



# RED HILL BULK FUEL STORAGE FACILITY, OAHU, HAWAII

Defueling Plan  
June 30, 2022

## Executive Summary

In accordance with the Secretary of Defense's (SECDEF) direction in his March 7, 2022 memo and the requirements in Directive 4 of the State of Hawaii Department of Health's (DOH) May 6, 2022 superseding Emergency Order (EO), the Department of Defense (DoD) will safely defuel and close the Red Hill Bulk Fuel Storage Facility (Red Hill). On behalf of DoD, the Secretary of the Navy (SECNAV), in coordination with the Director, Defense Logistics Agency (DLA), provides this plan to defuel the facility. This plan will put DoD on course to achieve the completion of defueling at the earliest date consistent with the safe defueling of the facility.

The plan is evidence-driven and relies on the recommendations of subject matter experts. The plan provides interim milestones for the Navy and Defense Logistics Agency (DLA) to achieve throughout the pre-defueling process in order to make the facility safe for defueling. Upon a determination that the facility is safe to defuel, the plan requires defueling operations to commence as soon as practicable and targets the completion of that defueling within eight months of commencement.

**Current planning estimates completion of defueling by the end of 2024.** DoD, based on input from its subject matter experts, identified **December 31, 2024** as the earliest date that is consistent with the safe defueling of the facility, based on the information that DoD has at this time. The December 2024 completion date is subject to contingencies, but DoD will work to mitigate any delays caused by contingencies and will inform DOH and the public about any major contingencies that arise during plan implementation that may affect timelines. DoD is committed to transparency in its assumptions and analyses, not only to obtain regulatory concurrence from the DOH but also to build credibility and trust with the people of Hawaii.

DoD is taking action to ensure that there is strong command and control in place to facilitate successful implementation of this plan. The Secretary of Defense is directing the standup of Joint Task Force Red Hill (JTF Red Hill), led by a senior Navy flag officer whose sole responsibility is to ensure the Department's safe and expeditious defueling of the Red Hill Bulk Fuel Storage Facility. Once on-site in Hawaii, **the Commander, JTF Red Hill will be responsible for oversight and execution of this defueling plan.** The Commander will report to the Secretary of Defense through the Commander, US IndoPacific Command. The JTF Red Hill will operate from Hawaii and house experts from the Department of the Navy, DLA, and other components across DoD. These experts, drawn from the fields of construction, safety and spill response, engineering, and logistics, will work full-time on the defueling efforts and will report directly to the Commander, JTF Red Hill. The JTF Red Hill will also lead DoD's interface with DOH and with the local community in Oahu.

### *Iterative Planning*

Planning to defuel Red Hill is an iterative process. DoD, working with DOH and the U.S. Environmental Protection Agency (EPA), will continually refine and improve the plan based on new information and on developments that occur throughout the planning and implementation processes. DoD has evaluated and validated recommendations made by the independent third party contractor, Simpson Gumpertz & Heger (SGH). That assessment is the primary driver for the initial timelines and interim milestones in phases two and three of this plan. DoD awaits a

separate, independent contract assessment of the pipelines and the fire suppression system, in compliance with the National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2022 section 318. A final report from that assessment is due to the Navy in August 2022. DoD also awaits the results of EPA's assessment of Red Hill operations and contingency response capabilities. At the completion of both of these efforts, we expect to receive additional recommendations for critical infrastructure repairs or safety measures. DoD will review and validate those recommendations and will incorporate into supplements to this plan any validated additional repairs or operations and training improvements. DoD also will provide DOH its analysis explaining the determinations of which recommendations to incorporate. DoD will provide this information to DOH as soon as practicable.

**DoD understands that it will not receive final DOH approval of this defueling plan until it provides to DOH an updated plan incorporating all relevant supplemental information and providing fidelity on its milestones and overall timelines.** DoD leaders, including in particular the Secretary of the Navy, have socialized with community and regulatory partners the concept of an iterative plan that provides as much transparency as possible on current timeline projections and maintains transparency if updates to the timeline materialize. Over the past few months, DoD, primarily through the Navy, already has increased the frequency of communication with stakeholders, and it intends to continue to build upon its communications efforts with DOH and the community in order to encourage DOH and the community to remain invested in this iterative process. DoD, through the JTF Red Hill, commits to regular meetings with DOH to address the status of the implementation of the plan, and DoD will seek to be responsive to DOH's information requests about the plan.

#### *Unpacking of Fuel Lines to Allow Pipeline Repairs to Proceed*

In order to initiate pipeline repairs necessary to complete defueling, DoD must complete an initial step of unpacking, or removing, the fuel currently in the pipelines to allow repairs on the product pipelines to proceed. All three product pipeline systems contain some fuel, and some of the infrastructure repairs (e.g., JP5 pipeline repairs, installation of Pressure Indicator Transducers (PITs), etc.) cannot commence until those lines are unpacked. Unpacking will require limited operation of some parts of the distribution system; **it does not require movement of fuel from the Red Hill storage tanks.** The primary difference between unpacking and defueling is that for unpacking, there is no head pressure from the tank pushing the fuel down the line, and the volume of fuel that must be moved is significantly less than what will be moved during defueling. DoD believes that it can safely unpack the lines in advance of completing any of SGH's recommended infrastructure repairs. DoD acknowledges that the Navy must seek a waiver from DOH to commence unpacking and must demonstrate to DOH why the planned unpacking will be safe. The Navy is updating and supplementing its safety plans in order to tailor those plans to unpacking, and the JTF Red Hill ultimately will oversee these safety enhancements and will ensure that they are sufficient to minimize risk of further incidents. Upon completion of the necessary safety planning and training measures, the Navy, working with the JTF Red Hill, will submit to DOH a request for a limited waiver to lift temporarily DOH's suspension of operations of the Red Hill facility so that unpacking can commence.

### *Critical Infrastructure Repairs for Safe Defueling*

The Navy has already completed multiple critical action repair items recommended by SGH as noted in Table 2. The Navy has begun accelerating pre-construction planning for the remaining items, and the JTF Red Hill Commander and the Red Hill Officer in Charge of Construction (RHOICC) will explore additional options for acceleration, to include increasing resources and manpower, in order to allow construction on each repair item to begin as soon as possible. Based on the findings and recommendations in the SGH report, DoD has identified seven repairs that it expects to be on the construction critical path. One of these repairs is for lateral stops for the F24 pipeline, and six of these repairs are installation of bypass lines at fuel tanks. Because these seven repairs are complex, require significant lead times for materials (e.g. steel, custom-made components), and may be subject to supply chain delays, DoD has assessed that they present the most likely items that would affect overall construction timelines. The bypass work in particular is complex because the contractor will have to install the bypass lines while fuel remains in the tanks and because of the constrained work location. And the custom component requirements present additional timeline challenges: Navy has experienced delays of up to 30 weeks for on-island orders for similar materials. DoD understands that the best way to manage these long lead items is to integrate the design and construction processes in order to identify unique components, including the materials and specifications, early in the execution of a contract. The Navy also has been performing market research to understand and plan strategies to mitigate any potential supply chain delays. The Office of the Secretary of Defense (OSD) will assist in this research by evaluating DO/DX ratings under the Defense Production Act for critical items. DoD will explore available acquisition vehicles in order to identify the most efficient way to integrate the design, material and component selection, and construction activities. DoD expects that future supplements to this plan will incorporate more refined timelines with additional definition for those work items. At that point, the DoD will be able to update and refine its “detailed critical path,” as required in the superseding EO.

This iteration of the plan contemplates the completion of all critical infrastructure repairs and operational and training improvements prior to the start of any defueling of tanks. However, DoD will continue to explore a phased defueling concept that would allow for tank defueling of one or more types of fuel to begin earlier as infrastructure repairs of pipelines designated for specific fuel types are complete. Specifically, DoD will assess whether there are efficiencies in a phased defueling process that seeks safe defueling certification for the F76 and/or F24 pipeline systems, which would allow defueling of those systems to commence at the same time that DoD is working to complete repairs on the JP5 pipeline.

### *Safety Planning and Training*

In preparation for the defueling process, the Navy is contracting for a supplemental safety review. The contract secures engineering, process safety, hazard operability, and training advisory services for a twelve-month period, with Government options to extend the period of performance up to thirty months total. The Navy also plans to conduct enhanced safety training and reviews and will supplement its existing facility response plan and spill prevention plan to ensure that the plans incorporate all critical recommendations from SGH. As mentioned earlier, the Navy will conduct safety reviews and training for the specific purpose of confirming that the

Navy is prepared to unpack the pipelines safely in advance of repair work. The Navy will develop detailed operation orders and concept of operations for the unpacking evolutions, with follow-on work for the defueling evolutions. These detailed operation orders and concept of operations will align with spill/release prevention plans and prescribe risk mitigating actions and immediate response actions, should a release occur. The JTF Red Hill ultimately will oversee these safety enhancements and will ensure that they are sufficient to minimize risk of further incidents. DoD will socialize and rehearse these safety evolutions with its regulatory partners, a key requirement under the superseding EO.

### *Defueling*

The defueling and relocation of the fuel products will commence once DoD has deemed that Red Hill is safe to defuel and regulatory partners provide final approval. Upon approval, DoD will commence safe defueling of the tanks as expeditiously as possible, estimated between four to eight months from the time that DoD and regulators deem all fuel product lines safe for defueling. With the current recommended defueling plan, DoD would defuel the Red Hill tanks of all three fuel products (104M gallons) with planned strategic pauses for safety checks to ensure that no releases are occurring during the defueling. This defueling plan includes using all available capacity and on-island storage at a Contractor Owned/Contractor Operated (COCO) facility. This plan mitigates additional risk to mission by utilizing well-established fuel movement procedures.

DoD remains committed to protecting the population, the environment, and the security of the nation. DoD will coordinate with the DOH and EPA to meet the requirements in the superseding EO expeditiously and will ensure compliance with environmental safeguards, and defuel Red Hill in accordance with applicable federal, state, and local regulations.

## **DOH Superseding EO Defueling Plan Elements**

The DOH superseding EO, Directive 4, requires seven defueling plan elements. Table 1 below provides the current status of completion by the DoD for each of the following elements:

- a. A detailed description of the information reviewed and gathered, with appropriate references.
- b. The specific procedures to defuel the 20 Tanks, four surge tanks, and associated pipelines, including, but not limited to, the sequence in which the tanks are planned to be emptied, the proposed process, and a general description of the fuel-transfer destination (*e.g.*, pier, above-ground storage tank, etc.). A description of the infrastructure and procedures needed to perform the work and ensure pipeline integrity (*i.e.*, identify the specific pipelines, receiving surge tanks and storage tanks, tanker vessel, truck loading racks, pier, etc.).
- c. A detailed description of assessment work performed (*e.g.*, the hazard and operability study and risk assessment, field work with data provided), evaluations performed (*e.g.*, tank and pipeline analysis), and the design standards utilized to determine infrastructure

integrity (including, but not limited to, piping, associated valves, piping connections, and pumps) to perform the work outlined in the Defueling Phase of the Closure Plan.

- d. A description of the Assessment Report's findings and recommendations on correcting deficiencies or areas that require repair or changes to ensure safe defueling, and the basis for those findings and recommendations. Necessary repairs to all regulated UST facility pipelines must comply with HAR §11-280.1-33(a)(5) and must be completed prior to defueling (with associated records per HAR §11-280.1-33(b) submitted to the Department).
- e. An explanation of how the Assessment Report's recommendations will be incorporated and what quality assurance and quality control steps will be adopted or implemented to ensure that any and all necessary repairs will be performed in accordance with the recommendations and industry best practices prior to defueling.
- f. Plans for oil spill/release prevention, containment, and response/contingency plans, including the deployment of resources sufficient to adequately respond to and clean up any releases that occur during the defueling process.
- g. Prioritization and proposed implementation schedule, including detailed critical path, for necessary repairs and defueling. It is essential that the implementation schedule achieve the defueling of the Red Hill Facility at the earliest date consistent with the safe defueling of the Facility and the protection of public health and the environment. If Respondent certifies to the Department that defueling of the Bulk Fuel Storage Tanks at the Red Hill Facility cannot safely be achieved within 30 calendar days in a manner that protects public health and the environment, defueling of the Bulk Fuel Storage Tanks at the Facility must nevertheless be completed at the earliest date consistent with safe defueling and the protection of public health and the environment. This is necessary to address the ongoing and imminent peril to human health and safety and the environment posed by the Red Hill Facility, and the implementation schedule set forth in the Defueling Phase of the Closure Plan must reflect this requirement.

*Compliance with elements of the prior Emergency Order and with initial elements of Superseding Emergency Order*

In accordance with the prior emergency order, Navy arranged briefings by SGH to DOH and EPA at regular intervals during the assessment, and the Navy provided an unredacted copy of the SGH assessment to DOH on May 13, 2022. The SGH assessment contains information required by the superseding EO Directive 4, Defueling Plan Elements "a", "c", and "d." Accordingly, the Defueling Plan presented here will not restate this information but incorporates the SGH assessment by reference. The Navy also provided to DOH a redacted version of the SGH assessment, suitable for public release, on May 27, 2022. The Navy will provide unredacted copies of the assessment required by section 318 of the NDAA for FY2022, as well as the EPA inspection reports, when each becomes available.

Pursuant to the superseding EO, the Navy held a virtual "meet and confer" event with representatives from the DOH and EPA on May 20, 2022. During that event, Navy Region Hawaii and Naval Facilities Engineering Systems Command (NAVFAC) staff provided updates on their review of the SGH assessment and progress on initial implementation of some of the

recommendations, as well as an overview of the Defueling Plan in development for submission to the Secretary of Defense. Representatives of SGH and Risktec also participated and provided answers to specific questions on the SGH assessment.

**Table 1: Status of Completion for DOH EO Defueling Plan Elements**

DOH EO Defueling Plan Elements	Status
<p>a. A detailed description of the information reviewed and gathered, with appropriate references</p>	<p><u>Partially complete.</u></p> <p>Please see annotated bibliography provided to DOH on May 20, 2022, for all information gathered and reviewed as part of the SGH assessment.</p> <p>DoD will provide additional reports, including the NDAA for FY2022 section 318 assessment, DOD IG Audit report, and EPA Red Hill Facility Response Plan / Spill Prevention, Control, and Countermeasures inspection. DoD expects that each of these reports will include a discussion of the information reviewed and gathered for those separate efforts.</p>
<p>b. The specific procedures to defuel the 20 Tanks, four surge tanks, and associated pipelines, including, but not limited to, the sequence in which the tanks are planned to be emptied, the proposed process, and a general description of the fuel-transfer destination (e.g., pier, above-ground storage tank, etc.). A description of the infrastructure and procedures needed to perform the work and ensure pipeline integrity (i.e., identify the specific pipelines, receiving surge tanks and storage tanks, tanker vessel, truck loading racks, pier, etc.).</p>	<p><u>Ongoing</u></p> <p><u>In development as part of <b>phase two</b> of the Red Hill defueling plan.</u></p> <p>A high-level description of procedures to defuel the tanks and pipelines is contained in this plan. DoD will supplement this information and anticipates delivery of this updated information to DOH in September 2022.</p>
<p>c. A detailed description of assessment work performed (e.g., the hazard and operability study and risk assessment, field work with data provided), evaluations performed (e.g., tank and pipeline analysis), and the design standards utilized to determine infrastructure integrity (including, but not limited to, piping, associated valves, piping connections, and pumps) to perform the work outlined in the Defueling Phase of the Closure Plan.</p>	<p><u>Partially complete.</u></p> <p>Please see the SGH final assessment report provided to DOH on May 26, 2022, for specific details.</p> <p>DoD will provide additional reports, including the NDAA for FY2022 section 318 assessment, DOD IG Audit</p>

	<p>report, and EPA Red Hill Facility Response Plan / Spill Prevention, Control, and Countermeasures inspection. DoD expects that each of these reports will include additional discussion of assessment work performed, evaluations performed, and the design standards utilized to determine infrastructure integrity to perform the work outlined in the Defueling Phase of the Closure Plan</p>
<p>d. A description of the Assessment Report's findings and recommendations on correcting deficiencies or areas that require repair or changes to ensure safe defueling, and the basis for those findings and recommendations. Necessary repairs to all regulated UST facility pipelines must comply with HAR §11-280.1-33(a)(5) and must be completed prior to defueling (with associated records per HAR §11-280.1-33(b) submitted to the Department).</p>	<p><u>Partially complete.</u></p> <p>Please see the SGH final assessment report provided to DOH on May 26, 2022, for specific details.</p> <p>DoD will provide additional reports, including the NDAA for FY2022 section 318 assessment, DOD IG Audit report, and EPA Red Hill Facility Response Plan / Spill Prevention, Control, and Countermeasures inspection. DoD expects that these reports will each include a description of findings and recommendations required in paragraph d.</p>
<p>e. An explanation of how the Assessment Report's recommendations will be incorporated and what quality assurance and quality control steps will be adopted or implemented to ensure that any and all necessary repairs will be performed in accordance with the recommendations and industry best practices prior to defueling.</p>	<p><u>On-going.</u></p> <p>NAVFAC and the Naval Supply Systems Command (NAVSUP) reviewed and concurred with all of SGH's recommendations for critical actions prior to defueling. NAVFAC and NAVSUP are developing prioritized facilities repairs and operational/training improvement lists based on acceptance of the SGH recommendations. The construction and safety expert components of the JTF Red Hill will build upon this work and help finalize these lists. DoD will incorporate these lists into a detailed phase two plan no later than August 31, 2022, and will</p>



	<p>provide that supplement to DOH in September.</p> <p>DoD will also review and incorporate, as appropriate, the recommendations from the NDAA FY22 section 318 report, DoD IG Audit report, and EPA Red Hill Facility Response Plan / Spill Prevention, Control, and Countermeasures inspection, and provide an addendum to the phase two plan as needed.</p> <p>DoD will conduct quality assurance inspections throughout repair execution and upon completion of all repairs. NAVFAC HI, along with the RHOICC, the construction expert component in the JTF Red Hill, will coordinate with CNRH, Fleet Logistics Command (FLC) Pearl Harbor, DLA Energy, and regulatory partners for quality assurance inspections in phase four of the plan.</p>
f. Plans for oil spill/release prevention, containment, and response/contingency plans, including the deployment of resources sufficient to adequately respond to and clean up any releases that occur during the defueling process.	<p><u>On-going.</u></p> <p>As tasked in phase two of the Red Hill defueling plan, CNRH is currently updating the Red Hill Response Plan, based on the November 2021 executed response. The safety expert component of the JTF Red Hill will work with CNRH to complete this update. DoD expects to complete this updated response plan by August 31, 2022, DoD expects that operators will drill in accordance with this safety plan during phase four of the defueling plan.</p>
g. Prioritization and proposed implementation schedule, including detailed critical path, for necessary repairs and defueling. It is essential that the implementation schedule achieve the defueling of the Red Hill Facility at the earliest date consistent with the safe defueling of the Facility and the protection of public	<p><u>On-going.</u></p> <p>DoD is in the process of refining a detailed critical path for necessary repairs and defueling, as well as a more robust implementation timeline. DoD expects to be able to provide DOH</p>

<p>health and the environment. If Respondent certifies to the Department that defueling of the Bulk Fuel Storage Tanks at the Red Hill Facility cannot safely be achieved within 30 calendar days in a manner that protects public health and the environment, defueling of the Bulk Fuel Storage Tanks at the Facility must nevertheless be completed at the earliest date consistent with safe defueling and the protection of public health and the environment. This is necessary to address the ongoing and imminent peril to human health and safety and the environment posed by the Red Hill Facility, and the implementation schedule set forth in the Defueling Phase of the Closure Plan must reflect this requirement.</p>	<p>updated critical path information in in September 2022. As noted above, the critical path is subject to contingencies, and DoD will alert DOH if any contingency materially alters the overall timeline for repairs.</p> <p>At this time, DoD has identified seven repairs that it expects to be on the critical path. Several of these repairs are complex, require significant lead times for materials (e.g. steel, custom-made components), and may be subject to supply chain delays. The Navy has experienced delays of up to 30 weeks for on-island orders for similar materials. DoD will perform market research and explore opportunities to mitigate supply chain challenges and early procurement of long lead items.</p>
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## DoD Red Hill Defueling Plan

The Red Hill defueling plan consists of five phases built around the following key milestones:

1. Review Independent Third-Party Assessment
2. Identify Actions Required to Enable Defueling
3. Implement Actions Required to Make the Facility Safe to Defuel
4. Execute Final Preparedness Actions
5. Defuel and Relocate Product per U.S. Indo-Pacific Command (USINDOPACOM) and DoD Plans

Figure 1 below is a visual depiction of the plan. Development of the defueling plan is iterative. DoD will supplement and refine the plan with additional detail as it completes initial phases and on-going assessments provide further insights into critical actions needed to defuel Red Hill safely.

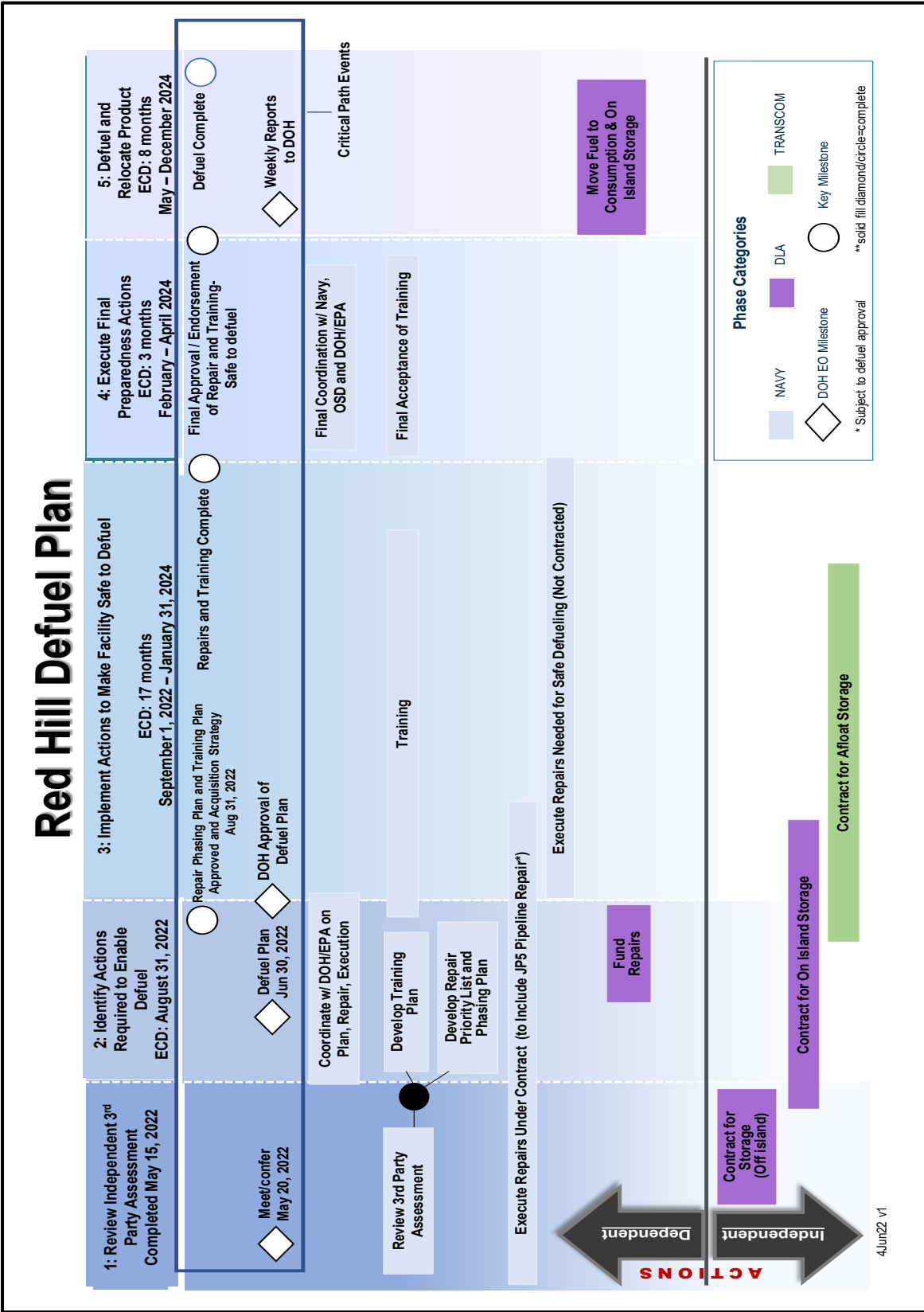


Figure 1

**Phase one** was completed on May 15, 2022 with a detailed review of the SGH assessment. SGH and its sub-contractor Risktec provided their final assessment report to the DoD with findings and recommendations on April 29, 2022.

SGH recommends that the Navy complete eight generally applicable measures related to engineering processes, facility integrity, and safety; thirty-five critical infrastructure repairs; and six operational and training critical actions, prior to defueling Red Hill, for a total of forty-nine recommendations prior to defueling. NAVFAC and NAVSUP reviewed these recommendations, concurred with all SGH and Risktec recommended actions for completion prior to defueling, and will independently validate cost estimates in phase two.

**Phase two**, the critical planning phase for ensuring the successful defueling of Red Hill as quickly and safely as possible, will take approximately **three months and will be complete at or near the end of August 2022**. Phase two focuses on:

- The regulatory requirements to defuel Red Hill; the identification of repairs already under contract (e.g., repair of the JP5 pipeline elements damaged in the May 6<sup>th</sup> surge event);
- The development of a spend plan that forecasts how DoD will obligate and expend funds for various defueling-related activities;
- The development of prioritized requirements lists of both facility repairs and operational/training adjustments needed to ensure safe defueling;
- The development of an acquisition strategy and phasing plan for required repairs;
- The development of acquisition products, to include scope of work development, contract award, and design work; and
- The preparation of required environmental decision documents and permits.

As reflected in Table 2 below, to date, the Navy has completed three SGH-recommended engineering and repair defueling projects and has 22 other SGH-recommended projects under contract. The remaining 18 defueling mitigation recommendations are in design and acquisition planning status. The Navy has also awarded a contract to support the implementation of the six operational and training recommendations and advise and assist throughout defueling operations. DoD is still working to produce a critical path method (CPM) chart for infrastructure repairs. At this time, DoD believes that the **seven repairs recommended by SGH and highlighted in Table 2 below will determine the construction critical path and thus the duration of construction-related activities**. These projects generally include the installation of bypass lines at multiple tanks and lateral stops for F24 pipeline between SP 21 and 103 as recommended by SGH (PM-1 through PM-6 and LAT-24). These repairs are complex, require significant lead times for materials (e.g. steel, custom-made hardware), and may be subject to supply chain delays. The bypass line work will require sophisticated designs so that contractors can safely install the lines while fuel remains in the tanks. NAVFAC will design these solutions and is in the process of hiring an independent engineering expert to provide peer review to ensure consistency with the recommendations. The RHOICC will oversee these efforts.

**TABLE 2: Contracting Status of Red Hill List of SGH Recommendations**

ITEM	DEFICIENCY ID	DESCRIPTION	STATUS
<b>SGH Process Hazard Analysis Facility Recommendations Prior to Defueling (Table 8.1, page 303)</b>			
1	6	Install additional Pressure Indicating Transducer Sensors (PITS).	Under Contract
2	8	Consult dresser coupling manufacturer on reverse pressure capability.	Complete
3	14	Evaluate ratings of all piping and hoses between RH and piers.	Under Contract
4	27	Add equalization line across outboard main tank valve.	Assessing Design and Contract Planning
5	28	Ensure oil tight door remains functional during power outage.	Under Contract
6	31	Evaluate underlying cause of line sag.	Assessing Design and Contract Planning
7	32	Evaluate need for dresser couplings and remove them if it can be done safely.	Under Contract
<b>SGH Structural &amp; Mechanical Integrity Recommendations (Section 8.2, Page 322)</b>			
8	1	Perform surge analysis for the three fuel pipelines.	Under Contract
<b>SGH Site Visit Facility Observation and Recommendation, Defueling Priority D1 (Appendix A.2)</b>			
9	LAT-3	Design piping system to withstand repeat of surge event.	Under Contract
10	LAT-15	Provide protection to existing overhead valve to avoid damage caused by impact.	Assessing Design and Contract Planning
11	LAT-20	Provide lateral restraint to the existing JP5 pipeline at PS 18.	Under Contract
12	LAT-24	Provide lateral stops per SGH retrofit concept drawings for elevated F24 pipeline.	Assessing Design and Contract Planning

ITEM	DEFICIENCY ID	DESCRIPTION	STATUS
13	LAT-29	Provide protection to existing overhead valve to avoid damage caused by impact.	Assessing Design and Contract Planning
14	LAT-32	Provide protection to existing overhead valve to avoid damage caused by impact.	Under Contract
15	LAT-38	Replace brace as per SGH retrofit concept.	Under Contract
16	LAT-40	Replace column and anchorage.	Under Contract
17	LAT-41	Replace column and anchorage.	Under Contract
18	LAT-42	Replace existing beam at end closer to tunnel wall.	Under Contract
19	LAT-44	Provide protection around valve to avoid damage.	Assessing Design and Contract Planning
20	LAT-46	Replace existing corroded beam at end closer to tunnel wall and connect via SGH retrofit concept drawings.	Under Contract
21	LAT-47	Provide lateral stops and reset pipe cradle on elevated pipe per SGH retrofit concept drawings. (73)	Under Contract
22	LAT-48	Provide lateral stops and reset pipe cradle on elevated pipe per SGH retrofit concept drawings. (74)	Under Contract
23	LAT-55	Repair pipe cradle.	Under Contract
24	PM-1	Install bypass from Tank 20 to other side of double block and bleed (DBB) valve using existing sample outlets and drain line.	Assessing Design and Contract Planning
25	PM-2	Install bypass from Tank 20 ball valve to main JP5 lateral.	Assessing Design and Contract Planning
26	PM-3	Install bypass from Tank 15 to other side of DBB valve using existing sample outlets and drain line.	Assessing Design and Contract Planning
27	PM-4	Install bypass from Tank 15 ball valve to main F76 lateral.	Assessing Design and Contract Planning
ITEM	DEFICIENCY ID	DESCRIPTION	STATUS

28	PM-5	Install bypass from Tank 6 to other side of DBB valve using existing sample outlets and drain line.	Assessing Design and Contract Planning
29	PM-6	Install bypass from Tank 6 ball valve to main F24 lateral.	Assessing Design and Contract Planning
30	PM-10	Analyze pipe system for surge events. Provide axial restraint per SGH retrofit concept.	Assessing Design and Contract Planning
31	PM-11	Evaluate need and design (if required) additional longitudinal restraints on F-24 pipeline.	Assessing Design and Contract Planning
32	PM-12	Evaluate need and design (if required) additional longitudinal restraints on F-76 pipeline.	Assessing Design and Contract Planning
33	PM-19	See SGH recommendations if laterals to even numbered tanks are disconnected.	Complete
34	PM-20	See SGH recommendations if laterals to even numbered tanks are disconnected.	Complete
35	PM-21	See SGH recommendations if laterals to even numbered tanks are disconnected.	Assessing Design and Contract Planning
36	PM-22	See SGH recommendations if laterals to even numbered tanks are disconnected.	Assessing Design and Contract Planning
37	PM-25	Provide thermal blanket.	Under Contract
38	HT-3	Assess pipe integrity and repair as appropriate.	Under Contract
39	HT-6	Assess pipe integrity and repair as appropriate.	Under Contract
40	HT-12	Provide protection to existing overhead valve to avoid damage caused by impact.	Assessing Design and Contract Planning
41	AGP-1	Repair pipe sections.	Under Contract
42	AGP-2	Repair pipe sections.	Under Contract
43	HP-14	Replace PVC pipe with appropriate materials.	Under Contract

*Highlighted items indicate that NAVFAC expects item to be on critical path*

These types of repairs require materials with long lead procurements, as the materials and components are non-standard dimension piping uniquely manufactured for Red Hill and thus must be custom fabricated off-island. Navy reports experiencing delays of up to 30 weeks for on-island orders on similar materials and recognizes the supply chain dependency and potential risk to meeting plan timelines. The Navy has been conducting market research that will help DoD project material availability, which in turn will allow DoD to project more accurately the time at which actual work can begin on these projects. The Office of the Secretary of Defense is exploring options to use the Defense Production Act to prioritize DoD's acquisition of any materials for which DoD forecasts supply chain delays. Over the next few months, when work on these fronts has progressed, DoD will supplement this plan to include a detailed critical path of expected construction work. The supplemented phase two plan will provide meaningful additional information required under EO Directive 4, Defueling Plan Elements "b", "e", "f" and "g", and the remainder of "c." DoD will also include in that supplement a spend plan that forecasts how DoD will obligate and expend funds for various defueling-related activities.

Phase two also involves a one-time unpacking (removal) of fuel resident in the fuel lines for all three types of fuel: JP5, F24, and F76. There are approximately 208,000 gallons of JP5; 201,000 gallons of F24; and 750,000 gallons of F76 in the respective fuel lines. DoD must complete repairs on these pipes before using the pipes to drain the fuel from the storage tanks. Much of the repair work contemplated on those pipes involves welding and other hot work that contractors can perform only when those pipes are empty, vented, and fuel-free. Thus, in order to allow repairs on those pipes to proceed, DoD must first unpack the pipes. As noted above, the Navy and DLA believe that it is not necessary to complete any infrastructure repairs prior to unpacking.

This unpacking of the pipes is distinct from defueling of the storage tanks. Unpacking the pipes will require some limited operation of some parts of the distribution system, but it will not require any operations involving the storage tanks. The primary difference between unpacking and defueling is that for unpacking there is no head pressure from the tank pushing the fuel down the line. The fuel will be gravity fed from the line into the surge tank. Unpacking involves opening all of the valves in the line simultaneously, and incrementally, to drain the fuel into the surge tank. The unpacking of the JP5 and F24 lines are each estimated to take only a few hours, with the F76 line unpacking estimated to take slightly longer, but likely less than 12 hours.

At this time, DoD believes that unpacking presents relatively low risk, given the relatively small volume of fuel in the pipelines and the corresponding decreased risk of any type of surge event that has caused or contributed to past releases. DoD will plan, review, approve, rehearse and supervise the unpacking evolution in close coordination with DOH and EPA. To enhance safety of the unpacking process, DLA is contracting for 14 additional Pressure Indicating Transmitter sensors. These sensors go into all three fuel lines to provide continuous reading of the pressure in the pipe, and would allow the operators to detect in real time and address any pressure anomalies during operations.

**Phase three**, which DOD estimates will take **up to seventeen months, from September 2022 to January 2024**, consists of contracting for and completing all critical infrastructure repairs. NAVFAC provided the current construction timeline based on its early assessment of material acquisition and construction timelines associated with the largest and/or most complex



SGH-recommended repair projects. Within this same time period, NAVSUP will implement the operational and training recommendations from the SGH assessment, including updating operational procedures, and retraining and recertifying staff.

In phase three, DoD will execute the SGH-recommended actions required to make Red Hill safe to defuel, including executing contracts for major fuel infrastructure component repairs and other repairs (e.g., large-scale piping modifications); and executing contracts for repair of non-petroleum, oil, and lubricants (POL) infrastructure components and POL wetted/non-wetted minor fuel infrastructure components. The RHOICC, reporting to Commander, JTF Red Hill, will oversee and supervise this work. DoD will use a master program management schedule and develop a phasing plan to de-conflict the sequence of repairs, to avoid contractor delays, and to ensure that the contractors complete the work without the need for any rework.

As noted above, seven of the identified repairs are complex, require significant lead times for materials (e.g. steel, custom-made components), and may be subject to supply chain delays. NAVFAC based its estimated timeline for completion of these seven critical repairs on current timelines for similar repair projects, such as the on-going Hotel Pier repairs at Joint Base Pearl Harbor Hickam (JBPHH), where the procurement lead time for POL valves at the pier is 32 weeks.

DoD understands that the best way to manage these long lead items is to integrate the design and construction processes in order to identify unique components, including the materials and specifications, early in the execution of a contract. One of the most important jobs of the JTF Red Hill, and in particular the RHOICC, is to ensure that DoD is taking this type of early action to address long lead times. As to supply chain concerns, the Navy has been performing market research to understand and plan strategies to mitigate any potential supply chain delays. The Office of the Secretary of Defense (OSD) will assist in this research by evaluating DoD's ability to use the Defense Production Act to allow DoD to have acquisition priority for critical items for which DoD forecasts supply chain concerns. DoD also will explore available acquisition vehicles in order to identify the most efficient way to integrate the design, material and component selection, and construction activities. DoD expects that supplements to this plan will further refine timelines for the seven current critical path work items and for any other complex projects that DoD identifies. At that point, DoD will be able to provide to DOH a "detailed critical path" for the construction items, as required in the superseding EO.

The JTF Red Hill will ensure required coordination between NAVFAC and other commands and review all work for interdependencies. In parallel, DLA will complete the fuel distribution plan for the fuel being removed from the storage tanks and contract for commercial fuel storage on island. Independent of defueling of Red Hill, U.S. Transportation Command will contract for afloat fuel storage to meet ongoing USINDOPACOM requirements during phase three.

**Phase four** consists of final preparedness actions, begins upon completion of infrastructure repairs, and will take approximately **three months, or from February 2024 to April 2024**. The RHOICC, working with the Navy, will hire a contractor to do independent quality assurance inspections, with NAVFAC accepting repairs once inspections are complete. CNRH, NAVFAC HI, and FLC Pearl Harbor will complete required training, safety, and drill response plans in final preparation for defueling to commence. The JTF Red Hill will ensure the timely

completion of these safety upgrades. DoD welcomes the participation by DOH and EPA observers in the response plan drills and will ensure early scheduling coordination. FLC Pearl Harbor will be prepared to execute defueling operations in accordance with the DLA distribution plan.

**Phase five**, the defueling and relocation of the fuel products, will commence once DoD has deemed that Red Hill is safe to defuel and regulatory partners provide final approval. While defueling is not achievable within 30 days, as originally requested by DOH, DoD commits to defueling at the earliest date consistent with safety and protection of public health and the environment and believes that this plan, based on the best available information and subject to contingencies, lays out a path to meet that standard. Upon approval, DLA Energy, with FLC Pearl Harbor in support, will complete safe defueling of the tanks as expeditiously as possible, **estimated between four to eight months** from the time that DoD and regulators deem all fuel product lines safe to defuel. Current planning is for completion of **phase five by the end of 2024**.

In planning for Phase five, DLA developed and considered multiple courses of action for defueling Red Hill. With the current recommended defueling plan, DLA would defuel the Red Hill tanks of all three fuel products (12.5M gallons F76; 50M gallons JP5; and 42M gallons F24) using a gravity-based, conservative (i.e. slower than the maximum velocity) flow rate with planned strategic pauses for safety checks to ensure that no releases are occurring during the defueling. In addition to safety measures, another important variable in the overall defueling timeline is the availability of capacity to offload and safely store the fuel. This defueling plan includes using the fuel to support operational requirements from available capacity in the Upper Tank Farm (UTF) and movement of fuel via commercial tanker; or via commercial pipeline, into on-island storage at a Contractor Owned/Contractor Operated (COCO) facility.

DLA is also planning for alternative and/or supplemental storage and delivery options, including off-island shipments and/or floating storage. Using the current plan, DLA estimates that all of the F76 marine ship diesel fuel (12.5M gallons) and 63M gallons of the aviation jet fuel (JP5/F24) in Red Hill will be used on-island and moved to the on-island COCO facility via commercial tanker or commercial pipeline. DLA will move the remaining aviation jet fuel (~30M gallons) to the West Coast using the existing contracted tanker.

The current plan enables DLA to meet Petroleum War Reserve Requirements (PWRR) on Oahu by using an on-island COCO and/or storage afloat. DLA estimates the necessary storage capacity will be available by July 2023. This plan maximizes the opportunity for mission success while mitigating additional risk to mission by utilizing the straightforward and most well-established fuel movement procedures.

DLA has based its four-to-eight-month timeline on the following analysis, assuming the use of a contracted tanker for delivery to the on-island COCO facility. For the contracted tanker option, DLA used the following planning factors and estimates to calculate the defueling timeframe to defuel Red Hill fully:

- Use of a single, existing contracted tanker with ~10M gallon capacity.
- Uninterrupted defueling operations (24/7) to include unlimited availability to the pier and at the facility.
- 12-day cycle time that includes pier arrival, loading fuel, transit time to the COCO facility, downloading fuel at the facility, and transiting back to the pier;
- Cycle time also includes resetting operations at both the pier and Red Hill during the time the tanker is transiting to the facility.
- Each type of fuel requires its own dedicated and distinct fuel storage and its own unique lineup, so multiple types of fuel cannot flow simultaneously.
- The sequencing of the tanks is dependent on completion of necessary fuel line repairs and the availability of the end source (i.e., commercial storage, ship, UTF, etc.).
- As repairs are completed and sources identified, DLA will identify the specific tank defueling sequencing.
- Adding an additional tanker would only reduce the defueling timeframe by 14–28 days since resetting the pier is still required.
- DLA also considered utilizing the commercial pipeline to transfer fuel. However, the timeline required would exceed the current timeline.

While use of the UTF and the on-island COCO storage facility maximizes mission success, the estimated 12-day cycle time referenced above and the overall defueling timeline are subject to contingencies, which could include:

- Pier availability.
- COCO facility's ability to conduct operations.
- Conducting 24/7 operations; and
- Periodic safety pauses to assess operations and reconstitute workforce.

Throughout this phased process, DoD will continually assess defueling options and risks and refine the plan in coordination with regulators to execute the safe and expeditious defueling of ~104M gallons of fuel from the Red Hill facility.

## **Conclusion**

DoD is focused on the safe and expeditious defueling of Red Hill. DoD's commitment to protect the population of Hawaii, the environment, and the security of the nation will guide all of our actions in implementing this defueling plan. The Secretary of Defense's decision to stand up the JTF Red Hill and to appoint a senior Navy flag officer as the full-time leader of the JTF demonstrates DoD's commitment to this mission. As the JTF Red Hill stands up, the Commander will determine the appropriate division and delegation of functions and responsibilities that are set forth in the defueling plan.

As the above plan outlines, DoD will continually refine the Red Hill defueling plan as work progresses. Accordingly, DoD will supplement the plan with additional detail as it completes initial phases and as on-going assessments provide further insights into critical actions needed to defuel Red Hill safely. DoD understands it will not receive DOH approval of the defueling plan until it is able to provide an updated plan incorporating this supplemental information. DoD is

targeting September 2022 for this supplemental submission and looks forward to continuing to provide DOH additional detailed planning and critical path information in the months ahead.