Red Hill Bulk Fuel Storage Facility, Oahu, Hawaii

Defueling Plan Supplement 2 – May 15, 2023

May 15, 2023 Supplement 2

Contents

Enclosures:

(1) Defueling Fire Protection CONOP
(2) Spill Release Scenarios
(3) Oil Pressure Door CONOP
(4) Repacking Lines CONOP
(5) Red Hill Tank Mains Defueling CONOP
(6) Red Hill Flowable Tank Bottoms Defueling CONOP
(7) Unpacking Lines CONOP
(8) JTF-RH Integrated Master Schedule (IMS)

I. Introduction

On June 30, 2022, the Department of Defense (DoD) provided to the Hawaii Department of Health (DOH) and the United States Environmental Protection Agency (EPA) its five-phase plan to defuel the Red Hill Bulk Fuel Storage Facility (RHBFSF). DoD noted in that submission that its planning process was iterative, and that DoD would provide supplements to the plan that would include additional details and updated timelines and milestones for the completion of defueling. To date, DoD has submitted two supplements to DOH and EPA: Supplement 1.A on September 7, 2022, and Supplement 1.B on September 28, 2022.

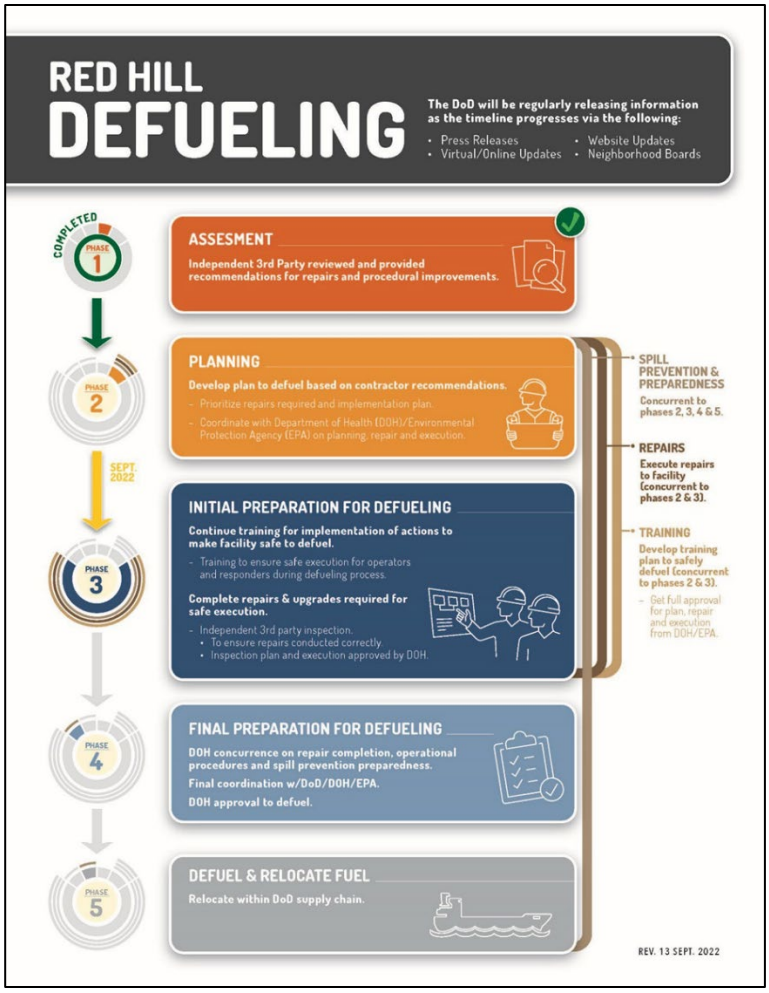


Figure 1- DoD Red Hill Defueling Plan

Supplement 1.A focused on DoD's plan to integrate community engagements into the defueling planning and timeline and outlined a detailed plan to safely unpack the Red Hill pipelines in order to conduct mandatory repairs and enhancements. Supplement 1.B centered on the following: updates to the Fire and Spill Response Plans, updates to the infrastructure repairs and enhancements, updates to Phase 5 planning, an update on DoD's Joint Task Force Red Hill (JTF-RH), and DoD responses to EPA's requests for information (RFIs) dated August 11, 2022.

Supplement 2 provides the way ahead and key milestones required to set the conditions to begin safe and expeditious defueling of the RHBFSF. It includes an update on the creation of the JTF-RH and a description of the progress that JTF-RH has made over the past eight months. It also includes updates on JTF-RH's planning to complete the remaining work items to prepare the facility to begin defueling and on JTF-RH and the Defense Logistics Agency's (DLA) planning for beginning the safe removal and relocation of fuel via gravity-based removal as well as the unpacking of the pipelines and the removal and relocation of all fuel in the four surge tanks. Completion of these parts of Phase 5 will result in the removal of approximately 99.85%, or 104 million (M) gallons of fuel, from the facility. DoD will provide DOH and EPA with additional supplements as needed to comprehensively address any additional actions necessary to

ensure removal of all fuel from RHBFSF.

Finally, this supplement provides JTF-RH's Integrated Master Schedule (IMS), which is a time-based schedule containing the networked, detailed tasks necessary to ensure successful program execution. *See* Enclosure 8. Per the DOH emergency order, the IMS utilizes the critical path method, which has allowed JTF-RH to identify the longest sequence of dependent tasks for the defueling project and prioritize completion of those tasks to ensure that the project stays on or ahead of schedule. JTF-RH used the IMS to verify the attainability of defueling objectives, evaluate progress toward meeting those objectives, and integrate the program schedule activities with all other related components.

JTF-RH is meticulously working to safely and expeditiously accelerate a conditions-based start of defueling by October 2023. JTF-RH projects that, subject to any unforeseen circumstances, it will begin gravity defueling by October 2023 and complete four steps of defueling by January 19, 2024: (1) Defuel Tank Mains; (2) Defuel Flowable Tank Bottoms; (3) Unpacking Pipelines; and (4) Surge Tanks.. The fuel from the tanks mains, flowable tank bottoms, surge tanks, and unpacked pipelines will be transferred into tankers and relocated to approved defense fuel support points (DFSPs).[1] To avoid any confusion or ambiguity and in the spirit of transparency, DoD acknowledges the probability that a substantial amount of fuel (between 100,000 and 400,000 gallons) will remain in RHBFSF at the conclusion of this stage of defueling. DoD will provide DOH and EPA with additional supplements as needed to comprehensively address all additional actions necessary to ensure removal of all fuel from RHBFSF.

A. Establishment and Mission of JTF-RH

On September 30, 2022, after submitting Supplement 1.B., DoD established the JTF-RH to assume responsibilities from Navy to safely and expeditiously defuel the RHBFSF and rebuild trust with the state of Hawaii.

Following the AFFF spill on November 29, 2022, on December 6, 2022, United States Indo-Pacific Command (USINDOPACOM) directed JTF-RH to expand its mission to include centralizing management and safety controls at RHBFSF to reduce risk of future mishaps. USINDOPACOM and JTF-RH added over 100 personnel to the JTF-RH Team to enable successful execution of these expanded responsibilities. Since December 2022, JTF-RH has implemented the following actions to facilitate its defueling mission:

- JTF-RH established physical control of the RHBFSF. JTF-RH personnel now manage two access control points (ACPs) and verify that all personnel on site are on an approved access roster with a clear purpose for accessing the facility.
- JTF-RH now oversees all security screening and badging of any personnel requesting access to RHBFSF.
- JTF-RH now oversees all maintenance, repair, and environmental remediation

[1] DoD's decision-making on the relocation of the removed fuel is subject to finalization of NEPA process. See infra, II.A.3.

contractors who enter RHBFSF and require a military escort to remain with these contractors while at RHBFSF. The military escorts have the requisite training and knowledge to provide appropriate oversight of contractor actions.

- JTF-RH has implemented a robust risk management process. In addition to repairs, enhancements, and modifications to set conditions for defueling, all other activities at RHBFSF must be coordinated, de-conflicted, and synchronized. This process occurs during the Red Hill Defueling Coordination and De-Confliction Working Group (RHDCDWG). This body consolidates all activities into a single integrated weekly schedule which is then approved by the JTF-RH Commander. Any activity characterized as "high risk" is approved by the JTF-RH Commander after receiving a detailed brief covering the procedures, hazards, and mitigations that will be taken to reduce risk. Access to RHBFSF is limited only to activities listed on the approved schedule.
- JTF-RH has established procedures to maintain real-time visibility of all approved activities in order to have awareness of what organization is taking what action in which location in RHBFSF.
- A single Lock-Out/Tag-Out (LOTO) Program has been established under the purview of JTF-RH. It has been implemented to ensure a safe, methodical, and auditable approach to disabling and energizing systems or equipment necessary for maintenance or repairs.
- JTF-RH has implemented enhanced procedures to protect the health and welfare of first responders and personnel involved in clean-up of hazardous material (HAZMAT) and remediation efforts. These measures include an instruction providing information on the safe handling of Aqueous Film-Forming Foam (AFFF) or hazardous material and ensuring that appropriate Personal Protective Equipment (PPE) is worn prior to entering or doing work at RHBFSF. In addition, JTF-RH has expanded its training program to incorporate additional procedures to ensure all personnel are trained and ready to respond in the event of a HAZMAT spill.

B. JTF-RH Organizational Structure

The initial JTF-RH organizational structure, as provided in Supplement 1.B, defined the six functional focus areas: (1) Planning Directorate, which oversees access control to Red Hill, conducts continuous planning to safely and expeditiously defuel Red Hill, and engages with all stakeholders for discussions prior to executing milestones; (2) Training Directorate, which works to ensure all personnel responsible for defueling operations are both individually and collectively trained and certified; (3) Quality Assurance Directorate, which monitors and evaluates various aspects of a project, service, or facility to ensure the standards of quality are met and enforced; (4) Repair and Maintenance Directorate, which is responsible for coordinating and executing fuel systems and facility repair projects; (5) Operations Directorate, which coordinates with the Defense Logistics Agency (DLA) to plan for the safe removal and transportation of fuel, conducts dry runs of the defueling operations, tank tightness testing and dewatering; and (6) Response Directorate, which coordinates with an Interagency Spill Response Team (ISRT) to develop response plans, conduct drills and rehearsals, and review lessons learned. The revised JTF-RH organizational structure (*see* Figure 2 below) reflects the additional capabilities established to support the expanded mission set to include the Defueling Information Sharing Forum (DISF), which brings together local community leaders, elected representatives, and other stakeholders with different areas of relevant subject matter expertise for discussions and key

updates pertaining to RHBFSF defueling line of effort; and the RHDCDWG, which serves as the centralized clearinghouse for any potential conflicts across all activities.

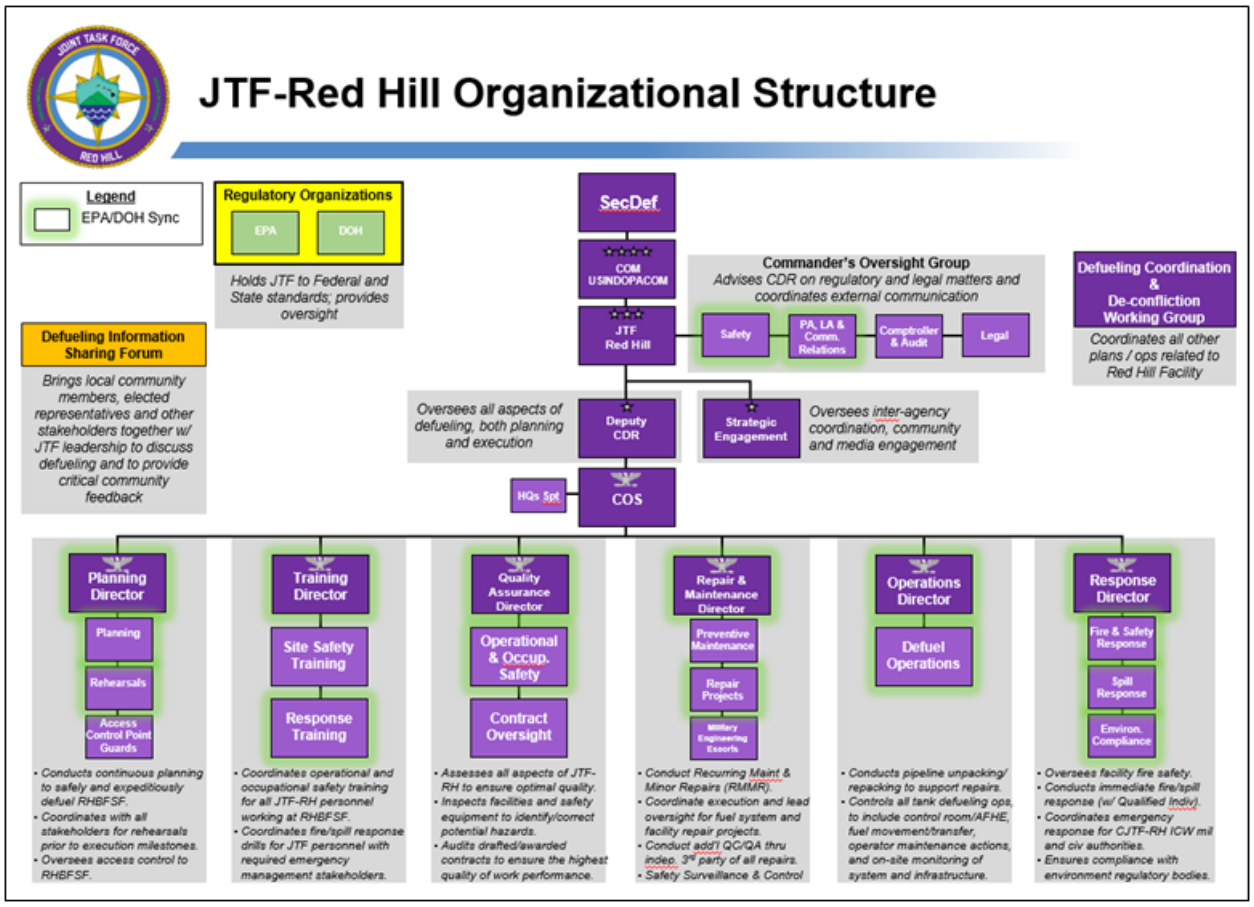


Figure 2 – JTF-RH Organizational Structure

C. JTF-RH Progress

JTF-RH has made significant progress since establishment. A comprehensive list of major deliverables and events is provided in Table 1. As shown in Table 1, JTF-RH thus far has completed all tasks by their due date. Those tasks include a successful unpacking of the three products lines, 75% of all repairs, dewatering, the completion of sump tank tightness testing, and the execution of numerous safety and spill response drills.

Table 1- Comprehensive List of Submitted Deliverables and Completed Events

DATE	JTF-RH DELIVERABLES AND EVENTS
09 OCT 22	RHBFSF Tour CODEL Wasserman-Schultz
23 OCT 22	Third Party Repair Quality Validation Plan to DOH and EPA
24 OCT 22	Consolidated Repair and Enhancement List to DOH and EPA
24 OCT 22	Execution of Unpacking Equalization and Valve Cycling
25 OCT 22	F-24 Unpacking Complete
26 OCT 22	JP-5 Unpacking Complete

28 OCT 22	F-76 Unpacking Complete
1 NOV 22	Low Point Drain/Verification and PostOp Lineup Walkthrough Complete
1 NOV 22	Third Party Repair Plan to DOH and EPA
9 NOV 22	Fuel Tank Advisory Committee (FTAC)
12 DEC 22	Defueling Town Hall
16 DEC 22	Repair Status – All Under Contract
10 JAN 23	DISF Meeting
10-12 JAN 23	Indo Pacific Command (IPC) State Government Outreach
11 JAN 23	Military Affairs Counsel Conference
15 JAN 23	APTIM Contract Award for Repairs
18 JAN 23	JTF-RH Town Hall with EPA, Navy, and DOH
19 JAN 23	2023 Administrative Consent Order (ACO) Public Meeting
20 JAN 23	RHBFSF Tour for DOH and EPA
21 FEB 23	RHBFSF Tour for STAFFDEL Zomorrodian & STAFFDEL Nelson
01 MAR 23	Red Hill Special Committee (Brief by Commander, JTF-RH)
02 MAR 23	Dewatering CONOP to DOH and EPA
23 MAR 23	Garrison Commander Outreach Meeting
24 MAR 23	RHBFSF Tour for HON Lowman, ASD for Sustainment
24 MAR 23	Mr. McAndrew, DASD for Construction Meeting
24 MAR 23	DISF Meeting
28-29 MAR 23	GAO Audit and Tour RHBFSF
1 APR 23	Monthly QV Submission to DOH and EPA
3 APR 23	Main Sump Tank Tightness/ Leak Testing Complete
4 APR 23	RHBFSF Tour for CODEL McCollum
5 APR 23	Military Family Information Fair
6 APR 23	Repacking Spill Response Drill
11 APR 23	Inter-Agency Senior Leader Meeting
11 APR 23	Kamehameha Schools President Engagement
12 APR 23	RHBFSF Tour for the Red Hill Special Committee
12 APR 23	Dewatering/ Sampling TTX Complete
12 APR 23	Repacking Spill Response Drill Complete
14 APR 23	Tank 311 Draining and Valve Repair and F24 Draining Complete
14 APR 23	Fire Suppression CONOP to DOH and EPA
15 APR 23	JTF-RH Defueling Risk Assessment In-Progress Review (IPR)
17-21 APR 23	Dewatering
21 APR 23	F-24 Draining (Low Point Drain) Complete
22 APR 23	APTIM Mod 6 Notice to Proceed
26 APR 23	AFFF Concentrate Removal from Adit 6 to Pump House Complete
1 MAY 23	Monthly QV Submission to DOH and EPA
15 MAY 23	JTF-RH Defueling Risk Assessment IPR

II. May 15, 2023 Red Hill Defueling Plan Updates

This Supplement provides key updates on plans and timelines for JTF-RH's remaining work to prepare the RHBFSF for safe defueling and to defuel and relocate the vast majority of fuel in the facility, thus bringing DoD closer to the requirement to set the conditions for facility closure by the Navy. It provides Phase 3 updates for fire and spill response and infrastructure

repairs and enhancements. It will also preview the forthcoming Environmental Assessment (EA) and Overseas Environmental Assessment (OEA) for the decision-making on distribution of the fuel, after JTF-RH has removed it from the facility. Supplement 2 Phase 4 updates include a listing of all required approvals from DOH and EPA before JTF-RH can commence defueling operations and outlines the repacking of fuel lines concept of operations (CONOP), which is a required preparatory step to defuel. Finally, Supplement 2 Phase 5 updates include: updated plans for gravity-based removal, fuel oil recovery (FOR) draining, and removal of all fuel in the four surge tanks, the analysis on pace for gravity-based defueling, defueling CONOPs, and a list of upcoming JTF-RH deliverables to DOH and EPA. JTF-RH projects that, subject to any unforeseen circumstances, it will begin gravity defueling by October 2023 and complete the Supplement 2 defueling—removal of fuel from UST tank mains and flowable tank bottoms, unpacking lines, and removal of fuel from surge tanks—by January 19, 2024.

A. Phase 3 Update – Implement Actions to Make Facility Safe to Defuel

JTF-RH is currently operating in Phase 3 of the defueling plan. Key activities that occur during this phase are repairs, modifications, training preparedness, spill response drills, quality control and quality validation, and planning. To date, JTF-RH has completed 214 of 253 SGH-recommended repairs and projects completing all required repairs by May 31, 2023. This section provides key progress updates for Phase 3 resulting from information that has been learned and the iterative planning process conducted since the last supplement.

1. Fire and Spill Response Update

a. Fire Suppression Update

The AFFF fire suppression system at the Underground Storage Tanks (USTs) was disabled following the November 29, 2022, AFFF inadvertent discharge and remains inactive. This AFFF system has not been refilled with AFFF concentrate nor has the JTF-RH reactivated the system. JTF-RH and Federal Fire Department (FedFire), have implemented appropriate fire risk mitigations while repairs, enhancements and modifications for defueling are in progress. Meanwhile, JTF-RH worked with FedFire, and Navy Facilities and Engineering Systems Command (NAVFAC) to develop a defueling fire response plan that appropriately balances fire suppression, personnel safety, and environmental concerns. This plan uses dry chemical (sodium bicarbonate) fire extinguishers, the existing water sprinkler system and Federal Fire to respond to a fire event in the vicinity of the USTs. The Defueling Fire Protection Plan was submitted to DOH and EPA for review and concurrence on April 14, 2023 (*see* Encl. (1)).

b. Spill Response

DoD facilitated a Spill Prevention Control and Countermeasures (SPCC) inspection and briefed the results on March 4, 2022. The DOH/EPA inspection raised issues and concerns that were addressed as follows:

- On July 6, 2022, DoD awarded the contract to update the SPCC Plan to address all EPA/DOH comments. CNRH hosted several meetings with key stakeholders to ensure all inspection findings were addressed and/or incorporated into the revised SPCC Plan.
- Navy provided the draft SPCC Plan to DOH and EPA on September 8, 2022. It was

included as part Supplement 1.A.

- On October 12, 2022, EPA provided SPCC training to NAVFAC, JTF-RH, Pacific Missile Range Facility, and JBPHH at CNRH headquarters.

- On December 19, 2022, Navy provided EPA and DOH the revised draft SPCC Plan for review and comment. The revision addressed the piping in the Underground Pump House (UGPH) for JP-5, F-24, and F-76 that hold over 1 million gallons of fuel during fueling operations and are considered to be underground storage. JTF-RH received feedback from EPA and DOH on April 28, 2023 and will provide a response by June 30, 2023.

On January 26, 2023, JTF-RH established an Interagency Spill Response Planning Team (ISRPT), which includes the following stakeholders: EPA, DOH, JBPHH, Fed Fire, Defense Logistics Agency (DLA), Port Operations, US Coast Guard (USCG), JTF-RH, and Naval Sea Systems Command Supervisor of Salvage and Diving (SUPSALV). The ISRPT has collaboratively identified seven potential defueling spill scenarios and developed corresponding responses for each scenario. These spill scenarios and responses will be incorporated into the final SPCC Plan. JTF-RH expects to submit its proposed final SPCC Plan to EPA and DOH on August 1, 2023.

JTF-RH developed seven spill response plans for each of the seven potential defueling spill scenarios: (i) Release in Tank Gallery; (ii) Release in Lower Access Tunnel (LAT) (Packing); (iii) Hotel Pier Pipe Rupture; (iv) Hotel Pier Overfill of Tanker; (v) Most Dangerous Release (Defuel); (vi) Dewatering; and (vii) Fire Response. Each spill release scenario is summarized below and Figures 3 through 6 provide a graphical depiction of where each release would potentially occur. *See* Encl. (2) for further details on the response mitigation measures for each scenario.

i. **Most Likely Release in the Tank Gallery – Defueling:**

JTF-RH assessed that, if a release were to occur in the Tank Gallery during defueling, it likely would result from one or more of the following events: (1) a pipe rupture; (2) a failed repair; or (3) failure of a valve in the tank gallery along a length of pipe downstream of tank skin-valves (double-block and bleed valves). Based on this assessment, JTF-RH has developed a plan to utilize the AFFF retention pumps to recover up to 20K gallons of released fuel within approximately seven minutes (rated at 1,000 gallons per minute using a maximum of three pumps active at one time - for a total of 3,000 gallons per minute pumping capacity). This solution comports with DOH's January 13, 2023, recommendation to evaluate the AFFF retention line pumps for rapid removal of fuel. Likewise, if a release were to occur during defueling the tank bottoms, the AFFF retention pumps would be the most advantageous means of removing the released fuel. JTF-RH projects that AFFF retention line repairs will be complete by May 31, 2023.

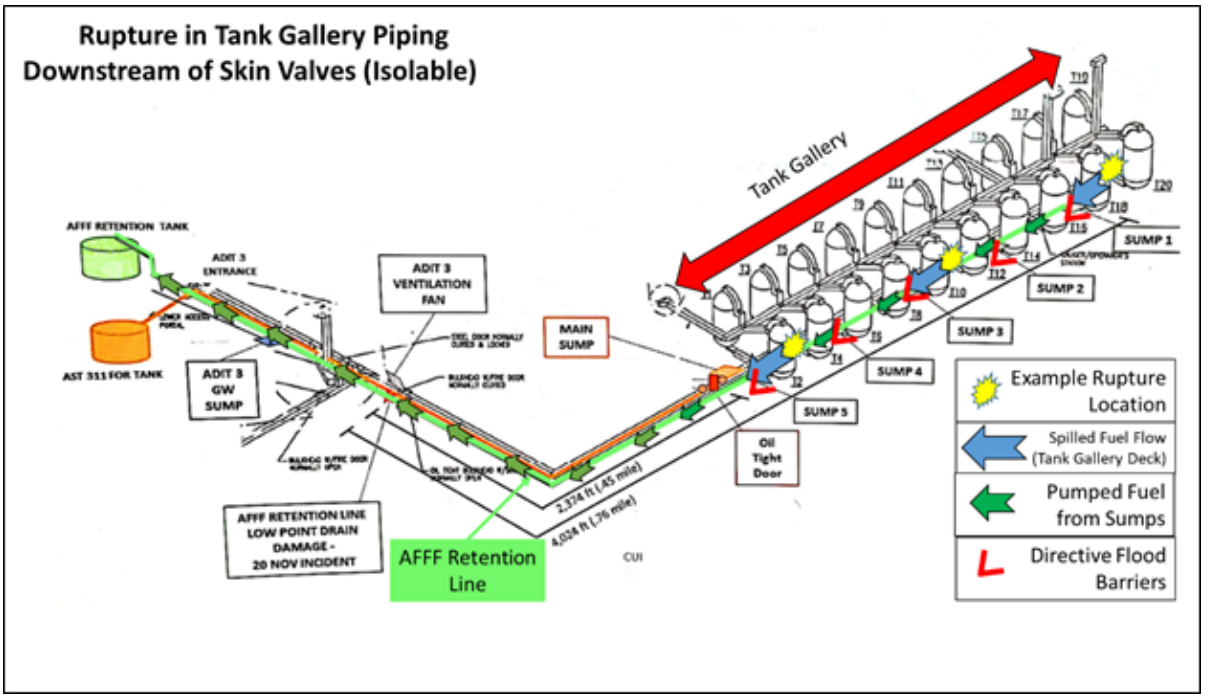


Figure 3 – Scenario 1: Most Likely Release in the Tank Gallery

ii. **Most Likely Release in LAT Piping – Re-Packing/Un-Packing:**

JTF-RH assessed that, if a release were to occur in the LAT Piping during Repacking or unpacking, it likely would result from one or more of the following events: (1) a pipe rupture; (2) a failed repair; or (3) failure of a valve. If a rupture were to occur in the LAT, the fuel would be directed away from Adit 3 "Wye" (protecting direct pathways to the aquifer) and down the HT by the pre-positioned rigid flood barriers, which is the mitigation measure utilized to prevent the fuel from flowing to the HT. In this scenario, the released fuel would collect at the UGPH and pump out to surge tank B-2, which has a 385K gallon capacity.

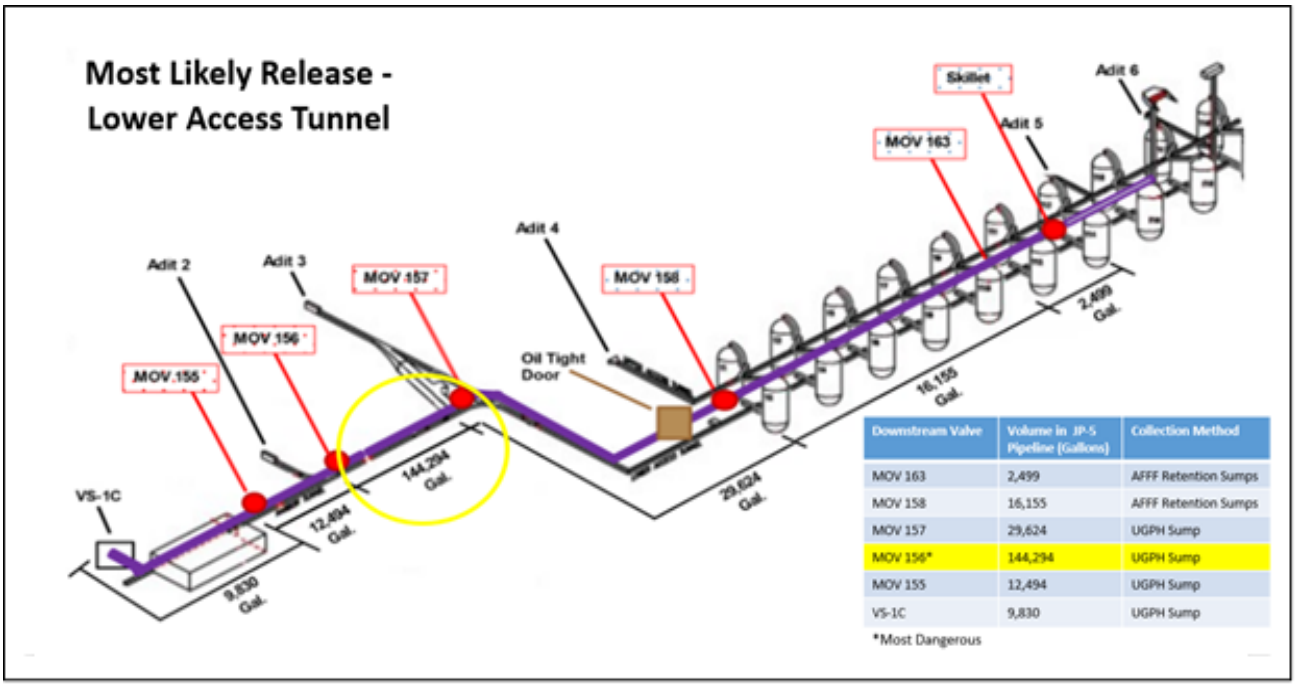


Figure 4 – Scenario 2: Most Likely Release in LAT

iii. **Most Likely Release Harbor Tunnel (HT) Piping – Re-Packing/Un-Packing:**

JTF assessed that, if a release were to occur in the Harbor Tunnel, during repacking or unpacking, it likely would result from one or more of the following events occurring: (1) a pipe rupture; (2) a failed repair; or (3) failure of a valve. If a rupture were to occur in the LAT, the fuel would be directed away from Adit 3 "Wye" (protecting direct pathways to the aquifer) and down the HT by the pre-positioned rigid flood barriers, which is the mitigation measure utilized to prevent the fuel from flowing to the HT. In this scenario, the released fuel will collect at the UGPH and pump out to surge tank B-2, which has a 385K gallon capacity.

iv. **Tanker Overfill**

In this scenario, a potential release could occur during tanker fill when the product is reaching tank capacity on the receiving tanker. A tank overfill could spill fuel onto the deck and into the water surrounding the vessel. Based on data provided by the Maersk Peary, the probability of overfilling a tanker is 0.4%. Historical data identified overflow amounts as less than 264 gallons. Spill response plans are predicated upon CFR 155, "Oil and Hazardous Material Pollution Prevention Regulations for Vessels." JTF-RH's spill response plan is based on the Vessel Response Plan (VRP) provided by Maersk Peary (Master Notification/ Tank Overflow Procedures).

v. **Most Dangerous Release – Defueling**

In this scenario, a possible release could occur if a fuel hammer, or vacuum condition, causes a fracture to a section of piping just north of a double blocking blow valve. The released

fuel would flow from the tank gallery into the LAT. JTF-RH estimates that after approximately 18 minutes, the released fuel would reach the Adit 3 "Wye," where the pre-installed rigid flood barriers would redirect the fuel from north of the aquifer to the HT. JTF-RH further estimates that, in this worst-case scenario, 4.3 M gallons of fuel would be discharged over 30 hours. This scenario would be an escalating situation - which is initially handled via the response for the Most Likely Release in the tank gallery - utilizing the AFFF retention sump pumps. The escalation occurs when the spill ultimately exceeds the capacity of the AFFF retention sump pumps and begins to flow down the LAT all the way to the HT reaching the UGPH. The modeled flow rate would be approximately 13,800 gallons/minute (gpm), which would overwhelm the pumps and exceed B-2's surge tank capacity of 385K gallons. To prepare for this worst-case scenario, JTF-RH has developed a plan to leverage its oil spill response organizations to augment the UGPH pumps. The response plan will utilize supplemental pumps (4 x 2,200 gpm = 8,800gpm) installed by SUPSALV (NAVSEA contract) on 1 July 2023 prior to the Defueling Exercise scheduled for 13 July 2023 to move fuel to tankers at Hotel Pier. Additionally, the sides of the ramp will be lined with sandbags or other barricades that direct any oil that exits Adit 1 into the lower yard tunnel. This fuel will be recovered by the SUPSALV pumps. This response action will minimize environmental impacts in the event of a spill.

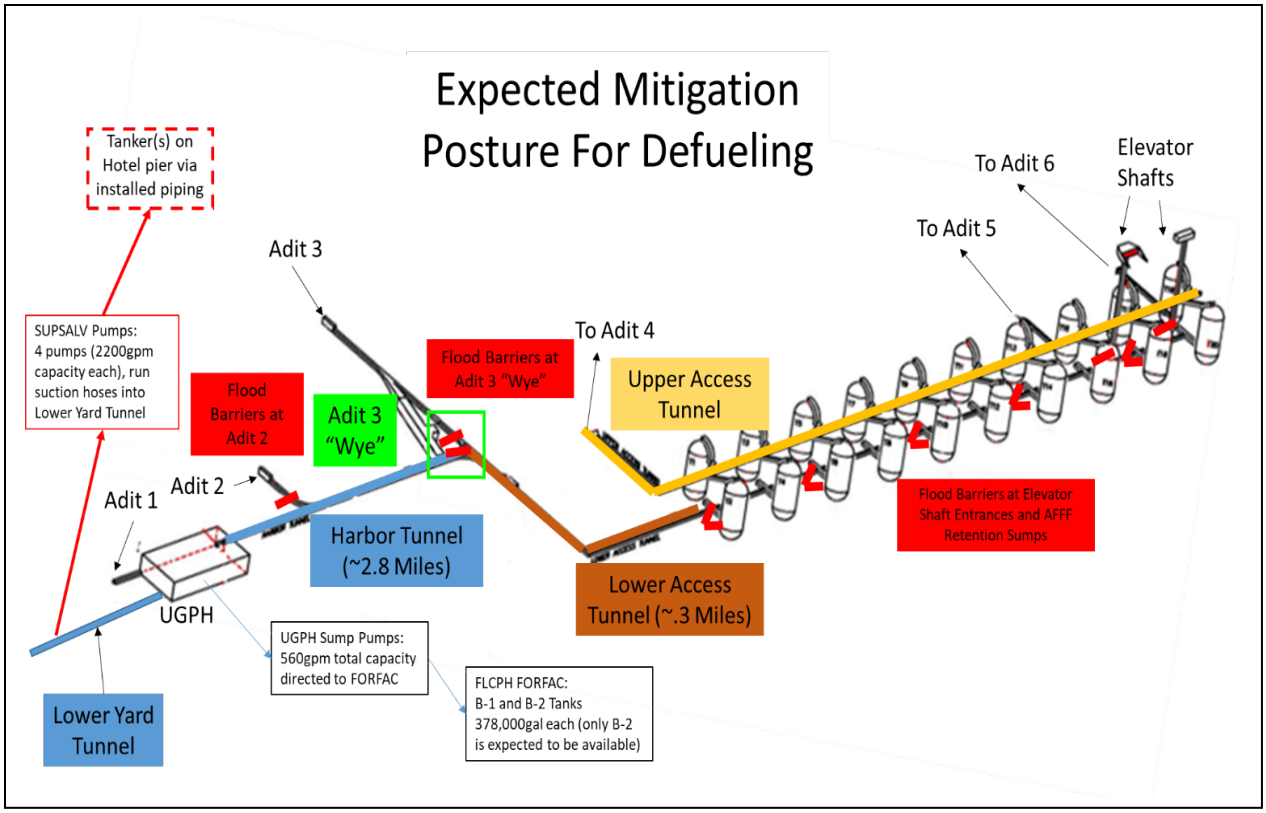


Figure 5 – Scenario 5: Most Dangerous Release - Defueling

vi. **Fire Suppression**

In order for a fire to occur there must be a fuel release and an ignition source. NAVFAC Fire Engineer analysis estimated the probability of fuel release coupled with an ignition event that would result in a fire is 1 in 856 million (*see* Encl. (1)). JTF-RH has implemented the following mitigation measures to reduce the potential for a fire: joint wrapping, eliminating combustible materials, procurement of dry chemical extinguishers, installation of tank equalization lines, pipe repairs, fire watch, and updated operations plans.

JTF-RH in coordination with NAVFAC Fire Engineers and the FedFire conducted fire suppression course of action analysis for alternatives to the disabled AFFF system. JTF-RH determined the chosen course of action in an effort to reduce risk to both the environment and personnel and consists of a layered approach using a manned fire watch in conjunction with the existing fire water sprinklers and Fed Fire emergency response. The fire watch will employ dry chemical fire extinguishers as an immediate response in parallel to the operational water sprinkler system in auto mode, and ahead of arrival of Fed Fire. The dry chemical fire extinguishing agent is sodium bicarbonate.

The Defueling Fire Protection Plan (*see* Encl. (1)), provides an overview of the selected fire suppression response. The plan requires eight fire watch teams, each consisting of two trained and qualified personnel who will be positioned between two 150lb dry chemical fire extinguishers. The locations, as depicted in Figure 6 below, provide complete coverage throughout the entire tank gallery.

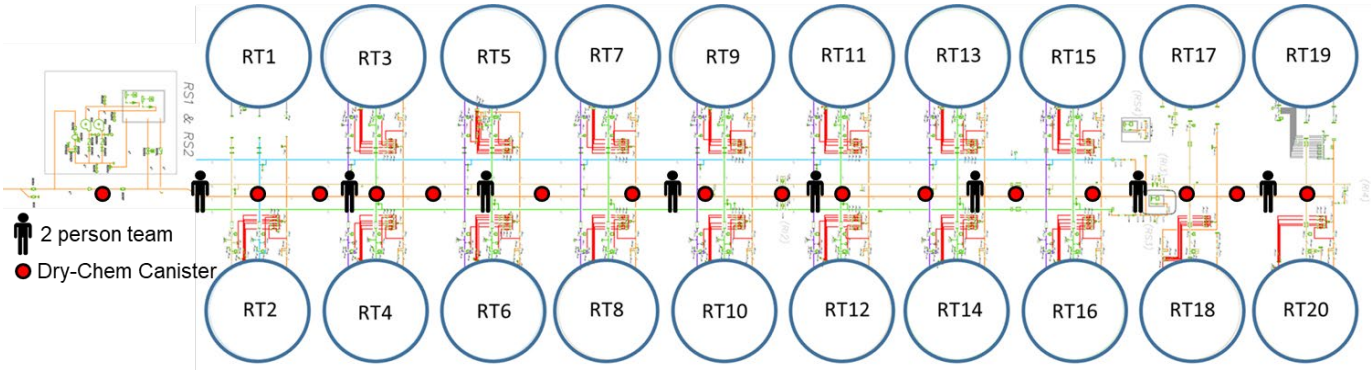


Figure 6 – Defueling Fire Response Plan

c. Response Drill Schedule

On April 6, 2023, JTF-RH conducted a full-scale spill response exercise. All ISRPT entities participated in this spill response exercise, which focused on testing the capabilities and actions JTF-RH will take in response to spill release at RHBFSF. The spill response exercise focused on initiating the notification tree and deploying spill containment and removal assets. Table 2 provides a comprehensive list of all JTF-RH response exercises in preparation for defueling.

Table 2- JTF-RH Spill Response Exercises

JTF-RH Spill Response Exercises		
SCENARIO	RESPONSE EXERCISE	DATE
1. Most Likely Release in the Tank Gallery	Defueling Spill Drill Exercise	July 13, 2023
2-3. Most Likely Release in LAT or HT Piping	Repacking Spill Drill Exercise	June 8, 2023
4. Tanker Overfill	JTF-RH Spill Exercise	August 2023
5. Most Dangerous Release – Defueling	Defueling Spill Drill Exercise	July 13, 2023
6. Dewatering	TTX & Conditions Walk through	April 12 & 14, 2023
7. Fire Suppression	FED Fire Exercise	TBD

2. Infrastructure Repairs and Enhancements

JTF-RH continues to collaborate with DOH and EPA during the weekly Defueling Technical Working Group (DTWG) and address outstanding RFIs at the action officer level. At this time, JTF-RH has responded to all formal RFIs received from DOH and EPA. JTF-RH will continue to staff any additional formal RFIs received with DTWG and provide prompt responses to DOH and EPA.

a. AFFF Reclamation Line Repairs

JTF-RH continues to work an alternate solution to address the damaged AFFF reclamation line in the LAT as depicted in Figure 7. This proposal will forego the replacement of the existing AFFF reclamation line. JTF-RH will continue to iterate with DOH and EPA on developing this alternate solution and address any regulator questions and concerns. JTF-RH will submit a formal proposal to DOH and EPA that incorporates and addresses all feedback and concerns no later than May 31, 2023.

JTF-RH is addressing the following items in support of the AFFF Reclamation Line Repairs: sump pump testing, line lift pump repair, line joint repairs, corroded support repairs, PVC line and low point drain (LPD) repairs. The sump pumps were dry tested on February 1-2, 2023, and JTF-RH is developing a plan to wet test the sump pumps. JTF-RH intends to

repair/reallocate/replace sump pumps in order to maintain two working pumps per sump to support the JTF-RH Spill Response Plan. JTF-RH is working to seal AFFF retention line joints with an elastomeric joint seal and to repair corroded pipe supports. JTF-RH will establish protection for LPDs as well as repair the damaged section of pipe. Repairs may also include connection of the AFFF retention line to the F-76 line. JTF-RH is on track to complete all repairs to the existing system by June 30, 2023. These repairs will also undergo rigorous quality control and quality assurance measures to ensure the repairs are performed properly. Additionally, JTF-RH provides secondary quality assurance on all repairs and audits of drafted and awarded contracts to ensure the highest quality of work performance and standards are met.

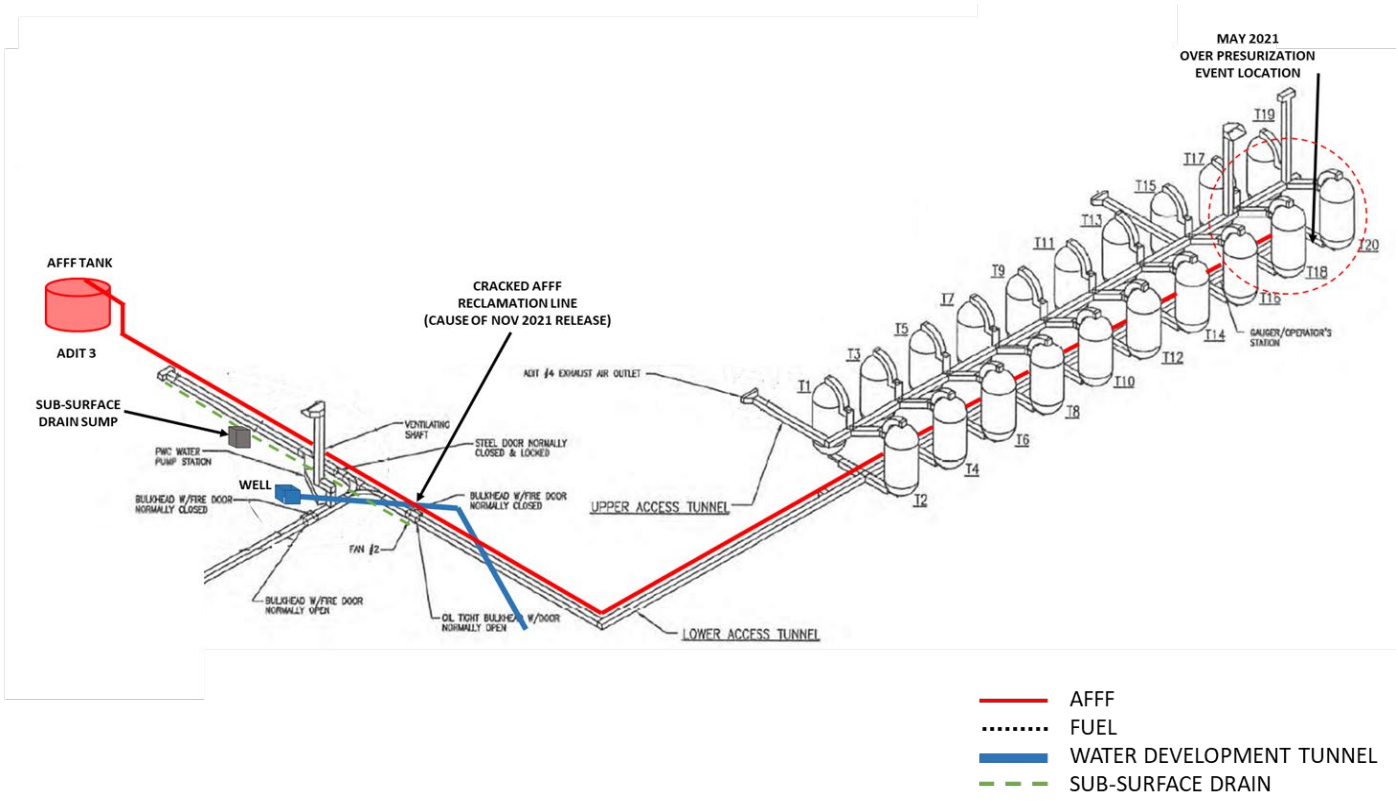


Figure 7 – AFFF Reclamation Line Repairs

b. Hotel Pier FOR Line Repairs

JTF-RH determined, and DOH/EPA have conditionally agreed, that replacing a PVC drain line serving as secondary containment at Hotel Pier with steel line is not required to safely defuel. Rather than replacing the line, JTF-RH will hydro test the existing PVC FOR pipeline to locate and repair leaks, in accordance with the conditional approval requirements established in DOH's letter dated January 13, 2023. JTF-RH intends to repair all damaged or missing hardware supporting the PVC FOR pipeline under the pier prior to hydro testing, including but not limited to damaged pipe hangers. JTF-RH will repair any identified leaks and retest prior to defueling. JTF-RH will provide DOH and EPA with documents that detail all repairs and testing conducted. JTF-RH is on track to complete all repairs and testing by June 30, 2023.

c. F-76 Line

JTF-RH determined that F-76 line repairs are no longer required since F-76 fuel will be rerouted through the JP-5 line. This deviation was approved by DOH on January 13, 2023, and EPA on March 10, 2023.

d. Oil Pressure Door

The Oil Pressure Door (OPD) at the bottom of the tank gallery is designed to automatically seal off the tank gallery from the rest of the facility in the event of a spill. Once activated, the trapped fuel must be manually removed before the door can be reopened. In this scenario, fuel would be trapped in the tank gallery until slow, manual removal could be executed. And notwithstanding JTF-RH's prior work to seal cracks and openings in the floor, there is moderate risk that large amounts of standing petroleum could release into the environment. Thus, JTF-RH conducted a risk analysis on the disposition of the OPD and determined that disabling the OPD and leaving it in the open position presents the lowest risk to the environment and aquifer. Based on this decision, JTF-RH does not intend to conduct repair Number 6 (SGH.28) to the OPD. Enclosure 3 provides a detailed analysis of OPD disposition.

e. Fire Suppression

JTF-RH's Defueling Fire Suppression Plan uses dry chemical (sodium bicarbonate) fire extinguishers, the existing water sprinkling system and Federal Fire to respond to a fire event in the vicinity of the UST during defueling. *See* Encl. (1). However, should the use of AFFF be mandated by regulatory agencies JTF-RH is conducting repairs to the AFFF pipe from the pump house to the Adit 6 Tunnel.

f. Main Fuel Oil Recovery (FOR) Sump and FOR Zone 7 Sump Tank Tightness Testing (TTT)

In Supplement 1.B., DoD agreed to conduct EPA-compliant testing of two sumps in the LAT, the Main FOR Sump and the Zone 7 Sump. JTF-RH conducted tank tightness testing on the Main FOR Sump on April 7, 2023 and provided DOH and EPA with a final report on May 10, 2023. JTF-RH collaborated with DOH and EPA during the DTWG to develop an alternate means to test the Zone 7 FOR sump, since it cannot be tested in accordance with the standard tank tightness testing procedure. On April 13, 2023, JTF-RH provided a recommended testing solution to DOH and EPA for review and concurrence. JTF-RH received EPA concurrence on May 1, 2023 and conducted testing on Zone 7 Sump on May 3-4, 2023. JTF-RH provided EPA and DOH with the test results on May 11, 2023. After testing, JTF-RH intends to epoxy the sump and sump pump replacement. JTF-RH will repeat the test upon completing repairs and will submit written results to DOH and EPA within thirty days of testing.

3. EA/OEA

In accordance with the National Environmental Policy Act (NEPA), JTF-RH is preparing an EA/OEA to analyze the potential environmental effects associated with JTF and DLA's

discretionary decision-making[2] for Red Hill defueling and fuel relocation. The scope of the EA includes fuel loading at JBPHH Hotel pier onto tanker vessels and the ocean transit to each relocation destination. The EA will analyze the following resource areas: water resources, marine biological resources, public health and safety, air quality, and greenhouse gases. The analysis will be based on a proposed action and alternatives that include a maximum of eleven refined product tanker ship transits with a maximum number of loadings possible based on the final maximum allowable operating pressures and the necessary manpower availability to safely load tankers at JBPHH Hotel pier and the movement of fuel via tanker to up to nine different locations within the DoD fuel supply chain.

a. Fuel Locations

The following potential locations are being considered in the EA/OEA: Darwin Australia; Port of Singapore; Subic Bay, Philippines; Sasebo, Japan; Puget Sound, WA; Vancouver, WA; Selby, CA; Point Loma, CA; and West Oahu, HI. DoD is planning for a Draft EA Public Comment Period from June 9-30, 2023, with an EA Public Meeting on June 15, 2023. DoD is targeting a Final EA and decision document no later than August 31, 2023, pending the completion of all NEPA requirements.

B. Phase 4 Update – Final Preparation for Defueling

JTF-RH is meticulously working to safely and expeditiously accelerate the defueling timeline to support a conditions-based defueling start in October 2023. An October 2023 defueling start hinges on receiving unconditional approval from DOH and EPA and on the successful execution of repacking the pipelines. This section discusses the approvals that are required from DOH and EPA and previews the CONOP for repacking.

1. Regulatory Approval(s)

DoD must receive unconditional approval from DOH and EPA prior to defueling RHBFSF. JTF-RH is conducting monthly risk assessments to evaluate the feasibility of executing an earlier, conditions-based start for defueling on October 16, 2023. Remaining work items and required approvals include:

1. DOH Approval of DoD Defueling Plan, as supplemented
   a. Initial List of Repairs
   b. Approval of AFFF Alternate Course of Action
2. Completion of Required Repair Work
3. Third-Party Validation of Repair Work
4. NEPA EA/OEA Completion
5. Regulatory Approval of Repair Work
6. CONOP for Defuel Response Plan and Regulatory Approval

[2] NEPA does not apply to JTF-RH's mission to defuel the Red Hill underground storage tanks themselves, as the Hawaii Department of Health has directed that action, and thus DoD does not have discretion on whether to defuel them. The scope of JTF-RH's NEPA review is limited to analysis of the effects of JTF-RH's discretionary decision-making for the distribution of the fuel after it has left the Red Hill facility.

7. CONOP for Fire Response and Regulatory Approval
8. CONOP for Spill Response and Regulatory Approval
9. Training and Certification for Each Milestone Evolution with Regulatory Approvals
    a. JTF-RH Fuel Operations Directorate Personnel
    b. Response Personnel
    c. Fire WatchPersonnel

10. Regulatory Approvals of Response Drills
    a. Response in Red Hill (most likely, worst case) (DOH/EPA)
    b. Response at Hotel Pier (USCG)
11. CONOP for Pipeline Repacking and Regulatory Approval
12. CONOP for Main Tank Defueling and Regulatory Approval
13. CONOP for Defueling Flowable Tank Bottoms Approval
14. CONOP for Defueling Surge Tanks and Regulatory Approval
15. CONOP for Unpacking Pipelines and Regulatory Approval
16. Rehearsals for DoD Workforce

2. Repacking Lines

JTF-RH will repack the JP-5 and F-24 pipeline segments (two of the three pipeline segments previously unpacked to complete repairs) from the UGPH to the LAT after DOH and EPA provide unconditional approval for all completed repairs. Repacking these pipeline segments requires the use of UTF fuel, pushed up gradient utilizing Pearl Harbor transfer pumps while venting the upper end of the line. Moving the fuel from bottom up minimizes the risk of trapping air in the line, which then reduces the risk of a surge event. Additionally, this approach enables controlled venting of air from the line as it is displaced by fuel. It also eliminates introducing the head pressure of a Red Hill fuel tank for the duration of the repack. Lastly, using the pumps allows for a controlled/throttled repack, reducing the time from days to hours and allowing for predictive pauses to inspect the lines. The repacking operation order (OPORD) brief to regulators occurred on April 28, 2023. JTF-RH will commence repacking in August or September 2023.

a. Repacking CONOP

JTF-RH will fully repack both fuel lines in four phases: (1) pipeline condition verification; (2) P1411/1412 pump verification; (3) pipeline repacking via UTF gravity equalization/pump transfer equalization; (4) pipeline repacking via Red Hill tank equalization. Each of the phases includes safety measures detailed below to ensure operators are taking all necessary precautions. The Repacking Lines CONOP (see Encl. (4)) specifies what actions will take place during each phase, provides a graphical depiction of the fuel flow path from origin to destination, and prescribes personnel assignments by location. Further, the CONOP also details an estimate of fuel that will be required for repacking the pipelines: approximately 165,000 gallons of F-24 and approximately 215,000 gallons of JP-5. JTF-RH anticipates approximately 30-40% of the pipelines to repack via gravity equalization, 55-65% to repack via pump transfer to the respective Motor Operated Valve (MOV) closest to end of the line (F-24: M-162 and JP-5: M-163), and the remaining approximate 5% to repack utilizing the equalization line on the

respective Red Hill tank ball valve (F-24: TK5 and JP-5: TK20). JTF-RH estimates that repacking of each line can be completed in one eight-hour shift.

b. Safety Measures for Repacking

JTF-RH conducted a Process Hazard Analysis (PHA) in February 2023, to identify, rank, and establish mitigations for risks associated with repacking operations. JTF-RH identified 13 recommendations to mitigate risk (1 critical, 1 serious, 7 moderate, 1 minor, 1 negligible, and 2 administrative) for repacking operations and incorporated them while developing the repacking CONOP.

The repacking CONOP identifies and describes the functions of all key personnel required to conduct safe repacking operations. The plan directs a Supervisor of the Watch, a control room operator, and an assistant control room operator to be present in the control room during the entire operation. A supervisor and work leader will oversee all phases of repacking operations and, prior to commencement of repacking, will verify all valve positions. JTF-RH will use independent validators to verify these inspections and confirm proper operation of valves to ensure correct system configuration. Additionally, LOTO will be used to isolate valve and energy control points vital to safe repacking operations. LOTO verification will be performed by third-party operational engineers, safety consultants, and JTF-RH supervisors. JTF-RH will conduct secondary quality assurance and ensure the highest standard of performance in the following areas: safety surveillance, LOTO locations/configurations audits, and spill response enclosures/kits inspections. Finally, JTF-RH will assign on-site safety representative and roving watch standers to monitor the pipeline during the repacking process. These manpower redundancies will provide additional controls to minimize the risk of human error.

JTF-RH has established a repacking training plan to ensure all personnel participating in the repacking operations possess the requisite knowledge and experience to safely perform their assigned duties. The plan includes general safety training, position-based training with qualifications, and repacking specific training (TTX/walkthroughs). Additionally, JTF-RH will perform spill response training and drills, and secondary quality assurance in preparation for repacking and prior to executing repacking operations.

C. Phase 5 Update –Defuel and Relocate Fuel

Phase 5 constitutes the physical defueling of RHBFSF (20 underground fuel storage tanks, 4 surge tanks, and associated pipelines). The discussion of defueling activities in Supplement 2 focuses on the gravity-based defueling of the underground storage tanks and associated pipelines and on the removal of fuel from the four surge tanks. These activities will result in the removal of the vast majority of fuel from the RHBFSF. To avoid any confusion or ambiguity and in the spirit of transparency, DoD acknowledges the probability that a substantial amount of fuel (between 100,000 and 400,000 gallons) will remain in RHBFSF at the conclusion of this stage of defueling. DoD will provide DOH and EPA with additional supplements as needed to comprehensively address all additional actions necessary to ensure removal of all fuel from RHBFSF.

JTF-RH continues to refine defueling timelines to reduce the overall timeline while maintaining a balance between safety and speed. Subject to regulatory approval, JTF-RH is meticulously working to safely and expeditiously accelerate the start of gravity defueling in October 2023. The start of defueling is conditions-based.

The conditions required for defueling are itemized below:

- DoD and Regulators meet scheduled milestones
- Decision Point of Tankers. Monthly Running Risk assessments and gate reviews support a decision on July 1, 2023 to commit putting tankers under contract to be positioned to meet an October 2023 defueling start date.
- All systems and equipment required for defueling are safe to operate
- All submitted CONOPs are approved in sufficient time to ensure all personnel are
- trained and certified.
- Reliable Shore Infrastructure (water/power) to support facility operations and defueling
- Operations is available for use.
- NEPA complete

JTF-RH and DLA developed a plan to complete the gravity defueling in under 120 days. Balancing safety and speed, JTF-RH will utilize the maximum allowable operating pressures for the pipelines to move fuel out of RHBFSF via Hotel Pier to the UTF and into commercial tankers. JTF-RH's estimated flowrates indicate that each tanker requires only three days to reach maximum fill capacity.

As such, JTF-RH will execute the first steps of defueling in four stages: (1) Defuel Tank Mains; (2) Defuel Flowable Tank Bottoms; (3) Unpack Pipelines; and (4) Defuel Surge Tanks. The estimated timeframe to complete these three steps is 51 days to 78 days. The fuel removed from the surge tanks will be transferred into the UTF. The projected dates for each evolution are identified in the IMS (*see* Encl (8)).

The tank mains will be defueled by filling up to two tankers per week during the defueling phase. A portion of tank mains fuel will also be redirected to the UTF. Leveraging the UTF ensures there is sufficient fuel for continuing operations, reduces the overall number of tankers required, and eliminates any potential interruptions to the defueling phase. Accounting for personnel rest and reset, JTF-RH estimates tank main defueling will take 35 to 50 days to complete.

Once JTF-RH completes fuel removal of the tank mains, it will shift fuel to removal of flowable tank bottoms and to pipeline unpacking, moving fuel from those locations into tankers. The estimated time to defuel flowable tank bottoms is between 14 to 21 days, while the estimated time to unpack pipelines is between 2 to 7 days. These four stages within the defueling phase are outlined in detail below.

1. Tank Mains Defueling

Upon concurrence and receipt of DOH/EPA unconditional approval, DoD will perform tank mains defueling from each of the 14 in-service Red Hill tanks (JP-5: 7 tanks, F-76: 2 tanks, F-24: 5 tanks). Consistent with the repair and repacking plans, main tank defueling will only utilize JP-5 and F-24 pipelines. During this defueling stage, the JP-5 and F-24 tanks will utilize their respective pipelines, and the two F-76 tanks will utilize the JP-5 pipeline. Tank mains defueling will defuel the Red Hill tanks down to a level of 10 feet, which is approximately two and a half feet above the low suction level. Stopping above the low suction level is necessary to prevent air from entering the pipeline, as that would lead to trapped air in the line, increasing risk of pressure surges if operated in that condition. If air entered the pipeline, removing that air from the pipeline would be time-consuming, requiring additional repacking and equalization operations before other tanks could be defueled. Stopping tank mains defueling when the fuel level reaches two and a half feet above low suction level provides a calculated balance between maximizing fuel removal and ensuring safe/effective operations. Tank mains defueling will be performed by gravity drain method, and tankers at Hotel Pier will serve as the primary transfer destination. JTF-RH will brief DOH and EPA on the tank mains defueling CONOP during the week of May 15, 2023, and will brief the OPORD during the week of June 5, 2023. JTF-RH is working to solidify a start date for the tank mains defueling.

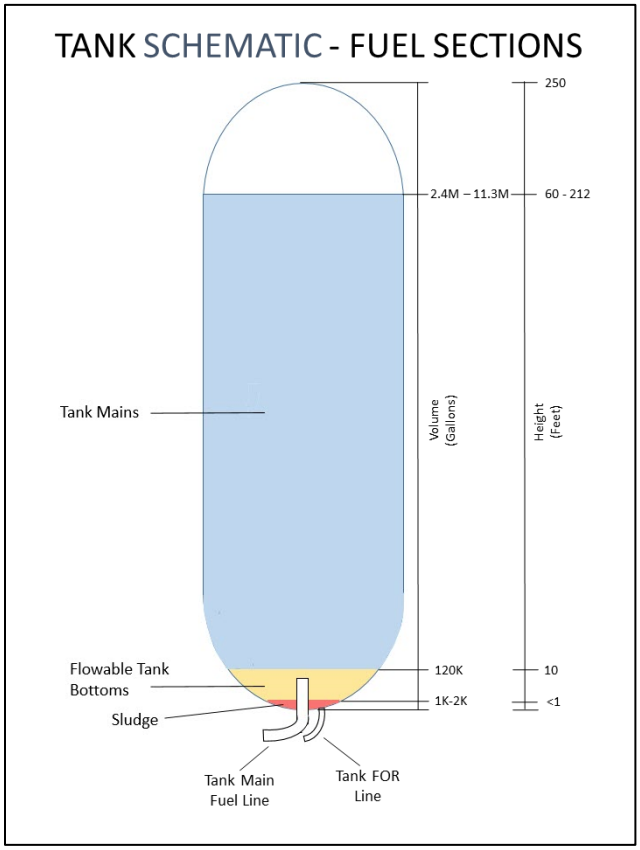


Figure 8 – Tank Schematic – Fuel Sections

a. Tank Mains Defueling CONOP

JTF-RH will empty the tank mains in three sub-phases: (1) pipeline repack and equalization; (2) defueling alignments (tanks and valves); (3) defueling. Each sub-phase includes safety measures detailed below to ensure operators execute all necessary precautions. The Red Hill Tank Mains Defuel CONOP (*see* Encl (5)) specifies the actions for each phase, provides a graphical depiction of the fuel flow path from origin to destination, and prescribes personnel assignments by location. Further, the CONOP specifies the quantity of fuel estimated to transfer during tank mains defueling (*see* Table 3).

Table 3- Defueling Quantities and Timelines for Red Hill Tank Mains

Tank	Product	Volume (gals)	Estimated Time (hrs)*
2	F-24	10.0M	48
3	F-24	9.7M	46
4	F-24	6.2M	30
5	F-24	10.0M	48
6	F-24	6.0M	29
7	JP-5	8.2M	39
8	JP-5	4.6M	22
9	JP-5	11.2M	53
10	JP-5	3.3M	16
11	JP-5	2.4M	11
12	JP-5	8.9M	42
15	F-76	5.8M	28
16	F-76	5.9M	28
20	JP-5	11.3M	54

* Based on 210,000 gal/hr flow rate

Total fuel transfer quantities by product during tank main defuel are as follows: F-24: 41.9M gallons, JP-5: 49.9M gallons, and F-76: 11.7M gallons. The total quantity is approximately 103.5 M gallons.

b. Safety Measures for Tank Mains Defueling

JTF-RH's February 2023 PHA yielded 23 recommendations (2 critical, 13 serious, 1 moderate, 1 negligible, and 6 administrative) for tank main defueling operations and each were incorporated in the development of the tank main defueling CONOP. The role of safety in functions of key personnel, preparation and processes for tank mains defueling, is the same as those described in section II.B.2.b. (Repacking Lines).

2. Flowable Tank Bottoms

Pending receipt of DOH and EPA concurrence and unconditional approval, JTF-RH will conduct flowable tank bottom defueling from each of the 14 in-service Red Hill tanks (JP-5: 7 tanks, F-76: 2 tanks, F-24: 5 tanks). Following tank main defueling, approximately 120K gallons of fuel will remain in each tank bottom. This fuel is flowable (below the low suction point on the tank issue/receipt line) when aligned and transferred through the tank's Fuel Oil Reclamation (FOR) line. Each in-service tank has a 4-inch FOR line that ties into a common 6-inch FOR line that travels to the end of the lower tank gallery before entering the main sump FOR sump. For tanks 2-12, 15 and 16, flowable tank bottoms will travel down the common 6-inch FOR line and tie into the JP-5 lateral pipeline at tanks 1/2 via a fixed pipe connection. *See* Figure 8. For tank 20, the tank FOR line will tie into the Tank 20 JP-5 lateral pipeline via a hose connection or bypass zone 7 sump via a fixed pipe connection. The flowable tank bottoms defueling CONOP and OPORD briefs to regulators are planned to be conducted in conjunction with the tank mains

defueling brief the week of May 18, 2023, and June 8, 2023, respectively. The flowable tank bottoms defueling will take place upon completion of the tank mains defueling.

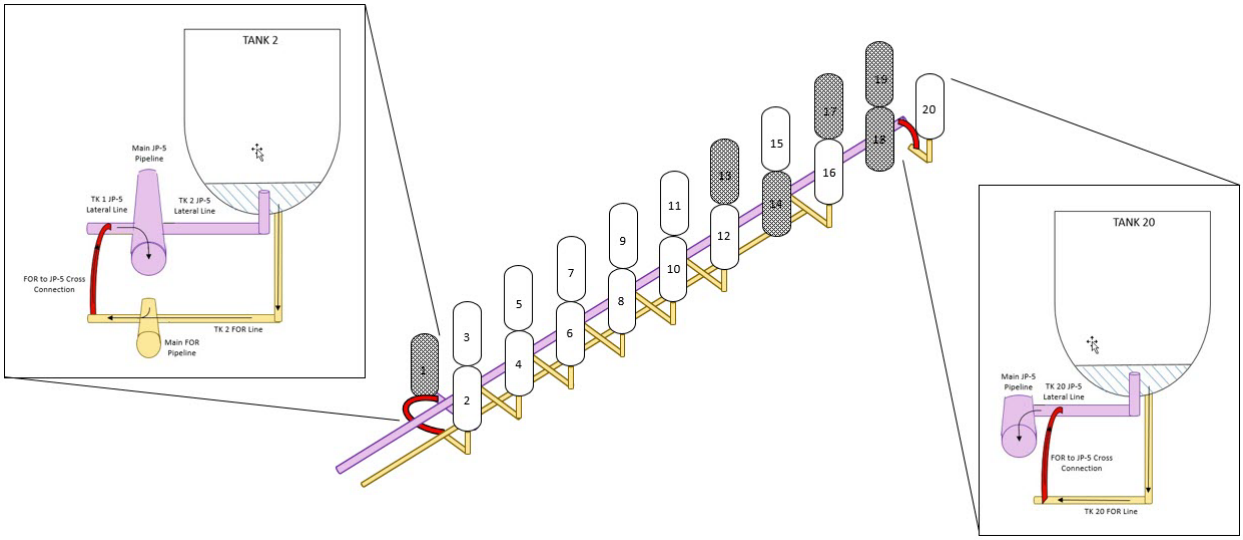


Figure 9 – Tank Bottom Flow Path

a. Flowable Tank Bottoms CONOP

The flowable tank bottoms will be drained using each tank's FOR line that goes to the main FOR line and then will be redirected into the JP-5 line to allow for gravity flow down to UGPH/Pier. If not redirected, FOR line would send fuel to main sump and then TK 311 outside Adit 3. JTF-RH will empty the flowable tank bottoms in three sub-phases: (1) JP-5 and FOR pipeline verification; (2) defueling alignments (tanks and valves); and (3) defueling. Each of the sub-phases includes safety measures detailed below to ensure operators are executing all necessary precautions. The Red Hill Flowable Tank Bottoms Defueling CONOP (*see* Encl (6)), specifies what actions will take place during each sub-phase, provides a graphical depiction of the fuel flow path from origin to destination, and prescribes personnel assignments by location. Further, the CONOP identifies the estimated fuel quantities transferred during flowable tank bottoms as shown in Table 4.

Table 4- Defueling Quantities and Timelines for Red Hill Flowable Tank Bottoms

Tank	Product	Volume (gals)	Estimated Time (hrs)*
2	F-24	120K	14
3	F-24	120K	14
4	F-24	120K	14
5	F-24	120K	14
6	F-24	120K	14
7	JP-5	120K	14
8	JP-5	120K	14
9	JP-5	120K	14
10	JP-5	120K	14
11	JP-5	120K	14
12	JP-5	120K	14
15	F-76	120K	14
16	F-76	120K	14
20	JP-5	120K	14

* Based on 8,500 gal/hr flow rate

Total fuel transfer amount by product during tank bottoms defuel is F-24: 600K gallons, JP-5: 840K gallons, and F-76: 240K gallons. Combined total is approximately 1.68M gallons. DoD estimates that one tank can be completed in 14 hours.

b. Safety Measures for Flowable Tank Bottoms Defueling

The PHA generated four recommendations (2 serious, 1 minor, and 1 administrative) for flowable tank bottoms defueling operations, and JTF-RH incorporated each recommendation in the development of the CONOP. The role of safety in functions of key personnel, preparation and processes for tank mains defueling, is the same as those described in section II.B.2.b. (Repacking Lines).

3. Unpacking Lines

Pending DOH and EPA concurrence and unconditional approval, JTF-RH will unpack the two pipelines (F-24 and JP-5 from Red Hill to the UGPH) utilized for defueling the Red Hill tanks. JTF will generally follow the same unpacking procedures that it used in its successful unpacking of the pipelines in October of 2022 and will incorporate lessons learned from that unpacking project. JTF-RH will brief the Unpacking CONOP to DOH and EPA during the week of July 6, 2023, and will brief the OPORD during the week of July 27, 2023. Unpacking will commence immediately following gravity defueling. JTF-RH is working to solidify a start date.

a. Unpacking CONOP

JTF-RH will unpack the JP-5 and F-24 fuel lines in two phases: (1) pre-operation planning; (2) gravity-drain down. The low point drain suction that was part of the previous unpacking stage will now occur in the residual fuel removal stage, which requires contractor

assistance due to the scope of effort. For this unpacking evolution, each phase includes safety measures (defined below) to ensure that operators are executing all necessary precautions. The Unpacking Lines CONOP (*see* Encl.(7)) identifies the following fuel quantity that operators will remove from the pipelines: an estimated 203K gallons in the JP-5 pipeline, and an estimated 144K gallons in the F-24 pipeline. JTF-RH estimates unpacking both lines in one day.

b. Safety Measures for Unpacking Lines

The PHA generated one administrative recommendation for unpacking lines. The previous unpacking evolution completed in November 2022 incorporated recommendations identified in the February 2022 PHA, and JTF-RH's successful completion of the prior unpacking evolution validated the operational concept. The role of safety in functions of key personnel, preparation and processes for tank mains defueling, is the same as those described in section II.B.2.b. (Repacking Lines).

4. Surge Tanks

JTF-RH is currently developing CONOPs to defuel the surge tanks. JTF-RH projects that Surge Tank defueling activities can occur in various sequences of activities and will work with regulators to identify the optimal timing for Surge Tank defueling. There are four surge tanks with an approximate total of 480K gallons of fuel that will be drained. Each Surge Tank will be defueled in 2 sub-Phases. Sub-Phase 1: contractors will pump fuel out using an FLC organic pump or a diaphragm pump until loss of suction. Sub-Phase 2: Drain residual fuel using 4" Reclaim Line. Surge Tank 1 contains F24, which will be transferred to Hickam/UTF using the FLC organic pump until loss of suction. Surge Tanks 2-4 contain JP5, F76, and F76 respectively, which will be transferred to Tank 301 using a diaphragm pump until loss of suction. The residual fuel in all four surge tanks will be drained using the 4" Reclaim Line to the Fuel Oil Reclaim Facility (FORFAC) via the UGPH Sump. JTF-RH is developing a plan to complete prior to repacking. JTF-RH will provide the CONOPs to DOH and EPA on May 18, 2023.

III. Next Deliverables

DoD will provide the following deliverables identified in Table 3 to DOH and EPA.

Table 5 – List of Deliverables

Deliverable	Due to DOH	Concurrence from DOH
Monthly QV Submission to DOH/EPA	5/1/2023	5/31/2023
Defueling Supplement 2 to DOH/EPA	5/15/2023	6/29/2023
Surge Tank Defuel CONOP	5/18/2023	6/2/2023
Main Tank Defuel CONOP to DOH/EPA	5/19/2023	6/18/2023
Tank Bottom CONOP to DOH/EPA	5/19/2023	6/18/2023
Monthly QV Submission to DOH/EPA	6/1/2023	7/1/2023
Final QV Submission to DOH/EPA	7/1/2023	7/31/2023
Unpacking CONOP to DOH/EPA	8/27/2023	9/26/2023
Defuel Preparedness Report	9/01/2023	10/01/2023
Additional supplement addressing plan to remove residual fuel	TBD	

IV. Conclusion

JTF-RH remains focused on the safe and expeditious defueling of Red Hill. To avoid any confusion or ambiguity and in the spirit of transparency, DoD acknowledges that a substantial amount of fuel (between 100,000 and 400,000 gallons) will remain in RHBFSF at the conclusion of defueling actions covered in this supplement. DoD will provide DOH and EPA with additional supplements as needed to comprehensively address all additional actions necessary to ensure removal of all fuel from RHBFSF.

Through continued collaboration among multiple stakeholders, JTF-RH continues to identify opportunities to safely accelerate defueling and looks forward to continued collaboration with DOH, EPA, and other stakeholders. DoD's commitment to protect the people of Hawaii, the environment, and the security of the nation will guide JTF-RH actions in implementing the defueling plan.

V. Acronyms

Acronym	Meaning
ACP	Access Control Point
AFFF	Aqueous Film Forming Foam
AFHE	Automatic Fuel Handling Equipment
AISC	American Institute of Steel Construction
API	American Petroleum Institute
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
AST	Above-Ground Storage Tank
ATG	Automatic Tank Gauging
BFP	Backflow Prevention
CCC	Cross Connection Control
CFR	Code of Federal Regulations
CIR	Clean, Inspect and Repair
CNRH	Commander, Navy Region Hawaii
COA	Course of Action
COCO	Contractor Owned / Contractor Operated
COMNAVREG HI	Commander, Navy Region Hawaii
CONOP	Concept of Operations
CPF	Commander, US Pacific Fleet
CPM	Critical Path Method
CRO	Control Room Operator
DBB	Double Block and Bleed
DCR	Demand-to-Capacity Ratios
DFM	Diesel Fuel – Marine
DFSP	Defense Fuel Support Point
DISF	Defueling Information Sharing Forum
DLA	Defense Logistics Agency
DoD / DOD	Department of Defense
DoH / DOH	Department of Health
DOT PHMSA	Department of Transportation, Pipeline Hazardous Materials Safety Administration
EA / OEA	Environmental Assessment / Overseas Environmental Assessment
EO	Emergency Order
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
ERP	Emergency Response Plan

Acronym	Meaning
EXWC	Engineering and Expeditionary Warfare Center
FE	Finite Element
FFS	Fitness for Service
FLC PH	Fleet Logistics Center Pearl Harbor
FOR	Fuel Oil Reclamation or Recovery
FRP	(Red Hill Fuel Storage) Facility Response Plan
FRT	Facility Response Team
GAO	Government Accountability Office
HAR	Hawaii Administrative Rules
HAZMAT	Hazardous Material
HAZOP	Hazard and Operability
HI DOH	Hawaii Department of Health
HP	Hotel Pier
HPV	High Point Vent
HRS	Hawaii Revised Statues
ICP	Integrated Contingency Plan
ICS	Incident Command System
IDWST	Interagency Drinking Water System Team
IG	Inspector General
IMP	Integrity Management Plan
ISRT	Interagency Spill Response Team
ITO	Internal Training Officers
JB	Joint Base
JBPHH	Joint Base Pearl Harbor Hickam
JTF-RH	Joint Task Force – Red Hill
LAT	Lower Access Tunnel
LL	Lessons Learned
LOTO	Lock out Tag Out
LPD	Low Point Drain
MOC	Management of Change
MSC	Military Sealift Command
MTG	Manual Tank Gauging
NAVFAC	Naval Facilities Engineering Systems Command
NAVFAC HI	Naval Facilities Engineering Systems Command Hawaii
NAVSUP	Navy Supply Systems Command
NDAA	National Defense Authorization Act
NEPA	National Environmental Policy Act

OEA	Overseas Environmental Assessment
OMES	Operation, Maintenance, Environmental and Safety Plan

Acronym	Meaning
OPORD	Operation Order
ORA	Operational Readiness Assessment
OSC	On-Scene Coordinators
OSD	Office of the Secretary of Defense
OSHA	Occupational Health and Safety Administration
OSRO	Oil Spill Response / Recovery Organization
PACFLT	US Pacific Fleet
PAO	Public Affairs Office
PCAR	Preliminary Condition Assessment Report
PHA	Process Hazard Analysis
PIT	Pressure Indicating Transducer / Transmitter
PITS	Pressure Indicating Transducer Sensors
POL	Petroleum, Oil, and Lubricants
PPE	Personal Protective Equipment
PS	Pipe Support
PSM	Process Safety Management
PVC	Polyvinyl Chloride
PWS	Public Water System
QA	Quality Assurance
QC	Quality Control
QI	Qualified Individual
RBPS	Risk-Based Process Safety
RFI	Request for Information
RH	Red Hill
RHBFSF	Red Hill Bulk Fuel Storage Facility
RHDCDWG	Red Hill Defueling Coordination and De-confliction Working Group
ROC	Regional Operations Center
RP	Recommended Practices
RRA	Risk and Resilience Assessment
SCADA	Supervisory Control and Data Acquisition
SECNAV	Secretary of the Navy
SGH	Simpson Gumpertz & Heger Inc.
SIM	Structural Integrity Management
SME	Subject Matter Expert
SMT	Spill Management Team
SOW	Statement of Work
SUPSALV	Naval Sea Systems Command Supervisor of Salvage and Diving

UGPH	Underground Pump House
USINDOPACOM	United States Indo-Pacific Command
USTRANSCOM	United States Transportation Command
UTF	Upper Tank Farm

Enclosure (1) to
Red Hill Bulk Fuel Storage Facility, Oahu, Hawaii
15 May 2023 Supplement 2

Defueling Fire Suppression CONOP

Enclosure 1

JOINT TASK FORCE – RED HILL

JTF-Red Hill
Defueling Fire Protection

14 April 2023

This brief is classified:

Markings Removed

Discussion up to:

Markings Removed

Classified by: **JTF Red Hill Planning Directorate**
Derived from: **Multiple Sources**
Declassify on:

As of 06 1540 MAR 2023

Markings Removed

Markings Removed

(U)Dry Chemical + Water

Enclosure 1

Description

- Dry Chemical Extinguishers
  - Provide 20x 125 LB dry chemical fire extinguishers near each set of fuel tanks, the Oil Tight Door, and Door C
  - Additional FF trained personnel to be alert to fire and to use fire extinguishers
  - Water-only sprinkler system in Auto Mode as backup

Additional Risk Reduction Measures

- Eliminate Combustible Materials
- Reduce Ignition sources
- Provide Pipe Wrapping around Fuel Line Flange Joints
- Coordinate with FFD to establish “Safe Zone A”
- Train Personnel to use self-contained breathing apparatus (SCBA)
- Personnel carry Supplemental Emergency Egress Device (SEED)

Cost/Schedule

- $~100K for 20x 125lb Chemical Extinguishers
- Procurement complete by March 2023

Pros

- Fastest to field
- Proven Effective Method
- Federal Fire Department Response Plan Supports

Cons

- Risk to Personnel on Fire Fighting Duty
- Not UFC Compliant, requires DOD Waiver

Note: Fully contracted repairs for AFFF System availability in Manual Mode to be complete by May 2023

Risk

RISK	LH	SEV	Total
AFFF inadvertent release	Rare (1)	Insignificant (1)	**1** Very Low
Ineffective fire fighting	Rare (1)	Severe (5)	**5** Medium
Risk to personnel	Possible (3)	Severe (5)	**15** Very High
Environmental impact – Release/Activation	Rare (1)	Insignificant (1)	**1** Very Low
Impact Defuel Timeline	Rare (1)	Severe (5)	**5** Medium

LH = Likelihood SEV = Severity

Markings Removed

Enclosure 1

(U) Dry-Chem Configuration

(b) (3) (A)

Dry Chemical Specifications

- 20 – 125lbs wheeled dry chemical stored fire extinguishers (~$100K)
- 50ft hose with 30-40ft application reach for 53 seconds
- Wheeled large-capacity class B & C extinguisher
- Uses a sodium bicarbonate-based agent
- For facility use with extra-high risk of large-scale class B (flammable liquid/gas) and C (electrical) fires
- Heavy-duty steel cylinder fixed to a steel trolley
- Easy-rolling semi-pneumatic rubber tire wheels for single-person transport

Personnel

- Shift Chief (E-7)= 1 Pax
- Asst Shift Chief (E6)= 1 Pax
- 8 Fire Teams of 2 Pax (E1-E5) = 16 Pax
- Rovers (E1-E5)= 4 Pax
- **Total Per Shift = 22 Pax**
- **Three Shifts a Day = 66 Pax**
- Fire Detail OIC (O-2-O-3)= 1 Pax
- Fire Detail Chief (E-8)= 1 Pax
- **Total Requirement = 68 Pax**
- **24/7 for 3 days (2 down days)**

Logistics/Sustainment

CLI: M-A-A (Meal card holders will be provided lunch and dinner via the Hickam DFAC.
CL IV / VII: Provided by JTF-RH J-4

Transportation

2x 12 PAX vans & 2x sedans required.

Communication

P: LMR (Channel 13 Zone A)
A: Land Line
C:
E: Runner
*Requires 12 LMR radios and two chargers

68 Additional Pax to Support Dry-Chem Configuration

Enclosure 1

(U)NAVFAC Fire Engineer Analysis (15 +1 OTD)

(b) (3) (A)

Markings Removed

Markings Removed

Enclosure 1

(U) Fire Watch Training Certification

Training Components	Certifying Organization	Reference	Justification	Training Duration	Setting
Site Specific **Collective Training Component** - **Elements of Damage Control** - **Fire Prevention & Response** - **Evacuation Plans/Low vis Egress** - **Immediate Response Training**	JBPHH	- **OPNAVINST 11320.27A (2019)** - **NFPA 1081 (2018)** - **NSTM 079, VOL 2 (2008)**	- Provides authority for Navy-wide EMS services; defines advanced and basic life support, response, and care - Provides codes, standards, and recommended practices and guides regarding requisite knowledge for a facility fire brigade member - Technical manual for Damage Control to fuel systems	3 Days	RH Tunnel
Onboarding & Indoc - **Individual Training Component**	JTF-RH	**- JTF-RH**	- Command Policy	2 Days	Classroom
Fire & Emergency Medical Services **Individual Training Component** - **CPR** - **First Aid** - **Defibrillator**	Fed Fire	- **OPNAVINST 11320.23G (2013)** - **NFPA 1851 (2020)** - **OPNAVINST 11320.27A (2019)** - **OPNAVINST 5100.29A**	- Establishes CNIC with exercise authority for Navy F&ES program - Provides standard on Selection, Care, and Maintenance of Protec ive Ensembles for Structural Fire Fighting and Proximity Fire Fighting - Provides Navy-wide EMS services policy and assigns responsibilities for pre-hospital emergency medical care at Navy installations - Provides standard on Selection, Care, and Maintenance of Protec ive Ensembles for Structural Fire Fighting and Proximity Fire Fighting	1 Day	Classroom
PPE/Emergency Response **Individual Training Component** - **EEBD Training** - **Risk Assessment**	JTF-RH QA Directorate	- **NSTM 077 (PPE Instruction)** - **NFPA 1851 (2020)**	- Technical manual for personnel protective equipment to include life preservers - Provides standard on Selection, Care, and Maintenance of Protec ive Ensembles for Structural Fire Fighting and Proximity Fire Fighting	4 Hours	Classroom
Shipboard Fire Fighting **Individual Training Component** - **SCBA - Fire Safety Equipment Training** - **Requires external support**	Surface Warfare Schools Command	- **Navy Ships Technical Manual (NSTM) 555 (2010)** - **NFPA 1851 (2020)** - **OPNAVINST 11320.23G (2013)**	- Self-Contained Breathing Apparatus Training - Provides standard on Selection, Care, and Maintenance of Protec ive Ensembles for Structural Fire Fighting and Proximity Fire Fighting - Establishes CNIC with exercise authority for Navy F&ES program	3 Days	Classroom and Field Training
Fire Extinguisher **Individual Training Component** - **Training During determined by manufacturer Instruction**	Fed Fire	**- NFPA 10, Chapter 5, 2022 Edition (Portable Fire Extinguishers)**	- Provides location and accessibility of portable fire extinguishers	4 Hours	Field Training

Enclosure 1

(U) Event Analysis

Probability:
1 in 6,858,711

Most Probable Worst Case Discharge

Causes
- Vacuum
- Over Pressure
- Joint Failure
- Valve Failure
- Pipe Failure
- Operator error

Mitigations
- PITs
- Pipe Repairs
- Tank Equalization Lines
- Updated OPS Plan
- Zone Watch Standers
- Gravity Drain/No Pumps

Ignition Source

Causes
- Pooling Fuel
- Spray/Jet Leak
- Combustible Material
- Electrical Systems
- Fans
- Reaction Delay

Mitigations
- Joint Wrapping
- Eliminate Combustibles
- Water Suppression
- Dry Chemical Extinguishers
- Stage FED Fire

Probability:
1 in 856,164,384

Fire Event

Likely
Fire: Burns for Weeks to Months
Pipe Burst: Pressure failure at weakest point

Possible
Oil Tight Door Failure: Fuel reaches Adits 2 & 3

Unlikely
Tank Off-Gas: Combustible Cloud into adjacent area (Housing)

Rare
Tank Explosion:
Vent = No Potential

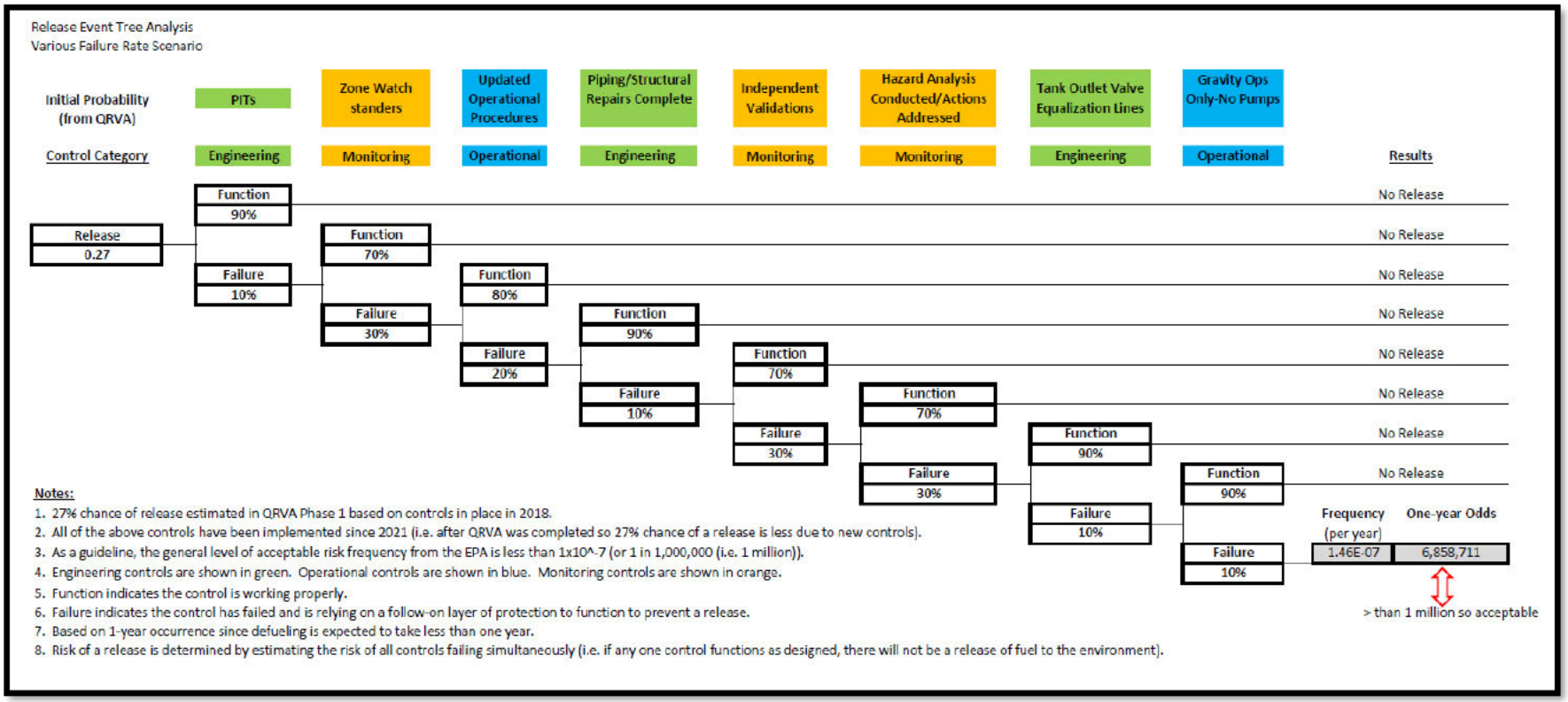
Enclosure 1

(U) Event Probability

obability of a catastrophic fire

- Probability is very low → 1 in 856,164,384
- Builds upon the Fuel Leak Probability Calculations

Probability of a fuel leak = 1 in 6,858,711



Enclosure 1

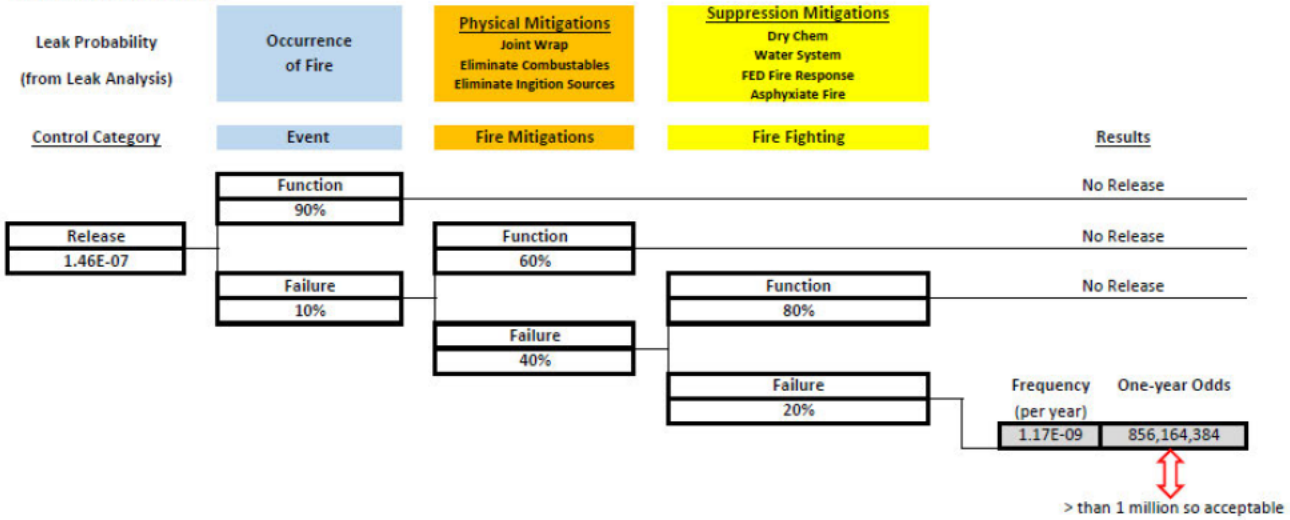
(U) Event Probability

obability of a catastrophic fire

- Probability is very low → 1 in 856,164,384
- Builds upon the Fuel Leak Probability Calculations

Probability of a Catastrophic fire= 1 in 856,164,384

Release + Fire Event Tree Analysis
Various Failure Rate Scenario



Notes:

1. 1.45 E-7 Probability based on the Leak Probability Calcualtions.
2. As a guideline, the general level of acceptable risk frequency from the EPA is less than 1x10^-7 (or 1 in 1,000,000 (i.e. 1 million)).
3. Event probability is shown in blue. Fire Mitigations are shown in orange. Fire Fighting are shown in yellow.
4. Utilized only Engineering Controls from Fuel Release ETA to be conservative
5. Function indicates the control is working properly.
6. Failure indicates the control has failed and is relying on a follow-on layer of protection to function to prevent a release.
7. Based on 1-year occurrence since defueling is expected to take less than one year.
8. Risk of an uncontrolable fire is determined by estimating the risk of all controls failing simultaneously (i.e. if any one control functions as designed, there will not be a release of fuel to the environment).
9. Engineering controls assume a 10% failure rate based on rates of failure identified in layers of protection analysis.
10. Probability of occurrence of a fire once fuel had leaked is 10%.
11. Physical Mitigations estimated failure rate to 40%. This is very conservative.
12. Suppression Mitigations estimated failure rate to 20%. This is very conservative.

Enclosure (2) to
Red Hill Bulk Fuel Storage Facility, Oahu, Hawaii
15 May 2023 Supplement 2

Spill Response Scenarios

This Page Intentionally Blank

Enclosure (2) to

Red Hill Bulk Fuel Storage Facility, Oahu, Hawaii

31 May 2023, Supplement 2

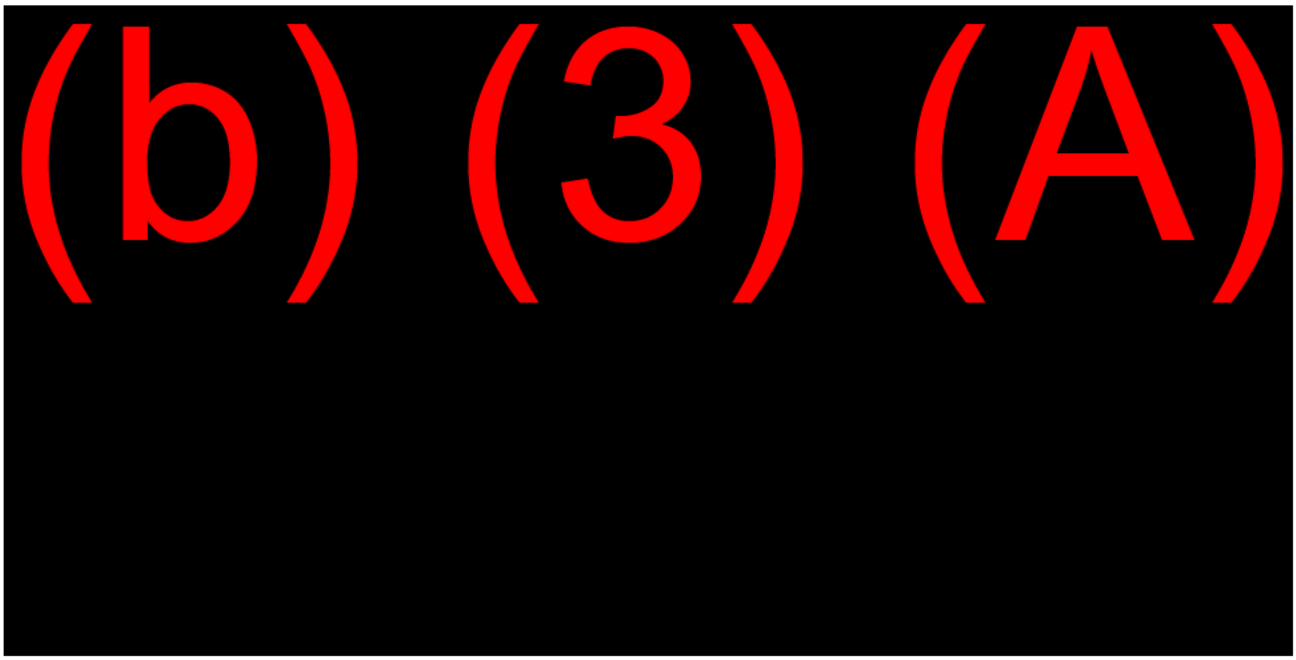
Joint Task Force Red Hill

Spill Release Scenarios

Enclosure 2
Most Likely Release in LAT or HT Piping - Re-Packing/Un-Packing

Executive Overview: This release would likely occur during any of the following events: (1) a pipe rupture (highly unlikely probability); (2) failed repair (moderate probability); or (3) a valve failure (moderate probability). If a rupture occurs in the LAT, the fuel will be directed away from Adit 3 "Wye" (protecting direct pathways to the aquafer) and down the HT by the pre-positioned rigid flood barriers, which is the mitigation measure utilized to prevent the fuel from flowing to the HT. The yellow circle in Figure 4 indicates where the most dangerous rupture can occur. [redacted]. JTF-RH will conduct a Spill Drill Exercise for this scenario June 8, 2023 as part of the Source Water Protection

Scenario: Pipe rupture occurs along the piping in LAT or HT, downstream of the oil-tight door [redacted] Pressure drop is detected by the AFHE system in the UGPH and visually by rovers. If the rupture is in the LAT the fuel will be directed away from Adit 3 "Wye" and down the HT by the pre-positioned rigid flood barriers; otherwise the flow will follow the gradient down the HT uninterrupted. Below is a graphic of Red Hill from the tank gallery to the UGPH including the expected fuel flow for this casualty.



The following additional mitigations will be in place prior to packing/defueling operations:

1. Booms around YON fuel barges and fuel tanker vessels at all times to contain any releases that could occur during repacking/defueling.
2. Flood barriers will be placed at the [redacted] to direct flow down the Harbor Tunnel in the event of a leak or rupture.
3. Adit 2 will be sealed prior to defueling operations.

Enclosure 2
Most Likely Release in LAT or HT Piping - Re-Packing/Un-Packing

4. Surface water will be inspected regularly to identify any sheen that might appear in the harbor to allow for rapid response.
5. Vacuum trucks will be located at Hotel Pier and outside Adit 3 to quickly respond to any releases at those locations.
6. Spill kits will be staged near the Adit 3 "Wye", Adit 2, UGPH, and throughout the facility.
7. [redacted] (b) (3) (A) .
8. [redacted] (b) (3) (A)

Response Actions:

1. CRO immediately ceases defueling operations and shuts all Motor Operated Valves (MOVs), limiting fuel spill to the volume in the pipe upstream of the rupture (144,29 4gallons).
2. A small size spill will likely pool in the vicinity of the rupture and will be cleaned up in the tunnel by responders with absorbents and small portable pumps.
3. Fuel flow reaches the Lower HT and begins to be collected in the sumps. The 5plex Sump System (1000gpm) in the Lower HT and the UGPH Sump System (280gpm) will pump the fuel directly to the B-1 and B-2 Tanks at FLCPH FORFAC, 385,000gal capacity each.

Follow-up Actions:

1. Fuel and fuel residue remaining on the LAT/HT deck will be removed manually with absorbents or small portable pumps.
2. Fuel in the FLCPH FORFAC Tanks will be removed by Vacuum Trucks or pumped elsewhere (i.e. to Hotel Pier barges or other FLCPH tanks).
3. Fuel remaining in the fuel piping and will be unpacked and piping repaired.

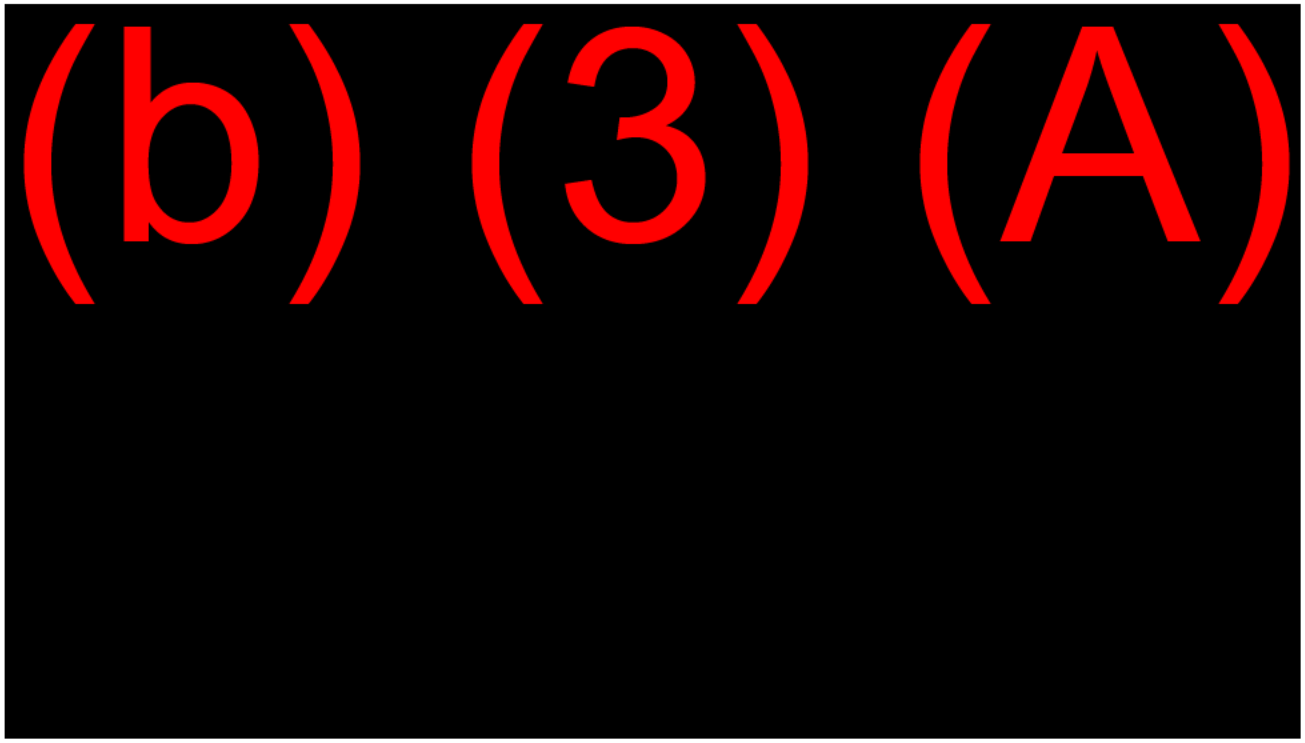
Stakeholder Response Actions:

- Additional response actions are contained in the CNRH RHFSF Response Plan. Actions are subject to modification pending HAZOPs finalized plan. Entities involved include, but are not limited to: FEDFIRE, FLC, PORT OPS, USCG, EOC, JBPHH, and CNRH/ROC.

Enclosure 2
Most Likely Release in the Tank Gallery - Defueling / Flowable Tank Bottoms

Executive Overview: This release could occur as a result of the following events: a pipe rupture (highly unlikely); a failed repair (moderate probability); failure of a valve (moderate probability) in the Tank Gallery on a length of pipe downstream of tank skin-valves (Double-Block and Bleed Valves). JTF-RH will utilize AFFF retention pumps (rated at 1,000 gallons per minute - maximum three pumps active at one time for a total of 3,000 gallons per minute pumping capacity) to recover up to 20K gallons of released fuel in approximately 7 minutes. DOH's letter dated January 13, 2023 recommended evaluating the AFFF Retention Line.

Scenario: Pipe rupture occurs in the Tank Gallery on a recently repaired length of pipe downstream of tank skin-valves (Double-Block and Bleed Valves) causing a discharge very similar to 06 May 21 Incident. Pressure drop is detected by Automated Fuel Handling Equipment (AFHE) system in the Underground Pump House (UGPH) and visually by rovers. Below is a graphic of Red Hill from the Tank Gallery to Adit 3 overlayed with a schematic of the AFFF system and the expected movement of fuel during this casualty.



The following additional mitigations will be in place prior to repacking/defueling operations:

1. Booms around Yard Oiler Non-Propelled (YON) fuel barges and fuel tanker vessels at all times to contain any releases that could occur during packing/defueling
2. Surface water will be inspected regularly to identify any sheen that might appear in the harbor to allow for rapid response.
3. Vacuum trucks will be located at Hotel Pier and outside Adit 3 near the AFFF Retention Tank to quickly respond to any releases at those locations.

Enclosure 2
Most Likely Release in the Tank Gallery - Defueling / Flowable Tank Bottoms

4. Spill kits will be staged near the AFFF Retention Tank, the Adit 3 "Wye", and throughout the facility.
5. AFFF Retention Tank will be emptied prior to beginning the packing/defueling operations.

Response Actions:

1. Control Room Operator (CRO) immediately ceases defueling operations and shuts all Motor Operated Valves (MOVs), limiting fuel spill to the volume in the pipes (16,155 gallons).
2. Fuel rapidly spills out of rupture and flows towards nearest sump(s) where it is collected.

3. [redacted] (b) (3) (A)

4. [redacted] (b) (3) (A)

Follow-up Actions:

1. Fuel in the AFFF Retention Tank will be removed by vacuum trucks and taken to storage facilities outside of Red Hill (i.e. FLCPH Tanks or barges on Hotel/Sierra Piers).
2. Fuel remaining in the AFFF retention line and will be unpacked and taken to storage facilities outside of Red Hill (i.e. FLCPH Tanks or barges on Hotel/Sierra Piers).
3. Tank Gallery Piping will be unpacked and rupture location repaired.

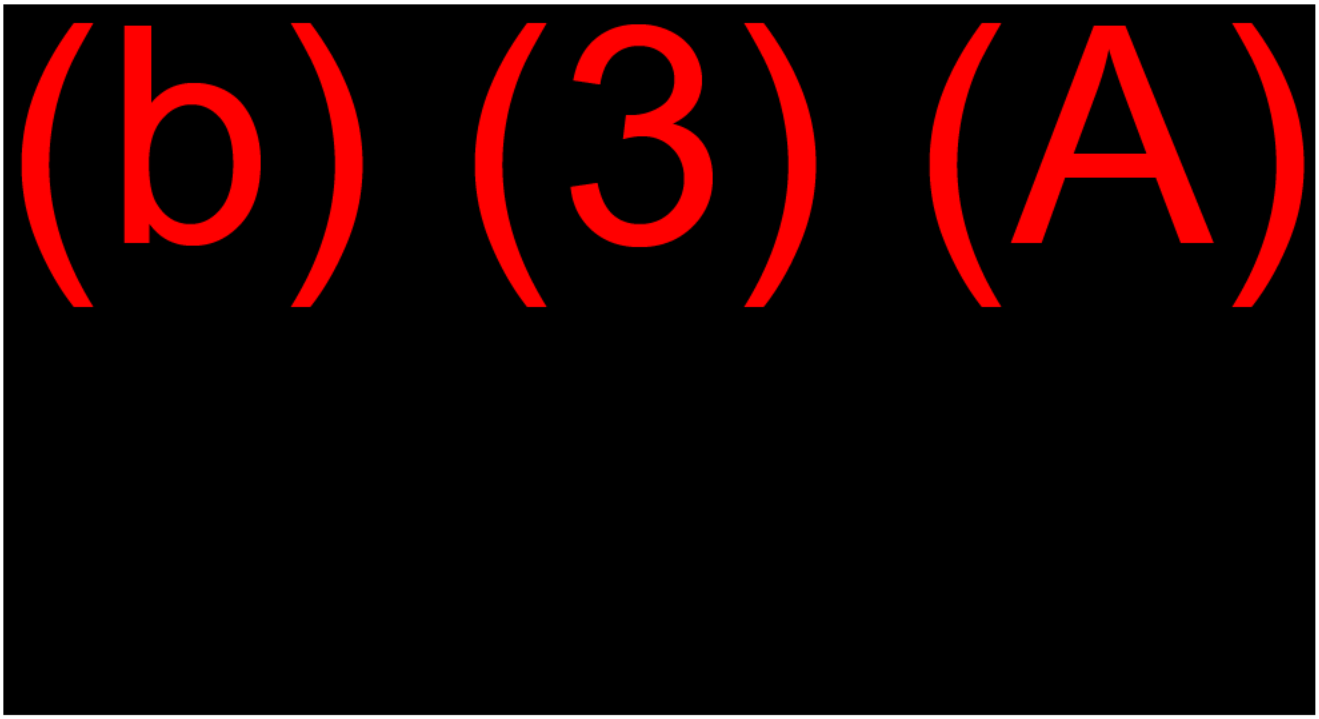
Stakeholder Response Actions:

- Additional response actions are contained in the CNRH RHFSF Response Plan. Actions are subject to modification pending HAZOPs finalized plan. Entities involved include, but are not limited to: FEDFIRE, FLC, PORT OPS, USCG, EOC, JBPHH, and CNRH/ROC.

Enclosure 2
Most Dangerous Least Likely Discharge Scenario - Defueling

Executive Overview: In this scenario, a possible release could occur if the fuel hammer and vacuum cause a 5-inch fracture to the section of piping just North of the Double Blocking Blow Valve. The released fuel would flow from the tank gallery and into the LAT. After approximately 18 minutes, the released fuel would reach Adit 3 "Wye," where the pre-installed rigid flood barriers would redirect the fuel to the HT. It is estimated that 4.3 M gallons of fuel will be discharged over 6 hours. This scenario responds to an escalating situation which tests the most likely release in the Tank Gallery (initially handled by the AFFF Retention sumps); then exceeds the capacity and flows down the LAT all the way to the HT reaching the UGPH. [redacted] JTF-RH is working with Oil Spill Response Organizations to augment the UGPH pumps. These four pumps will augment the UGPH pumps and provide an additional 8.8K gallon per minute capacity (pumping directly to the tanker at Hotel Pier). This response action will minimize environmental impacts in the event of a spill. JTF-RH will conduct a Spill Drill Exercise to test this scenario on July 13, 2023 as part of the Source Water Protection

Scenario: A fuel hammer and vacuum caused a 5-inch fracture to the section of piping just North of the Double Blocking Blow Valve. Fuel begins flowing down from the tank gallery and into the LAT. Fuel Flow reaches Adit 3 "Wye" after 18 minutes and is directed down the HT by pre-installed rigid flood barriers. In roughly 6 hours a total capacity of 4.3 million gallons is discharged. Below is a schematic of the major mitigation efforts to include expected fuel recovery/spillage for a full tank (10.8 million gallon) spill.



Enclosure 2
Most Dangerous Least Likely Discharge Scenario - Defueling

SOPs and Mitigating Factors in place:

1. Booms around YON fuel barges are in place to contain any discharges that could occur during unpacking.
2. Surface water will be constantly monitored to identify any sheen that might appear in the harbor to allow for rapid response.
3. Vacuum trucks will be located at Hotel Pier and VS-1C to quickly respond to any discharges at those locations.
4. Hotel Sump will be emptied prior to beginning the unpacking evolution.
5. A CRO and an assistant Control Room Operator will be in the control room throughout the entire operation.
6. Rovers and supervisors will be on site to verify valve operations, configurations, and pipeline monitoring.
7. Spill kits are pre-staged at various locations in the tunnel.
8. Primary and secondary containment boom of 24" is in place across Halawa Stream. 48" boom will be pre-staged on site at Halawa Stream.

Immediate Response Actions:

IAW TAB A - Worst Case Discharge Scenario, in the RHTFSF Response Plan.

Action 1:

- Flood Barriers at Adit 3 "Wye" to increase containment capability to 20" tall.
- Flood Barriers at Adit 1 to direct flow to the swale.
- Flood Barriers at elevators in LAT to direct flow down LAT.

Action 2:

- Keep Adit 2 sealed to direct fuel out Adit 1.

Action 3: Additional pump support outlined in NAVSUPFLC response actions.

Stakeholder Response Actions:

NAVSUPFLC - The following information is the primary response to the WCD of oil.

- Utilize existing ground water sump pumps at end of the harbor tunnel and in the Adit 1 fan building to pump as much oil as possible to FORFAC (Fig 3).
- Install SUPSALV supplemental pumps (4 x 2,200 gpm = 8,800gpm) to move oil to Maersk Peary at Hotel Pier and YON's/barges at Sierra Pier (Fig 2,3 and Picture 3).
- Install 6" valves at the South End of VS-1C to tie into F76 which is offline. From here the product can be pumped to the upper tank farm and secondary containment. Supplemental pumps will be located outside at the end of the lower yard tunnel (Fig 2, 3 and Picture 2).
- Discharge hoses/piping from the supplemental pumps may be connected to any or all of the product pipelines at VS-1C. Any desired destination can be reached from VS-1C (Fig 2, 3 and Picture 2).
- [redacted] (b) (3) (A)

- Run temporary discharge piping or hose from the pumps to VS-1C to any desired product pipeline(s), [redacted]
- Minor modifications to a line at the upper tank farm will allow pumping up to the UTF tanks secondary containment areas, either to bladders or into the berms directly.
- Line the sides of the ramp with sandbags or other barricades that direct any oil that exits the Adit 1 door into the lower yard tunnel. This oil will be picked up by the pumps (Fig 2,3).

PORT OPS (CNRH Spill Management Team)

- IAW TAB C - On Water Spill Containment and Recovery Strategies, RHTFSF Response Plan.

QI/OSRO - QI will make necessary notifications, and contracted OSROs will respond within a reasonable amount of time with personnel and equipment that is previously identified and discussed in the contract.

USCG - The Federal On-Scene Coordinator Representative (FOSCR) attached to JTF Red Hill will be on call 24/7 to offer expert advice and recommendations to facilitate a unified operational response.

- The National Response Center will contact Sector Honolulu Incident Management Division. If necessary, Pollution Responders and Federal On-Scene Coordinator Representatives will be available to assist with facilitating divisional groups. The National Strike Force coordination center will also be notified to determine if the Pacific Strike Team needs to deploy assets to assist.

- Additionally, the Sector Emergency Management Force Readiness shop has the capability to recall a Type I Incident Response Team from Sector Honolulu to implement the Incident Command System and organize a Unified Command.

Additional response actions are contained in the CNRH RHFSF Response Plan. Actions are subject to modification pending HAZOPs finalized plan.

Discharge Analysis:

Most Dangerous Least Likely Discharge (4.3 million gallons)

The following is based on the most-probable worst-case discharge. In this scenario it is assumed the spill will be unsecured for approximately 6 hours. The analysis also assumes Adit 2 is sealed.
Without supplemental pumps from Navy SUPSALV, the only method for removing fuel from the tunnels would be the UGPH Sump Pumps [redacted] The total discharge from the tank will be 4,305,787 gallons based on engineering analysis conducted by PCCI. The product will reach Adit 1 in approximately 1 hour and begin to fill the entire space. The UGPH sump will send fuel to the B-1 and/or B-2 FORFAC tanks. Approximately 6 hours after the initiation of the rupture the fuel will overflow into the UGPH and begin spilling out of Adit 1. Over the next 18 hours: 1,049,187 gallons will spill out Adit 1 into the drainage swale and potentially impact

Enclosure 2
Most Dangerous Least Likely Discharge Scenario - Defueling

Halawa Stream, [redacted] (b) (3) (A) [redacted]

With four Navy SUPSALV supplemental pumps (Single capacity - 2,200 gpm; Total capacity - 8,800 gpm) in place, they can be utilized to move oil to the tanker vessels or the UTF containment. The following scenario is expected to occur:

The total discharge from the tank will be 4,305,787 gallons based on engineering analysis conducted by PCCI. The product will reach Adit 1 in approximately 1 hour and begin to fill the entire space. The UGPH sump will send fuel to the B-2 FORFAC tanks; which has a 378,000 gallon capacity. Once the flow reaches their suctions, the SUPSALV pumps will direct flow to tanker vessels at Hotel Pier of the barges at Sierra Pier (both located on Joint Base Pearl Harbor). Roughly 7 hours after the rupture, a peak accumulation of 936,187 gallons is expected in the UGPH/Lower Harbor Tunnel. Due to the small gradient of the Harbor Tunnel the oil volume will cover the deck of the Lower Harbor Tunnel a few hundred feet past Adit 2 (sealed). It will not breach the UGPH Deck grating however, and it will not be discharged to the environment through Adit 1.

Enclosure (3) to
Red Hill Bulk Fuel Storage Facility, Oahu, Hawaii
15 May 2023 Supplement 2

Oil Pressure Door CONOP

Markings Removed

Markings Removed

Enclosure 3

HQ USINDOPACOM

JTF-Red Hill

Oil Pressure Door

13 April 2023

This brief is classified:

Markings Removed

Discussion up to:

Markings Removed

Classified by: **JTF Red Hill Plans Directorate**
Derived from: **Multiple Sources**
Declassify on:

Markings Removed

As of 11 1600 APR 2023

Markings Removed

Enclosure 3

(U) Most Likely Release - Lower Access Tunnel (LAT) Repacking Scenario – Discharge of 144,000 GAL

REPACKING

•**Scenario:** Only the F-24 and JP-5 RHL Pipelines will be used to transfer the 3 products currently inventoried in RH.

(b) (3) (A)

•CRO immediately ceases defueling operations and shuts all Motor Operated Valves (MOVs), limiting fuel spill to the volume in the pipe upstream of the rupture (b) (3) (A)

Response Actions

- Flood Barriers will be placed at the (b) (3) (A) and the (b) (3) (A) to direct flow in event of leak or rupture.
- A Control Room Operator (CRO) and an assistant Control Room Operator will be in the control room throughout the entire operation.
- Rovers and supervisors will be on site to verify valve operations, configurations, and pipeline monitoring.
- Spill kits will be pre-staged at various locations in the tunnel.
- Booms around Yard Oiler Non-Propelled (YON) fuel barges and fuel tanker vessels to contain any releases that could occur during repacking/defueling.

→ (b) (3) (A)

(b) (3) (A)

(b) (3) (A)

(b) (3) (A)

(b) (3) (A)

Markings Removed

[redacted]

Enclosure 3

(U) Most Likely Release - Tank Gallery Defueling – Discharge of ~16,000 GAL to 150,000 GAL

Defueling

- **Scenario:** Pipe rupture occurs in Lower Tank Gallery on a recently repaired length of pipe downstream of tank skin-valves (Double-Block and Bleed Valves) causing a discharge very similar to 06May21 Incident.
- Control Room Operator (CRO) immediately ceases defueling operations and shuts all Motor Operated Valves (MOVs), limiting fuel spill to the volume in the pipes ([redacted])
- Fuel rapidly spills out of rupture and flows towards nearest sump(s) where it is collected

Response Actions

AFFF Retention Line (Data)

- 5 Sumps ([redacted]) rated at 1,000 GPM
- Max flow rate if more than one sump engaged ~5,000 GPM
- AFFF Retention Tank Capacity: [redacted]
- AFFF Retention Line Capacity: [redacted]

Time to extract Fuel utilizing the AFFF Retention Line

- Most Likely (similar to 6 MAY 21)
  - 16,155 GAL → ~6 minutes w/ three pumps engaged
- Maximum Volume able to be extracted
  - 150,000 GAL → ~30 minutes

[redacted]

Markings Removed

(U) Most Dangerous Least Likely Release
(U) Defueling – Discharge of 4.3M GAL

Enclosure 3

Defueling

- **Scenario:** A fuel hammer and vacuum caused a 5-inch fracture to the section of piping just North of the Double Block and Bleed Valve.
  - Fuel begins flowing down the Lower Tank Gallery and into the LAT at a rate of (b) (3) (A)
  - Fuel Flow reaches (b) (3) (A) after 18min and is directed down the Harbor Tunnel (HT) by pre-installed flood barriers.
  - (b) (3) (A)

Response Actions

NAVSUPFLC - The following information is the primary response to the WCD of fuel:

- Utilize existing ground water sump pumps at end of the harbor tunnel and in the Adit 1 fan building to pump as much oil as possible to FORFAC.
- Install SUPSALV (NAVSEA Contract) supplemental pumps ((b) (3) (A)) to move oil to (b) (3) (A) at (b) (3) (A) and YON's/barges at (b) (3) (A). Line the sides of the ramp with sandbags or other barricades that direct any oil that exits (b) (3) (A) into the lower yard tunnel. This oil will be recovered up by the pumps.

Tanks	Inventory GALS	Tanks	Inventory GALS
(b) (3) (A)			

(b) (3) (A)

Probability:
1 in 6,858,711

Causes
- Vacuum
- Over Pressure
- Joint Failure
- Valve Failure
- Pipe Failure
- Operator error

Mitigations
- PITs
- Pipe Repairs
- Tank Equalization Lines
- Updated OPS Plan
- Zone Watch Standers
- Gravity Drain/No Pumps

Markings Removed

Enclosure 3

(U) Oil Pressure Door

Description

- The Oil Pressure Door (OPD) at the bottom of the tank gallery is designed to automatically seal off the tank gallery from the rest of the facility in the event of an oil spill.
- Once activated the oil that is trapped must be removed manually prior to reopening the door.
- The door is not configured for manual/mechanical operation
- **DOH/EPA support the option that is least likely to impact groundwater**

Assessment of Maintaining Oil Pressure Door Operation

Pros:

- Increased safety of personnel in Harbor Tunnel
- The bulk of the fuel contained in the Lower Tank Gallery vice spread throughout the facility during a spill

Cons:

- Difficult to protect elevator shafts (critical fire response egress) from large discharge.
- Lack of access to Lower Tank Gallery will significantly reduce pumping capability leading to prolonged clean-up efforts for any large-scale spill
- CNRH better prepared to combat a fuel spill on the water than on the land
- Trapped oil seeps through porous tunnel base to aquifer
- Immediately Dangerous to Life or Health (IDLH) environment created in the Lower Tank Gallery for responders

Recommendation:
Approve Disabling of the Oil Pressure Door throughout defueling.

Fuel Removal Times

- **Door Open**: 4.3 MGAL ~ **9 hours**; 10.7 MGAL ~**16 hours**
- **Door Closed**: 4.3 MGAL ~ **4-6 months**; 10.7 MGAL ~ **12-18 months**

Maintaining Operability of OPD (door able to close)			
RISK	**LH**	**SEV**	**Total**
Fuel in Tanl Gallery above aquifer seps through porous base and elevator shafts	Likely (4)	Severe (5)	Extreme (20)
Limited access to tank gallery/reduced pumping ability	Severe (5)	Severe (5)	Extreme (25)
LIDLH environment for responders in tank gallery	Severe (5)	Severe (5)	Extreme (25)
Increased safety risk to personnel in HT	Unlikely (2)	Minor (2)	Medium (4)
Fuel will flow through HT/Dispersed throughout	Unlikely (2)	Unlikely (2)	Medium (4)
Potential for discharge to waterway	Unlikely (2)	Unlikely (2)	Medium (4)

Disabling Operability of OPD (OPEN)			
RISK	**LH**	**SEV**	**Total**
Fuel in Tanl Gallery above aquifer seps through porous base and elevator shafts	Unlikely (2)	Minor (2)	Medium (4)
Limited access to tank gallery/reduced pumping ability	Unlikely (2)	Minor (2)	Medium (4)
LIDLH environment for responders in tank gallery	Likely (4)	Minor (2)	High (8)
Increased safety risk to personnel in HT	Likely (4)	Severe (5)	Extreme (20)
Fuel will flow through HT/Dispersed throughout	Likely (4)	Minor (2)	High (8)
Potential for discharge to waterway	Unlikely (2)	Minor (2)	Medium (4)

Enclosure 3

Backups

Markings Removed

[redacted]

Enclosure 3

Pump Calculations (4.3M Gallon Scenario) Most Dangerous Least Likely

(b) (3) (A)

[redacted]

Enclosure 3

Pump Calculations (10.7M Gallon Scenario)
Most Dangerous Least Likely – Catastrophic failure

(b) (3) (A)

Four SUPSALV Augment Pumps will extract the Fuel to Hotel Pier in ~16 Hours

Enclosure 3

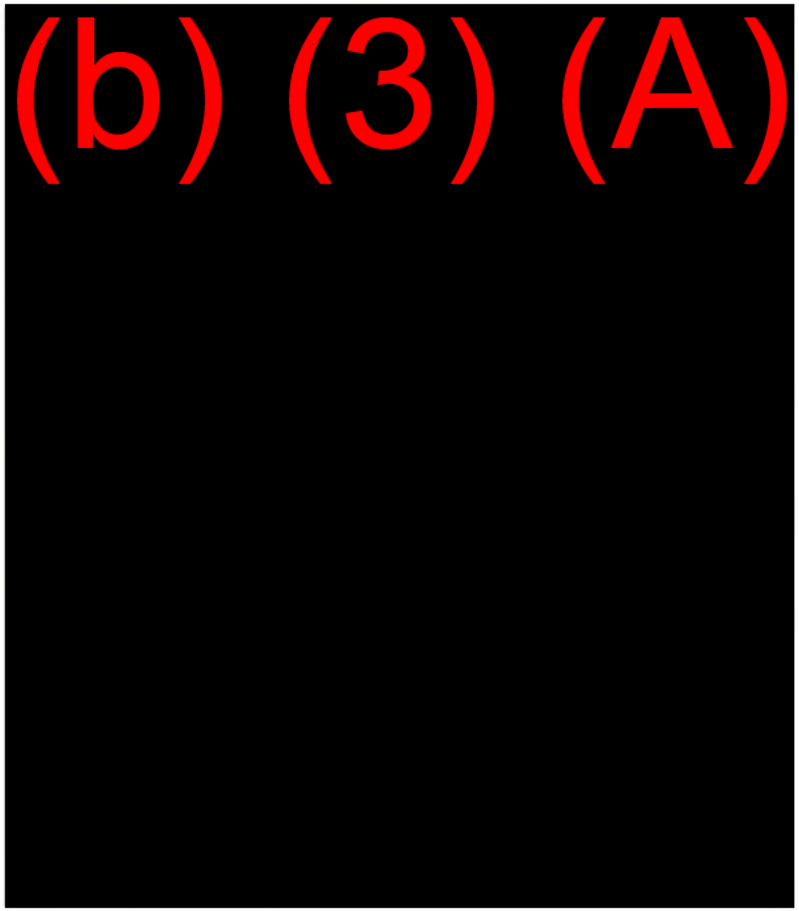
(U) Four SUPSALV Augment Pumps

SUPSALV Augment Pump Info:

- Contracted through NAVSEA
- SUPSALV is one of the Navy's main oil spill response organizations
- Scope of work & estimate complete ((b) (3) (A))
- Upon approval, pumps will be installed in the area depicted in yellow with a manifold tying directly into Hotel Pier product lines

- **SCHEDULE**:
  - 14 April: DLA shall MIPR funds to NAVSEA
  - Allowing ~12 weeks for contracting & fabrication
  - 9 July: Pumps & manifold installed prior to 13 July defueling exercise
  - On-call (24/7) mechanic & pumps will remain in place through completion of defueling ~ March

Figure 1: Adit 1 Entrance Ramp and Valve Station 1C (VS-1C)



Enclosure 3

(U) Most Likely Release (b) (3) (A) - Pipe Rupture (AUG Drill)

SCENARIO #3

- **Scenario:** A pressure drop is detected by the Automated Fuel Handling Equipment (AFHE) system in the Under Ground Pump House (UGPH) and a pipe rupture is visually confirmed by operators on the pier.

Response Actions

- IAW 33 CFR 154, Facilities Transferring Oil or Hazardous Material in Bulk. Facility Response Plan (FRP) for CNRH (Spill Checklist/ Actions for pipe rupture):

(b) (3) (A)

Markings Removed

Enclosure 3

(U) Most Likely Release - (b) (3) (A) Overfill of (b) (3) (A) (b) (3) (A))

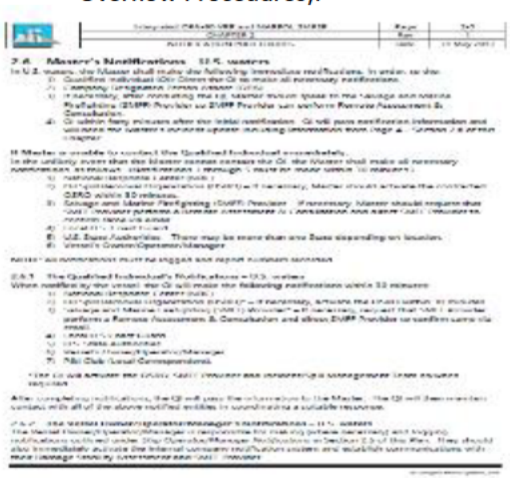
(Official Number)

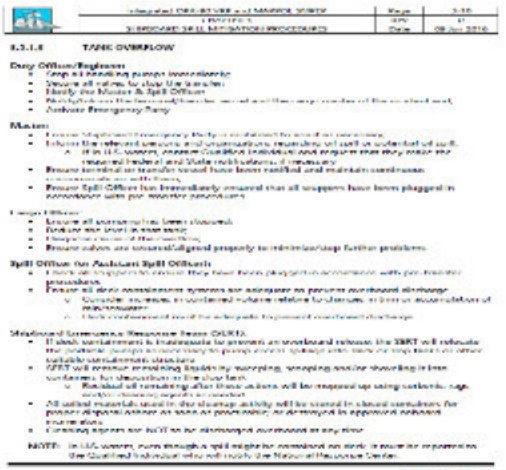
SCENARIO #4

- **Scenario:** When defueling operations commence the product is reaching tank capacity on the (b) (3) (A) . A tank overfill occurs spilling 500 gal. fuel onto the deck and into the water surrounding the vessel.

Response Actions

- IAW 33 CFR 155, Oil and Hazardous material Pollution Prevention Regulations for Vessels. Vessel Response Plan (VRP) for (b) (3) (A) below (Master Notification/ Tank Overflow Procedures):





(b) (3) (A)

0.4% chance of overfilling a Tanker

Amount of fuel historically < 264 gallons

Enclosure (4) to
Red Hill Bulk Fuel Storage Facility, Oahu, Hawaii
15 May 2023 Supplement 2

Red Hill F-24/JP-5
Repacking Lines CONOP
(UTF Equalization, B1554 Pump)

Red Hill F-24/JP-5 Repacking Lines (UTF Equalization, (b) (3) (A)

F-24 Repacking Lines – UTF Tank, Pumps (b) (3) (A)
Concept of Operation (Date: TBD)

Operations Summary

- **Phase I: F-24 Pipeline Condition Verification (all repairs complete and QA'd)**
- **Phase II:** [redacted] **Pump Verification**
- **Phase III: F-24 Pipeline Repacking (equalize from UTF Tank** [redacted]**, then using Pumps** (b) (3) (A) **)**
- **Phase IV: F-24 Pipeline Equalization (From Tank** [redacted]**)**

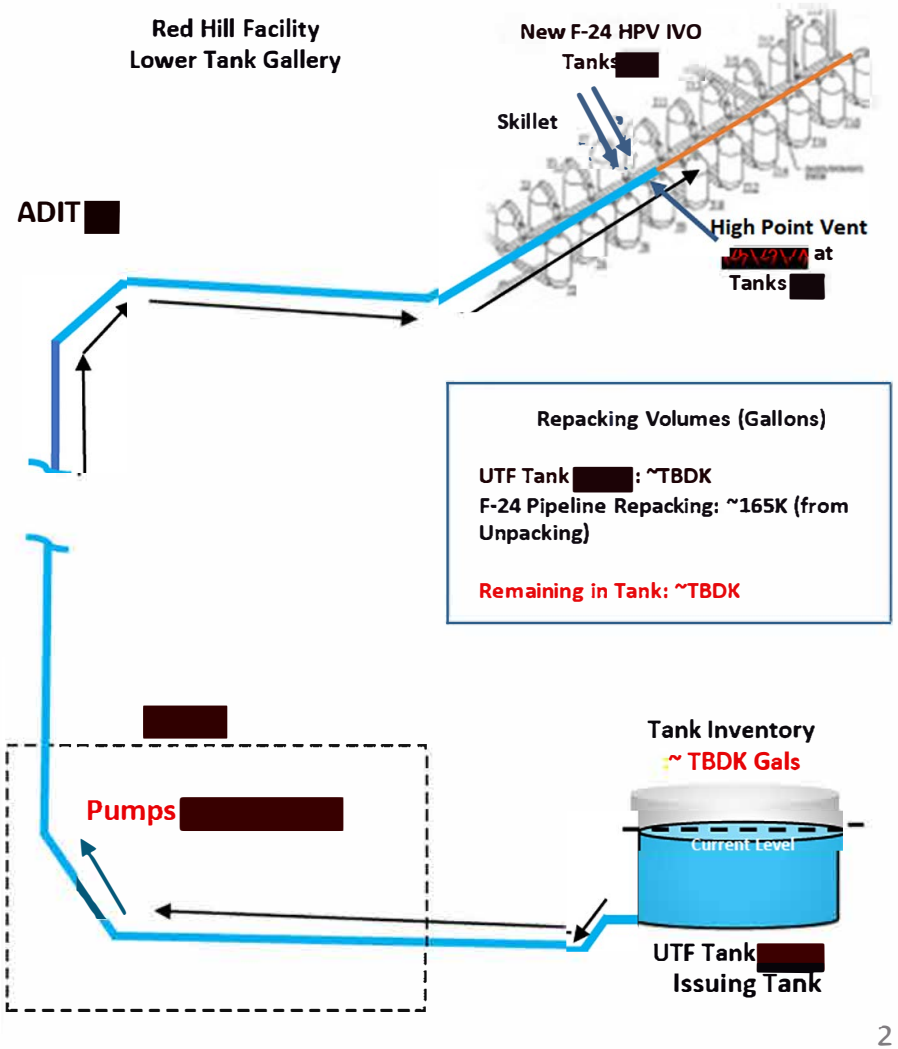
Preparation for Execution

- **Location:** (b) (3) (A)
- **Date:** TBD
- **F-24 Repacking Amount:** ~165K Gals
- **Issuing Tank:** UTF Tank [redacted] (F-24)

Execution

- **Phase I: F-24 Pipeline Condition Verification**
  - **Planning –** Data Gathering, Condition Verification, QA, Op Order, HAZOP
  - **Preparation –** New Vent line installed between HPVs at Tank [redacted], remove LOTO from RH Tank [redacted] for venting, align blinds
  - **Training –** To Op Order and Emergency Response
  - **Evolution Walkthrough –** All Scheduled Watch-Standers
- **Phase II: B1554 Pump Verification**
  - **Maintenance:** Pumps have been PM'd and certified "ready to operate"
- **Phase III: F-24 Pipeline Repacking**
  - **Maintenance and Op Check:** Confirm status of [redacted] pumps (b) (3) (A), relevant blinds have been rolled, equalization line at Tank [redacted]
  - **Pipeline Repacking:** Align UTF Tank [redacted] and equalize F-24 Pipeline, then transfer balance of F-24 to F-24 Pipeline, using pump [redacted], Tank Inventory ~ TBDK Gals
  - **Confirm Valve Alignment as identified in OPORD**
- **Phase IV: F-24 Pipeline Equalization (From Tank** [redacted]**)**
  - **Line Pressure Verification:** Equalize pipeline to tank head pressure (Tank [redacted] by opening the new equalization line
  - **Valves are aligned in Baseline position for Defueling**

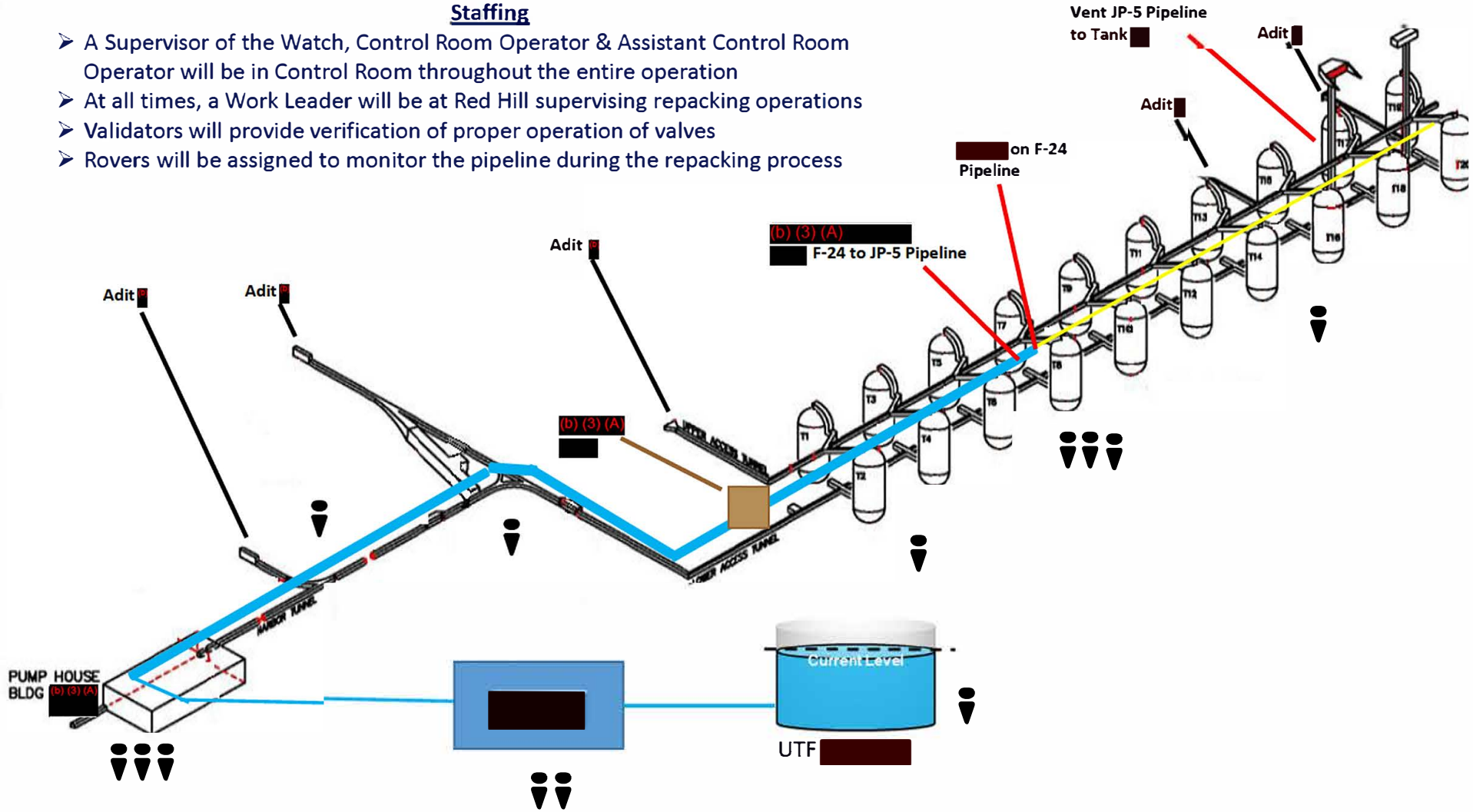
Phase III F-24 Pipeline Repacking



F-24 Pipeline Repacking Flow Path

Staffing

- A Supervisor of the Watch, Control Room Operator & Assistant Control Room Operator will be in Control Room throughout the entire operation
- At all times, a Work Leader will be at Red Hill supervising repacking operations
- Validators will provide verification of proper operation of valves
- Rovers will be assigned to monitor the pipeline during the repacking process



Enclosure (4)

JP-5 Repacking Lines – UTF Tank, Pumps (b) (3) (A)
Concept of Operation (Date:TBD)

Operations Summary

- **Phase I: JP-5 Pipeline Condition Verification (all repairs complete and QA'd)**
- **Phase II:** [redacted] **Pump Verification**
- **Phase III: JP-5 Pipeline Repacking – F-24 (equalize from UTF Tank** [redacted] **than using Pumps** (b) (3) (A) **)**
- **Phase IV: JP-5 Pipeline Equalization (from Tank** [redacted]

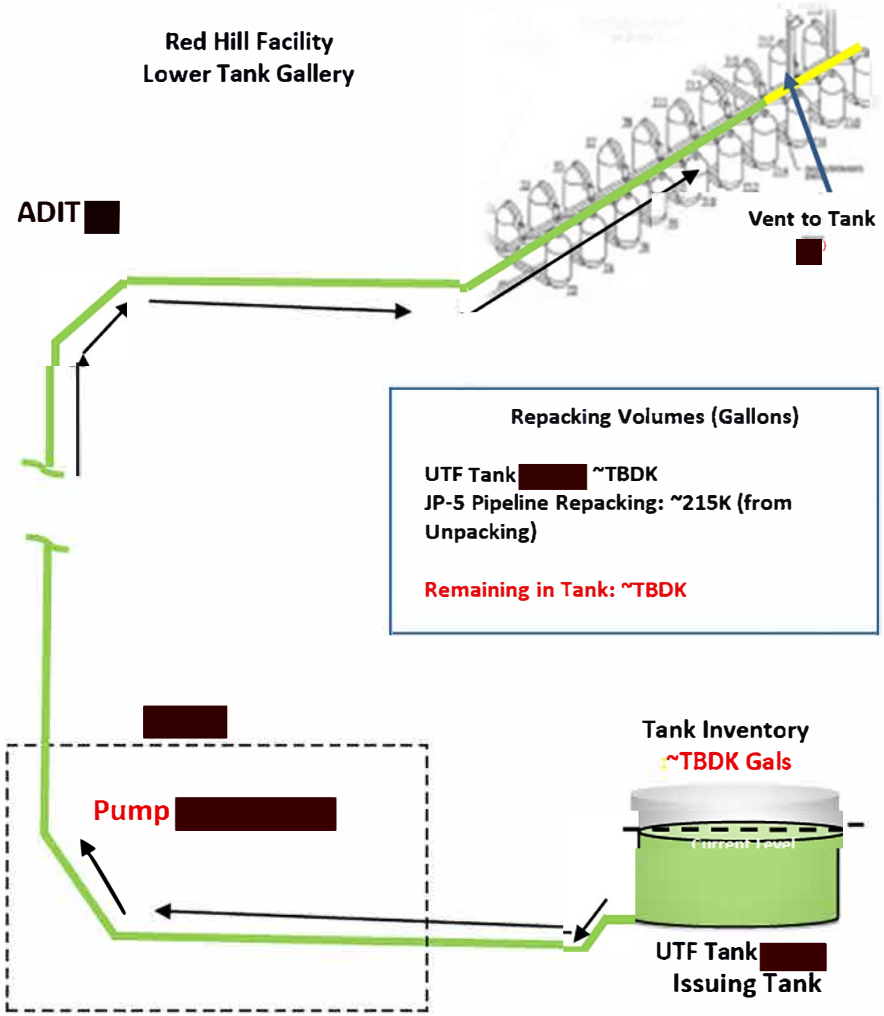
Preparation for Execution

- **Location:** (b) (3) (A) [redacted]
- **Date:** TBD
- **JP-5 Repacking Amount:** ~215K Gals (F-24)
- **Issuing Tanks:** UTF Tank [redacted]

Execution

- **Phase I: JP-5 Pipeline Condition Verification**
  - **Planning –** Data Gathering, Condition Verification, QA, Op Order, HAZOP
  - **Preparation –** Remove LOTO from RH Tank [redacted] for venting, align blinds
  - **Training –** To Op Order and Emergency Response
  - **Evolution Walkthrough –** All Scheduled Watch-Standers
- **Phase II:** [redacted] **Pump Verification**
  - **Maintenance:** Pumps have been PM'd and certified "ready to operate"
- **Phase III: JP-5 Pipeline Repacking (F-24)**
  - **Maintenance and Op Check:** Confirm status of [redacted] pumps (b) (3) (A) [redacted] relevant blinds have been rolled, equalization line at Tank [redacted]
  - **Pipeline Repacking:** Align UTF Tank [redacted] and equalize JP-5 Pipeline with F-24, then transfer balance of F-24 to JP-5 Pipeline, using pump [redacted] Tank Inventory ~ TBDK Gals
- **Phase IV: JP-5 Pipeline Equalization (From Tank** [redacted]
  - **Line Pressure Verification:** Equalize pipeline to tank head pressure (Tank [redacted] by opening the new equalization line
  - **Valves are aligned in Baseline position for Defueling**

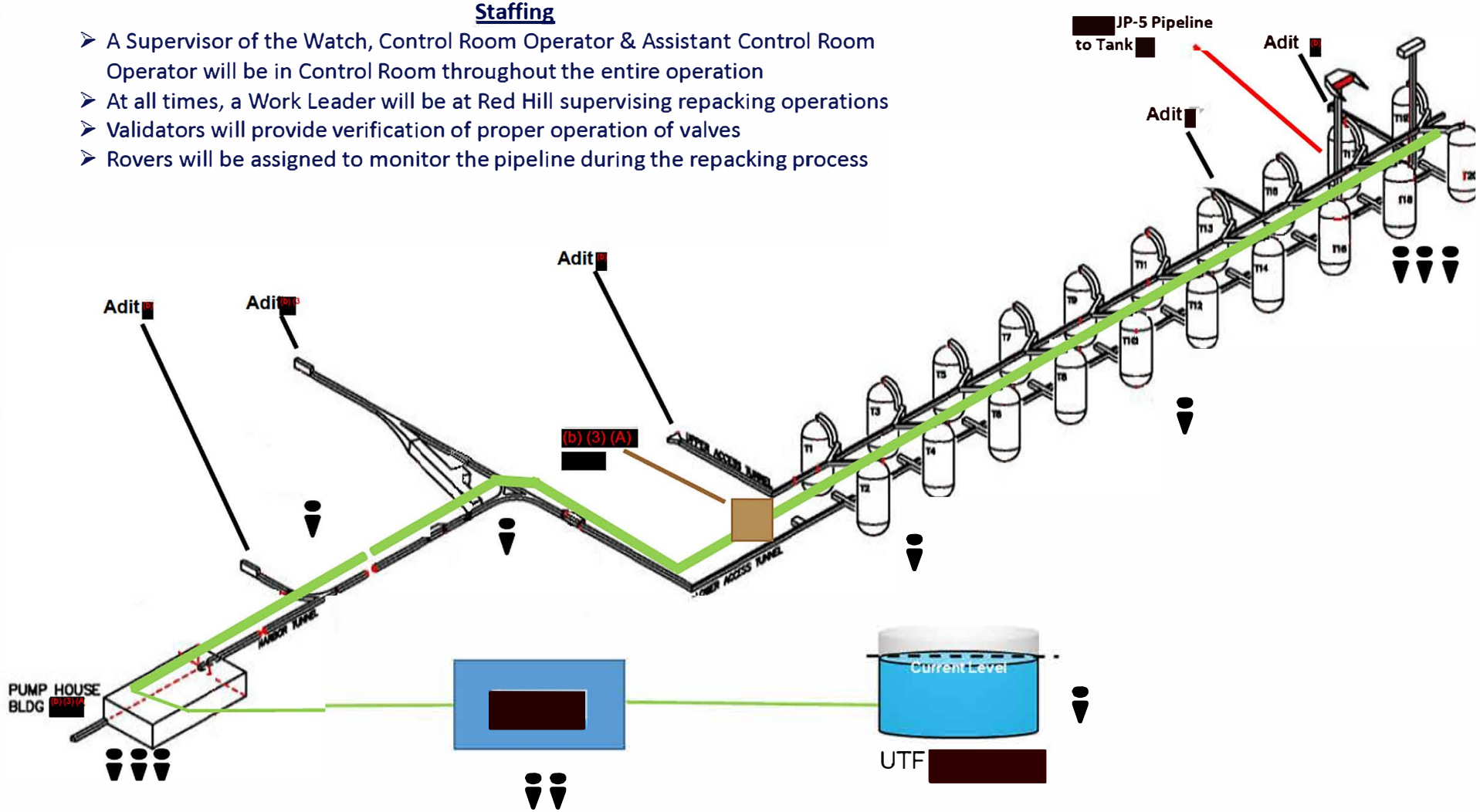
Phase III JP-5 Pipeline Repacking



JP-5 Pipeline Repacking Flow Path

Staffing

- A Supervisor of the Watch, Control Room Operator & Assistant Control Room Operator will be in Control Room throughout the entire operation
- At all times, a Work Leader will be at Red Hill supervising repacking operations
- Validators will provide verification of proper operation of valves
- Rovers will be assigned to monitor the pipeline during the repacking process



Enclosure (4)

Enclosure (5) to
Red Hill Bulk Fuel Storage Facility, Oahu, Hawaii
15 May 2023 Supplement 2

Red Hill Tank Mains Defuel CONOP

(2 tankers per week no pumps)

Red Hill Tank Mains Defuel
(2 tankers per week no pumps)

F-24 Defueling - Tanks (b) (3) (A) , Gravity
Concept of Operation (Date: TBD)

Operations Summary

- **Phase I: F-24 Pipeline Repack and Equalization Verification**
- **Phase II: F-24 Defueling Alignments (from RH Tank to DLA Destination TBD)**
- **Phase III: F-24 Defueling (From Tanks (b) (3) (A))**

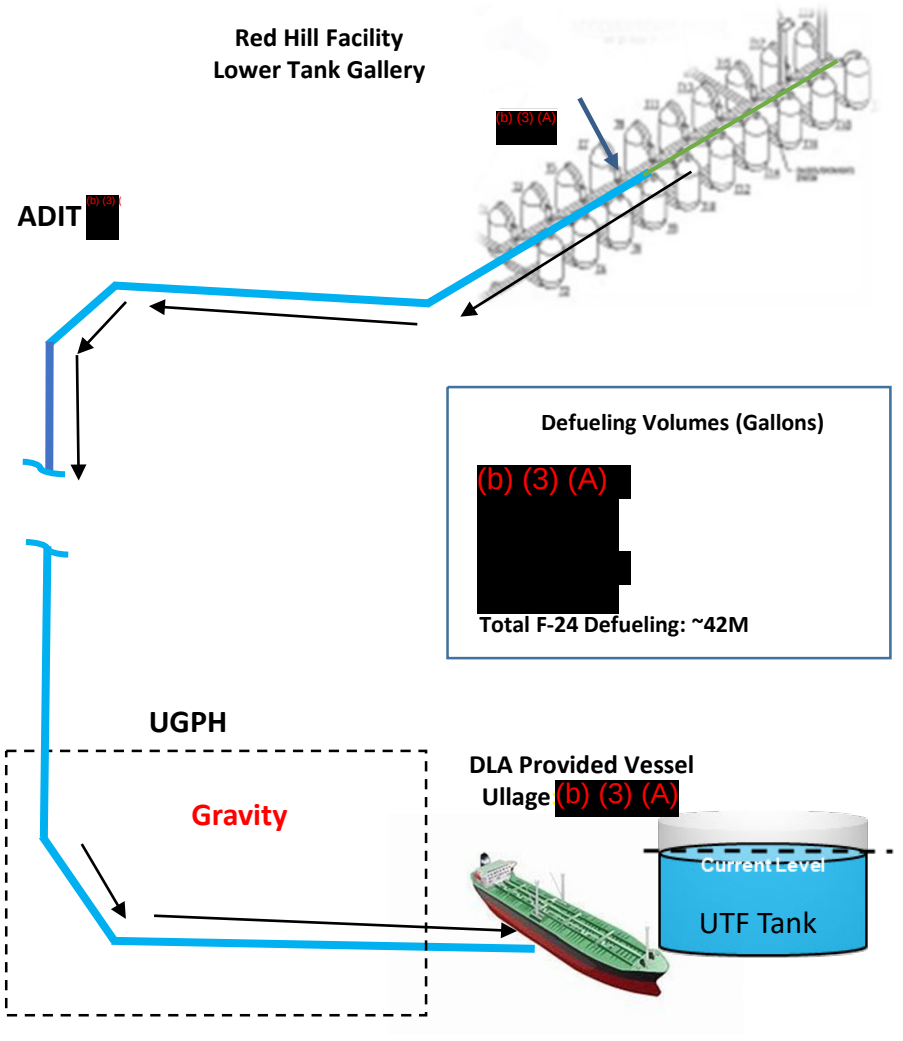
Preparation for Execution

- **Location:** (b) (3) (A)
- **Date:** TBD
- **F-24 Defueling Amounts:** ~42M Gals (see table for specific tank volumes)
- **Issuing Tanks:** Red Hill Tank (b) (3) (A)

Execution

- **Phase I: F-24 Pipeline Repack and Equalization Verification**
  - **Planning –** Condition Verification, Op Order, HAZOP
  - **Preparation –** Remove LOTO from RH Tanks (b) (3) , align blinds
  - **Training –** To Op Order and Emergency Response
  - **Evolution Walkthrough –** All Scheduled Watch-Standers
- **Phase II: F-24 Defueling Alignments**
  - **Tank Defueling:** Align specific RH Tank (b) (3) to F-24 Pipeline to DLA Destination TBD, use gravity, vent through aligned tank
  - **Confirm Valve Alignment as identified in OPORD**
- **Phase III: F-24 Defueling (From Tanks (b) (3))**
  - **OPORD:** Follow OPORD as written, trained and briefed, equalize F-24 Pipeline between tank Defuelings
  - **Minimum Tank Level:** Do not defuel below 10' level in any tank
  - **Close relevant valves once RH Tanks (b) (3) have been Defueled**

Phase III F-24 Defueling

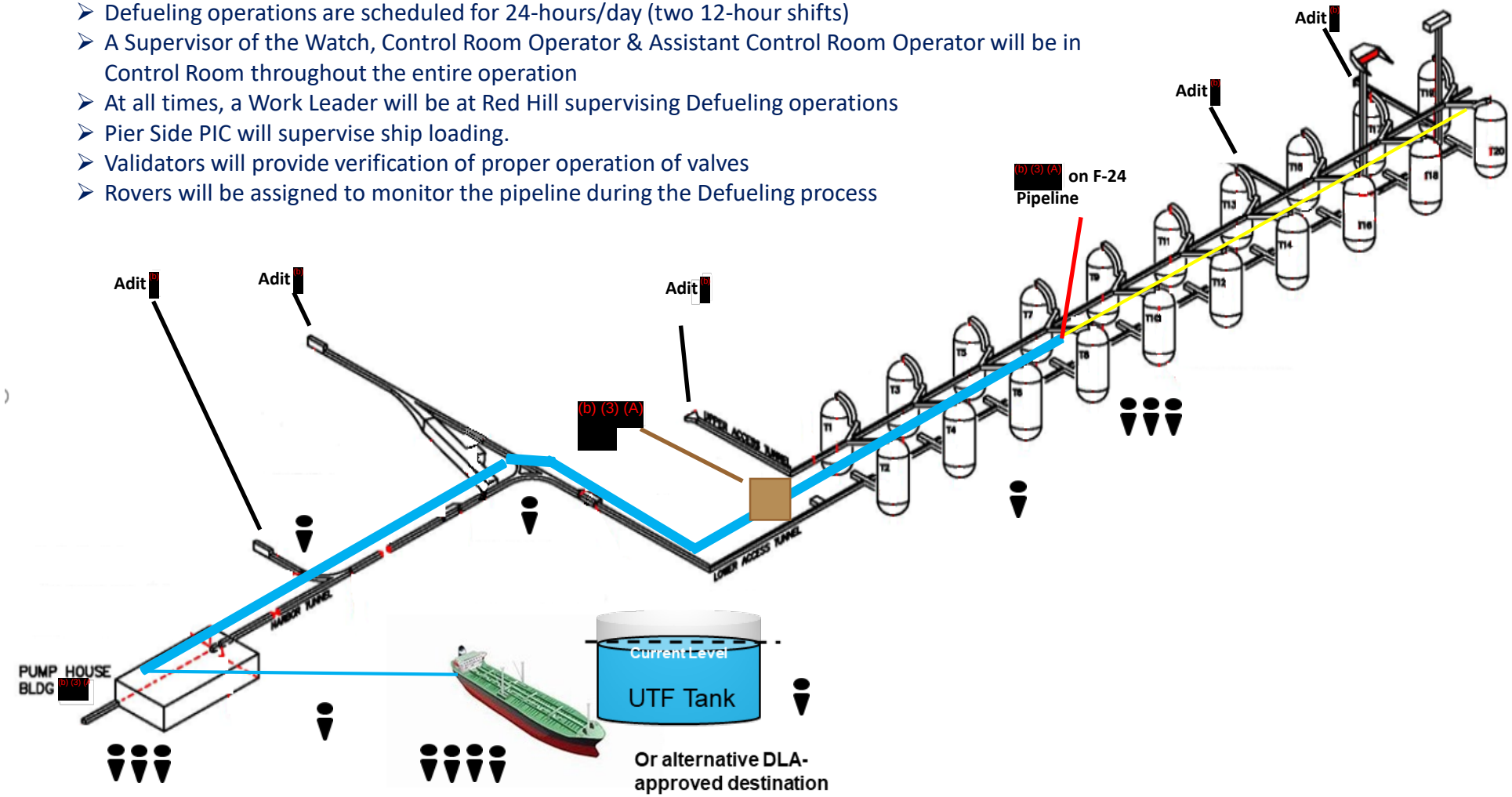


Enclosure (5)

F-24 Tanks Defueling Flow Path

Staffing

- Defueling operations are scheduled for 24-hours/day (two 12-hour shifts)
- A Supervisor of the Watch, Control Room Operator & Assistant Control Room Operator will be in Control Room throughout the entire operation
- At all times, a Work Leader will be at Red Hill supervising Defueling operations
- Pier Side PIC will supervise ship loading.
- Validators will provide verification of proper operation of valves
- Rovers will be assigned to monitor the pipeline during the Defueling process



JP-5 Defueling - Tanks (b) (3) (A), Gravity
Concept of Operation (Date:TBD)

Operations Summary

- **Phase I: JP-5 Pipeline Repack and Equalization Verification**
- **Phase II: JP-5 Defueling Alignments (from RH Tank to DLA Destination TBD)**
- **Phase III: JP-5 Defueling (From Tanks (b) (3) (A)**

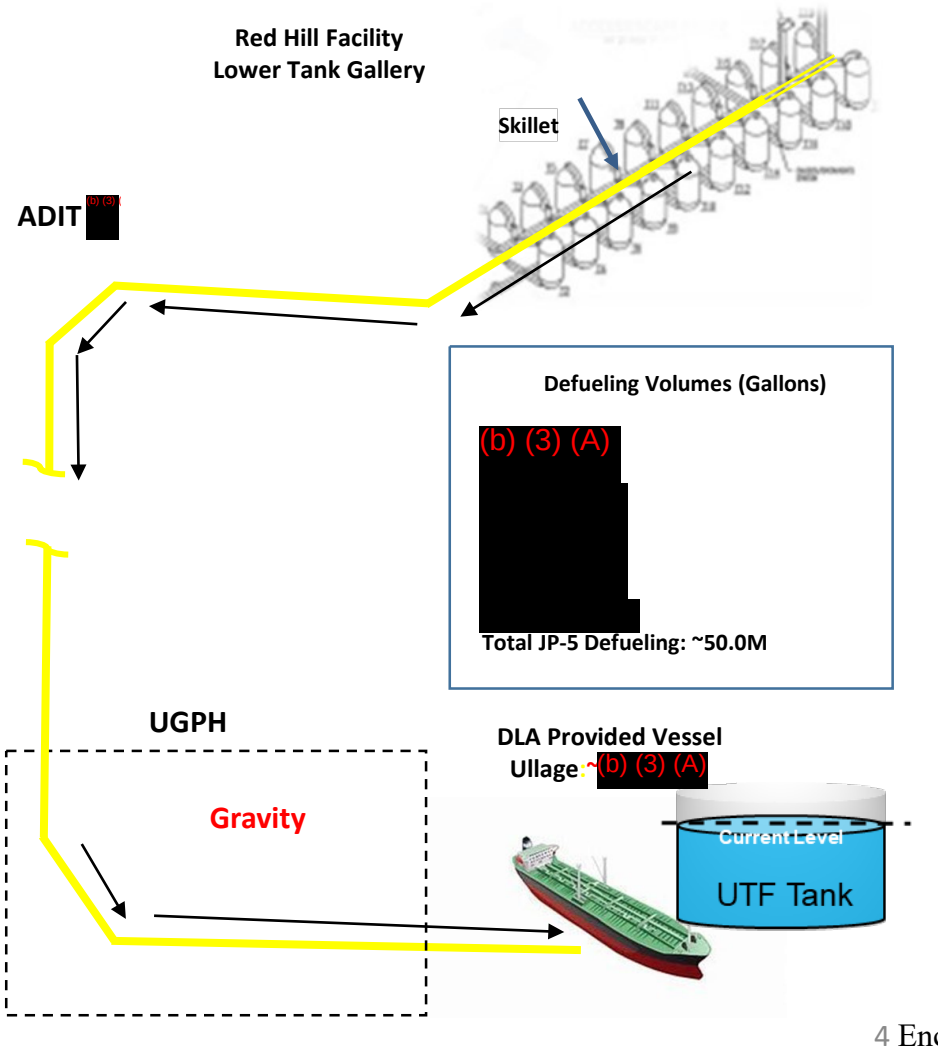
Preparation for Execution

- **Location:** RH JP-5 IVO selected RH Tank (b) (3) (A)
- **Date:** TBD
- **JP-5 Defueling Amounts:** ~50.0M Gals (see table for specific tank volumes)
- **Issuing Tanks:** (b) (3) (A)

Execution

- **Phase I: JP-5 Pipeline Repack and Equalization Verification**
  - **Planning –** Condition Verification, Op Order, HAZOP
  - **Preparation –** Remove LOTO from RH Tanks (b) (3) (A), align blinds
  - **Training –** To Op Order and Emergency Response
  - **Evolution Walkthrough –** All Scheduled Watch-Standers
- **Phase II: JP-5 Defueling Alignments**
  - **Tank Defueling:** Align specific RH Tank (b) (3) (A) to JP-5 Pipeline to DLA Destination TBD, use gravity, vent through aligned tank
  - **Confirm Valve Alignment as identified in OPORD**
- **Phase III: JP-5 Defueling (From Tank (b) (3) (A))**
  - **OPORD:** Follow OPORD as written, trained and briefed, equalize JP-5 Pipeline between tank Defuelings
  - **Minimum Tank Level:** Do not defuel below 10' level in any tank
  - **Close relevant valves once RH Tanks (b) (3) (A) have been Defueled**

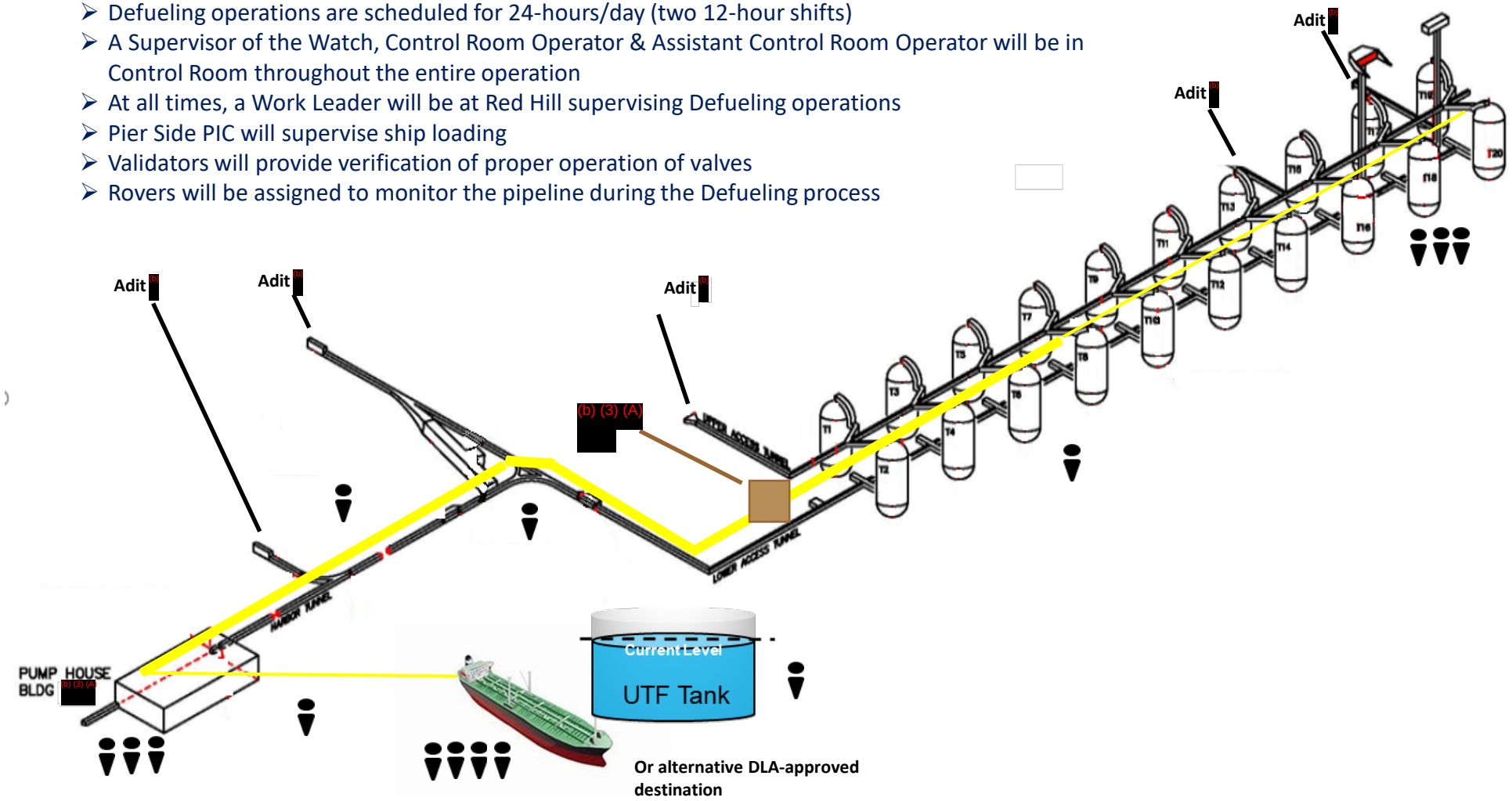
Phase III JP-5 Defueling



JP-5 Tanks Defueling Flow Path

Staffing

- Defueling operations are scheduled for 24-hours/day (two 12-hour shifts)
- A Supervisor of the Watch, Control Room Operator & Assistant Control Room Operator will be in Control Room throughout the entire operation
- At all times, a Work Leader will be at Red Hill supervising Defueling operations
- Pier Side PIC will supervise ship loading
- Validators will provide verification of proper operation of valves
- Rovers will be assigned to monitor the pipeline during the Defueling process



F-76 Defueling - Tanks (b) (3) (A), Gravity
Concept of Operation (Date:TBD)

Operations Summary

- **Phase I: JP-5 Pipeline Repack and Equalization Verification**
- **Phase II: F-76 Defueling Alignments (from RH Tank to DLA Destination TBD)**
- **Phase III: F-76 Defueling (From Tanks (b) (3) (A))**

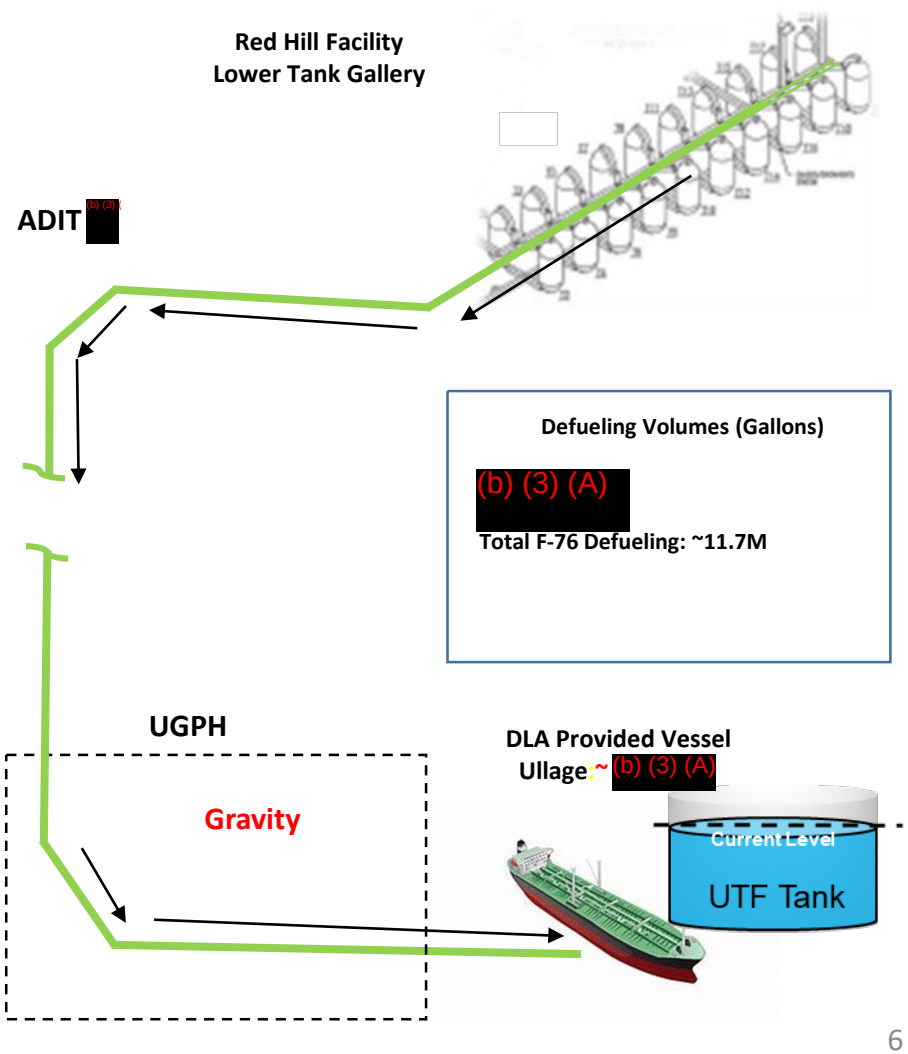
Preparation for Execution

- **Location:** RH F-76 IVO selected RH Tank (b) (3) (A)
- **Date:** TBD
- **F-76 Defueling Amounts:** ~11.7M Gals (see table for specific tank volumes)
- **Issuing Tanks:** Red Hill Tank (b) (3) (A)

Execution

- **Phase I: JP-5 Pipeline Repack and Equalization Verification**
  - **Planning –** Condition Verification, Op Order, HAZOP
  - **Preparation –** Remove LOTO from RH Tanks (b) (3) (A) align blinds
  - **Training –** To Op Order and Emergency Response
  - **Evolution Walkthrough –** All Scheduled Watch-Standers
- **Phase II: F-76 Defueling Alignments**
  - **Tank Defueling:** Align specific RH Tank (b) (3) (A) to JP-5 Pipeline to DLA Destination TBD, use gravity, vent through aligned tank
  - **Confirm Valve Alignment as identified in OPORD**
- **Phase III: F-76 Defueling (From Tank (b) (3) (A))**
  - **OPORD:** Follow OPORD as written, trained and briefed, equalize JP-5 Pipeline between tank Defuelings
  - **Minimum Tank Level:** Do not defuel below 10' level in any tank
  - **Close relevant valves once RH Tanks (b) (3) (A) have been Defueled**

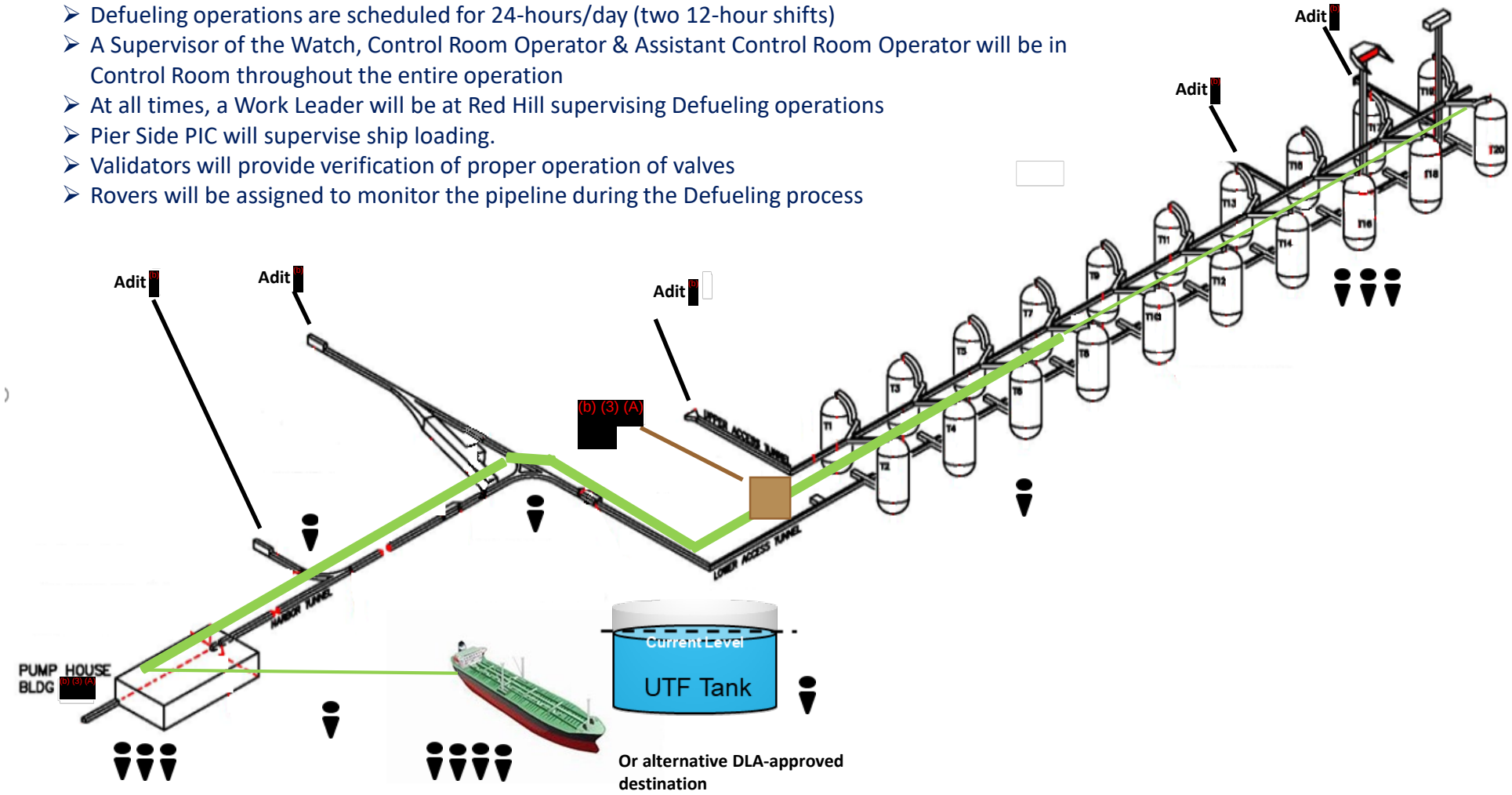
Phase III F-76 Defueling



F-76 Tanks Defueling Flow Path (using JP-5 Pipeline)

Staffing

- Defueling operations are scheduled for 24-hours/day (two 12-hour shifts)
- A Supervisor of the Watch, Control Room Operator & Assistant Control Room Operator will be in Control Room throughout the entire operation
- At all times, a Work Leader will be at Red Hill supervising Defueling operations
- Pier Side PIC will supervise ship loading.
- Validators will provide verification of proper operation of valves
- Rovers will be assigned to monitor the pipeline during the Defueling process



Enclosure (6) to
Red Hill Bulk Fuel Storage Facility, Oahu, Hawaii
15 May 2023 Supplement 2

Red Hill Flowable Tank Bottoms Draining CONOP

Red Hill Flowable Tank Bottoms Draining

Tank Bottoms Draining – RH Tank [redacted]
Concept of Operation (Date:TBD)

Operations Summary

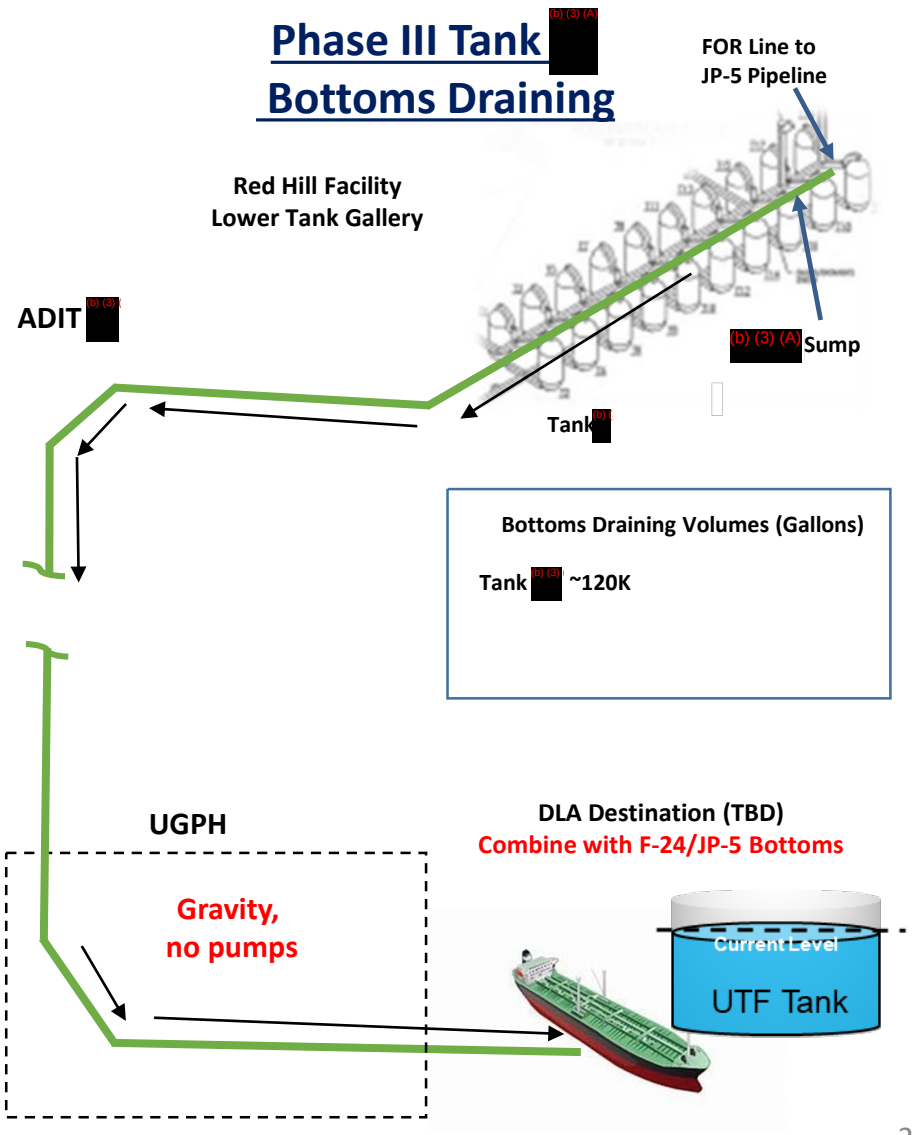
- **Phase I: JP-5 Pipeline, FOR Line Verification, jumper on FOR line at [redacted] Sump, jumper at Tank [redacted]**
- **Phase II: Tank [redacted] Bottoms Draining Alignments (from Tank [redacted] to JP-5 Pipeline IVO Tank [redacted] via FOR Line to DLA Destination TBD)**
- **Phase III: Tank [redacted] Bottoms Draining**

Preparation for Execution

- **Location:** [redacted]
- **Date:** TBD
- **Bottoms Draining Amounts:** ~120K Gals
- **Issuing Tanks:** Red Hill Tank [redacted]

Execution

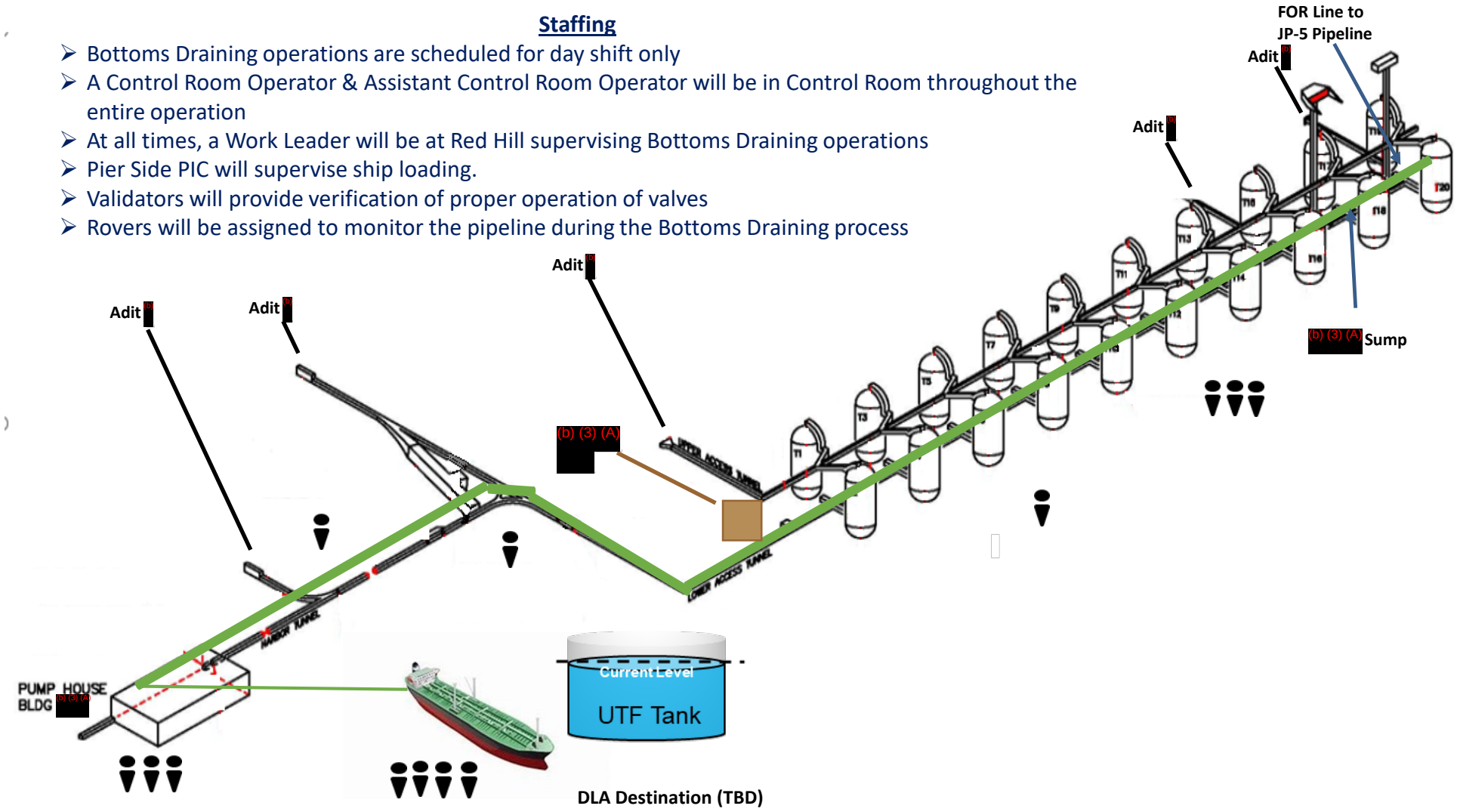
- **Phase I: JP-5 Pipeline, FOR Line Verification, [redacted] Sump, Tank [redacted]**
  - **Planning –** Condition Verification, QA, Op Order, HAZOP
  - **Preparation –** Remove LOTO from FOR Line, connect Tank [redacted] Line to JP-5 Pipeline IVO Tank [redacted] Isolate [redacted] Sump, align blinds
  - **Training –** To Op Order and Emergency Response
  - **Evolution Walkthrough –** All Scheduled Watch-Standers
- **Phase II: Tank [redacted] Bottoms Draining Alignments (from Tank [redacted] to JP-5 Pipeline to DLA Destination TBD)**
  - **Tank [redacted] Bottoms Draining:** Align Tank [redacted] to FOR Line to JP-5 Pipeline IVO Tank [redacted] to DLA Destination TBD, bypass Zone 7 Sump, use gravity, vent through aligned tank
  - **Confirm Valve Alignment as identified in OPORD**
- **Phase III: Tank [redacted] Bottoms Draining**
  - **OPORD:** Follow OPORD as written, trained and briefed
  - **Emptying Tank:** Continue Bottoms Draining until no flow is detected
  - **Close relevant valves once Tank [redacted] has been Drained**



Bottoms Draining – Tank [redacted]
Flow Path

Staffing

- Bottoms Draining operations are scheduled for day shift only
- A Control Room Operator & Assistant Control Room Operator will be in Control Room throughout the entire operation
- At all times, a Work Leader will be at Red Hill supervising Bottoms Draining operations
- Pier Side PIC will supervise ship loading.
- Validators will provide verification of proper operation of valves
- Rovers will be assigned to monitor the pipeline during the Bottoms Draining process



Bottoms Draining – All RH Tanks, except Tank [redacted]
Concept of Operation (Date:TBD)

Operations Summary

- **Phase I: JP-5 Pipeline and FOR Line Verification**
- **Phase II: RH Tanks Bottoms Draining Alignments (from RH Tanks to JP-5 Pipeline IVO Tank [redacted] to DLA Destination TBD)**
- **Phase III: RH Tanks Bottoms Draining**

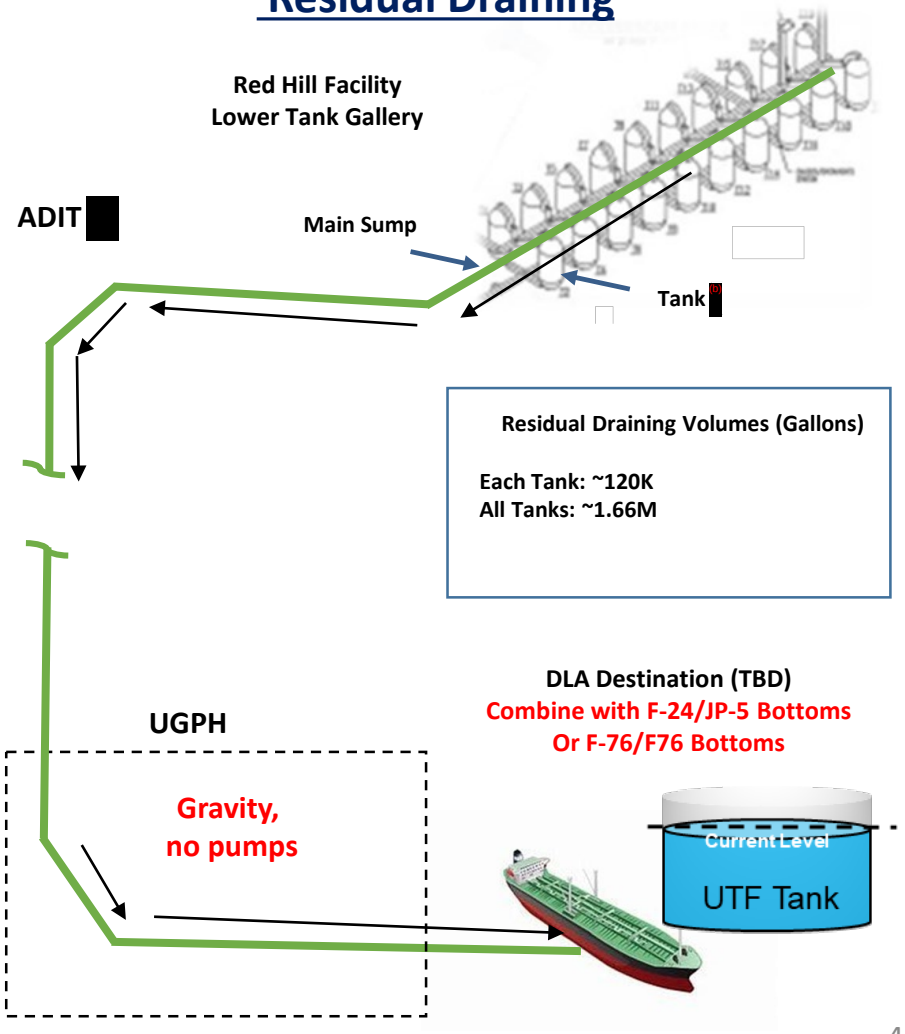
Preparation for Execution

- **Location:** RH JP-5 Pipeline and FOR Line IVO Tank [redacted] FOR Line IVO RH Tanks
- **Date:** TBD
- **Bottoms Draining Amounts:** ~120K Gals per tank
- **Issuing Tanks:** Red Hill Tanks, except Tank [redacted]

Execution

- **Phase I: JP-5 Pipeline and FOR Line Verification**
  - **Planning –** Condition Verification, QA, Op Order, HAZOP
  - **Preparation –** Remove LOTO from FOR Line, connect Tank [redacted] Line to JP-5 Pipeline IVO Tank [redacted], Isolate Main Sump, align blinds
  - **Training –** To Op Order and Emergency Response
  - **Evolution Walkthrough –** All Scheduled Watch-Standers
- **Phase II: RH Tanks Bottoms Draining Alignments (from RH Tanks to JP-5 Pipeline to DLA Destination TBD)**
  - **Tank Bottoms Draining:** Align RH Tanks to FOR Line to JP-5 Pipeline to DLA Destination TBD, use gravity, vent through aligned tank
  - **Confirm Valve Alignment as identified in OPORD**
- **Phase III: RH Tanks Bottoms Draining**
  - **OPORD:** Follow OPORD as written, trained and briefed
  - **Emptying Tank:** Continue Bottoms Draining until no flow is detected
  - **Close relevant valves once RH Tanks have been Drained**

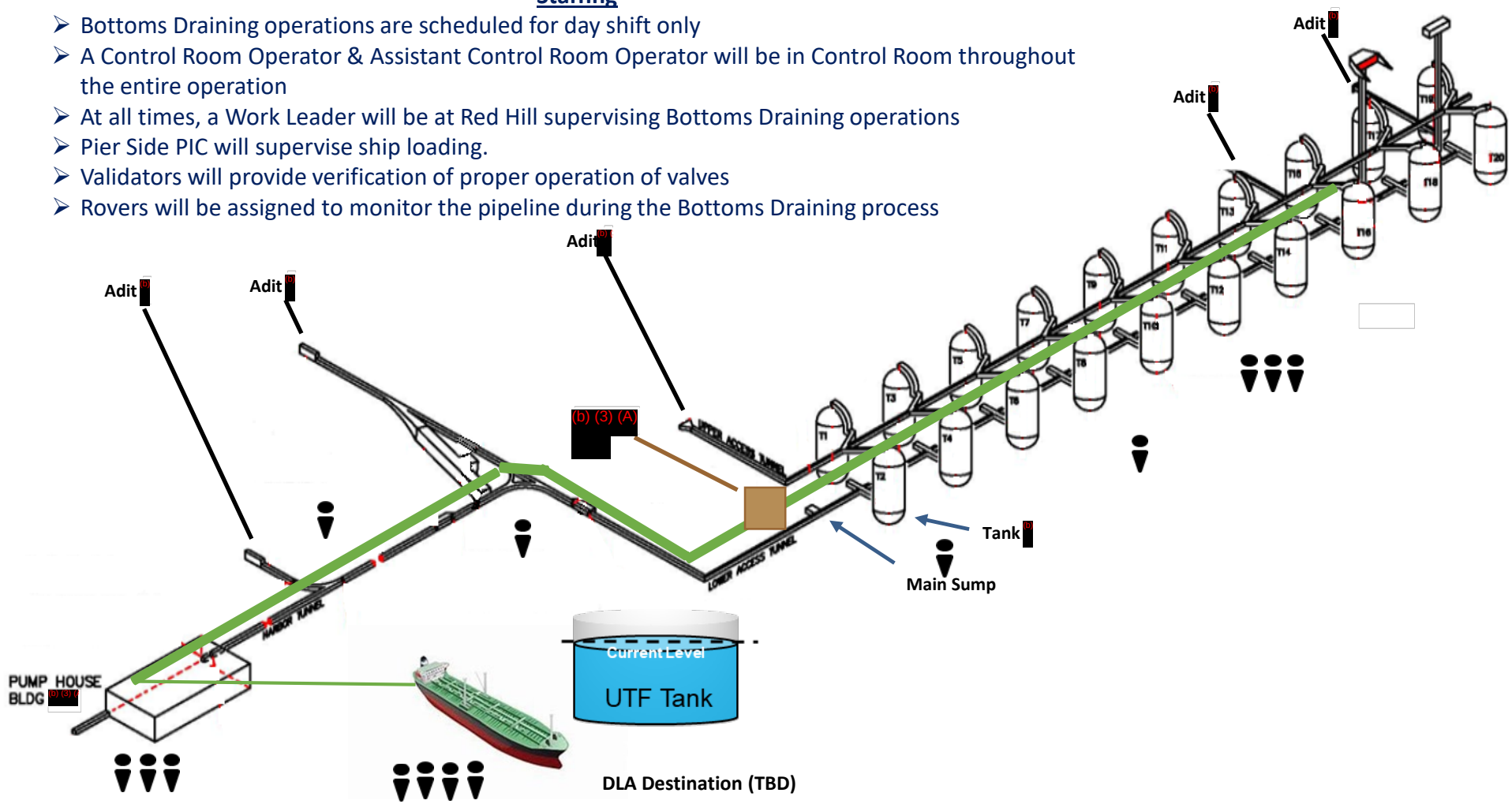
Phase III All RH Tanks, except Tank [redacted] Residual Draining



Bottoms Draining - All RH Tanks, except Tank [redacted] Flow Path

Staffing

- Bottoms Draining operations are scheduled for day shift only
- A Control Room Operator & Assistant Control Room Operator will be in Control Room throughout the entire operation
- At all times, a Work Leader will be at Red Hill supervising Bottoms Draining operations
- Pier Side PIC will supervise ship loading.
- Validators will provide verification of proper operation of valves
- Rovers will be assigned to monitor the pipeline during the Bottoms Draining process



Enclosure (7) to
Red Hill Bulk Fuel Storage Facility, Oahu, Hawaii
15 May 2023 Supplement 2

Red Hill Unpacking Lines CONOP

Unpacking Lines

Overview of Unpacking Lines

- **Three product lines for unpacking**
  - **F-24 (~162K Gallons – initial unpacking volumes)**
  - **JP-5 (~215K Gallons – initial unpacking volumes)**
  - **F-76 (~72K Gallons – UGPH and LYT volumes)**

- **Three phases per product line/type**
  - **Phase I: Pre-Operation**
  - **Phase II: Gravity Drain Down**
  - **Phase III: Low Point Drain Transfer**

- **All Phase II Gravity Drain Down Fuel Movements will be conducted first**
  - **Day 1: F-24**
  - **Day 2: JP-5**

F-24 Unpacking Lines
Concept of Operation (Date: TBD)

Operations Summary

- **Phase I: Pre-Operation**
- **Phase II: Gravity Drain Down (Total ~144K Gallons)**
- **Phase III: Low Point Drain Transfer (~18K Gallons)**

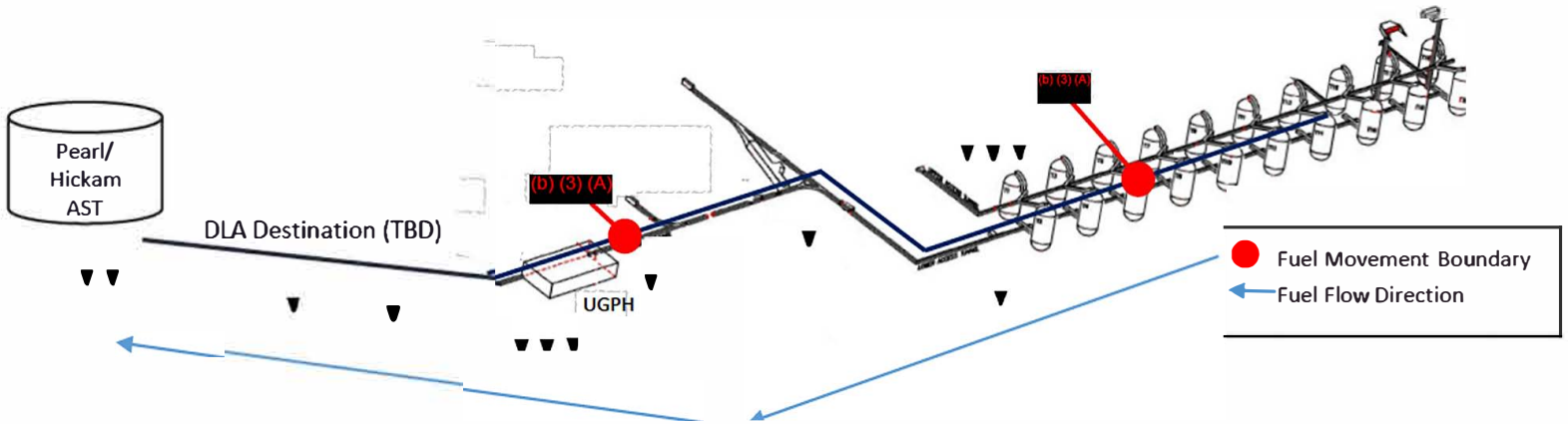
- **Phase I: Pre-Operation**
  - **Planning:** Data Gathering, Op Order
  - **Configuring:** Align valves per Baseline
  - **Training:** To Op Order and Emergency Response
  - **Evolution Walkthrough:** All Scheduled Watch-Standers

- **Phase II: Gravity Drain Down (~144K Gallons)**
  - **Evolution:** Drain F-24 line empty from Tank [redacted] Skillet to [redacted]
  - **Transferring Location:** TBD
  - **Ullage:** TBD Gallons
  - **Line Pressure Verification:** Pressure Equalization during Phase II
    - Pressure confirmed day of via Op Order
    - Pressure Equalization via empty tanks
  - **Return Valves to Baseline:** In sequence from Hickam to [redacted]
  - **Return HPV Valves to Baseline**

Phase II Operational Staffing

- Supervisor of the Watch
- Control Room Operator
- Asst. Control Room Operator
- Work Supervisor
- Work Lead
- Independent Validators
- Rovers

Phase II: Gravity Drain Down



F-24 Unpacking Lines
Concept of Operation (Date: TBD)

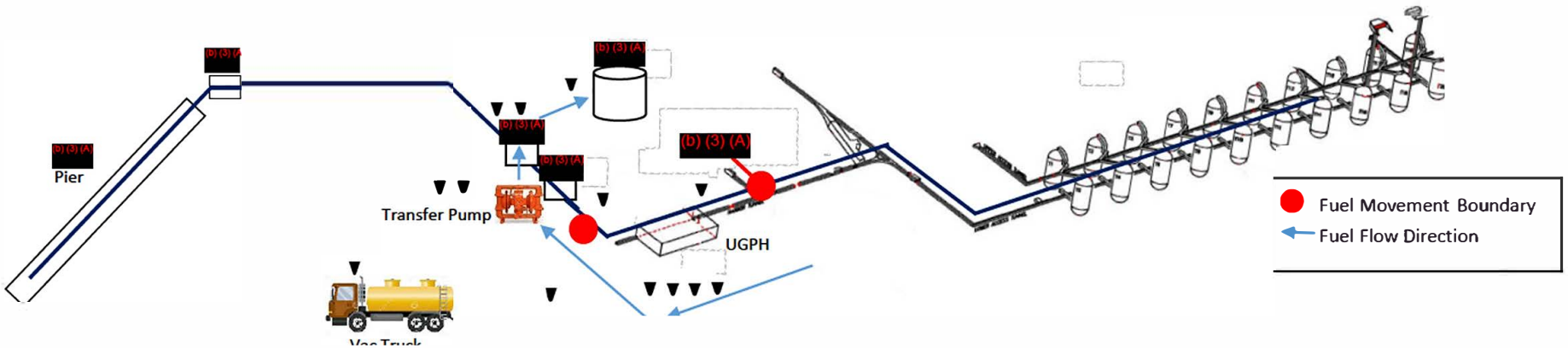
Operations Summary

- **Phase III: Low Point Drain Transfer (~18K Gallons)**
  - **Evolution:** Pump F-24 line empty from (b) (3) (A)
  - **Transferring Location:**
    - **1) From LPD at** (b) (3) (A) **Pump**
    - **2) From** (b) (3) (A)
    - **3) From**
  - **Tank Capacity:** Gallons
  - **Line Pressure Verification:** Pressure Equalization during Phase II and III
    - Pressure confirmed day of via Op Order
    - Pressure Equalization via empty tanks
  - **Transfer Pump:** Maximum /hr flow rate
  - **Transfer Time:** day
  - **Return Valves to Baseline:** In sequence from Tank to Valve
  - **Return HPVs Valves to Baseline**

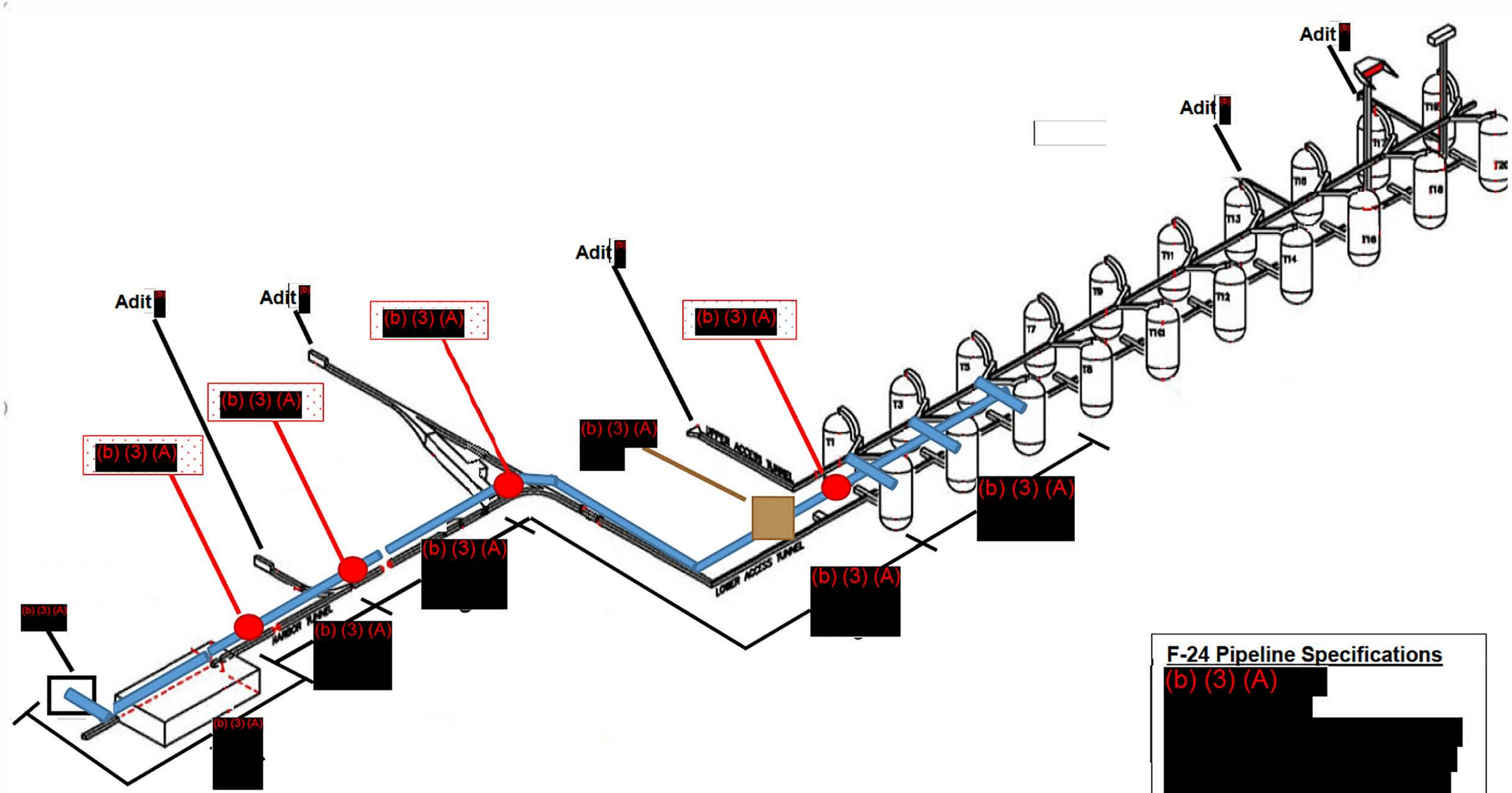
Phase III Operational Staffing

- Supervisor of the Watch
- Control Room Operator
- Asst. Control Room Operator
- Work Supervisor
- Work Leader
- Pump Operator
- Asst. Pump Operator
- Independent Validators
- Rovers
- Vacuum Truck Operator

Phase III: Low Point Drain Transfer



F-24 Pipeline and Sectional Valve Volumes and Locations



F-24 Pipeline Specifications

(b) (3) (A) [redacted]

Total Volume: 162,069 Gal.

Enclosure (7)

JP-5 Unpacking Lines
Concept of Operation (Date: TBD)

Operations Summary

- **Phase I: Pre-Operation**
- **Phase II: Drain Down (~194K Gallons)**
- **Phase III: Low Point Drain Transfer (~21K Gallons)**

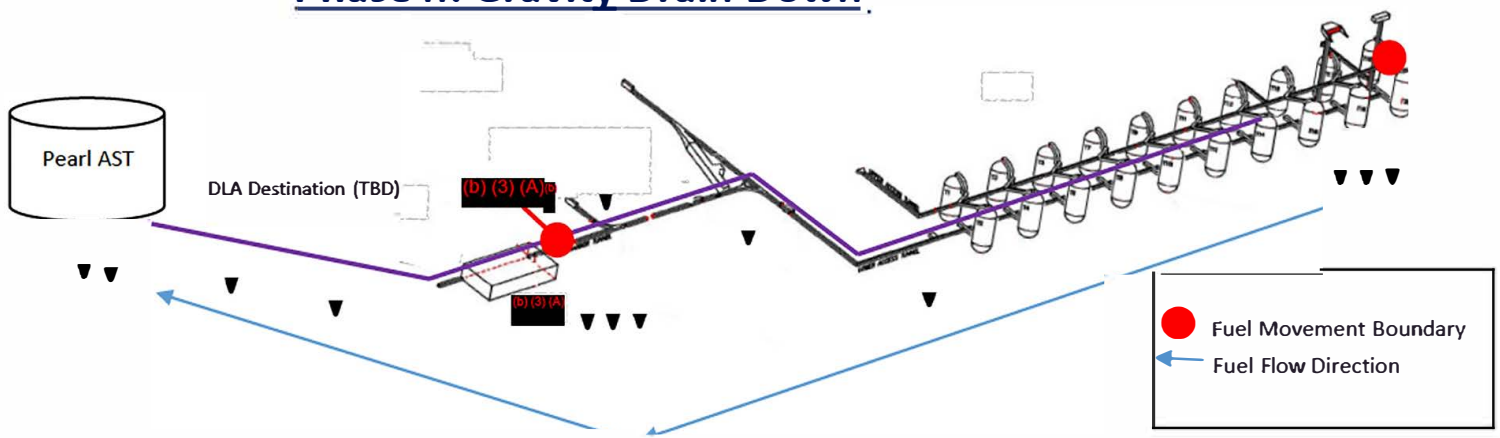
- **Phase I: Pre-Operation**
  - **Planning:** Data Gathering, OPORD
  - **Configuring:** Align valves per Baseline
  - **Training:** To OPORD and Emergency Response
  - **Evolution Walkthrough:** All Scheduled Watch-Standers

- **Phase II: Drain Down (194K Gallons)**
  - **Evolution:** Drain JP-5 line empty from end of line at Tank [redacted]
  - **Transferring Location:** TBD
  - **Ullage:** TBD Gallons
  - **Line Pressure Verification:** Pressure Equalization during Phase II
    - Pressure confirmed day of via OPORD
    - Pressure Equalization via empty tanks
  - **Return Valves to Baseline:** In sequence from destination to [redacted]
  - **Return HPV Valves to Baseline**

Phase II Operational Staffing

- Supervisor of the Watch
- Control Room Operator
- Asst. Control Room Operator
- Work Supervisor
- Work Lead
- Independent Validators
- Rovers

Phase II: Gravity Drain Down



JP-5 Unpacking Lines
Concept of Operation (Date: TBD)

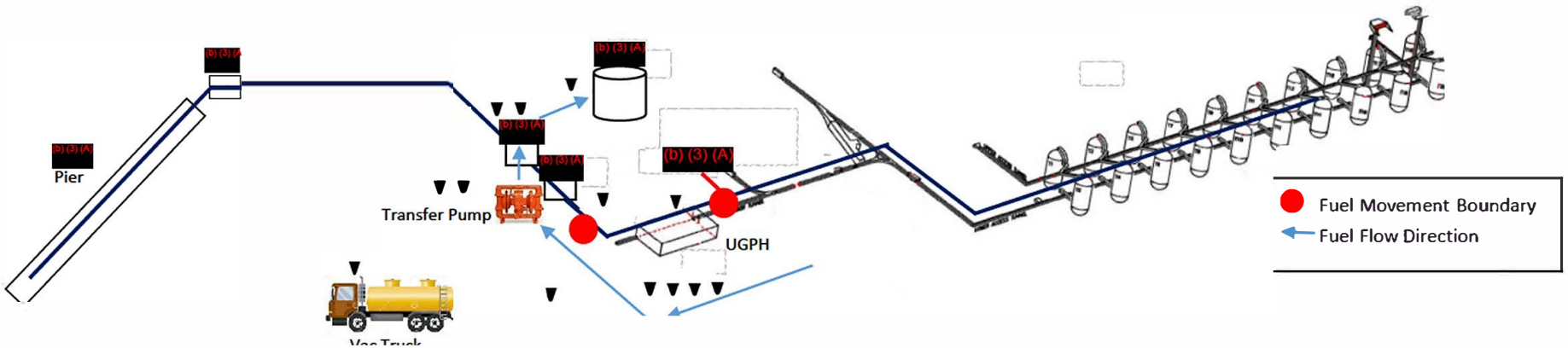
Operations Summary

- **Phase III: Low Point Drain Transfer (~21K Gallons)**
  - **Evolution:** Pump JP-5 line empty from (b) (3) (A)
  - **Transferring Location:**
    - **1) From (b) (3) (A) Pump**
    - **2) From (b) (3) (A)**
    - **3) From (b) (3) (A)**
  - **Tank 301 Capacity:** (b) (3) (A)
  - **Line Pressure Verification:** Pressure Equalization during Phase II and III
    - Pressure confirmed day of via Op Order
    - Pressure Equalization via empty tanks
  - **Transfer Pump:** Maximum [redacted]/hr flow rate
  - **Transfer Time:** [redacted]
  - **Return Valves to Baseline:** In sequence from Tank [redacted] to Valve [redacted]
  - **Return HPVs Valves to Baseline**

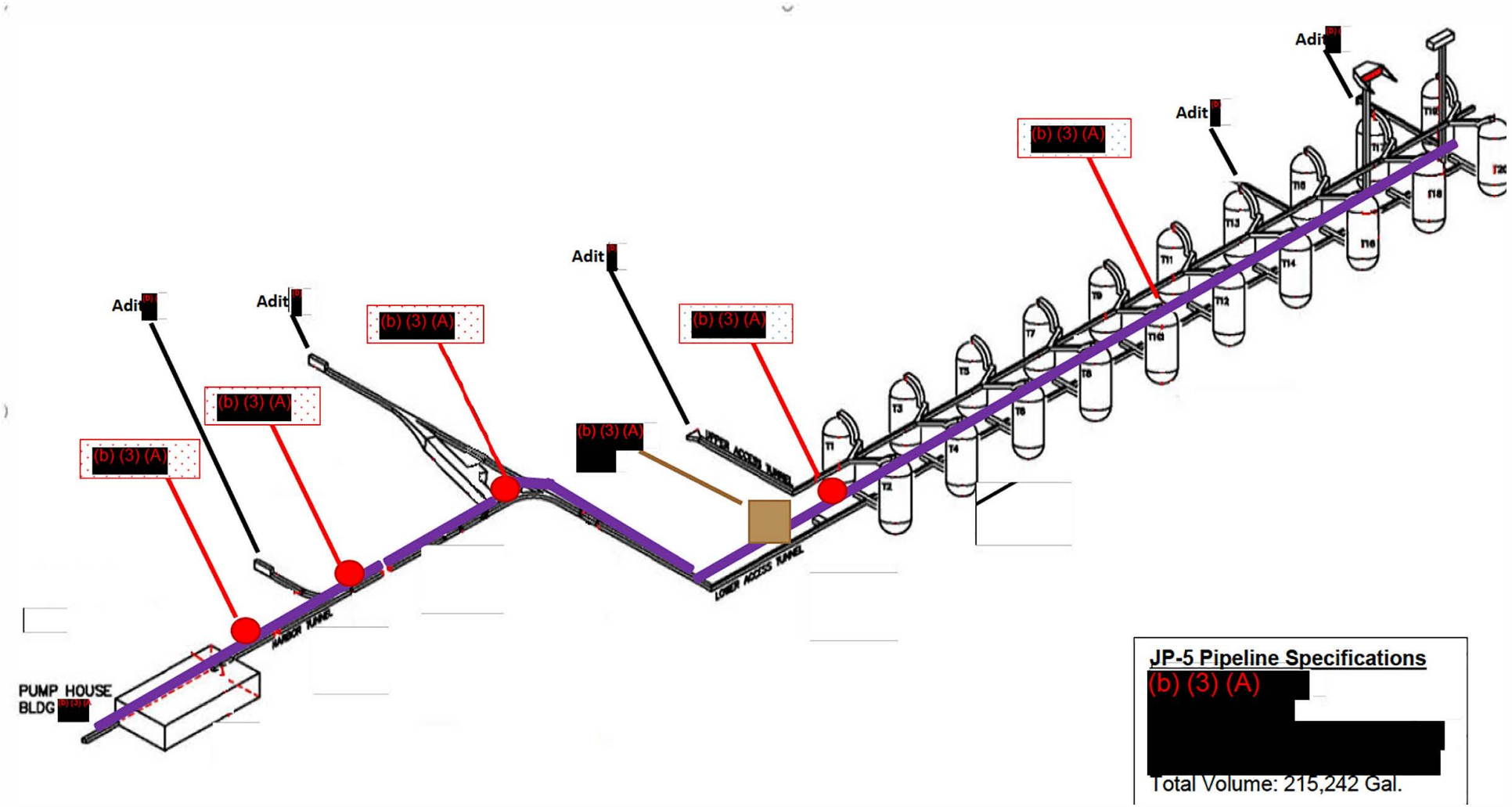
Phase III Operational Staffing

- Supervisor of the Watch
- Control Room Operator
- Asst. Control Room Operator
- Work Supervisor
- Work Leader
- Pump Operator
- Asst. Pump Operator
- Independent Validators
- Rovers
- Vacuum Truck Operator

Phase III: Low Point Drain Transfer



JP-5 Unpacking Lines
Sectional Valve Locations



Enclosure (7)

F-76 Unpacking Lines
Concept of Operation (Date: TBD)

Operations Summary

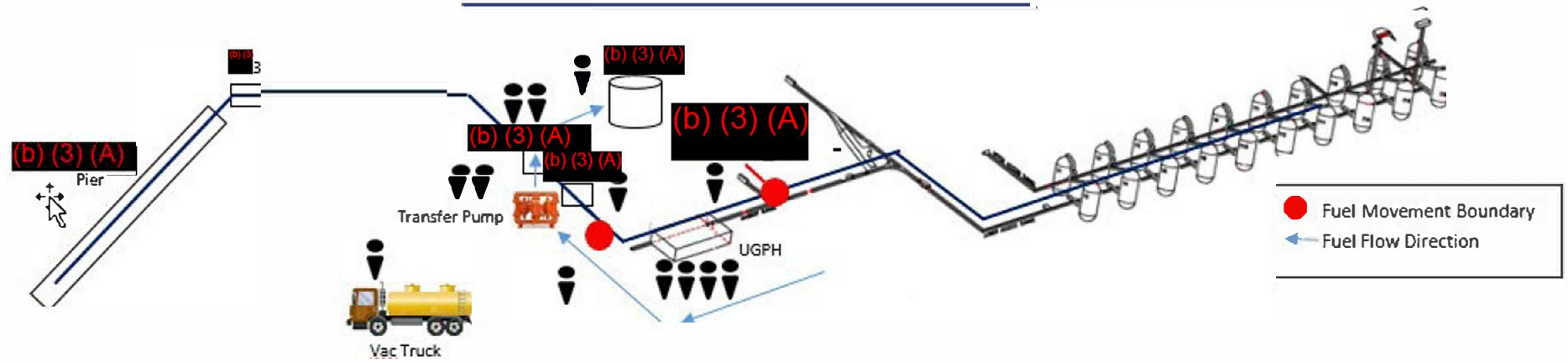
- **Phase I: Pre-Operation**
- **Phase II: Does Not Apply to F-76**
- **Phase III: Low Point Drain Transfer (~72K Gallons)**

- **Phase I: Pre-Operation**
  - **Planning:** Data Gathering, OPORD
  - **Configuring:** Align valves per Baseline
  - **Training:** To OPORD and Emergency Response
  - **Evolution Walkthrough:** All Scheduled Watch-Standers
- **Phase II: Does Not Apply to F-76**
- **Phase III: Low Point Drain Transfer (~72K Gallons)**
  - **Evolution:** Pump F-76 line empty from (b) (3) (A)
  - **Transferring Location:**
    - **1) From** (b) (3) (A) **Pump**
    - **2) From** (b) (3) (A)
    - **3) From** (b) (3) (A)
  - **Tank** **Capacity:** (b) (3) (A) Gallons
  - **Line Pressure Verification:** Pressure Equalization during Phase II and III
    - Pressure confirmed day of via Op Order
    - Pressure Equalization via empty tanks
  - **Transfer Pump:** Maximum /hr flow rate
  - **Transfer Time**
  - **Return Valves to Baseline:** In sequence from Tank to Valve
  - **Return HPVs Valves to Baseline**

Phase III Operational Staffing

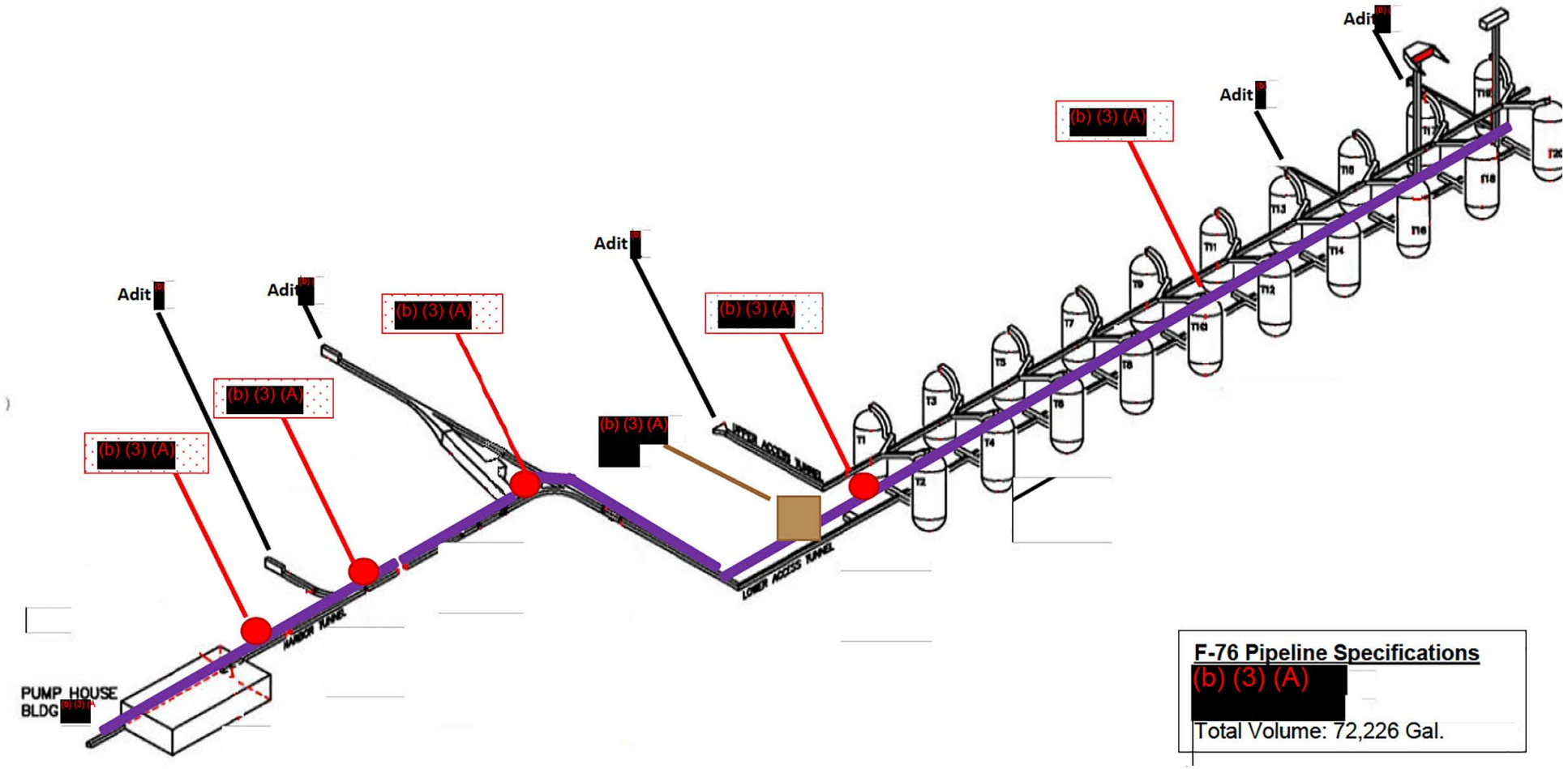
- Supervisor of the Watch
- Control Room Operator
- Asst. Control Room Operator
- Work Supervisor
- Work Leader
- Pump Operator
- Asst. Pump Operator
- Independent Validators
- Rovers
- Vacuum Truck Operator

Phase III: Low Point Drain Transfer



Enclosure (7)

F-76 Unpacking Lines
Sectional Valve Locations



Enclosure (7)

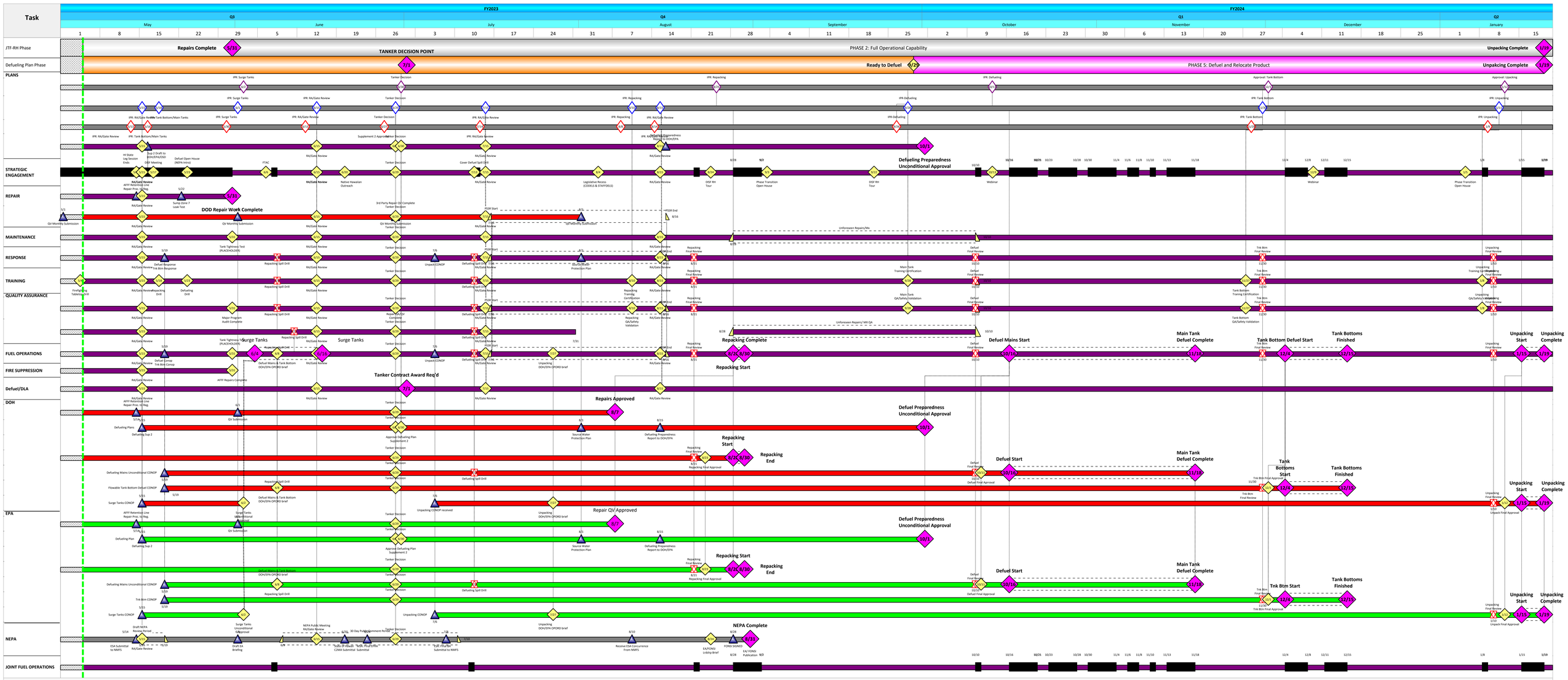
Enclosure (8) to
Red Hill Bulk Fuel Storage Facility, Oahu, Hawaii
15 May 2023 Supplement 2

JTF-RH Integrated Master Plan (IMS)

JTF-RH Draft Integrated Master Schedule (IMS)

Defuel Start October 2023

5/4/2023



Enclosure (8)