”*

Response: This information was provided in Part II of DoD’s September 7, 2022 supplement 1.A; response to DOH’s comment #17.

26. *Related to recommendation #9 in the SGH Assessment, explain what measures the Navy plans to take to detect a release of fuel without delay, should a release occur. Please consider direct observation by personnel, security cameras, and real-time vapor monitoring technologies at high-risk locations in the tunnel system.*

Response: DoD will have roving watch standers, operators, maintainers, and responders present for all fuel movement evolutions. The rovers, operators, and maintainers will be assigned to areas where the greatest risk potential exists (isolation valves, high point vents, manifolds and piers). Each will have radio communications and will be trained to identify, report, and initiate response efforts per the spill response plan. Cameras viewed by the Control Room Operators and Supervisor of the Watch will provide additional ability to detect a release. The Concept of Operations (CONOPs) submitted in the Unpacking Plan in the September 7, 2022 defuel plan supplement 1.A specifies the staffing requirements for each fuel movement evolution by role and by physical location. Additional operations staffing for all Red Hill fuel movement evolutions include four to five additional Rovers in the Red Hill Lower Tank Gallery and along the Lower Tunnel piping, two Independent Validators for valve alignment verification, a Supervisor of the Watch (SoW) in the Control Room, and a second Work Supervisor stationed at the receiving location.

27. *Explain how the Navy will detect vacuum conditions in fuel pipelines that present a risk of inducing surge events. Explain what measures the Navy will take to train operators to identify and respond to such events.*

Response:

DoD is installing additional Pressure Indicator Transmitters (PITs) to provide a clear understanding of pressure conditions throughout the pipelines and detect vacuum conditions. As outlined in the September 7, 2022 defuel plan supplement 1.A, DoD must unpack the fuel lines prior to installing the PITs.

To safely unpack the fuel lines and detect vacuum conditions with existing PITs and system configuration, DoD developed new monitoring processes, equipment settings, and recovery methods to detect and respond to vacuum conditions. Incorporating these improvements into

operations and monitoring processes established safety interlocks that mitigate the risk of vacuums and surge events present. These monitoring improvements are detailed as follows:

- a.) (b) (3) (A) . After September 29th, Navy engineers calculated head pressure differences in pipelines between Red Hill Lower Tank Gallery (b) (3) (A) . The calculations provided an alternative to having PITs located on the pipeline in the Red Hill Tank Gallery, as operators can identify potential vacuum conditions in the Red Hill pipelines using readings from the PITs located in the UGPH.
- b.) Utilizing the defined pressures differences, DoD updated the alarm parameters within the Automatic Fuel Handling Equipment (AFHE)/Supervisory Control and Data Acquisition (SCADA) system to automatically identify and alarm of potential vacuum conditions in the pipelines..
- c.) With the enhanced capability to understand pipeline pressure conditions at Red Hill, DoD incorporated PIT reading verifications into the OPORD. Every OPORD that involves Red Hill fuel movements includes PIT verification requirements, ensuring that the Control Room Operators (CROs) log the pressure conditions and analyze the readings before performing any Red Hill operations. If indications of potential vacuum conditions exist, DoD will act using an abundance of caution, presuming that a vacuum exists, , and the CRO (at the direction of the OPORD) will not proceed with the operation and will notify the Supervisor of the Watch (SOW). A vacuum recovery OPORD will identify specific processes that account for in-situ variables and conditions to recover from the vacuum. The recovery OPORD will be provided for review/approval with training and walk-throughs conducted before commencing defueling.

Once the additional PITs are installed on the Red Hill pipelines, the operators will have an even more definitive indication of pressure conditions in the system and vacuum conditions will be easily identified and confirmed. . DoD's request to defuel will include detailed CONOPs with procedures for use of the new PITs and corresponding recovery processes.

28. *Describe how the Navy will manage all Class I flammable liquids in the Lower Access Tunnel (LAT), and whether a permit-controlled method for managing the entry of such liquids into this zone will be implemented.*

Response: The three fuel products contained in Red Hill tanks and pipelines are not designated as Class 1 flammable liquids but rather as Class 3 and 4 flammable liquids. Class 1 flammable liquids have a flash point below 100 degrees Fahrenheit. Fuels stored in the RHBFSF all have a flash point of 100 degrees Fahrenheit or greater. DoD's third-party consultant has developed a new Work Authorization Process (WAP) that requires review and approval for any organizational work planned at the facility, including the introduction and use of any flammable liquids. The WAP program is in the integration phase and workforce training to include flammable liquid class identification, handling/storage procedures, and associated risk with mitigation measure will be completed by October 1, 2022. Any Class 1 flammable liquids brought into and stored in the RHBFSF require appropriate approval.

29. *Provide a summary of facility piping assessments that are in-process or will begin before the*

*start of defueling. Provide a brief description of how the Navy will incorporate these results into its Defueling Plan.*

Response: DOD provided EPA with copies of the NDAA Section 318 pipeline assessment on September 7, 2022. DOD expects the UGPH to Hotel Pier Pipeline Assessment to be completed by the end of September and will provide copies to the regulatory agencies upon receipt of that report. DOD anticipates that some of these assessments will recommend additional repairs to both the pipelines and pipe supports in the tank gallery and harbor tunnel. As with the SGH report, DoD will evaluate the pipeline assessments to determine which recommendations to adopt and will work with regulators to incorporate necessary recommendations into the defueling plan.

30. *The USCG has extensive regulatory jurisdiction over the transfer of fuel into and out of vessels at the JBPHH piers and must be fully engaged in the planning and execution of the Defueling Plan. Provide an update on when, and how, the USCG will be involved in the defueling process.*

Response: The USCG has remained steadily involved with fuel transfer operations as a jurisdictional regulator. The USCG has conducted numerous site visits and observations in addition to the required annual inspection.

DoD will provide advanced notification of JBPHH defuel pier operations to USCG. The advanced notifications will be sent with adequate time for USCG to inquire about the operations and for DoD to respond and/or incorporate recommendations. DoD conducted an initial spill response drill on August 23, 2022 as a functional exercise to plan for a potential small-scale spill at RHBFSF, using the clarified notional incident chain of command. DoD is planning a second spill response drill for September 22, 2022, prior to commencement of pipeline unpacking. DoD will also conduct a final spill response drill prior to repacking the pipeline and transferring fuel out of RHBFSF. DoD will invite USCG to attend these drills/exercises and to observe execution of operations.

31. *Confirm that the USCG will be consulted on the SGH assessment and any potential necessary repairs to the pier prior to defueling.*

Response: DoD will continue to coordinate with the USCG throughout the defueling process, including a review of the SGH assessment and potential necessary repairs prior to defueling.

32. *Explain when and how the Navy will determine if repairs need to be made to the Upper Tank Farm prior to defueling.*

Response: DoD recently completed clean, inspect and repair (CIR) projects on five tanks in the upper tank farm. The sixth upper tank farm tank is currently undergoing the CIR process. Inspection of the upper tank farm piping completed during the third-party assessment did not identify any defects that would need to be corrected prior to defueling.

33. *Page 17 of the Defueling Plan states that commercial pipelines may be used for the movement and storage of fuel. Please explain how the Navy will engage the U.S. Department of Transportation, Pipeline Hazardous Materials Safety Administration (DOT PHMSA) prior to defueling.*

Response: The Defueling Plan previously stated that the commercial pipeline may be used for

the movement of fuel from JBPHH to on-island storage at a COCO facility at West Oahu. The use of the commercial pipeline is no longer feasible based on further analysis, lower than expected fuel flowrate, and the non-availability of extended and exclusive use of the commercial pipeline. As a result DoD is no longer planning on using the commercial pipeline as a course of action. Any fuel transfer to the COCO will be relocated via tanker.

34. *Explain how the Navy's Supervisor of Salvage, through their Oil Spill Response and Removal program will be prepared to respond to a worst-case discharge of fuel.*

Response: The draft FRP/ICP submitted with the September 7, 2022 supplement 1.A incorporates worst case release scenarios that include support from local DOD assets, contractor support, third party Oil Spill Response Organizations (OSROs), and the Navy's Supervisor of Salvage (SUPSALV). Specifically, FRP Section 10.3 addresses the process to access these resources and equipment. These organizations will be included in the planning and execution of the unpacking and defueling spill drill exercises. This includes the pre-positioning of equipment/assets, response time requirements, and advanced notifications prior to unpacking and defueling actions.

### **Comments Related to Protection of the Red Hill Shaft**

*The Navy has not specifically identified how the Red Hill Shaft will be protected in the event of a potential release during defueling. The following comments should be addressed as part of safe defueling.*

35. *Provide a connection status of the Red Hill Shaft to the JPBHH Public Water System (PWS) and verify whether it will be physically disconnected throughout the defueling process. Reactivation of the Red Hill Shaft for drinking water use is subject to approval by the HDOH Safe Drinking Water Branch.*

Response: The Red Hill Shaft pumps are physically disconnected from the Joint Base Pearl Harbor-Hickam (JBPHH) water system. Blind flanges and concrete would need to be removed and the piping reconnected in order to begin pumping water from the Red Hill Shaft into the JBPHH water distribution system. There is no plan to reactivate the Red Hill Shaft prior to defueling. DoD understands that reconnection of the Red Hill Shaft to the water distribution system is subject to approval by DOH.

36. *Describe how the Navy will mitigate/minimize further potential contamination of the Red Hill Shaft, including:*

- *Provide an update to specifically account for any contamination hazards that currently exist or could be introduced in preparation for, or during, defueling.*

Response: The primary focus area for DoD in unpacking and defueling spill exercise plans is the protection of Adit 3 and the Red Hill Shaft. These plans include incorporating engineered diversion berms for Adit 3 in order to divert a spill toward the harbor tunnel and protecting the shaft. In addition, DoD is installing fuel resistant spill mats to applicable drains and sealing applicable high-risk cracks within the facility that may lead to ground water infiltration.

- *Describe how the Navy will develop and apply a cross connection control program*

*specifically addressing risks posed to the Red Hill Shaft. This should include an assessment of tunnel drains and/or other potential conduits to the underlying aquifer, including the Hume line found in Adit 3 that contributed to prior contamination of the aquifer.*

Response: The Red Hill well and surrounding underlying aquifer are not part of JBPHH potable water distribution system and not included in the JBPHH cross connection control (CCC) program.

DoD is taking six actions to minimize potential conditions that could result in contamination of the aquifer if a fuel release did occur.

1. Inspecting the tunnels to identify compromised areas of the concrete floor, and repairing those areas prior to unpacking
2. Conducting a review of existing records to confirm there are no preferential pathways to contaminate the environment
3. Designing methods to redirect flow from a spill down the harbor tunnel and away from Adit 3 and the Red Hill Shaft. These include pre-deployment of protective measures such as flood control barriers, spill mats to protect preferential pathways to water, and sealing of cracks and significant chips in the concrete
4. Assessing methods to test the tightness of the main sumps to confirm their integrity and prevent any release of fuel into the environment
5. Evaluating the bottom of both elevator shafts to confirm that there are no pathways for any fuel that is collected to be released into the environment
6. Prepositioning of assets for fuel oil recovery and pre-deployment of booms, skimmers, vacuum trucks, etc.

37. *Describe updates made to the JBPHH PWS's Risk and Resilience Assessment (RRA) that address the RHBFSF. The RRA should be updated prior to defueling.*

Response: DoD has confirmed the RRA addresses the RHBFSF. However, DoD will re-address the risk of RHBFSF in its current condition if and when the Red Hill well is brought back into the drinking water distribution system.

38. *Describe updates made to the JBPHH PWS's Emergency Response Plan (ERP), which should include adequate discussion of the RHBFSF. The ERP should be updated prior to defueling.*

Response: The Red Hill Shaft remains disconnected from the PWS. The JBPHH Public Works Department (PWD) conducted a planning meeting during the last week of August in order to prepare for an upcoming tabletop exercise to practice a scenario wherein Waiawa Pump Station is not available (contamination event, water main break, etc.). The table top exercise will be conducted this calendar year and will include all applicable stakeholders including state/local regulatory agencies. The exercise is based on the JBPHH PWS ERP and the reality that the Waiawa Shaft is now the sole source of water. The ERP will be updated to address the deficiencies noted in the prior inspections, to incorporate lessons learned from the tabletop exercise(s), and to reference other plans and documents relating to RHBFSF such as the FRP/ICP/SPCC. These updates will ensure the ERP provide clear and consistent roles, responsibilities, and procedures are outlined to adequately address all areas of JBPHH including RHBFSF.

39. *Describe how PWS staff and contractors will be adequately trained to respond to a release, should one occur. This should include ensuring copies of the updated ERP are available.*

Response: The Red Hill shaft remains disconnected from the PWS. The JBPHH PWS ERP-based scheduled tabletop exercises will ensure staff and contractors are adequately trained to respond to a release. Copies of the updated ERP are available to identified responders and stakeholders. In addition, spill training exercises to comply with the State of Hawaii Department of Health Solid and Hazardous Waste Branch Underground Storage Section Executive Order dated May 6, 2022 have begun and will culminate in a September 22, 2022 exercise prior to commencement of pipeline unpacking and again prior to repacking the pipelines and transferring fuel out of the RHBFSF.

40. *The Navy must establish emergency response plans that will be executed through an efficient leadership structure, with clearly defined processes, roles, and responsibilities in the event of a release emergency. Describe how the ERP will be implemented in coordination with a FRP, as required by the Oil Pollution Protection Act. Any conflicts between the two plans should be identified and mitigated prior to defueling. Both plans shall reference the other.*

Response: DoD has included American Waterworks Infrastructure Act (AWIA) ERP references within the draft FRP/ICP/SPCC submitted on September 7, 2022. In addition, the JBPHH Public Water System ERP is being updated to include applicable actions and requirements from the draft FRP/ICP/SPCC. The ERP is currently being evaluated through a response tabletop exercise in the October/November timeframe and will incorporate lessons learned in an updated ERP as applicable. The updates to both FRP/ICP and the ERP will specifically eliminate any conflicts or gaps between the two sets of plans.