Report No. DODIG-2025-011

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INSPECTOR GENERAL

U.S. Department of Defense

NOVEMBER 8, 2024

(U) Evaluation of the Operation, Maintenance, Safety, and Oversight of the Navy's Red Hill Bulk Fuel Storage Facility

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INDEPENDENCE ★ INTEGRITY ★ EXCELLENCE ★ TRANSPARENCY

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INSPECTOR GENERAL
INTEGRITY
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(U) Results in Brief

(U) Evaluation of the Operation, Maintenance, Safety, and Oversight of the Navy's Red Hill Bulk Fuel Storage Facility

November 8, 2024

(U) Objective

(U) The objective of the evaluation was to determine the extent to which DoD officials managed the operation, maintenance, safety, and oversight of Defense Fuel Support Point (DFSP) Joint Base Pearl Harbor-Hickam (JBPHH), including the Red Hill Bulk Fuel Storage Facility (BFSF), and protected the environment, in compliance with Federal and state regulations and DoD policy. We address the extent to which DoD officials protected drinking water systems, in compliance with Federal and state regulations and DoD policy in DODIG-2025-012

(U) Background

(U) During a fuel incident on May 6, 2021, at the Red Hill BFSF, approximately 19,000 gallons of fuel was pumped into an overhead pipeline, where it remained until November 2021. On November 20, 2021, the fuel was released from the overhead pipeline and some of the fuel contaminated the JBPHH Community Water System.

(U) Findings

(U) There were documented risks to the environment, drinking water quality, and health and safety associated with the operation of DFSP JBPHH. Although there were documented risks, we determined that DoD officials did not effectively manage and oversee the operations, maintenance, and safety of DFSP JBPHH. Additionally, we determined that Navy officials did not follow the basic tenets of their oil and hazardous substance (OHS) incident response plans when responding to the fuel incidents discussed in this report. Furthermore, Naval Facilities

(U) Findings (cont'd)

(U) Engineering Systems Command (NAVFAC) officials did not properly manage the project to construct the Red Hill BFSF fire protection system, which contributed to the November 2021 incidents.

(U) These issues occurred because DoD officials:

- (U) lacked the operation and maintenance programs;
- (U) were not adequately prepared to respond to incidents; and
- (U) were not adequately prepared to perform analysis to prevent or respond to a fuel incident.

(U) As a result:

- (U) the 2021 fuel incidents at the Red Hill BFSF occurred, which led to the contamination of the environment and the JBPHH Community Water System, as discussed in DODIG-2025-012; and
- (U) Navy employees were injured during the November 2021 fuel incident and subsequent site cleanup.

~~(CUI)~~ Additionally, as a result of the improper management of the fire protection system construction project, DoD officials spent approximately $57.9 million to install a system that had improper pipeline materials and did not effectively mitigate safety risks at the facility. [redacted] Finally, military readiness in a critically important region was affected by the Hawaii Department of Health and the Secretary of Defense orders to defuel and close the Red Hill BFSF.

(U) Recommendations

(U) We recommend that the Secretary of Defense:

- (U) designate a single point of command or leadership for DFSP JBPHH operations, maintenance, safety, and environmental protection;

(U) Results in Brief

Evaluation of the Operation, Maintenance, Safety, and Oversight of the Navy's Red Hill Bulk Fuel Storage Facility

(U) Recommendations

(U) We recommend that the Secretary of Defense:

- (U) designate a single point of command or leadership for DFSP JBPHH operations, maintenance, safety, and environmental protection;
- (U) direct a review of leak detection systems at Navy DFSPs; and
- (U) direct the update of the DoD Manual 4140.25 series for DoD management of energy commodities, including fuel, to address the deficiencies discussed in this report.

(U) Additionally, we recommend that the Secretary of the Navy:

- (U) designate an entity to be responsible for ensuring that all laws, policies, and agreements made in response to the fuel incident at Joint Base Pearl Harbor-Hickam are implemented, and that appropriate action is taken with regard to recommendations made in prior oversight and command investigation reports;
- (U) direct a comprehensive review of the operation and maintenance programs at DFSP JBPHH;
- (U) direct a comprehensive review of the operational safety programs at the JBPHH;
- (U) direct an update of the oil and hazardous substance incident response plans;
- (U) direct the development of a standard operating procedure for causative research and post-incident investigations and reporting for oil or hazardous substance incidents at Navy DFSPs; and
- (U) initiate a review of the Military Construction project for the fire protection system at DFSP JBPHH to determine whether any Federal law, acquisition regulation, or contracting requirements were violated or funds were wasted and take appropriate action based on the results of the review.

(U) Management Comments and Our Response

(U) The Under Secretary of Defense for Acquisition and Sustainment (USD[A&S]), responding on behalf of the Secretary of Defense, agreed to all recommendations directed to the Secretary of Defense.

- ~~(CUI)~~ The USD(A&S) partially addressed the recommendation to designate a single point of command or leadership for DFSP JBPHH, by naming two points of contact, one of which was the JBPHH Commanding Officer. However, the USD(A&S) did not specify whether the JBPHH Commanding Officer was responsible for the operations, maintenance, safety, and environmental protection associated with the continuing operations at DFSP JBPHH. Additionally, Under Secretary of the Navy comments to two recommendations appear to conflict with the response of the USD(A&S) to this recommendation [redacted] Therefore, this recommendation is unresolved.
- (U) The USD(A&S) addressed the recommendation by stating that the Defense Logistics Agency and the Navy will review leak detection systems and testing protocols at all Navy DFSPs and will implement corrective actions to address any identified problems. Therefore, this recommendation is resolved and open.
- (U) The USD(A&S) addressed the recommendation by agreeing to update the DoD Manual 4140.25 series. Therefore, this recommendation is resolved and open.

(U) Results in Brief

Evaluation of the Operation, Maintenance, Safety, and Oversight of the Navy's Red Hill Bulk Fuel Storage Facility

(U) Comments (cont'd)

- (U) The USD(A&S) addressed the recommendation by agreeing to update the DoD Manual 4140.25 series. Therefore, this recommendation is resolved and open.

(U) The Under Secretary of the Navy (USN), responding on behalf of the Secretary of the Navy, agreed to all recommendations directed to the Secretary of the Navy.

- (U) The USN partially addressed the recommendation by agreeing to designate an entity to be responsible for ensuring implementation of all laws, policies, and agreements made in response to fuel incidents at JBPHH, and for ensuring that appropriate action is taken with regard to recommendations made in prior oversight and command investigation reports. Although the USN agreed to designate an entity, they did not name the responsible entity. Therefore, the recommendation is unresolved.
- (U) Additionally, the USN stated that they implemented recommendations from the Occupational Safety and Health Administration, which we verified. Therefore, the recommendation is resolved and closed.
- (U) The USN addressed the recommendation by agreeing to direct a comprehensive review of the operation and maintenance programs at DFSP JBPHH and the implementation of corrective actions. Therefore, the recommendation is resolved and open.
- (U) The USN addressed the recommendation by agreeing to direct a comprehensive review of the operational safety programs at the JBPHH and implementation of corrective actions. Therefore, the recommendation is resolved and open.
- (U) The USN addressed the recommendation by agreeing to direct an update to oil and hazardous substance incident response plans. Therefore, the recommendation is resolved and open.
- ~~(CUI)~~ The USN partially addressed the recommendation by directing the development of a standard operating procedure for causative research and post-incident investigations and reporting for oil or hazardous substance incidents at Navy DFSPs [redacted]. However, the comments from the USN appear to conflict with previous USD(A&S) comments regarding which entity is responsible for operations at DFSPs. Therefore, this recommendation is unresolved.
- (U) The USN addressed the recommendation by agreeing to initiate a review of the Military Construction project for the fire protection system at DFSP JBPHH. Therefore, this recommendation is resolved and open.

(U) We request that the Secretary of Defense and Secretary of the Navy provide additional comments within 30 days of the final report clarifying their plans to address the unresolved recommendations. Please see the Recommendations Table on the next page for the status of recommendations.

(U) Recommendations Table

(U) Management	Recommendations Unresolved	Recommendations Resolved	Recommendations Closed
Secretary of Defense	1	2.a, 2.b, 3	None
Secretary of the Navy	4.a, 4.b, 4.d, 8	5.a, 5.b, 6.a, 6.b, 7, 9	4.c **(U)**

(U) Please provide Management Comments by December 8, 2024.

(U) Note: The following categories are used to describe agency management's comments to individual recommendations.

- **(U) Unresolved** – Management has not agreed to implement the recommendation or has not proposed actions that will address the recommendation.
- **(U) Resolved** – Management agreed to implement the recommendation or has proposed actions that will address the underlying finding that generated the recommendation.
- **(U) Closed** – The DoD OIG verified that the agreed upon corrective actions were implemented.

OFFICE OF INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
4800 MARK CENTER DRIVE
ALEXANDRIA, VIRGINIA 22350-1500

November 8, 2024

MEMORANDUM FOR SECRETARY OF DEFENSE
SECRETARY OF THE NAVY
UNDER SECRETARY OF DEFENSE FOR ACQUISITION AND SUSTAINMENT
DIRECTOR, DEFENSE LOGISTICS AGENCY

SUBJECT: (U) Evaluation of the Operation, Maintenance, Safety, and Oversight of the Navy's Red Hill Bulk Fuel Storage Facility (Report No. DODIG-2025-011)

(U) This final report provides the results of the DoD Office of Inspector General's evaluation. We previously provided copies of the draft report and requested written comments on the recommendations. We considered management's comments on the draft report when preparing the final report. These comments are included in the report.

(U) This report contains recommendations that are considered unresolved because comments from the Under Secretary of Defense for Acquisition and Sustainment did not fully address Recommendation 1, and comments from the Under Secretary of the Navy did not fully address Recommendations 4.a, 4.b, 4.d, and 8. Therefore, the recommendations remain open. We will track these recommendations until management has agreed to take actions that we determine to be sufficient to meet the intent of the recommendations and management officials submit adequate documentation showing that all agreed-upon actions are completed.

(U) DoD Instruction 7650.03 requires that recommendations be resolved promptly. Therefore, within 30 days please provide us your response concerning specific actions in process or alternative corrective actions proposed on the unresolved recommendations. Send your response to either [redacted] if unclassified or [redacted] if classified SECRET.

(U) Additionally, the Under Secretary of Defense for Acquisition and Sustainment, responding on behalf of the Secretary of Defense, addressed Recommendations 2 and 3; therefore, we consider the recommendation resolved and open. The Under Secretary of the Navy, responding for the Secretary of the Navy, agreed to address Recommendations 5, 6, 7, and 9; therefore, we consider the recommendations resolved and open. We requested additional information to clarify Recommendations 2, 3, 5, 6, 7, and 9. We will close the recommendations when you provide us documentation showing that all agreed-upon actions to implement the recommendations are completed. Therefore, within 90 days please provide us your response concerning specific actions in process or completed on the recommendations. Send your response to either [redacted] if unclassified or [redacted] if classified SECRET.

(U) Furthermore, the Under Secretary of the Navy addressed Recommendation 4.c. We reviewed sufficient documentation and consider the recommendation closed.

(U) If you have any questions, please contact [redacted] We appreciate the cooperation and assistance received during the evaluation.

FOR THE INSPECTOR GENERAL:

Randolph R. Stone
Assistant Inspector General for Evaluations
Space, Intelligence, Engineering, and Oversight

cc:

UNDER SECRETARY OF DEFENSE FOR PERSONNEL AND READINESS
COMMANDANT OF THE MARINE CORPS
CHIEF OF NAVAL OPERATIONS
COMMANDER, U.S. INDO-PACIFIC COMMAND
DIRECTOR, JOINT STAFF
DIRECTOR, DEFENSE HEALTH AGENCY
INSPECTOR GENERAL, DEPARTMENT OF THE ARMY
NAVAL INSPECTOR GENERAL
INSPECTOR GENERAL, DEPARTMENT OF THE AIR FORCE
COMMANDER, NAVY INSTALLATIONS COMMAND
COMMANDER, NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND
COMMANDER, NAVAL SUPPLY SYSTEMS COMMAND
AUDITOR GENERAL, DEPARTMENT OF THE ARMY
AUDITOR GENERAL, DEPARTMENT OF THE NAVY
AUDITOR GENERAL, DEPARTMENT OF THE AIR FORCE

(U) Contents

Contents (cont'd)


INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
INTEGRITY
EFFICIENCY

I. (U) Introduction

(U) On May 6, 2021, a fuel incident occurred at Defense Fuel Support Point (DFSP) Joint Base Pearl Harbor–Hickam (JBPHH), specifically at the Red Hill Bulk Fuel Storage Facility (BFSF).[1] During the May 2021 fuel incident, approximately 19,000 gallons of fuel was pumped into an overhead pipeline, where it remained until November 2021. On November 20, 2021, the fuel was released from the overhead pipeline and some of the fuel contaminated the JBPHH Community Water System. On December 6, 2021, the DoD Office of Inspector General (OIG) received a letter from members of the Hawaii congressional delegation requesting that the DoD OIG conduct a comprehensive evaluation to assess the overall safety of the Red Hill BFSF.[2]

(U) We announced an evaluation on December 20, 2021.[3] The objective of the evaluation was to determine the extent to which DoD officials:

- (U) managed the operation, maintenance, safety, and oversight of DFSP JBPHH, including the Red Hill BFSF; and
- (U) protected the environment and drinking water systems, in compliance with Federal and state regulations and DoD policy.

(U) We address this objective in two separate reports. Specifically, in this report, we address the extent to which DoD officials managed the operation, maintenance, safety, and oversight of DFSP JBPHH, including the Red Hill BFSF; and protected the environment, in compliance with Federal and state regulations and DoD policy.[4]

[1] (U) The term "fuel incident" refers to any occurrence or series of occurrences having the same origin involving one or more vessels, facilities, or any combination thereof, resulting in the release or substantial threat of release of oil or hazardous substances. The term "bulk fuel" refers to fuel delivered in volumes greater than 55 U.S. gallons by delivery modes, such as tank trucks, pipelines, hydrant systems, and ships. DFSPs are bulk fuel storage facilities that receive, store, and distribute fuel. We discuss the circumstances that led to the May and November 2021 fuel incidents and what occurred during the resulting drinking water contamination incident in Parts III and V of this report as well as in DODIG-2025-012.

[2] (U) The DoD OIG also received a letter on November 3, 2021, from members of Hawaii's U.S. congressional delegation before the November 20, 2021 fuel incident. The letter requested that the DoD OIG determine whether Navy officials responded appropriately to earlier 2020 fuel incidents at DFSP JBPHH.

(U) This report contains information that has been redacted because it was identified by the Department of Defense as Controlled Unclassified Information (CUI) that is not releasable to the public. CUI is Government-created or owned unclassified information that allows for, or requires, safeguarding and dissemination controls in accordance with laws, regulations, or Government-wide policies.

[3] (U) DoD OIG Project No. D2022-DEV0SR-0051.000, "Evaluation of the Operation, Maintenance, Safety, and Oversight of the Navy's Red Hill Bulk Fuel Storage Facility," December 20, 2021.

[4] (U) We address the extent to which DoD officials protected the JBPHH Community Water System, in compliance with Federal and state regulations and DoD policy in Report No. DODIG-2025-012.

(U) To conduct this evaluation, we assembled a multidisciplinary team of 20 DoD OIG personnel, including engineers, auditors, a program analyst, and an attorney. Additionally, before conducting site visits, eight team members attended formal training on environmental compliance, fuel storage tank compliance, or both.

(U) Due to the breadth of our evaluation, we spent approximately 1 year performing fieldwork and 1 year performing our analysis, documenting our conclusions, and preparing two reports and a management advisory.[5] We formally requested information from DoD officials in 35 extensive requests for information (RFI). We reviewed over 100 written responses to our RFIs, engineering drawings, historical reports, and public affairs materials. Additionally, we reviewed over 240 Federal and State of Hawaii laws, regulations, and guidance; and DoD, Navy, and DLA directives, instructions, manuals, and policies, management plans, operating procedures, reports, contracts, memorandums of agreement, and administrative orders.

(U) During our evaluation, we conducted 95 interviews and meetings with DoD officials. We performed site visits at JBPHH in April 2022 and July 2022.[6] During our site visits, we evaluated DFSP JBPHH and the JPBHH Community Water System, including co-located fuel and drinking water infrastructure at the Red Hill BFSF. Additionally, we met with officials from the U.S. Environmental Protection Agency (EPA), the Hawaii Department of Health, and the University of Hawaii. Furthermore, we met with officials from other Navy DFSPs, including DFSP Point Loma and DFSP Manchester, and in August 2022, we visited DFSP Craney Island.

(U) We divided this report into seven Parts, followed by seven Appendixes.

(U) This section, Part I, contains the introduction.

[5] (U) We discuss incident response concerns related to aqueous film-forming foam incidents at JBPHH in Management Advisory No. DODIG-2025-013.

[6] (U) During the site visits, we visually assessed relevant infrastructure and areas of JBPHH affected by fuel incidents and the drinking water contamination incident. Additionally, we verified the statements made by officials throughout the evaluation by reviewing records, including maps and engineering drawings of JBPHH infrastructure. We collected documentation to support our findings and conclusions, including laws, regulations, and DoD policies; operations and maintenance records; environmental assessments and plans; and records of historical incidents. Furthermore, we met with affected JBPHH community members and administered an informal survey to understand their experiences related to the drinking water contamination incident. For a detailed description of our scope and methodology, see Appendix A.

(U) The term "drinking water contamination incident" refers to the events of the entire period from November 20, 2021, to March 18, 2022, resulting from the November 2021 fuel incident that caused the drinking water contamination in the JBPHH Community Water System. We discuss the circumstances that led to the fuel incident and what occurred during the resulting drinking water contamination incident throughout this report and in DODIG-2025-012.

(U) Part II provides background information describing JBPHH and DFSP JBPHH infrastructure.[7]

(U) Part III contains a summary of fuel incidents at JBPHH relevant to our analysis.

(U) Part IV contains a summary of the Federal and state laws, regulations, and DoD policies relevant to this report.[8] Additionally, Part IV contains a summary of the Navy's incident response plans. Finally, Part IV contains an introduction to the organizations relevant to this report.

(U) Part V describes our analysis of the extent to which DoD officials protected the environment from contamination in compliance with Federal and state laws, regulations, and DoD policy; and our analysis of the operation, maintenance, safety, and oversight of DFSP JBPHH.

(U) Part VI contains our overall conclusions.

(U) Part VII contains recommendations for the Secretary of Defense and the Secretary of the Navy based on the findings of this evaluation, a summary of management comments received, and our response to those comments.

(U) Appendix A describes the evaluation scope and methodology.

(U) Appendix B includes details about DFSP JBPHH.

(U) Appendix C provides copies of operations orders describing fuel movements at DFSP JBPHH.

(U) Appendix D provides the Navy's template for reporting fuel incidents to the Navy chain of command.

(U) Appendix E includes copies of the memorandums containing DoD management comments to our report.

(U) Appendix F lists acronyms and abbreviations.

(U) Appendix G provides a glossary of terms used in this report.

[7] (U) Infrastructure refers to shore facilities and their components, such as the tanks, pipes, and other supporting structures and equipment that make up the DFSP JBPHH shore facility. A shore facility is any refinery, terminal, storage, or port facility taking deliveries of a commodity from or making deliveries of a commodity to a vessel. A shore facility does not have to be on land.

[8] (U) For a detailed list of the Federal and state laws, regulations, requirements, and documents we reviewed during this evaluation, see Appendix A.

II. (U) Background

(U) This section provides background information on JBPHH. Additionally, we describe the interconnected fuel systems at DFSP JBPHH, including the Red Hill BFSF.

A. (U) Description of JBPHH

~~(CUI)~~ JBPHH is a joint Navy-led military installation on the Hawaiian island of Oahu. JBPHH combines two historic bases, Naval Station Pearl Harbor and Hickam Air Force Base (AFB), under the JBPHH installation command.[9] The JBPHH installation command provides base operating support functions and is responsible for safety, security, and environmental stewardship of personnel and property on JBPHH.[10] [redacted] Specifically, JBPHH supports a population of over 90,000, consisting of people who both live and work on the installation, people who only work on the installation, and people who visit the installation.[11] JBPHH supports its population with:

- (U) infrastructure, including DFSP JBPHH and the JBPHH Community Water System;
- (U) services, such as police and firefighting;
- (U) housing in neighborhoods and dormitories; and
- (U) shopping centers, grocery stores, restaurants, gyms and recreation facilities, medical facilities, schools, and child care centers.

[9] (U) Although JBPHH combines the two historic bases, the physical areas are still referred to as Naval Station Pearl Harbor and Hickam AFB.

[10] (U) Joint Base Pearl Harbor-Hickam Instruction 5400.2, "Joint Base Pearl Harbor Hickam Standard Organization and Regulations Manual," August 19, 2019.
(U) Throughout this report, we use the term "JBPHH" to refer to the joint installation, and we use the term "JBPHH installation command" to refer to the Navy command of the same name.

[11] ~~(CUI)~~ [redacted]

(U) The Commander, Navy Installations Command (CNIC) is the real property owner on JBPHH and is responsible for the physical infrastructure on JBPHH.[12] The Commander, Navy Region Hawaii (CNRH) is the regional CNIC command responsible for Navy installations in Hawaii, including JBPHH, on behalf of the CNIC.[13]

(U) The JBPHH Public Works Department (PWD) manages and operates JBPHH infrastructure to support the JBPHH population. The JBPHH PWD is subordinate to both the JBPHH installation command and the Naval Facilities Engineering Systems Command (NAVFAC) Hawaii.[14] As discussed in DODIG-2025-012, the JBPHH PWD manages and operates the JBPHH Community Water System.[15]

(U) At the time of the fuel incidents discussed in this report, the Defense Logistics Agency (DLA) Director was the DoD Executive Agent for bulk fuel.[16] The DLA Director owns the fuel at DFSPs until it is distributed to a customer, such as the Navy or Air Force.[17] DFSPs are bulk fuel storage facilities that receive, store,

[12] (U) CNIC is a Navy command responsible for Navy installations worldwide. Throughout this report, we use the term "CNIC" when we refer to the Navy command, and we use the term "CNIC Commanding Officer" to refer to the Commander of CNIC.

(U) DoD Directive (DoDD) 4165.06, "Real Property," July 19, 2022.

(U) According to DoDD 4165.06, DoD real property is "land and improvements to land (e.g., buildings, structures, and linear structures)."

[13] (U) Throughout this report, we use the term "CNRH" when we refer to the regional command, and we use the term "CNRH Commanding Officer" to refer to the commander of the regional command.

[14] (U) NAVFAC is the Navy's shore facility, base operating support, and expeditionary engineering systems command responsible for technical and acquisition services for the Navy and Marine Corps. The Navy has two chains of command: operational and administrative. The JBPHH PWD reports to NAVFAC Hawaii under administrative control and to the JBPHH installation command under operational control.

[15] (U)The JBPHH Community Water System is the largest community water system owned and operated by the Navy and draws its water from three groundwater wells: the Red Hill well, the Waiawa well, and the Halawa well. To make drinking water, the JBPHH Community Water System disinfects and treats the groundwater drawn from the wells to meet Federal and state drinking water quality standards and provides it to the JBPHH population through pipes and other infrastructure. The water supplied by the JBPHH Community Water System is drinking water regardless of whether a JBPHH Community Water System user drinks the water or uses it for another use, such as bathing. CNIC is the DoD Executive Agent for drinking water quality matters for all Navy installations worldwide. We discuss the JBPHH Community Water System in detail in DODIG-2025-012.

[16] (U) According to DoDD 5101.01, a DoD Executive Agent is the head of a DoD Component assigned specific responsibilities, functions, and authorities by the Secretary of Defense (SecDef) or Deputy Secretary of Defense (DepSecDef) to provide operational, administrative, or other designated activities involving two or more DoD Components. DoD Components refers to the Office of the SecDef, the Military Departments, the Joint Chiefs of Staff and Joint Staff, the combatant commands, the Office of Inspector General of the DoD, the Defense agencies, DoD field activities, and all other organizational entities within the DoD.

(U) DoDD 5101.01, "DoD Executive Agent," February 7, 2022.

(U) On May 10, 2023, the DepSecDef issued a memorandum implementing the U.S. Transportation Command as the "Single Manager for Global Bulk Fuel Management and Delivery" supporting combatant commander requirements for bulk fuel posture, planning, execution, resource and capability advocacy, and process improvements. This policy also canceled the DLA's DoD Executive Agent designation. However, the policy states that DLA still retains a significant amount of previous responsibilities, including providing procurement, transportation, distribution, ownership, accountability, budgeting, and quality assurance and surveillance to the point of sale.

(U) DepSecDef memorandum, "Implementation of U.S. Transportation Command as the Single Manager for Global Bulk Fuel Management and Delivery," May 10, 2023.

[17] (U) The DLA is a combat logistics support agency responsible for global support services to the DoD. The DLA manages the fuel supply chain and provides fuel quality and technical support to the 5 Military Services, 11 combatant commands, and other Federal, state, and local agency partners and allied nations.

(U) and distribute fuel. The DLA Director delegated the bulk fuel Executive Agent responsibilities to its subordinate command, DLA Energy. Therefore, DLA Energy manages the fuel supply chain for the DoD.[18]

~~(CUI)~~ The Naval Supply Systems Command Fleet Logistics Center Pearl Harbor (NAVSUP FLC PH) is a tenant command on JBPHH that receives, stores, manages, and distributes bulk fuel in support of the United States across the Pacific region.[19] NAVSUP FLC PH conducts its regional bulk fuel operation at DFSP JBPHH.[20] [redacted]

B. (U) Description of DFSP JBPHH

~~(CUI)~~ In 1908, the Navy opened Naval Station Pearl Harbor on the Hawaiian island of Oahu. The Navy completed construction of fuel systems and supporting shore infrastructure, including six aboveground storage tanks (ASTs) in an area called the upper tank farm and primary fueling pier, Hotel Pier, at Pearl Harbor in the 1920s and 1940s. Additionally, the Navy constructed an underground fuel system, the Red Hill BFSF, between 1940 and 1943. The Navy constructed the Red Hill BFSF underground [redacted].[21] The Army established Hickam Field in 1938. Hickam Field became Hickam AFB in 1948.

(U) Fuel system infrastructure at JBPHH is interconnected.

(U) On October 1, 2010, the DoD combined Naval Station Pearl Harbor, Hickam AFB, and all supporting infrastructure to form JBPHH.[22] Accordingly, this realignment joined the commercial fuel supply pipeline at Naval Station Pearl Harbor, the two Navy fuel systems, and the Air Force fuel system to form DFSP JBPHH. Therefore, DFSP JBPHH consists of the interconnected

[18] (U) As previously discussed, the May 2023 DepSecDef memo established TRANSCOM as the "Single Manager for Global Bulk Fuel Management and Delivery (GBFMD)" and transferred non-Integrated Material Management (IMM) responsibilities from DLA. The non-IMM responsibilities transferred to TRANSCOM are related to the logistics of moving the fuel and planning where it goes. DLA retains all previous IMM and IMM-related responsibilities, including providing procurement, transportation, distribution, ownership, accountability, budgeting, and quality assurance and surveillance to the point of sale. The May 2023 DepSecDef memo rescinds only 4 of DLA's 35 responsibilities in DoDI 4140.25.

[19] (U) NAVSUP is a Navy command responsible for products and services that support readiness and sustainment of naval forces worldwide. NAVSUP FLC PH provides fuel to the Military Departments, the Department of Homeland Security and other Federal agencies, the Hawaii National Guard, and the U.S. Coast Guard. The Military Departments, created by the National Security Act of 1947, are the Departments of the Army, Navy, and Air Force. According to NAVSUP officials, NAVSUP FLC PH can also support civilian authorities in the event of an emergency.

[20] (U) Appendix B provides a detailed description of DFSP JBPHH, including the Red Hill BFSF. We also discuss the Red Hill BFSF in more detail in the next section

[21] (U) The existence and mission of the Red Hill BFSF remained classified until 1995.

[22] (U) The DoD combined Naval Station Pearl Harbor, Hickam AFB, and all supporting infrastructure as part of the Base Realignment and Closure Commission Law of 2005.

(U) fuel systems that receive, store, manage, and distribute fuel at Naval Station Pearl Harbor, Hickam AFB, and the Red Hill BFSF.[23] Unlike the other locations in DFSP JBPHH, the Red Hill BFSF is almost entirely underground, and is one of the largest underground fuel storage facilities in the world.

(U) DFSP JBPHH is a government-owned, government-operated (GOGO) DFSP owned and operated by the Navy with three types of fuel: jet propellant 5 (JP-5); marine diesel fuel number 76 (F-76); and jet fuel number 24 (F-24).[24] NAVSUP FLC PH officials monitor the DFSP JBPHH fuel systems and control fuel movement throughout the DFSP with automated fuel handling equipment (AFHE).[25] The AFHE provides NAVSUP FLC PH officials with remote access to and data from a variety of equipment throughout DFSP JBPHH, including motor-operated valves and sensors, such as pressure-indicating transmitters and automated tank gauges (ATGs).[26]

(U) As shown in Figure 1, DFSP JBPHH consists of four interconnected fuel systems, including:

- (U) the commercial fuel supply pipeline at Naval Station Pearl Harbor (numbers 1 and 2);[27]
- (U) fuel receiving and distribution systems and ASTs at Naval Station Pearl Harbor (number 3 and 4);[28]

[23] ~~(CUI)~~ [redacted]

[24] (U) DoD Manual (DoDM) 4140.25, Volume 6, "DoD Management of Energy Commodities: DFSP Management," March 2, 2018, (Incorporating Change 2, April 4, 2019).

~~(CUI)~~ According to DoD Manual 4140.25, Volume 6, there are several classifications of DFSPs. DFSP classifications depend on whether the government, a contractor, or some combination thereof owns and operates the DFSP real property, facilities, vessels, and equipment. For example, at a GOGO DFSP, the government, specifically the DoD Components, own and operate the real property, facilities, vessels, and equipment. At a contractor-owned, contractor-operated (COCO) DFSP, a contractor under a DLA contract owns and operates the real property, facilities, vessels, and equipment. At a government-owned, contractor-operated (GOCO) DFSP, the government owns and a contractor operates the real property, facilities, vessels, and equipment. A GOCO DFSP can be either a GOCO(D) DFSP, where the DFSP is operated under a DLA contract, or a GOCO(S) DFSP, where the DFSP is operated under a Military Department contract. An Afloat DFSP is a vessel owned and operated by the Navy. [redacted]

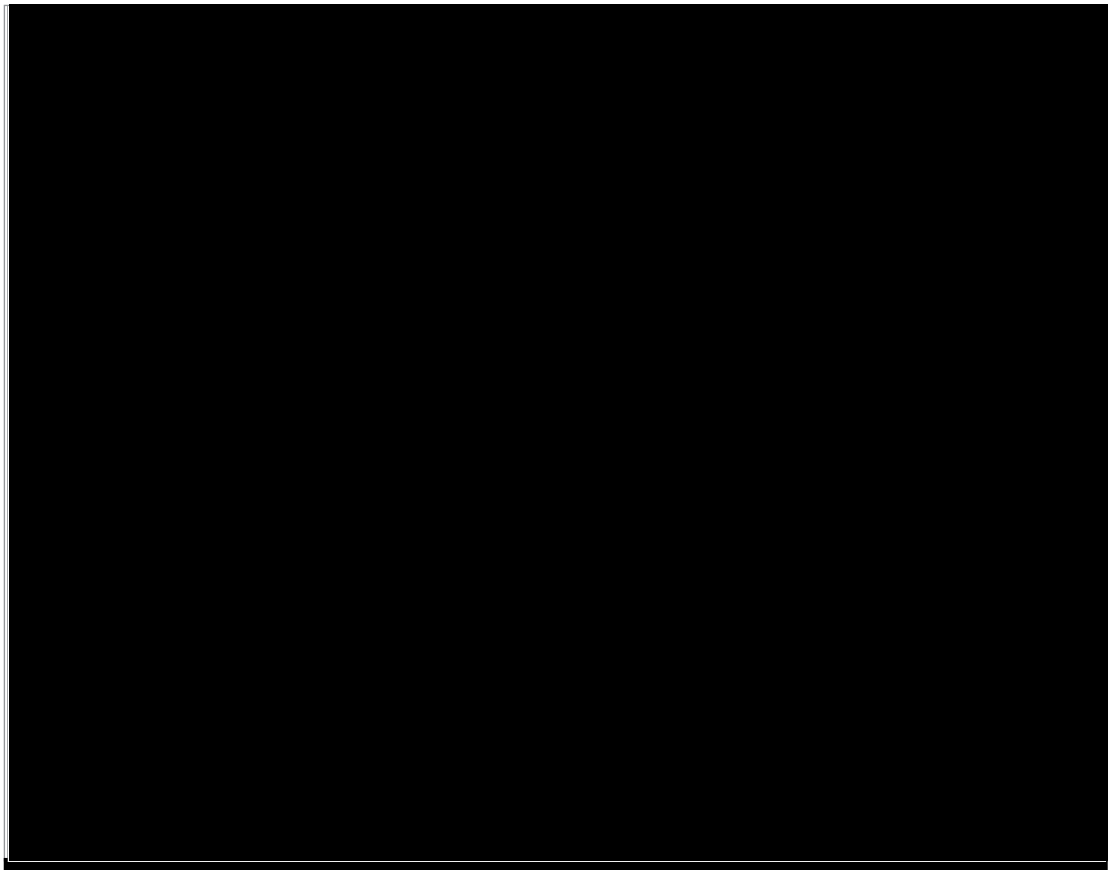
[25] (U) The DFSP JBPHH AFHE is a Supervisory Control and Data Acquisition (SCADA) system. A SCADA system consists of computers; networked components, such as ATGs; networked data communications; and graphical user interfaces. The DFSP JBPHH AFHE provides real-time data acquisition and automated inventory management for DLA capitalized fuel products. The AFHE is monitored from a control room that is staffed 24 hours per day, 7 days per week in the underground pump house.

[26] (U) Motor-operated valves are valves equipped with a motor that fully opens or fully closes valves. Pressure-indicating transmitters are sensors that measure the pressure of liquids or gases in pipelines. ATGs are sensors that monitor fuel levels in the fuel storage tanks and provide the fuel level data to the AFHE.

[27] (U) The commercial fuel supply pipeline is not relevant to the findings in this report.

[28] (U) An aboveground storage tank is a bulk storage container or storage tank normally placed on or above the surface of the ground and not clearly identified as an underground storage tank.

- (U) fuel receiving and distribution systems and ASTs at Hickam AFB (number 5);[29] and
- (U) the pumping equipment in the underground pump house that transfers fuel via pipelines to the Red Hill BFSF, the control room, and the underground fuel storage tanks at the Red Hill BFSF (number 6 and 7).



(U) Figure 1. DFSP JBPHH Fuel Systems
(U) Source: The DoD OIG, based on a figure provided by NAVSUP FLC PH.

1. (U) Naval Station Pearl Harbor Fuel Infrastructure

(U) DFSP JBPHH receives fuel at Naval Station Pearl Harbor from tanker ships and the commercial fuel supply pipeline. NAVSUP FLC PH officials distribute the fuel at Naval Station Pearl Harbor via pipelines, Navy fuel oil tankers and barges, and Navy tank trucks or commercial tank trucks.[30]

[29] (U) See Appendix B for more details about the fuel system infrastructure at Hickam AFB.

[30] (U) An oil tanker is a self-propelled vessel carrying oil in bulk as cargo. A barge, specifically an oil barge, is a tank barge carrying oil in bulk as cargo certified by the Coast Guard for river, canal, lake, bay, or sound service.

(U) The fuel system at Naval Station Pearl Harbor includes:

- (U) the commercial fuel supply pipeline;
- (U) five fueling piers: Hotel, Bravo, Kilo, Mike, and Sierra;
- (U) six ASTs to store fuel;
- (U) a fuel truck loading rack for fuel distribution;
- (U) a Fuel Oil Recovery Facility; and
- (U) an aqueous film-forming foam (AFFF) fire protection system.[31]

(U) Appendix B lists the DFSP JBPHH fuel system infrastructure at Naval Station Pearl Harbor.

2. (U) Red Hill BFSF Fuel Infrastructure

(U) At the time of our evaluation, NAVSUP FLC PH officials pumped fuel from Naval Station Pearl Harbor via pipelines to the Red Hill BFSF for storage. NAVSUP FLC PH officials did not distribute fuel to customers from the Red Hill BFSF. Instead, fuel from the Red Hill BFSF was used when necessary to replenish fuel at Naval Station Pearl Harbor and Hickam AFB, where it was then distributed to customers.

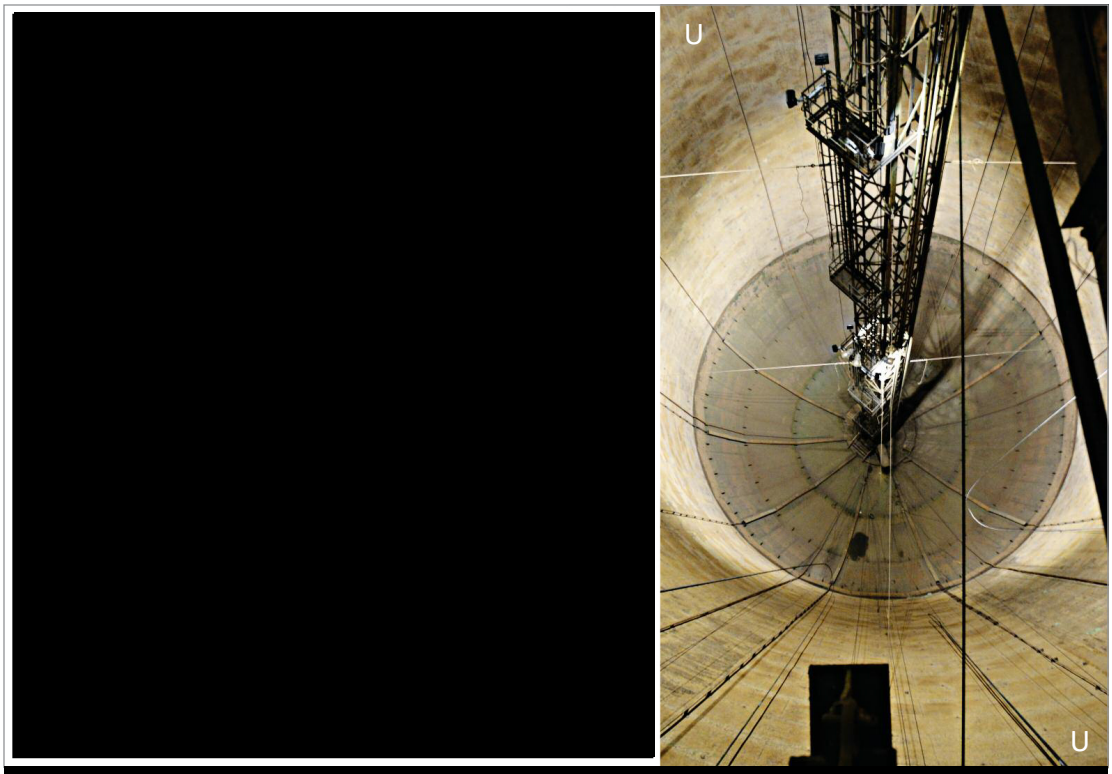
(U) The Red Hill BFSF includes 20 underground storage tanks (USTs) to store fuel.[32] Each UST is assigned a number from 1 to 20. The USTs were field constructed, meaning that they were constructed on site and were not pre-fabricated tanks. Each UST can store approximately 12.5 million gallons of fuel.[33] Each UST is a 100-foot-diameter vertical cylinder with a dome-shaped top (upper dome) and bottom (lower dome) and a total height of 250 feet. See Figure 2 for a depiction of a Red Hill BFSF UST.[34]

[31] (U) AFFF is a fire suppressant foam made at the time of use by mixing air into a water solution containing a specially formulated foam concentrate (concentrated version), by means of suitably designed equipment.

[32] (U) According to 40 Code of Federal Regulations (CFR) part 280, an underground storage tank system is any tank or combination of tanks, including underground pipes connected thereto, used to contain an accumulation of regulated substances, such as oil or hazardous substances (OHS), where 10 percent or more of the volume of the tank, combination of tanks, and the associated piping is located beneath the surface of the ground.

[33] (~~CUI~~) The Red Hill BFSF occupies [redacted] the Red Hill ridge, from where it gets its name. [redacted]

[34] (U) The USTs are spaced 200 feet apart (center to center) in two rows parallel to the Red Hill ridge in which they were constructed. The UST walls are 2 ½-foot to 4-foot thick reinforced concrete. The interiors of the UST walls are lined with ¼-inch steel plates, except for the lower domes, which are lined with ½-inch steel plates. Each UST contains an internal support tower at its center.



(U) Figure 2. Red Hill BFSF UST Tank Exterior and Interior
(U) Source: NAVSUP FLC PH (left) and the Navy's Currents magazine, Fall 2016 (right).

(U) The bottoms of the Red Hill BFSF USTs are located approximately 100 feet above the Southern Oahu Basal Aquifer, as shown in Figure 3. The Southern Oahu Basal Aquifer is a sole-source groundwater aquifer that is the principal source of drinking water for Oahu. The Southern Oahu Basal Aquifer is also a source of drinking water for both the Navy and the Honolulu Board of Water Supply.[35]

[35] (U) There are three groundwater supply wells near the Red Hill BFSF used to produce drinking water, one of which is the Navy's Red Hill Well.
(U) The Honolulu Board of Water Supply manages Oahu's municipal water resources and drinking water distribution system.

(U) Figure 3. Red Hill BFSF USTs in Relation to the Southern Oahu Basal Aquifer
(U) Source: NAVSUP FLC PH.

(U) As discussed in DODIG-2025-012, parts of the JBPHH Community Water System were built inside the Red Hill BFSF during its construction, specifically the Red Hill well pump station, the Red Hill well, and the Red Hill well water development tunnel.[36] The Red Hill well pump station is a room that houses the Red Hill well, and water from the Southern Oahu Basal Aquifer collects in the Red Hill well water

(U) Figure 4. The Red Hill Well Pump Station in the Red Hill BFSF
(U) Source: The DoD OIG, based on a figure provided by NAVFAC PAC.

[36] (U) Navy officials decided to install the Red Hill well during construction of the Red Hill BFSF because they already had excavating equipment on site. Additionally, Navy officials decided that locating them inside the underground Red Hill BFSF provided an opportunity to mitigate the vulnerabilities of the water supply to aerial attack. See DODIG-2025-012 for details about JBPHH Community Water System infrastructure.

(U) development tunnel. The Red Hill well draws water from the water development tunnel, which is at the bottom of the Red Hill well shaft. Because the Red Hill BFSF and the Red Hill well are co–located they can interface in a fuel incident. See Figure 4 for a depiction of the Red Hill well pump station inside the Red Hill BFSF.

(U) The Red Hill BFSF is accessed by entrances called adits and includes approximately 7 miles of tunnels, including the upper access tunnel (UAT) and the lower access tunnel (LAT).[37] The UAT and LAT are centered between the two rows of USTs. The UAT and its branches provide physical access to the inside of the USTs at the tops of the upper domes.[38] The LAT and its branches, including the harbor tunnel, are located at the bottom of the USTs. The portions of the UAT and the LAT that are directly between the USTs are the upper tank gallery and the lower tank gallery, respectively. The LAT and its branches contain:

- (U) fuel pipelines,
- (U) a narrow train track and a battery-powered locomotive and cart,
- (U) several types of sump pits,
- (U) soil vapor monitoring points and groundwater monitoring wells,
- (U) a fire protection system, and
- (U) an oil-tight door.[39]

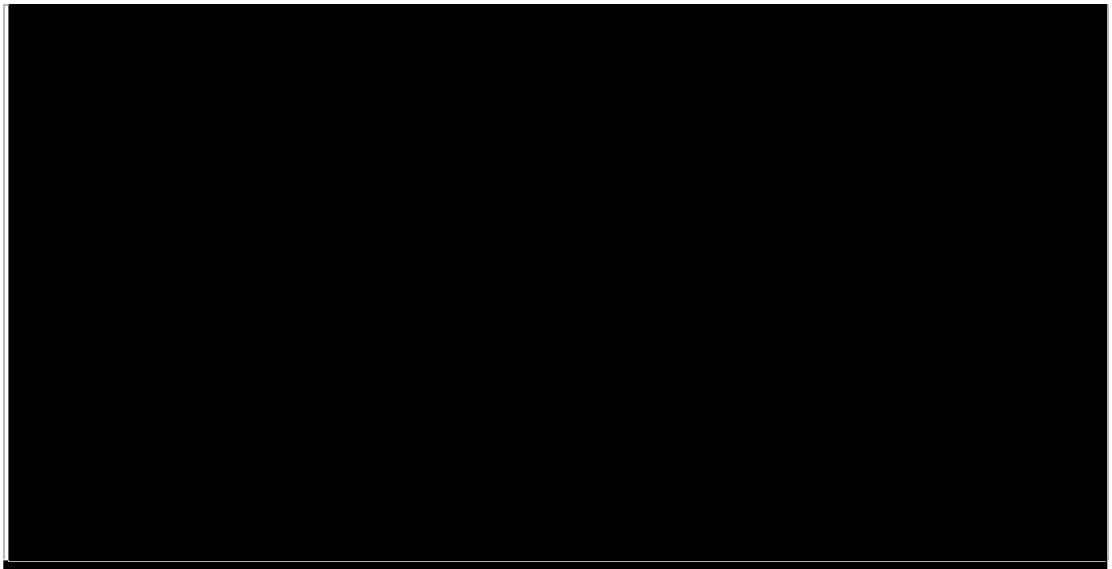
(U) When fuel leaves the USTs, it flows in the fuel pipelines downhill via gravity toward the underground pump house and Naval Station Pearl Harbor. Figure 5 is a site drawing of the Red Hill BFSF. Appendix B lists the DFSP JBPHH fuel system infrastructure at the Red Hill BFSF.

[37] (U) An adit is a horizontal passage leading into an underground facility or tunnel for the purpose of access or drainage.

[38] (U) A bridge connects the UAT to the internal support tower in each UST. Gauge galleries provide access to the tops of the upper domes of the USTs.

[39] (U) A sump is a pit or low space that collects liquids, such as water or fuel. Any area that is lower than the surrounding area can be considered a sump pit; however, the construction and maintenance of each type of sump pit depend on its purpose. For example, a sump pit intended to collect and contain fuel to protect the environment must be constructed and maintained to ensure it is liquid-tight. Liquids collect in sump pits by various means. Any liquid flowing over ground nearby can flow into a sump pit from openings, such as grates, in the top of the sump pit. Additionally, liquids can be directed to sump pits through drainage systems, such as floor trenches that collect liquid flowing over ground and channel it to the sump pit. Furthermore, liquids can collect in subsurface drainage pipelines and subsequently be directed to sump pits via those drains. In such cases, the subsurface drainage pipes penetrate the side wall of the sump pit, creating an opening in the side of the sump pit that allows liquids from the pipes to flow into the sump pit. Each sump pit in the LAT is equipped with sump pumps that are intended to pump liquids out of the sump pits via pipes to removal and disposal points that are appropriate for the type of liquid. For example, some sump pits and sump pumps are intended to collect and remove uncontaminated groundwater, while others are intended to collect and remove unintentional fuel releases. We discuss sump pits in more detail later in this section.

(U) The oil-tight door is designed to close automatically when liquid is detected in its sump pit or when a nearby push button is activated. Additionally, the oil-tight door is designed to provide a fuel-tight seal in the event of a release and to prevent the contents of a UST from reaching Pearl Harbor or Adit 3.



(U) Figure 5. Red Hill BFSF Site Drawing
(U) Source: NAVSUP FLC PH.

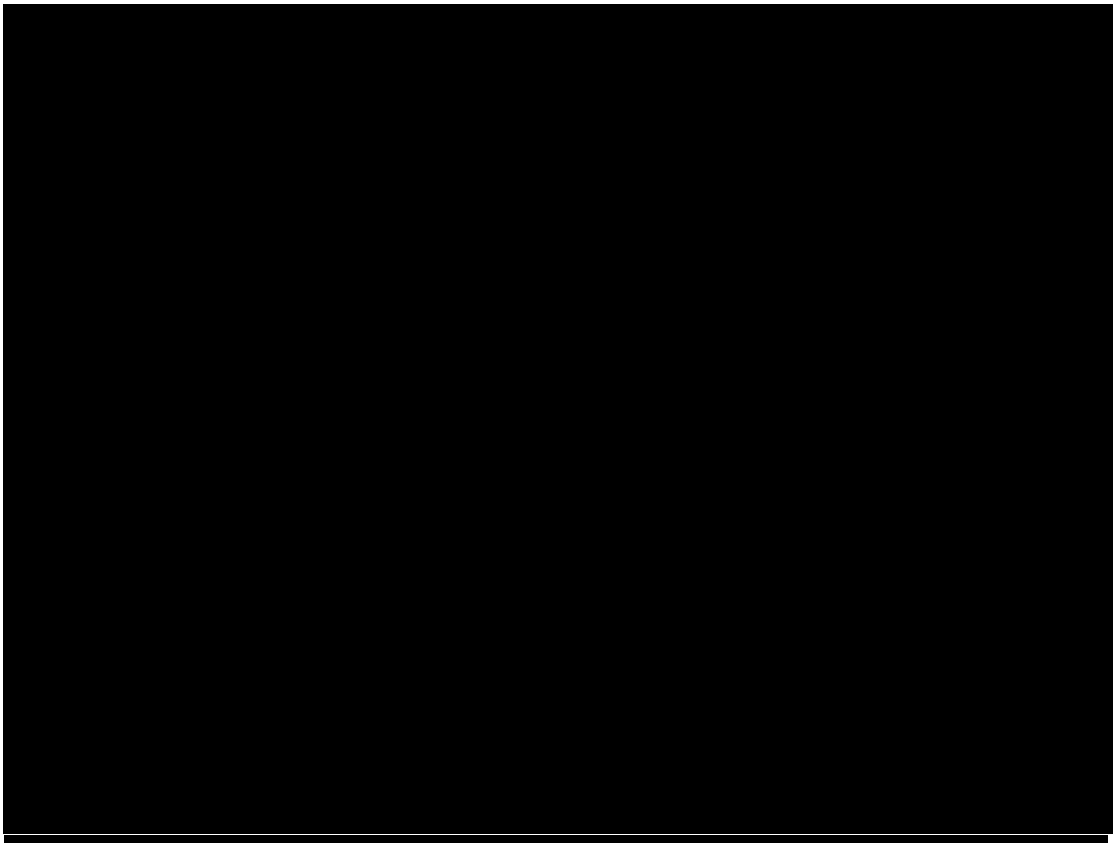
a. (U) The Groundwater Sump Pit and the Leach Field System

(~~CUI~~) There is a groundwater sump pit located in a low point of the LAT, [redacted] that connects to a leach field system.[40] To prevent a build-up of groundwater in the LAT in low-lying areas, [redacted] there is a network of subsurface drainage pipelines, referred to as French drains, that collect the groundwater and direct it to the groundwater sump pit.[41] Two pumps in the groundwater sump pit send the collected groundwater via a pipe to the leach field system outside [redacted].

[40] ~~(CUI)~~ The Red Hill BFSF LAT contains several types of sump pits, each of which is intended to collect specific liquids, including fuel, groundwater, or AFFF. The groundwater sump pit contains two groundwater sump pumps that, when activated by a float switch, pump liquid into the leach field system outside [redacted] via a 6-inch discharge pipe. Throughout this report, when we refer to the groundwater sump pit, we are referring to the specific sump pit [redacted] See DODIG-2025-012 and Part V of this report for more details about the groundwater sump pit.

[41] (U) A French drain is a sloped trench filled with a perforated pipe buried beneath layers of gravel. Liquids, such as naturally occurring groundwater, collect above the French drain. Gravity pulls the liquids through the gravel and into the perforated pipe, which acts as a pathway to take the liquids to a different location, such as a sump pit. See DODIG-2025-012 for more details about the French drains.

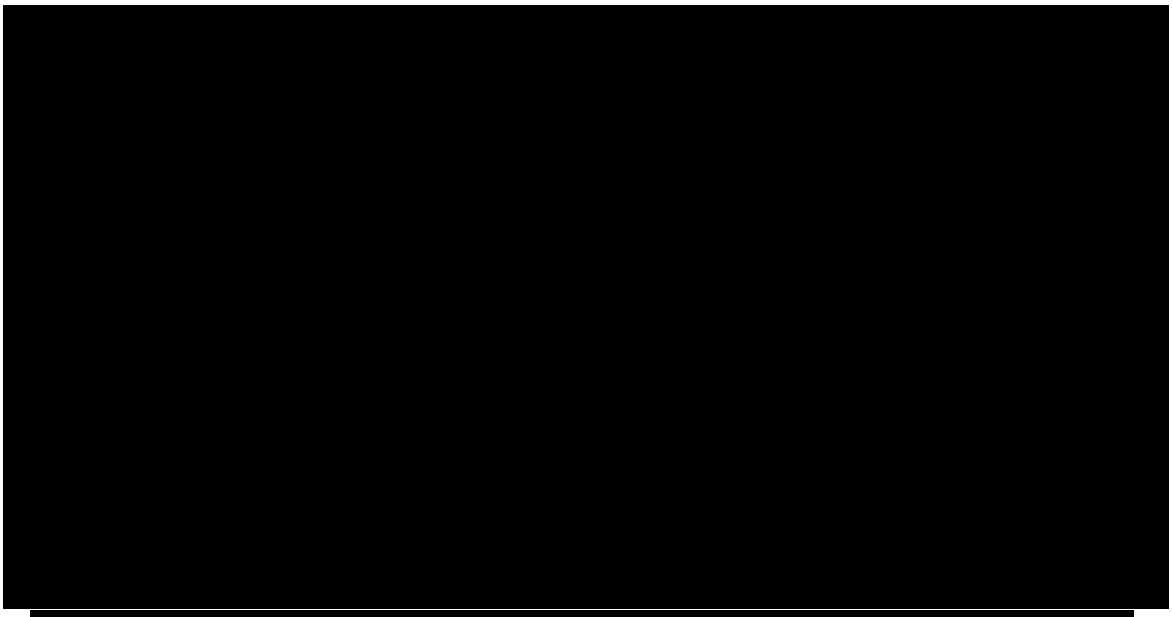
(U) As shown in Figure 6, the leach field system consists of an underground holding tank and leaching pit buried near the Halawa stream.[42] Groundwater from the groundwater sump pit enters the 2,300-gallon underground holding tank first. Once the underground holding tank is full, the groundwater overflows to the leaching pit, which has openings that allow the groundwater to leach, or seep, into the surrounding soil. Because the Red Hill BFSF, groundwater sump pit, and the leach field system are co-located they can interface in a fuel incident.



(U) Figure 6. The Leach Field System in Relation to Adit 3 and the LAT in the Red Hill BFSF
(U) Source: The DoD OIG, based on figures provided by NAVFAC Hawaii and NAVSUP FLC PH.

[42] ~~(CUI)~~ A leach field or drain field is a network of pipes, trenches, tanks, and other such accessories shallow buried in soil. Leach fields are designed to return liquids to the water cycle through natural filtration. Leach fields are commonly used in septic systems to separate solid waste from liquid waste and allow the liquid waste to seep or leach back into the soil, where it undergoes natural filtration and returns to the groundwater supply. A leach field designed to manage groundwater alone works in a similar way by relocating the groundwater away from an undesirable area, such as a location where the groundwater could damage infrastructure, and allowing the groundwater to slowly seep or leach into the soil and return to the groundwater supply. The leach field system consists of a 2,300-gallon underground holding tank and a leach pit, both of which are 8-foot diameter by 8-foot-deep cylindrical concrete tanks. While the underground holding tank is constructed solid, the leach pit is constructed with openings in the side walls.

(U) See Figure 7 for a depiction of the Red Hill well pump station, the water development tunnel, the groundwater sump pit, and the leach field system in relation to Adit 3 and the Red Hill well pump station.



(U) Figure 7. The Red Hill Well Pump Station, the Water Development Tunnel, the Groundwater Sump Pit, and the Leach Field System in Relation to Adit 3 and the LAT in the Red Hill BFSF
(U) Source: The DoD OIG, based on figures provided by NAVFAC Hawaii and NAVSUP FLC PH.

b. (U) The Red Hill BFSF Fire Protection System

~~(CUI)~~

[43] ~~(CUI)~~

[44] ~~(CUI)~~

(U) A fixed fire protection system is a permanently installed system designed for use on the specific fire hazards it is expected to control or extinguish, such as a fire involving flammable liquids like fuel.

~~(CUI)~~ [redacted]

~~(CUI)~~ [redacted]

~~(CUI)~~ In March 2013, NAVFAC Pacific officials awarded [redacted] the design of a fire protection system referred to as the P-1551 military construction (MILCON) project.[46] Specifically, the P-1551 MILCON project design included four components:

- (U) a fire alarm system;
- (U) an AFFF fire suppression system;
- (U) a system of five compartments in the LAT, each enclosing access points to four USTs with fire walls;[47] and
- (U) a smoke ventilation system.

(U) Additionally, the P-1551 MILCON project design included a system to collect, transfer, and store mixtures of fuel, water, and AFFF that could be released during a fire emergency. Specifically, each of the five compartments included an AFFF sump pit and AFFF sump pumps to transfer the mixtures to an overhead AFFF drainage pipeline.[48] Liquids in the overhead AFFF drainage pipeline flow to the retention tank outside of Adit 3.[49] Furthermore, the P-1551 MILCON project design included an oil-tight door intended to contain the contents of one of the USTs within the lower tank gallery if a catastrophic fuel release occurs.[50]

45 ~~(CUI)~~ [redacted]

46 ~~(CUI)~~ [redacted]

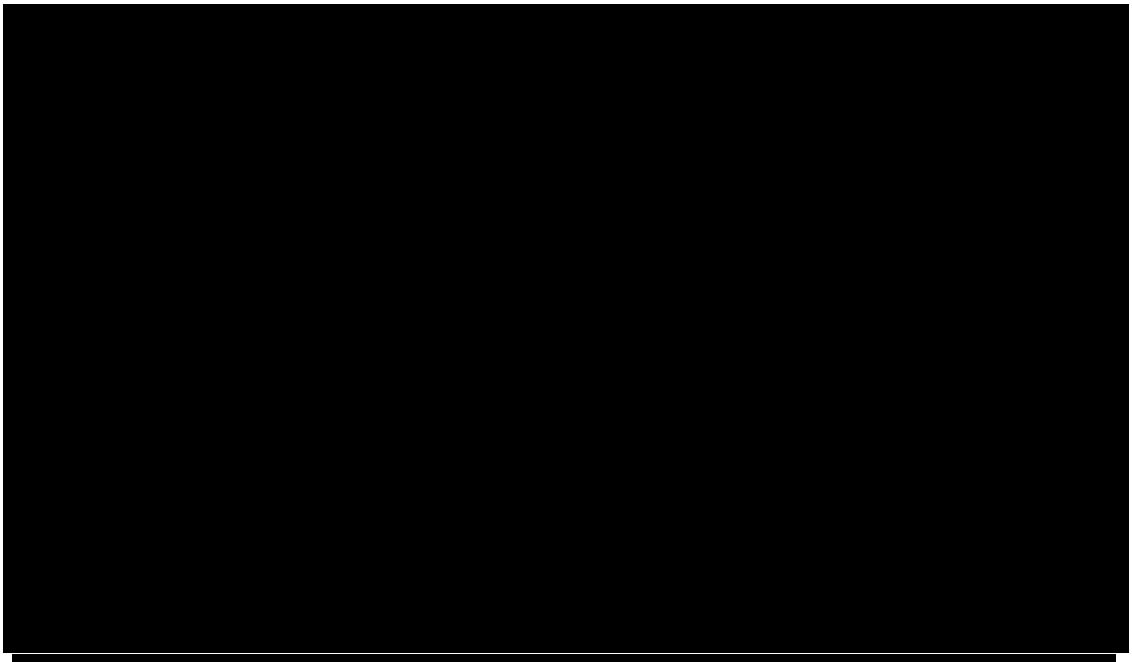
47 (U) The five compartments were designed to control the movement of smoke, heat, fuel, and fuel vapors during a fire and allow occupants to escape to a safer location.

48 (U) As previously discussed, the Red Hill BFSF includes 20 vertical underground tanks. The P-1551 MILCON project compartmentalized the UST access from the LAT in groups of four. Each of the five tank compartments was equipped with one AFFF sump pit and four AFFF sump pumps per AFFF sump pit, for a total of five AFFF sump pits and 20 sump pumps.

49 (U) The overhead drainage pipeline is also referred to as an AFFF retention pipeline. A retention structure, such as a retention pipe or a retention tank, is designed to collect and prevent the release of a given volume of a liquid to retain the liquid.

50 (U) Within the Red Hill BFSF, approximately 7 miles of tunnels connect to the USTs, including the UAT and the LAT. Between the two rows of USTs are the upper tank gallery in the UAT and the lower tank gallery in the LAT.

~~(CUI)~~ In August 2015, NAVFAC Pacific officials awarded a contract to construct the P-1551 MILCON project [redacted] and construction began in January 2016.[51] On July 23, 2019, Navy officials contractually closed out the P-1551 MILCON project. We refer to the infrastructure installed during the P-1551 MILCON project as the Red Hill BFSF fire protection system throughout this report. Figure 8 depicts the installed overhead AFFF drainage pipeline.



(U) Figure 8. Overhead AFFF Drainage Pipeline in the Red Hill BFSF LAT
(U) Source: The DoD OIG.

~~(CUI)~~ [redacted]

[51] ~~(CUI)~~ [redacted]
(U) NAVFAC Pacific was the Executive Agent for the P-1551 MILCON project. NAVFAC PAC developed and awarded both the design and construction contracts. After the construction contract was awarded, NAVFAC PAC transferred the contract to NAVFAC Hawaii for administration. Ultimately, the construction contract and execution roles were transferred to the Facilities Engineering Acquisition Division (FEAD) at JBPHH.

[52] ~~(CUI)~~ [redacted]

~~(CUI)~~ [redacted] In February 2018, NAVFAC officials implemented engineering change projects for the P-1551 MILCON project. According to a NAVFAC Hawaii memorandum, the purpose of one of these engineering change projects was to improve the chances of the installed PVC pipeline remaining functional as a drain following a fire by replacing portions of the PVC pipeline with steel pipelines.[53] However, as discussed later in this report, at the conclusion of the engineering change project, the majority of the overhead AFFF drainage pipeline remained PVC, as shown in Figure 8. Appendix B includes more description of the fire protection system installed in the Red Hill BFSF.

[53] (U) According to a NAVFAC Hawaii Memorandum for Pending Contract Modification, NAVFAC officials implemented two engineering changes, one of which was referred to as Change R. Change R was implemented to "significantly improve the chances of the installed [PVC pipeline] remaining functional as a drain following a fire situation in the [LAT]," and address concerns of fire re-ignition for fuel and AFFF mixtures sent to the retention tank. Change R design, contracting, and construction actions started in February 2018 and were substantially complete in June 2019.
(U) NAVFAC Hawaii FEAD, "Memorandum for Pending Contract Modification (PCM)," June 25, 2018.

III. (U) Fuel Incidents at JBPHH

(U) In this section, we describe six fuel incidents that occurred from 2007 to 2022. The fuel incidents discussed in this section resulted in the release of jet propellant 5 (JP-5), marine diesel fuel number 76 (F-76), and jet propellant 8 (JP-8) fuel into the environment.[54] Each type of fuel stored at DFSP JBPHH is a mixture of hundreds of different chemicals.[55]

A. (U) April 2007 Fuel Incident at Naval Station Pearl Harbor

(U) On April 26, 2007, Navy officials reported that a fuel level decline in upper tank farm Aboveground Storage Tank (AST) #48 indicated a release of F-76 fuel.[56] On April 28, 2007, Navy officials inspected upper tank farm AST #48 and discovered a 1½-by-3-inch hole in the tank, shown in Figure 9. However, according to a Navy memorandum, Navy officials did not observe any fuel in the secondary containment around the tank or in the nearby waters of Pearl Harbor. At the time, Navy officials estimated that 359,000 gallons of F-76 fuel leaked into the ground beneath the tank, and Navy officials began remediation efforts in May 2007. According to the Navy, Navy officials conducted significant work to remediate the leak, including using 87 groundwater monitoring wells, 3 containment trenches, 8 extraction wells, and 4 cutoff walls. From June 2007 to December 2011, Navy officials recovered 25,647 gallons of fuel. The Navy memorandum also states that laboratory testing of the recovered fuel indicated the presence of F-76 and "weathered fuel," which is fuel that has degraded enough to indicate in tests that it is older than 5 years. Therefore, the testing indicated that there was a mix of both F-76 fuel from the April 2007 incident and weathered

(U) Navy officials estimated approximately 359,000 gallons of fuel leaked into the ground through a hole in a tank.

[54] (U) Originally, Red Hill BFSF UST #1 and UST #2 contained diesel oil and Red Hill BFSF UST #3 through UST #20 contained Navy Special Fuel Oil. During the past 80 years, Red Hill BFSF USTs have been used to store a variety of fuels, including diesel oil, Navy Special Fuel Oil, Navy distillate, F-76, aviation gas, motor gas, JP-5 and JP-8. During our evaluation, the Red Hill BFSF stored three types of fuel: F-76, JP-5, and F-24.

[55] (U) Fuels are petroleum products made from crude oil and hydrocarbons. Crude oil and other hydrocarbons exist in liquid or gaseous form in underground pools or reservoirs, in tiny spaces within sedimentary rocks, and near the earth's surface. After crude oil is removed from the ground, it is sent to a refinery where different parts of the crude oil are separated into usable petroleum products, including JP-5. A hydrocarbon is any chemical that is composed of only carbon and hydrogen atoms bonded together. During the drinking water contamination incident at JBPHH, which we discuss later in this section and in DODIG-2025-012, testing of drinking water samples identified contaminants from fuel, including petroleum hydrocarbons. See DODIG-2025-012 for more details on the fuel-related contaminants introduced to drinking water and the environment from fuel incidents at DFSP JPBHH.

[56] (U) Joint Base Pearl Harbor–Hickam Command, "Final Response Action Memorandum for Tank 48 Halawa-Main Gate Geographic Study Area Joint Base Pearl Harbor-Hickam, Oahu, Hawaii," June 1, 2013.

(U) fuel from previous fuel incidents at the upper tank farm.[57] The tests also indicated that the fuel had stabilized in the ground and was not migrating toward the waters of Pearl Harbor.

(U) Figure 9. Hole in Upper Tank Farm AST #48 at Naval Station Pearl Harbor
(U) Source: NAVSUP.

B. (U) January 2014 Fuel Incident in the Red Hill BFSF

(U) On December 9, 2013, NAVSUP FLC PH officials began filling Red Hill BFSF UST #5 to return the tank to service after its Tank Clean, Inspect, and Repair (CIR) inspection and maintenance.[58] According to a Navy report, on January 13, 2014, the NAVSUP FLC PH Fuels Director directed the immediate transfer of fuel out

[57] (U) The Navy estimates that approximately 5 million gallons of fuel remained in the ground underneath the upper tank farm before the April 2007 fuel incident.

[58] (~~CUI~~) [redacted]
(U) DLA Energy funds a centrally managed program called the Tank Clean, Inspect, and Repair program. According to the NAVFAC Pacific report, on October 1, 2009, NAVSUP FLC PH officials took Red Hill BFSF UST #5 offline and turned control over to NAVFAC for a routine CIR service. On June 27, 2013, the NAVFAC EXWC contractor completed the CIR work. On October 22, 2013, a Naval Information Warfare Center Atlantic contractor completed installation of the AFHE in Red Hill BFSF UST #5. Because the AFHE probe calibration can be completed only with the tank filled, the AFHE probe was not calibrated and the unscheduled fuel movement (UFM) alarm system was set to default settings. On December 9, 2013, NAVSUP FLC PH officials started filling Red Hill BFSF UST #5 with JP-8 fuel and completed filling the UST on January 6, 2013.

(U) of Red Hill BFSF UST #5 based on a "wet spot" that smelled of fuel at the base of the tank in the lower tank gallery, the downward trend in the fuel inventory, and alarms in the automated fuel handling equipment (AFHE) associated with filling Red Hill BFSF UST #5 with fuel.[59] On January 30, 2014, NAVSUP FLC PH officials reported the release of approximately 27,342 gallons of JP-8 fuel into the ground.[60] The Navy report states that NAVFAC Pacific officials determined that 17 locations where Red Hill BFSF UST #5 had been repaired during the CIR service failed integrity testing and provided a path for fuel to leak from the UST. However, Navy officials could not confirm the total amount of fuel released.

(U) Navy officials missed alarms associated with refilling a recently serviced tank. Approximately 27,342 gallons of fuel leaked into the ground.

(U) On May 27, 2015, in response to the January 2014 fuel incident, the EPA Region 9, Hawaii DOH, DLA, and CNRH, on behalf of the Navy, entered into an Administrative Order on Consent (AOC), referred to as the 2015 AOC.[61] The 2015 AOC required DLA and Navy officials to take specific actions to prevent future releases and improve Red Hill BFSF infrastructure to protect the environment and health.

C. (U) 2020 Fuel Incidents at Naval Station Pearl Harbor

(U) During our site visits, Navy officials told us that on March 17, 2020, they observed an oil sheen on the water in Pearl Harbor near Hotel Pier.[62] On June 2, 2020, Navy officials saw another oil sheen on the water in Pearl Harbor near Hotel Pier. According to Navy officials, Hotel Pier is the primary fuel receipt and issue pier at Naval Station Pearl Harbor with fuel pipelines in trenches on the pier itself that lead to sump pits that pump waste fuel to the Fuel Oil Recovery Facility.

[59] (U) According to the NAVFAC Pacific report, control room operators received a total of ten unscheduled fuel movement alarms while Red Hill BFSF UST #5 was refilled with fuel. There was total of 1,777 alarms, including unscheduled fuel movement alarms and pressure related alarms, in the AFHE associated with filling Red Hill BFSF.

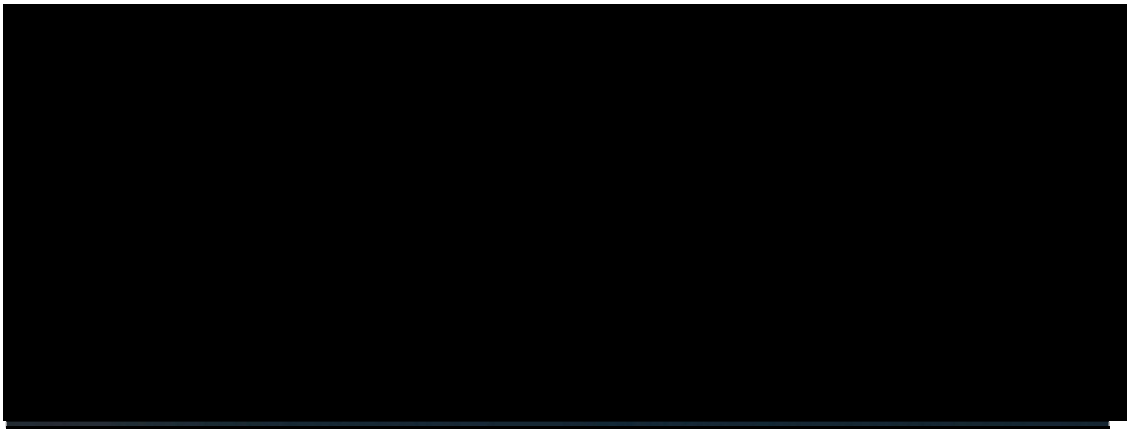
[60] (U) JP-8 was replaced with the commercially available fuel, F-24, that is currently stored at DFSP JBPHH. JP-8 and F-24 are jet fuels that perform essentially the same.

[61] (U) EPA Region 9 and Hawaii Department of Health, "Administrative Order on Consent," May 27, 2015.
(U) EPA Region 9 administers EPA programs for the state of Hawaii.
(U) The 2015 AOC required the Navy and DLA to take actions, subject to Hawaii DOH and EPA approval, to address fuel releases and implement infrastructure improvements to protect human health and the environment. The 2015 AOC included a Statement of Work that laid out the specific tasks the Navy and DLA were required to perform.

[62] (U) In both March and June 2020, Navy officials reported the fuel release to the Hawaii DOH.

(U) Navy officials observed fuel in the waters of Pearl Harbor that was coming from an unmarked and abandoned pipeline.

(U) During the 2020 fuel incidents, Navy officials stated that they discovered an abandoned defuel pipeline protruding from the Hotel Pier quay wall, as shown in Figure 10.[63] Navy officials told us that the abandoned defuel pipeline had no external markings and was not shown on any pipeline drawings that Navy officials reviewed. Furthermore, Navy officials told us that they determined that it was the source of the oil sheen and sealed the defuel pipeline.[64] However, Navy officials told us that on August 11, 2020, they saw another oil sheen on the water in Pearl Harbor near Hotel Pier.[65]



(U) Figure 10. Abandoned Defuel Pipeline at Naval Station Pearl Harbor
(U) Source: The DoD OIG, based on a figure provided by NAVSUP FLC PH.

(U) Navy officials told us that on September 15, 2020, they began conducting exploratory excavations and analysis to determine the cause of the oil sheens. Navy officials developed a work plan to investigate the source of the leak and conduct pipeline testing. On November 24, 2020, Navy and Hawaii DOH officials began conducting weekly meetings to determine the type of fuel released near Hotel Pier. Navy and Hawaii DOH officials compared test results for samples of the fuel during these meetings and found both weathered and fresh JP-5 fuel in the samples.

[63] (U) A defuel pipeline is a pipe used to remove or drain fuel from a vessel rather than to deliver fuel. A quay wall is an earth-retaining wall under a deck or platform located on the sea, a lake, or a river, or inside a harbor or a canal where ships can dock. The quay wall serves as a barrier to protect the shore and a staging area for cargo and passengers.

[64] (U) Navy officials told us that they determined that the defuel pipeline was used to defuel ships in the past. Navy officials also told us that they determined that the defuel pipeline had not been used in over two decades. However, Navy officials did not provide any documentation to support how they determined their conclusions about the defuel pipeline.

[65] (U) Hawaii DOH officials maintained the same Hawaii DOH Hazard Evaluation and Emergency Response office release report tracking number from the June 2020 release for this fuel incident.

(U) On December 21, 2020, in response to the 2020 fuel incidents, the Hawaii DOH issued a letter of instruction to the CNRH requiring Navy officials to, among other things:

- (U) locate, secure, and "recognize the source, volume, duration, cause, remedy, and nature of the release";
- (U) develop work plans and implementation schedules to remediate the fuel release;
- (U) submit results of pipeline release detection and pipeline repair reports; and
- (U) provide timely communication, coordination, and response to Hawaii DOH "regarding work by [CNRH] and the [DLA Energy] regarding spills, pipeline tightness testing, and other leak detection activities that indicate a release or threat of release of oil."[66]

(U) According to a DoD report, on January 20, 2021, the abandoned defuel pipeline failed a leak detection test.[67] Subsequently, according to Navy officials, the NAVSUP FLC PH Fuels Deputy Director directed the addition of "skillets" to the abandoned defuel pipeline to seal another portion of the pipeline and prevent the possibility of failing another leak detection test.[68] However, according to the DoD report, on January 23, 2021, the abandoned defuel pipeline failed a second leak detection test, despite the addition of skillets. On February 2, 2021, an oil release investigation and cleanup company contracted

(U) Figure 11. Skillet in the Abandoned Defuel Pipeline Near Hotel Pier
(U) Source: The DoD OIG.

[66] (U) Hawaii DOH, "Notice of Interest in a Release or Threatened Release of Hazardous Substances," December 21, 2020.

[67] (U) DLA Energy and NAVFAC Atlantic, "2021 One-time Leak Detection Testing Report of 11 Sections of Petroleum Pipeline, Joint Based Pearl Harbor-Hickam," February 16, 2021.

(U) According to the report, a one-time leak detection test was performed on January 20, 2021. The pipeline failed and, as a result, Navy officials added skillets to the pipeline. The pipeline was tested again on January 23, 2021, and failed a second time.

[68] (U) A blind flange, or skillet, is a type of flange. A flange is a pipe fitting use to connect pipes, pumps, valves, and other pipe components within a pipe system. Specifically, a skillet is a blind flange used to close off or seal a segment of pipe to block the flow of liquids in the pipe.

(U) by the Navy conducted a site visit at Hotel Pier and determined that there was still an active fuel release.[69] Figure 11 shows one of the skillets on the abandoned defuel pipeline.

(U) According to documentation we reviewed, Navy officials did not have an estimate of the total amount of fuel released; however, in February 2021, Navy officials estimated the total amount of fuel recovered was approximately 7,700 gallons.

(U) On June 30, 2021, Hawaii DOH officials issued a memorandum to the CNRH directing Navy officials to submit a "confirmed release notification" for the 2020 fuel incidents.[70] On July 14, 2021, Navy officials submitted a confirmed release notification to Hawaii DOH officials.[71]

D. (U) May 2021 Fuel Incident in the Red Hill BFSF

(U) On May 6, 2021, at 6:10 p.m., a NAVSUP FLC PH Red Hill rover heard a loud noise in the LAT.[72] The Red Hill rover investigated the area near Red Hill BFSF UST #18 and identified a fuel release near Red Hill BFSF UST #20.[73] NAVSUP FLC PH and NAVFAC Hawaii officials entered the LAT to investigate and observed that the AFFF sump pit located closest to the release was filled with

[redacted]

69 (~~CUI~~) [redacted]

(U) According to Hawaii Administrative Rules Chapter 11-280.1, in order to permanently close the pipeline, which is a part of a UST system, Navy officials must empty and clean the pipeline, and either remove it, fill it with an inert material, or leave it in place depending on the "manner approved by the [Hawaii DOH]."

70 (U) Hawaii DOH, "Red Hill Bulk Fuel Facility Pearl Harbor, Hawaii, Hotel Pier Near Arizona Street, Pearl Harbor, Hawaii UST Facility ID No. 9-102271, UST Release ID. 210011 HEER [Hazard Evaluation and Emergency Response] Incident Release Case Nos. 2020317-0914 and 20200602-1345," June 30, 2021.

(U) Hawaii Administrative Rules (HAR) Chapter 11-280.1 requires owners and operators of UST systems with confirmed releases to submit a written confirmed release notification on a written form within 7 days of confirming the release.

(U) HAR 11-280.1,"Underground Storage Tanks."

71 (U) CNRH, "Confirmed Release Notification Form, Hotel Pier DOH Facility ID NO. 9-102271, DOH UST Release ID NO. 210011 HEER [Hazard Evaluation and Emergency Response] Incident Case No. 20200602-1345," July 14, 2021.

72 (U) We based our description of the May 2021 fuel incident on the timeline described in a Vice Chief of Naval Operations (VCNO) command investigation report, which we describe later in this section of the report. We verified the timeline during our site visit interviews.

(U) VCNO, "Command Investigation into the 6 May 2021 and 20 November 2021 Incidents at Red Hill Bulk Fuel Storage Facility," June 13, 2022.

(U) According to Navy officials, the Red Hill rover is a person responsible for "roving" and monitoring the Red Hill BFSF.

73 (U) According to the Red Hill BFSF Facility Response Plan, NAVSUP FLC PH officials in the control room monitor the closed-circuit television (CCTV) cameras to control facility access and to look for evidence of a fuel release. However, later in this report, we will explain that the CCTV camera system located within the LAT was inoperable. Without the CCTV camera system, the NAVSUP FLC PH control operator could not immediately determine the source of the sound. According to Navy officials, the control room operator is the "senior watch stander" and is responsible for pump and valve operations, monitoring tank levels and piping pressures, and coordinating with other fuel distribution system officials during operations.

(U) JP-5 fuel. As previously discussed, the AFFF sump pits were designed to collect and transfer mixtures of fuel, water, and AFFF that could be released during a fire emergency. However, because sump pits can collect any liquid flowing nearby, unintentional releases of fuel that do not cause a fire can also collect in the AFFF sump pits. NAVSUP FLC PH and NAVFAC Hawaii officials told us that they assumed that all of the released JP-5 fuel was contained in the AFFF sump pit and told us that their inspection of the AFFF sump pit system found no indication that the AFFF sump pumps turned on and removed any fuel from the AFFF sump pits.

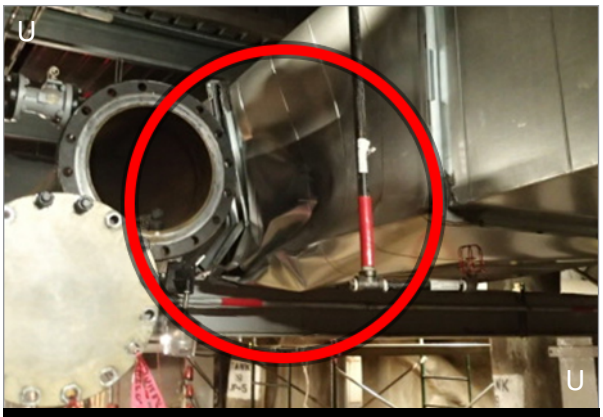
(U) On May 6, 2021, the NAVSUP FLC PH CO reported the release to NAVFAC Hawaii and the CNRH. On May 7, 2021, NAVSUP FLC PH officials initially reported the release of less than 1,000 gallons of JP-5 fuel to DLA Energy. The CNRH Navy On-Scene Coordinator Representative (NOSC-R) and NAVFAC Hawaii environmental officials notified state officials. At the time, Navy officials determined that the release occurred because the control room operator misaligned valves by opening and closing valves out of order during an operation causing a pressure surge in the system.[74]

(U) The combination of the pressure surge and other contributing factors caused simultaneous events at Red Hill BFSF UST #18 and Red Hill BFSF UST #20 and the loud noise heard by the rover. Specifically, the JP-5 fuel pipeline near Red Hill BFSF UST #20 moved approximately 16 inches laterally, damaged an air duct, ruptured, and released JP-5 fuel. Additionally, a JP-5 fuel pipeline joint near Red Hill BFSF UST #18 failed and released JP-5 fuel. At the time of the incident, NAVSUP FLC PH officials estimated a release of 1,618 gallons of JP-5 fuel and recovered 1,580 gallons from the AFFF sump pit.[75] Therefore, NAVSUP FLC PH officials reported a total of 38 gallons of JP-5 fuel lost. Figure 12 shows where the release occurred and the damage to an air duct near Red Hill BFSF UST #20.

[74] (U) The Navy later determined that the May 2021 fuel incident occurred because the control room operator misaligned valves by opening and closing valves out of order during an operation, and contributing factors included improper setpoints for the "out-of-balance" and low-pressure alarm in the AFHE and modifications in the JP-5 fuel pipeline that were not properly restrained. A pressure surge, specifically a hydraulic pressure surge, is the increased pressure caused by a short-term or sudden increase in velocity of fluid in a pipeline.

(U) According to the VCNO command investigation report, the following week, NAVSUP FLC PH officials found that the fuel pipeline near Red Hill BFSF UST #18 had also been damaged. Specifically, the JP-5 fuel pipeline joint near Red Hill BFSF UST #18 failed and released JP-5 fuel. NAVSUP FLC PH officials did not immediately see the damage because the section of pipe and the dresser coupling were behind a maintenance partition.

[75] (U) Commander, Naval Supply Systems Command, "Command Investigation into the Fuel Spill at the Red Hill Bulk Fuel Storage Facility on or About 6 May 2021," October 14, 2021.



(U) Figure 12. May 6, 2021 JP-5 Fuel Pipeline Damage near Red Hill BFSF UST #20
(U) Source: The DoD OIG.

(U) On the evening of May 6, 2021, NAVSUP FLC PH officials conducting the nightly fuel inventory identified that the AFHE recorded a significant tank level drop in Red Hill BFSF UST #12 at the approximate time the NAVSUP FLC PH rover heard the loud noise. Accordingly, NAVSUP FLC PH officials entered a loss of 20,139 gallons of fuel in the inventory and accounting system. NAVSUP FLC PH officials told us that they assumed the missing 20,139 gallons of JP-5 fuel was somewhere in the JP-5 pipeline and did not conduct any further investigation.

(U) On May 10, 2021, the NAVSUP FLC PH Executive Director directed the NAVSUP FLC PH Business Department Director to conduct a management inquiry "into all the circumstances connected with the fuel release."[76] Additionally, on May 13, 2021, the NAVSUP Commanding Officer (CO) directed the NAVSUP Naval Petroleum Office Deputy Officer in Charge to conduct a command investigation of the May 2021 fuel incident. The NAVSUP Naval Petroleum Office official completed the NAVSUP Naval Petroleum Office command investigation report for the May 2021 fuel incident on October 14, 2021.[77] However, the NAVSUP Naval Petroleum Office command investigation did not discuss the discrepancy in the fuel inventory or find the missing fuel.

(U) Approximately 19,000 gallons of fuel missing from the May 2021 fuel incident was pumped into an overhead pipeline, where it remained undiscovered until November 2021.

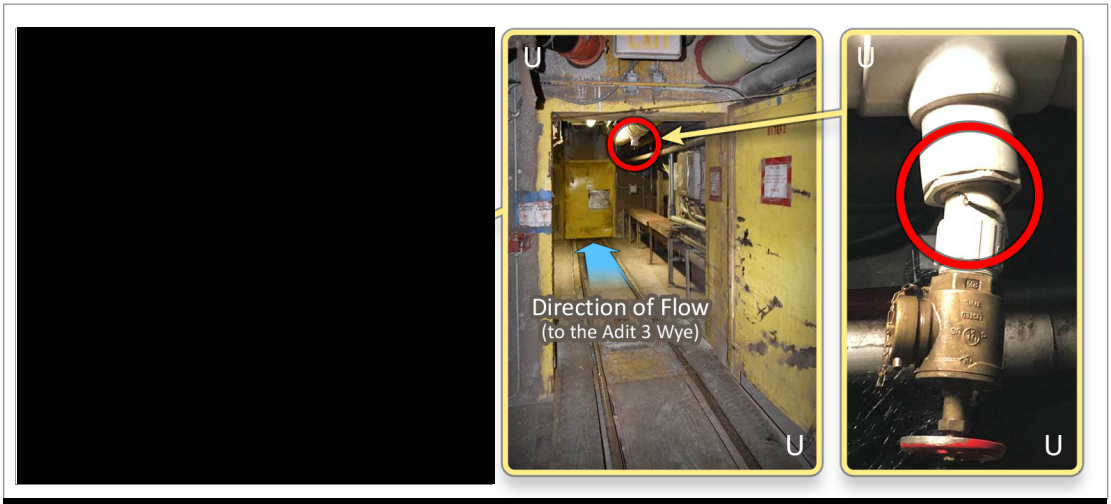
(U) As we discuss later in Part V, the AFFF sump pumps did turn on and pumped approximately 19,000 gallons of JP-5 fuel from the AFFF sump pit into the overhead AFFF drainage pipeline. The JP-5 fuel that was pumped into the overhead AFFF drainage pipeline collected in a low point in the pipeline. The JP-5 fuel remained in the overhead AFFF drainage pipeline until the November 2021 fuel incident, which we discuss in the next section.

[76] (U) NAVSUP FLC PH, "Red Hill Fuel Release Management Inquiry," May 28, 2021.

[77] (U) Commander, Naval Supply Systems Command, "Command Investigation into the Fuel Spill at the Red Hill Bulk Fuel Storage Facility on or About 6 May 2021," October 14, 2021.
(U) According to the NAVSUP Naval Petroleum Office command investigation report, the May 2021 fuel incident occurred because the control room operator misaligned valves by opening and closing valves out of order during an operation and contributing factors included improper setpoints for the "out-of-balance" and low pressure alarm in the AFHE and modifications in the JP-5 fuel pipeline that were not properly restrained.

E. (U) November 2021 Fuel Incident and Drinking Water Contamination Incident in the Red Hill BFSF

(U) On November 20, 2021, at 4:50 p.m., a battery-powered locomotive and cart in the Red Hill BFSF LAT, driven by a NAVSUP FLC PH Red Hill rover, struck a valve on a low-point drain in the overhead AFFF drainage pipeline.[78] The overhead AFFF drainage pipeline cracked, and a strong flow of fuel began to be released.[79] Figure 13 shows the location of the incident, the overhead AFFF drainage pipeline, and the crack in the PVC from where the fuel flowed.



(U) Figure 13. November 20, 2021 Cracked Overhead AFFF Drainage Pipeline
(U) Source: The DoD OIG, based on figures provided by NAVFAC Hawaii and NAVSUP FLC PH and images from the Vice Chief of Naval Operations command investigation report, labeled by the DoD OIG.

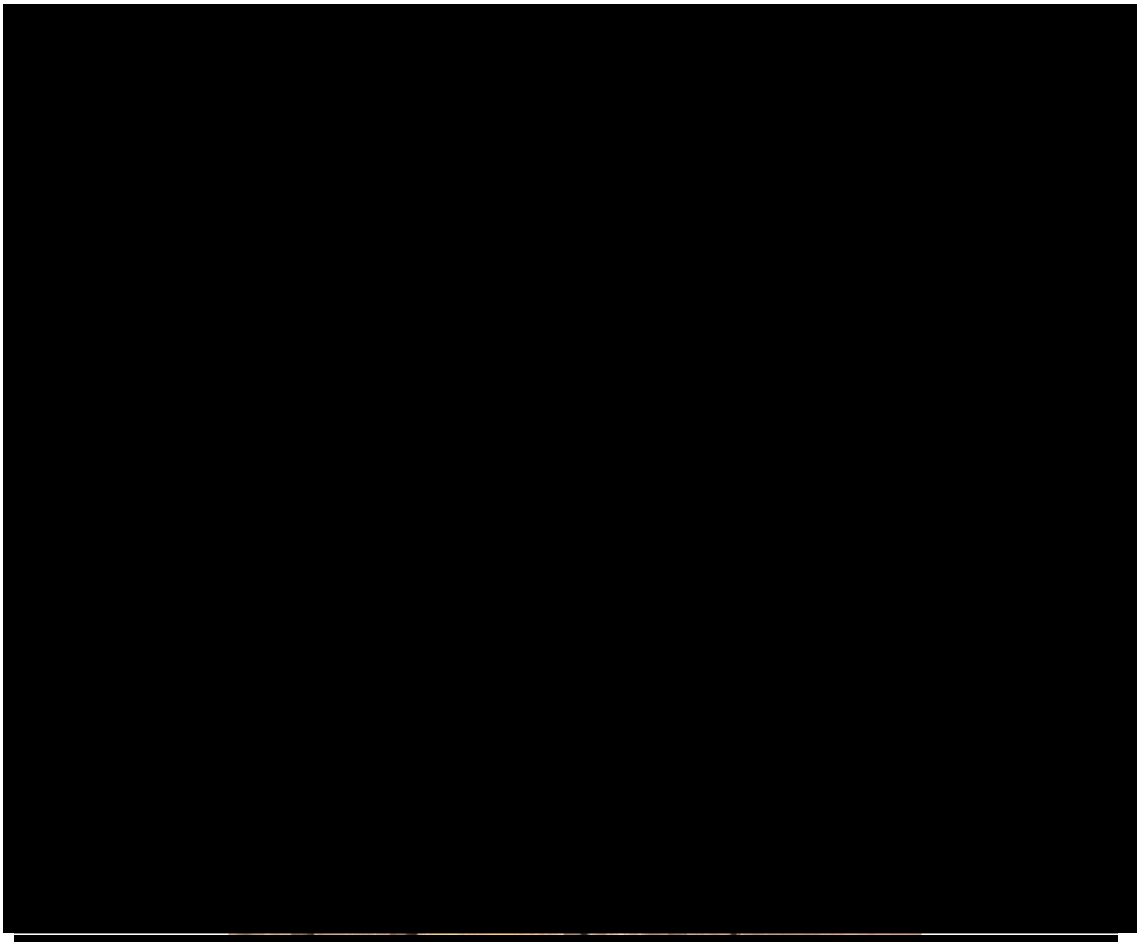
(U) Note: At the time of the incident, the second fire door in the image in the center was open. Although the NAVSUP FLC PH employee driving the battery-powered locomotive and cart closed the door, fuel continued to flow under the door. Through this fire door is the Adit 3 Wye, as shown in Figure 14.

~~(CUI)~~ As shown in Figure 14, the Adit 3 Wye is a junction in the LAT [redacted]

The other junction of the LAT continues [redacted] to Adit 3.

[78] (U) "November 2021 fuel incident" refers to the fuel incident in the Red Hill BFSF and the efforts to stop the fuel release, perform the immediate cleanup of the fuel release, and report the fuel release.
(U) A low-point drain is a drain, equipped with a valve, installed at a low point in a pipeline. The valve can be opened to drain any fluid that naturally collects and stagnates in low-lying portions of a pipeline.

[79] (U) The Red Hill rover later described the flow as the equivalent of four safety showers at "full blast."



(U) Figure 14. The Adit 3 Wye in the Red Hill BFSF
(U) Source: Commander, U.S. Pacific Fleet (COMPACFLT), "Command Investigation into the 6 May 2021 and 20 November 2021 Incidents at Red Hill Bulk Fuel Storage Facility," June 13, 2022, modified and labeled by the DoD OIG.

~~(CUI)~~ Note: The LAT splits at the Adit 3 Wye. The large black fuel pipelines shown on the left side of the image turn down the harbor tunnel [redacted]. On the right side of the picture, the LAT continues [redacted] to Adit 3. [redacted]

~~(CUI)~~ The fuel poured onto the LAT, flowed [redacted] downhill, and began collecting in the groundwater sump pit [redacted]. NAVSUP FLC PH officials evacuated the Red Hill BFSF, and officials from the CNRH Federal Fire Department (FFD) responded to the incident scene. CNRH FFD officials determined that the area was safe from fuel vapors approximately 5 hours after the incident began.

~~(CUI)~~ During this time, pumps in the groundwater sump pit were on and pumping fuel to the leach field system outside [redacted]. Once Navy officials were allowed to reenter the LAT, a NAVSUP FLC PH official turned off the pumps in the groundwater sump pit, which continued to fill with fuel from the ongoing release. NAVSUP FLC PH officials were unable to immediately isolate the pipeline and stop the release. Although Navy officials began pumping fuel out of the groundwater sump pit and into tanker trucks, the fuel continued to fill the groundwater sump pit and some of the fuel backed up into the French drain, seeped through the ground and into the Red Hill well water development tunnel located below the LAT, and contaminated the Red Hill well.[80] We discuss the contamination of the Red Hill well in DODIG-2025-012.

(U) The missing fuel from the May 2021 fuel incident was released over a period of approximately 34 hours and some of the fuel contaminated the Navy's drinking water system.

(U) Fuel continued to flow from the overhead AFFF drainage pipeline for approximately 34 hours and released an estimated 19,000 gallons of fuel into the LAT.[81]

(U) By the morning of November 21, 2021, NAVSUP FLC PH officials realized that the JP-5 fuel missing from the fuel inventory after the May 2021 incident had been in the overhead AFFF drainage pipeline.[82] See Figure 15 for a depiction of the May 2021 and November 2021 fuel incidents in relation to each other.

(U) As discussed in DODIG-2025-012, on November 28, 2021, Hawaii DOH and Navy officials became aware of the drinking water contamination. Subsequently, on November 28, 2021, Navy officials ordered the Red Hill well to be isolated.

[80] (U) In DODIG-2025-012, we explain that Navy officials told us they did not know about the French drain at the time. It was not until December 2021 that Navy officials began to suspect that the Red Hill well was contaminated when fuel in the groundwater sump pit backed up into the French drain and seeped through the ground and into the Red Hill well water development tunnel. Based on our evaluation, which included site visits to assess the infrastructure, reviews of historical Navy documentation, and reviews of engineering drawings of the Red Hill BFSF and the Red Hill well, we came to the same conclusion.

[81] (U) We determined that fuel flowed for approximately 34 hours based on the timeline described in a VCNO command investigation report, which we describe later in this section of the report. We verified the timeline during our site visit interviews. Additionally, once Navy officials realized that the May 2021 and November 2021 fuel incidents were related, they realized that the numbers reported during the May 2021 fuel incident were incorrect. Accordingly, the Navy officials who conducted the investigations launched after the November 2021 fuel incident recalculated the fuel volumes relevant to the May 2021 and November 2021 fuel incidents. The VCNO command Investigation report included the updated calculations. Specifically, Navy officials determined that the total JP-5 fuel spilled on May 6, 2021, was 20,957 gallons; the total JP-5 fuel recovered immediately after the May 2021 fuel incident was 1,580 gallons; and the maximum amount of JP-5 fuel that was pumped into the overhead AFFF drainage pipeline and remained there until it was released during the November 2021 fuel incident was 19,377 gallons. According to the VCNO command investigation report, 15,415 gallons of the 20,957 gallons had been recovered and a "total of 5,542 gallons of fuel remain[ed] unaccounted for, and some or all of that fuel contaminated the Red Hill well … ." Throughout this report, we use the fuel incident totals described in the VNCO command investigation report unless we are discussing the Navy's reporting during and immediately following the incidents.

[82] (U) According to the VCNO command investigation report, the morning of November 21, 2021, was the first time the CNRH CO heard of the missing fuel, which was later reported to the Commander, U.S. Pacific Fleet (COMPACFLT) CO. On November 23, 2021, the COMPACFLT CO directed the COMPACFLT Director of Maritime Headquarters to conduct a command investigation to inquire into the May 6, 2021 and November 20, 2021 fuel incidents at the Red Hill BFSF.

(U) Figure 15. May 6, 2021 and November 20, 2021 Fuel Incidents in the Red Hill BFSF
(U) Source: NAVSUP FLC PH, modified by the DoD OIG.

(U) Note: Although the oil-tight door is shown in this image, it did not play a role in the May 6, 2021 and November 20, 2021 fuel incidents.

(U) On December 2, 2021, Navy officials took a sample of water from the Red Hill well and observed fuel in the water sample, leading them to believe that the November 2021 fuel incident contaminated the Red Hill well with JP-5 fuel.

(U) On December 3, 2021, the Commander, U.S. Pacific Fleet (COMPACFLT) CO modified the scope of the COMPACFLT command investigation to include a determination of whether the 2021 fuel incidents were related to the drinking water contamination.[83] On December 6, 2021, the Hawaii DOH issued an Emergency Order to the Navy that required Navy officials to suspend all operations at the Red Hill BFSF, install a drinking water treatment system at the Red Hill well, perform an independent third-party assessment of the Red Hill BFSF, and defuel

[83] (U) The COMPACFLT command investigation was completed on January 20, 2022.

(U) system at the Red Hill well, perform an independent third-party assessment of the Red Hill BFSF, and defuel the Red Hill BFSF USTs.[84] On December 7, 2021, the Secretary of the Navy directed Navy officials to halt all operations at the Red Hill BFSF and continue isolating the Red Hill well. Additionally, the December 7, 2021 memorandum directed Navy officials to:

> (U) consult with a qualified independent third-party to assess operations and system integrity of the [Red Hill BFSF] to determine design and operational deficiencies that may impact the environment and to develop a work plan and implementation schedule to conduct necessary repairs and make necessary changes in operations to address any deficiencies identified in the assessment.

~~(CUI)~~ On December 9, 2021, Navy officials cleared overgrowth and found evidence of fuel contamination in the soil surrounding the leach field system outside [redacted].

(U) From February 28 to March 4, 2022, EPA Region 9 officials conducted compliance evaluation inspections (CEIs) at JBPHH to evaluate the Navy's compliance with oil pollution prevention regulations.[85]

(U) Navy officials concluded that complicated command and control of fuel and water infrastructure and operations contributed to fuel and drinking water incidents.

(U) On March 4, 2022, the Vice Chief of Naval Operations (VCNO) appointed the Director of the Military Personnel Plans and Policy Division to "gather additional facts concerning the Navy's response to both spills," which we refer to as the VCNO command investigation.[86] We reference the VCNO command investigation report throughout our analysis where it is relevant to our findings. Ultimately, the VNCO command investigation report concluded that:

- (U) command and control relevant to the Red Hill BFSF and the JBPHH Community Water System during the 2021 incidents "was complex and not understood across the spectrum";
- (U) "[t]he pressure of crisis produced fault lines stemming from overly complex and unclear lines of responsibility and accountability expressed in multiple lengthy, obtuse, outdated, and sometimes contradictory [memorandums of agreement]"; and

[84] (U) The Hawaii DOH's December 6, 2021 Emergency Order became a final order on January 3, 2022.

[85] (U) The EPA reported on its findings in two reports delivered to the CNRH in August 2022.

(U) EPA Region 9, "Underground Storage Tank System Inspection Report, Bulk Fuel Storage Systems Including Red Hill and the Airport Hydrant System Serving Joint Base Pearl Harbor-Hickam," August 17, 2022.

(U) EPA Region 9, "SPCC Inspection Report, Bulk Fuel Storage Systems Including Red Hill and the Airport Hydrant System Serving Joint Base Pearl Harbor-Hickam," August 17, 2022.

[86] (U) VCNO memorandum, "Supplement to Command Investigation into the 6 May 2021 and 20 November 2021 Incidents at Red Hill Bulk Fuel Storage Facility," March 4, 2022.

(U) VCNO, "Command Investigation into the 6 May 2021 and 20 November 2021 Incidents at Red Hill Bulk Fuel Storage Facility," June 13, 2022.

(U) According to the VCNO command investigation report, it incorporated, updated, and modified information and conclusions from the COMPACFLT command investigation.

- (U) multiple dual-hat relationships between the CNRH, NAVFAC Hawaii, and JBPHH installation command created uncertainty regarding who is responsible for various functions, "such as environmental oversight, emergency response, and communications."[87]

(U) The VCNO command investigation report included "a visual illustration of the [command and control] as practiced, which provides insight as to its complexity," Figure 16.

(U) Figure 16. Illustration of the Complex Command and Control (C2) Structure Relevant to the Red Hill BFSF and the JBPHH Community Water System
(U) Source: VCNO command investigation report, labeled with a red box by the DoD OIG.

[87] (U) Our evaluation and the VCNO command investigation had different objectives, scope, and methodology. However, we overlapped on some aspects of our reviews. We reviewed the DoD and Navy policies that describe roles and responsibilities for the operations, maintenance, and management of DFSPs. Specifically, we reviewed DoDM 4140.25 Volumes 6, 8, 9, and 11; NAVSUP Instruction 5450.139; NAVSUP FLC PH Instruction 5450.3S and 3T; and nine memorandums of agreement or understanding between multiple organizations. Our review of the policies and memorandums determined that some of the memorandums of agreement or understanding were expired. The VCNO command investigation report included analysis of this topic and recommendations; therefore, we did not duplicate the discussion in this report except where it was relevant to our analysis and recommendations.

(U) In a March 7, 2022 memorandum, the Secretary of Defense (SecDef) ordered the permanent closure of the Red Hill BFSF. The March 2022 memorandum requested a plan of actions and milestones from the Secretary of the Navy and the Director of the DLA to close the facility.

(U) In response to the December 2021 Hawaii DOH Emergency Order and Secretary of Navy memorandum, on April 29, 2022, the third party completed its assessment of the operations and system integrity of the Red Hill BFSF.[88] On May 6, 2022, the Hawaii DOH issued another Emergency Order to the Navy that required Navy officials to maintain the suspension of all operations at the Red Hill BFSF, maintain the drinking water treatment system at the Red Hill well, take steps to recover the Red Hill well as a source of drinking water, submit an independent third-party assessment of the Red Hill BFSF, and submit a phased plan for defueling and closing the Red Hill BFSF.[89]

(U) On June 30, 2022, the U.S. Indo-Pacific Command CO announced the establishment of the Joint Task Force–Red Hill (JTF-RH), as directed by the SecDef.[90] On June 2, 2023, the EPA Region 9, DLA, and CNRH, on behalf of the Navy, entered into another consent order, the 2023 Administrative Consent Order (ACO).[91] The 2023 ACO required DLA and Navy officials to take specific actions to defuel and close the Red Hill BFSF.[92]

(U) On October 16, 2023, the JTF-RH began defueling the Red Hill BFSF and completed the defueling on March 6, 2024. The JTF-RH was disestablished on March 29, 2024, and the Navy began the transition to the Navy Closure Task Force–Red Hill. As previously discussed, the SecDef ordered the permanent closure of the Red Hill BFSF. However, the SecDef's order did not apply to the remainder of DFSP JBPHH. Therefore, the rest of DFSP JBPHH, including Naval Station Pearl Harbor and Hickam AFB, will remain in operation, and as of May 2024, the closure of the Red Hill BFSF was ongoing.[93]

88 (~~CUI~~) [redacted]

89 (U) The May 6, 2022 Hawaii DOH Emergency Order superseded the December 6, 2021 Hawaii DOH Emergency Order.

90 (U) SECNAV and DLA, "Red Hill Bulk Fuel Storage Facility, Oahu, Hawaii, Defueling Plan," June 30, 2022.

91 (U) EPA Region 9, "Red Hill Bulk Fuel Storage Facility Defueling, Closure, and Joint Base Pearl Harbor-Hickam Drinking Water System 2023 Consent Order," June 2, 2023.

92 (U) The 2023 ACO did not replace the 2015 AOC. As of October 2023, EPA Region 9, Hawaii DOH, DLA, and CNRH officials were working together to clarify the 2015 AOC scope of work. Specifically, officials were working together to eliminate work that will no longer be relevant or required due to the planned closure of the Red Hill BFSF and to consolidate ongoing work to investigate and remediate fuel releases under the 2015 AOC scope of work.

93 (~~CUI~~) [redacted]

F. (U) April 2022 Fuel Incident in the Red Hill BFSF

(U) According to Navy officials, on April 1, 2022, fuel was released in the LAT when NAVSUP FLC PH officials conducted a "water draw" procedure at Red Hill BFSF UST #15 to remove water from the bottom of the UST to prevent tank corrosion and fuel contamination.[94] After NAVSUP FLC PH officials stopped the water draw procedure, they determined that the fuel release occurred because a NAVFAC Hawaii contractor left a valve open near Red Hill BFSF UST #14.[95] According to Navy officials, the April 2022 fuel incident resulted in 30 gallons of F-76 fuel and water mixture in the LAT, which NAVFAC Hawaii officials recovered using absorbent pads, as depicted in Figure 17. According to a Navy

(U) Although operations were suspended at the Red Hill BFSF, another incident occurred during an approved maintenance procedure.

(U) Figure 17. April 2022 Fuel Incident in the Red Hill BFSF
(U) Source: NAVSUP FLC PH.

[94] (U) Although the Secretary of the Navy halted all operations at the Red Hill BFSF, NAVSUP FLC PH officials received approval to conduct a water draw. NAVSUP FLC PH officials are required to check DFSP JPBHH tanks daily for water. If water is found, NAVSUP FLC PH officials remove the water from the bottom of the tanks using the water draw procedure. Although all fuel contains small amounts of water, too much water can cause serious problems because water is a contaminant in a fuel system. Specifically, water can lead to rust and corrosion in fuel storage tanks made from steel. Condensation is one of the main ways water can contaminate a fuel system. For example, humid air can gather in the empty space of the tank and cause condensation on the tank walls. Because fuel is less dense than water, the water sinks to the bottom of the tank. By the end of March 2022, NAVSUP FLC PH officials had successfully completed 10 water draw procedures.

[95] (U) DLA Energy funds a centrally managed program called the Tank CIR program. Periodically, DFSP JPBHH tanks are taken offline for the CIR process to perform inspection and maintenance. Navy officials told us that the first part of the Tank CIR process is a deliberate transfer of tank responsibility from NAVSUP FLC PH officials to NAVFAC Hawaii officials. Accordingly, NAVFAC Hawaii officials are responsible for communication, safety, and access monitoring for their contractors. Specifically, once a tank has been transferred to NAVFAC Hawaii officials, NAVSUP FLC PH officials told us that they do not interact with the equipment inside the NAVFAC Hawaii contractor's fenced area. Additionally, NAVSUP FLC PH officials do not have access to the area if the fence is locked. The April 2022 fuel incident occurred when an open valve leaked inside of the NAVFAC Hawaii contractor's locked and fenced area at Red Hill BFSF UST #14.

(U) press release, the NAVSUP CO relieved the NAVSUP FLC PH CO on April 4, 2022, due to a loss of confidence "following a series of leadership and oversight failures" at the Red Hill BFSF.

G. (U) Chronology of Events

(U) Table 1 provides a chronology of events for the fuel incidents that occurred from 2007 to 2022 discussed in this report.

(U) Table 1. Chronology of Events

(U)	Date	Description
1	April 26, 2007	Navy officials reported that a fuel level decline in upper tank farm aboveground storage tank (AST) #48 indicated a release of F-76 fuel.
2	April 28, 2007	Navy officials estimated that 359,000 gallons of F-76 fuel leaked into the ground beneath upper tank farm AST #48.
3	January 13, 2014	Navy officials determined that Red Hill BFSF UST #5 was leaking, after finding a "wet spot" on the tunnel floor and identifying 1,777 AFHE alarms.
4	January 30, 2014	Navy officials reported the release of approximately 27,342 gallons of JP-8 fuel from Red Hill BFSF UST #5 into the ground.
5	May 27, 2015	In response to the January 2014 fuel incident, the EPA Region 9, Hawaii DOH, DLA, and CNRH entered into an AOC, referred to as the 2015 AOC.
6	March 17, 2020	Navy officials observed an oil sheen in the water off Hotel Pier.
7	June 2, 2020	Navy officials observed a second oil sheen on the water in Pearl Harbor near Hotel Pier and determined that the source was an abandoned defuel pipeline.
8	August 11, 2020	Navy officials observed a third oil sheen on the water in Pearl Harbor near Hotel Pier.
9	December 21, 2020	In response to the 2020 fuel incidents, the Hawaii DOH issued a letter of instruction to the CNRH.
10	January 20, 2021	The abandoned defuel line failed a leak detection test.
11	January 23, 2021	The abandoned defuel pipeline failed a second leak detection test, despite the addition of skillets.
12	February 2, 2021	An oil release investigation and cleanup company contracted by the Navy conducted a site visit at Hotel Pier and determined that there was still an active fuel release.
13	May 6, 2021	A NAVSUP FLC PH Red Hill rover identified a fuel release near Red Hill BFSF UST #20. That evening, NAVSUP FLC PH officials entered a loss of 20,139 gallons of fuel in the inventory and accounting system. **(U)**

(U) Table 1. Chronology of Events (cont'd)

(U)	Date	Description
14	May 13, 2021	The NAVSUP CO directed the NAVSUP Naval Petroleum Office Deputy Officer in Charge to conduct a command investigation of the May 2021 fuel incident.
15	July 14, 2021	In response to a June 30, 2021 memorandum from Hawaii DOH officials, Navy officials submitted a confirmed release notification to Hawaii DOH officials for the 2020 fuel incidents at Pearl Harbor.
16	November 20, 2021	A battery powered locomotive and cart in the Red Hill BFSF LAT struck a valve on a low point drain in the overhead AFFF drainage pipeline. The overhead AFFF drainage pipeline cracked and a strong flow of fuel began to be released.
17	November 23, 2021	The COMPACFLT CO directed a command investigation of the May 6, 2021 and November 20, 2021 fuel incidents.
18	November 28, 2021	Hawaii DOH and Navy officials became aware of the drinking water contamination and Navy officials ordered the Red Hill well to be isolated.
19	December 2, 2021	Navy officials took a sample of water from the Red Hill well and observed fuel in the water sample, leading them to believe that the November 2021 fuel incident contaminated the Red Hill well with JP-5 fuel.
20	December 3, 2021	The COMPACFLT CO modified the scope of the COMPACFLT command investigation to include a determination of whether the 2021 fuel incidents were related to the drinking water contamination.
21	December 6, 2021	The Hawaii DOH issued an Emergency Order to the Navy that required Navy officials to suspend all operations at the Red Hill BFSF, install a drinking water treatment system at the Red Hill well, perform an independent third-party assessment of the Red Hill BFSF, and defuel the Red Hill BFSF USTs.
22	December 7, 2021	The Secretary of the Navy directed Navy officials to halt all operations at the Red Hill BFSF and continue isolating the Red Hill well.
23	December 9, 2021	Navy officials cleared overgrowth and found evidence of fuel contamination in the soil surrounding the leach field system.
24	March 4, 2022	The VCNO command investigation began and was completed on June 13, 2022.
25	March 7, 2022	The SecDef ordered the permanent closure of the Red Hill BFSF.
26	April 1, 2022	Approximately 30 gallons of F-76 fuel was released in the LAT during a "water draw" procedure at Red Hill BFSF UST #15. **(U)**

(U) Table 1. Chronology of Events (cont'd)

(U)	Date	Description
27	April 4, 2022	The NAVSUP CO relieved the NAVSUP FLC PH CO due to a loss of confidence "following a series of leadership and oversight failures" at the Red Hill BFSF.
28	June 2, 2023	The EPA Region 9, DLA, and CNRH, on behalf of the Navy, entered into another consent order. The 2023 ACO required DLA and Navy officials to take specific actions to defuel and close the Red Hill BFSF infrastructure. **(U)**

(U) Source: The DoD OIG.

IV. (U) Requirements, Roles, and Responsibilities

(U) In this section, we discuss Federal and state laws, regulations, and DoD policies relevant to the findings and recommendations in this report. Additionally, we provide a summary of the Navy's incident response plans required by Federal and state laws and Navy policy. Furthermore, we discuss the organizations, roles, and responsibilities relevant to the findings and recommendations in this report.

A. (U) Federal and State Laws and Regulations, DoD Policies, and Incident Response Plans

(U) Federal and state entities enacted laws and issued regulations relevant to fuel management, environmental protection, drinking water quality, and human health and safety.[96] Additionally, the DoD, DLA, and Navy issued policies and guidance relevant to the objective of our evaluation. The findings in this report are based, in part, on the following laws, regulations, and policies. Additionally, Appendix A provides a list of laws, regulations, and policies we reviewed during this evaluation.

- (U) Title 33 Code of Federal Regulations (CFR) part 154 is a regulation for facilities transferring oil and hazardous material in bulk that requires owners and operators of bulk fuel facilities to prepare and implement an operations manual to describe how the facility meets operating rules and equipment requirements and describes responsibilities of personnel.[97]
- (U) Title 33 CFR part 155 is an oil and hazardous material pollution prevention regulation that sets standards for vessel equipment; transfer personnel, procedures, equipment, and records; and vessel response plans.[98]
- (U) Title 33 CFR part 156 is an oil and hazardous material transfer operations regulation that sets standards for the transfer of oil to and from vessels at applicable facilities.[99]

[96] (U) The history of Joint Base Pearl Harbor–Hickam (JBPHH) and changes over time to Federal and state laws and regulations are relevant to the findings and recommendations in this report. The Navy opened Naval Station Pearl Harbor in 1908 and constructed many of the infrastructure systems we discuss in this report, including the Red Hill BFSF and the Red Hill well, during the 1940s. Hawaii did not become a U.S. state until 1959. Many of the laws, regulations, and regulatory agencies relevant to the objective of our evaluation were not in place when the infrastructure systems we discuss in this report were built. For example, the EPA was not established until 1970. Additionally, many Federal laws, state laws, and regulations have changed over the years, which we describe when it is relevant.

[97] (U) Title 33 CFR part 154, "Facilities Transferring Oil or Hazardous Material in Bulk."

[98] (U) Title 33 CFR part 155, "Oil or Hazardous Material Pollution Prevention Regulations for Vessels."

[99] (U) Title 33 CFR part 156, "Oil or Hazardous Material Transfer Operations."

- (U) Title 40 CFR part 112 is an oil pollution prevention regulation that requires the preparation of spill prevention, control, and countermeasure (SPCC) plans and facility response plans (FRPs) for bulk fuel storage facilities, such as the Red Hill BFSF, that could "reasonably be expected to cause substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shorelines."[100]
- (U) Title 40 CFR part 280 is the UST regulation that describes standards for USTs, including methods for preventing releases and contamination and requirements for responding to releases.[101] The EPA granted the State of Hawaii the authority to regulate USTs. Accordingly, Hawaii Administrative Rules (HAR) chapter 11-280.1 includes requirements applicable to the USTs at DFSP JBPHH.[102] Additionally, HAR 11-451 requires Navy officials to initiate notifications to regulatory authorities about fuel incidents and establishes the reportable quantities which triggers the notifications.[103]
- (U) Title 49 CFR part 195 is the regulation for transporting hazardous liquids by pipeline that describes safety standards and reporting requirements for pipeline facilities, such as DFSP JBPHH.[104]
- (U) The DoD's United Facilities Criteria (UFC) program provides planning, design, construction, sustainment, restoration, and modernization criteria applicable to the Military Departments. UFC 3-460-03 provides "general inspection and maintenance criteria for military land-based liquid petroleum fuel facilities."[105]
- (U) UFC 3-600-01 provides "fire protection engineering policy and criteria for DoD components," and is applicable to all new and existing DoD facilities.[106]
- (U) UFGS-21-13-24.00-10 provides requirements for AFFF fire protection systems.[107]

[100] (U) Title 40 CFR part 112, "Oil Pollution Prevention."
(U) Title 40 CFR section 112.20, "Facility response plans."

[101] (U) Title 40 CFR part 280, "Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST)."

[102] (U) HAR, chapter 11-280.1, "Underground Storage Tanks."

[103] (U) HAR, chapter 11-451, "State Contingency Plan."

[104] (U) Title 49 CFR part 195, "Transportation of Hazardous Liquids by Pipeline."

[105] (U) UFC 3-460-03, "Petroleum Fuel Systems Maintenance," November 10, 2017 (Incorporating Change 1, April 29, 2021).
(U) UFC 3-460-03 was updated in August 2023; however, throughout this report, we refer to the version of UFC 3-460-03 in place at the time of our evaluation.

[106] (U) UFC 3-600-01, "Fire Protection Engineering for Facilities," August 8, 2016 (Incorporating Change 6, May 6, 2021).

[107] (U) UFGS-21-13-24.00-10, "Aqueous Film-Forming Foam (AFFF) Fire Protection System," October 2007.

- (U) DoDI 6055.01 requires the DoD to establish occupational safety and health programs that meet Occupational Safety and Health Administration (OSHA) standards.[108] Accordingly, the DoD and the Navy issued policies that include occupational safety and health requirements applicable to DFSP JBPHH. Chief of Naval Operations Instruction (OPNAVINST) 5100.23H and Naval Operations Manual 1500.23 (OPNAV M-5100.23) institute the Navy's program for occupational safety and health.[109]
- (U) DoD Manual (DoDM) 4140.25 is published in a series and includes requirements for DoD management of energy commodities, including fuel. The DoDM 4140.25 series relevant to the findings in this report include requirements for DFSP management, DFSP operations, bulk fuel inventory accounting, release detection, and statistical inventory reconciliation and investigations.[110]
- (U) OPNAVINST 5090.1E states that all Navy commands must "ensure the Navy conducts its mission in an environmentally responsible manner … ," implement the policy guidance in OPNAV M-5090.1 into their operations, and comply with applicable Federal and state environmental laws and regulations and DoD policies.[111] Each chapter of OPNAV M-5090.1 covers a specific environmental readiness program area. OPNAV M-5090.1 includes requirements for oil pollution prevention, control and management of hazardous materials, USTs and ASTs, drinking water quality, and incident response.

[108] (U) Title 29, United States Code, chapter 15, "Occupational Safety and Health.''

(U) DoDI 6055.01, "DoD Safety and Occupational Health (SOH) Program," October 14, 2014 (Incorporating Change 3, April 21, 2021).

[109] (U) OPNAVINST 5100.23H, "Safety and Occupational Health Program," June 5, 2020.

(U) OPNAV M-5100.23, "Navy Safety and Occupational Health Manual," June 5, 2020.

[110] (U) DoDM 4140.25, Volume 6, "DoD Management of Energy Commodities: DFSP Management," March 2, 2018, (Incorporating Change 2, April 4, 2019).

(U) DoDM 4140.25, Volume 8, "DoD Management of Energy Commodities: Energy Commodity Infrastructure Operations," March 2, 2018 (Incorporating Change 2, April 4, 2019).

(U) DoDM 4140.25, Volume 9, "DoD Management of Energy Commodities: DFSP Bulk Petroleum Inventory Accounting," March 2, 2018 (Incorporating Change 2, April 4, 2019).

(U) DoDM 4140.25, Volume 11, "DoD Management of Energy Commodities: DFSP Inventory Accounting Investigations," March 2, 2018.

[111] (U) According to DoDI 4715.06, it is DoD policy that "[e]nvironmental programs in the DoD achieve, maintain, and monitor compliance with all applicable environmental requirements." DoDI 4715.06 defines "compliance" as "[a]dherence to and attainment of all applicable federal, State, tribal, and local regulatory environmental requirements or standards." Accordingly, OPNAVINST 5090.1E includes requirements, delineates responsibilities, and issues implementing policy guidance.

(U) DoDI 4715.06, "Environmental Compliance in the United States," May 4, 2015 (Incorporating Change 2, August 31, 2018).

(U) OPNAV Instruction 5090.1E, "Environmental Readiness Program," September 3, 2019.

(U) OPNAV Manual 5090.1, "Environmental Readiness Program Manual," June 25, 2021.

(U) Additionally, Federal and state laws and DoD policy require DoD officials to:

- (U) develop and follow written process management procedures and include in those process management procedures the roles and responsibilities of managers and operators during "normal, abnormal, and emergency operating conditions";[112]
- (U) assess the risks to and resilience of the DFSP JBPHH, including the Red Hill BFSF;
- (U) prepare incident response plans; and
- (U) implement the plans.

(U) DoD officials prepared several plans referred to in Part V of this report, including the:

- (U) DFSP JBPHH Operation, Maintenance, Environmental, and Safety (OMES) Plan;[113]
- (U) CNRH Integrated Contingency Plan (ICP);[114]
- (U) CNRH Spill Prevention, Control, and Countermeasure (SPCC) Plan;[115]
- (U) JBPHH Instruction 3440.17D, the Joint Base Pearl Harbor–Hickam Installation Emergency Management Program;[116]
- (U) CNRH Red Hill BFSF Facility Response Plan (FRP);[117] and
- (U) CNRH Groundwater Protection Plan (GWPP).[118]

[112] (U) Title 49 CFR part 195, subpart F.

[113] (U) The DLA, "Operation, Maintenance, Environmental, And Safety Plan Defense Fuel Support Point Pearl Harbor Bulk Terminal Pearl Harbor, Hawaii," August 2018."

[114] (U) Commander, Navy Region Hawaii (CNRH), "Integrated Contingency Plan (ICP)," August 2018.

[115] (U) CNRH, "Spill Prevention, Control, and Countermeasure (SPCC) Plan for Commander Navy Region Hawaii (CNRH): Naval Supply Systems (NAVSUP) Command Fleet Logistics Center Pearl Harbor (FLCPH)/Defense Fuel Supply Center Pearl Harbor (DFSP PH) Bulk Terminal, Oahu, Hawaii," December 2019.

[116] (U) JBPHH Instruction 3440.17D, "Joint Base Pearl Harbor–Hickam Installation Emergency Management Program," February 2018.

[117] (U) CNRH, "Red Hill Fuel Storage Facility (RHFSF) Response Plan," August 2020.

[118] (U) NAVFAC Pacific, "Red Hill Bulk Fuel Storage Facility Final Groundwater Protection Plan," January 2008 (Interim Update August 2014).

B. (U) Organizations, Roles, and Responsibilities

(U) As previously discussed, JBPHH is a Navy-led installation, and the Navy owns and operates the real property, facilities, vessels, and equipment at DFSP JBPHH.[119] Specifically, at JBPHH, the following organizations manage DFSP JBPHH infrastructure.

- (U) The CNRH acts on behalf of CNIC and owns the physical DFSP JBPHH infrastructure. Additionally, the CNRH is responsible for the maintenance of non-wetted physical infrastructure and supporting shore infrastructure at DFSP JBPHH.[120] Furthermore, the CNRH is responsible for environmental compliance at JBPHH.
- (U) COMPACFLT is the senior Navy command on JBPHH capable of directing a large-scale incident response.
- (U) The JBPHH installation command is responsible for safety, security, environmental stewardship, utilities, and protection of personnel and property on JBPHH. Additionally, the JBPHH PWD manages the maintenance of non-wetted physical infrastructure and supporting shore infrastructure at DFSP JBPHH, including the fueling piers, and operates and maintains the JBPHH Community Water System.
- (U) DLA Energy owns the fuel in DFSP JBPHH and funds and sets requirements for bulk fuel supply chain management and infrastructure maintenance.[121]
- (U) NAVSUP FLC PH operates and conducts operator maintenance for DFSP JBPHH.[122]

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119 (U) Unlike the other Military Services, the Navy has two chains of command: operational and administrative. Operational chains of command carry out specific missions, such as naval operations and exercises. Administrative chains of command manage personnel, education, training, infrastructure, and supply chains necessary for readiness. The operational and administrative chains of command can overlap or diverge, such that a Sailor can be part of both and, therefore, report to two chains of command. For example, the CNRH reports to CNIC under administrative control and reports to the Commander, U.S. Pacific Fleet under operational control.

(U) Throughout this report, we refer to DoD officials or Navy and DLA officials when we are referring to the actions of more than one of these organizations. Otherwise, we specify the actions of one organization. Additionally, some DoD officials are dual-hatted, meaning that they are responsible for more than one job. In those cases, we refer to the dual-hatted official by both job titles.

120 (U) Wetted components and infrastructure come into direct contact with fuels. Non-wetted components and infrastructure do not come into direct contact with fuels.

121 (U) Within DLA Energy, DLA Energy Indo-Pacific is responsible for the management of product inventory, theater contingency and exercise support, regional product quality, and unique alternative fuel and renewable energy requirements. Additionally, DLA Information Operations (DLA J6) is responsible for engineering and maintenance of the AFHE at DFSP JBPHH.

122 (U) Additionally, within NAVSUP, NAVSUP Naval Petroleum Office coordinates petroleum and supply chain policy and procedures, monitors the operational compliance of bulk fuel tanks, and validates NAVSUP FLC PH infrastructure deficiencies to advocate for DLA Energy funding.

(U) Additionally, DLA Energy provides funding to the:

- (U) NAVFAC Atlantic, NAVFAC Pacific, NAVFAC Hawaii, and Naval Facilities Engineering and Expeditionary Warfare Center (NAVFAC EXWC) to manage maintenance, safety programs, and military construction at DFSP JBPHH.
- (U) DLA J6 for management of the technical requirement for the AFHE.[123]
- (U) U.S. Army Corps of Engineers for Sustainment, Restoration, and Modernization programs, including maintenance of wetted physical infrastructure.[124]

[123] (U) Prior to 2019, DLA Energy provided funds to NIWC for management of the technical requirements for AFHE.

[124] (U) The U.S. Army Corps of Engineers is the Executive Agent for management of DLA Energy's Recurring Maintenance and Minor Repair Centrally Managed Program.

V. (U) Analysis of the Management and Oversight of DFSP JBPHH

(U) In this section, we analyze the operations, maintenance, and management of Defense Fuel Support Point (DFSP) Joint Base Pearl Harbor-Hickam (JBPHH) which consists of the interconnected fuel systems at Naval Station Pearl Harbor, Hickam Air Force Base (AFB), and the Red Hill Bulk Fuel Storage Facility (BFSF). Additionally, we analyze the DoD's response to the fuel incidents at DFSP JBPHH.

(U) First, we explain that there were documented risks to the environment, drinking water quality, and human health and safety associated with the operation of DFSP JBPHH. For example:

- (U) the fueling piers at Naval Station Pearl Harbor extend directly into the waters of Pearl Harbor;
- (U) there are approximately 23 miles of aboveground and underground fuel pipelines extending across JBPHH and connecting the fuel systems; and
- (U) the Red Hill well is co-located with the Red Hill BFSF.

(U) Next, we explain that Navy officials did not have accurate infrastructure records for DFSP JBPHH. We will discuss the poor infrastructure and ineffective release detection methods at DFSP JBPHH. We will discuss the improper planning, design, and construction of the P-1551 military construction (MILCON) project for the fire protection system. We also discuss that although JBPHH oil and hazardous substances (OHS) incident response plans were insufficient, Navy officials did not follow the basic tenets of an incident response when responding to the fuel incidents discussed in this report.

(U) Then, we explain the reasons why these deficiencies occurred. Specifically, DoD officials:

- (U) lacked the operation and maintenance programs needed to operate DFSP JBPHH safely and protect the environment;
- (U) were not adequately prepared to respond to incidents; and
- (U) were not adequately prepared to perform release analysis to prevent or respond to a fuel incident.

(U) Lastly, we describe the impact of the ineffective management and oversight of DFSP JBPHH.

A. (U) Navy Officials Did Not Effectively Manage DFSP JBPHH

(U) In the following sections, we discuss that Navy officials at DFSP JBPHH had an Operation, Maintenance, Environmental, and Safety (OMES) Plan and OHS incident response plans that included procedures to mitigate risks to the environment, drinking water quality, and human health and safety associated with the operation of DFSP JBPHH. However, we determined that Navy officials did not have accurate infrastructure records. Additionally, we determined that DFSP JBPHH had poor infrastructure conditions. We determined that the methods of release detection at DFSP JBPHH are ineffective, unreliable, or inoperable, and that the lack of release detection increased the risks of fuel incidents. Furthermore, we determined that NAVFAC officials did not properly manage the planning, design, and construction of the P-1551 MILCON project for the fire protection system.

1. (U) DoD Officials Had Plans to Mitigate the Risks Associated with the Operation of DFSP JBPHH

(U) According to the CNRH Integrated Contingency Plan (ICP), DFSP JBPHH meets the substantial harm criteria of 40 CFR sec. 112.20 because it can "reasonably be expected to cause substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shorelines." Specifically, DFSP JBPHH meets the substantial harm criteria of 40 CFR sec. 112.20 because it:

- (U) "transfers oil over water to or from vessels and has a total oil storage capacity greater than or equal to 42,000 gallons;" and
- (U) its "total oil storage capacity is greater than or equal to 1 million gallons, and [...] the facility [is] located at a distance ... such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments [or] shut down a public drinking water intake ... ."[125]

(U) Because DFSP JBPHH is a facility with potential for substantial harm and can discharge oil into the environment, Federal and state laws and DoD policy require DoD officials to prepare plans for DFSP JBPHH, including the Red Hill BFSF. Additionally, OPNAV M-5090.1 requires Navy officials to prepare for, and respond to, fuel incidents at Navy shore facilities. Additionally, OPNAV M-5090.1 states that all "Navy facilities must maintain [incident response] plans to combat releases of ... oil

[125] (U) The CNRH ICP includes a table which documents which of the 40 CFR section 112.20 substantial harm criteria apply to DFSP JBPHH.

(U) and minimize hazards to human health and the environment."[126] Therefore, DoD officials prepared the following plans: DFSP JBPHH OMES Plan; CNRH ICP; CNRH Spill Prevention, Control, and Countermeasure (SPCC) Plan; JBPHH Instruction 3440.17D, the JBPHH installation Emergency Management Program; CNRH Red Hill BFSF Facility Response Plan (FRP); and CNRH Groundwater Protection Plan (GWPP).

(U) The DFSP JBPHH OMES Plan states that it is intended to provide NAVSUP FLC PH officials with facility management, operation, and maintenance policy and procedures in accordance with various Federal and state laws, regulations, and DoD policies.[127] Accordingly, the DFSP JBHH OMES Plan contains:

- (U) a facility description, roles and responsibilities, and training requirements;
- (U) security, safety, fire prevention, and environmental protection information;
- (U) procedures for normal, abnormal, and emergency fuel operations and quality surveillance procedures; and
- (U) fuel system maintenance procedures.

(U) The CNRH ICP states that it was prepared in accordance with 33 CFR part 154 and 40 CFR part 112. The purpose of the CNRH ICP is to present a single, integrated OHS incident response plan that satisfies all regulatory requirements, eliminates the confusion of having multiple plans, and minimizes the cost of maintaining multiple plans.[128] According to the CNRH ICP, the procedures it describes for mobilizing personnel and mitigation assets are designed to minimize life-threatening situations and damage to natural resources and the environment and to ensure that the CNRH's Spill Management Team (SMT) is adequately prepared to respond to an incident.

(U) The CNRH SPCC states that it was prepared in accordance with 40 CFR part 112 and that the intent of the plan is to "prevent and control the discharge of oil from non-transportation-related onshore facilities into or upon navigable waters of the United States or adjoining shorelines."[129] Additionally, the CNRH SPCC discusses incident prevention, countermeasures, and controls, including containment. Accordingly, the CNRH SPCC states: "Secondary containment must be sufficiently impervious to contain spilled oil."[130] The CNRH SPCC lists and describes the infrastructure "designated" as containment, including for fuel, on JBPHH.

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[126] (U) Later in this report, we analyze the adequacy of the incident response plans.

[127] (U) Specifically, according to the DFSP JBPHH OMES Plan, it was developed to comply with: 29 CFR sections 1910.38–1910.39; 33 CFR parts 154–156; 49 CFR part 195; HAR title 19, chapter 42; UFC 3-460-03; UFC 3-570-06; and MIL-STD-3004.

[128] (U) CNRH, "Integrated Contingency Plan (ICP)," August 2018.

[129] (U) CNRH, "Spill Prevention, Control, and Countermeasure (SPCC) Plan for Commander Navy Region Hawaii (CNRH): Naval Supply Systems (NAVSUP) Command Fleet Logistics Center Pearl Harbor (FLCPH)/Defense Fuel Supply Center Pearl Harbor (DFSP PH) Bulk Terminal, Oahu, Hawaii," December 2019.

[130] (U) CNRH, "Spill Prevention, Control, and Countermeasure (SPCC) Plan for Commander Navy Region Hawaii (CNRH): Naval Supply Systems (NAVSUP) Command Fleet Logistics Center Pearl Harbor (FLCPH)/Defense Fuel Supply Center Pearl Harbor (DFSP PH) Bulk Terminal, Oahu, Hawaii," December 2019.

(U) The JBPHH Emergency Management Program states that it was prepared to protect the lives of personnel at JBPHH, sustain installation mission essential functions, and restore base operations and support functions after an incident.[131] Accordingly, the JBPHH Emergency Management Program includes response actions for fuel incidents that "may endanger public health or the environment."

(U) The CNRH Red Hill BFSF FRP also states that it was prepared in accordance with 40 CFR part 112.[132] Specifically, 40 CFR part 112 requires the owner or operator of a bulk fuel facility to prepare an FRP for facilities that could "reasonably be expected to cause substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shorelines." The Red Hill BFSF FRP states that it "provides response information and procedures for responding to a major oil spill emergency."

(U) Furthermore, CNRH officials established the CNRH GWPP in 2008 to mitigate the risk of fuel incidents to groundwater and the aquifer in the Red Hill BFSF through groundwater and soil-vapor monitoring.[133] According to the CNRH GWPP, "past inadvertent releases have contaminated" the rock, soil, and groundwater beneath the Red Hill BFSF with petroleum products. We discuss the CNRH GWPP in more detail in DODIG-2025-012.

2. (U) Navy Officials Did Not Have Accurate Infrastructure Records for DFSP JBPHH

(U) UFC 3-460-03 requires owners and operators of fuel systems, including bulk fuel facilities such as DFSP JBPHH, to preserve and protect as-built information and update the as-built information when projects change the configuration of the fuel system.[134] UFC 3-460-03 states that an accurate process flow diagram of each fuel system is the minimum documentation that must be maintained.[135] UFC 3-460-03 also states that "copies of as-built information must be maintained at the … fuel facility operations building and [in] permanent installation files."

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131 (U) JBPHH Instruction 3440.17D, "Joint Base Pearl Harbor-Hickam Installation Emergency Management Program," February 2018.

132 (U) CNRH, "Red Hill Fuel Storage Facility (RHFSF) Response Plan," August 2020.

133 (U) NAVFAC Pacific, "Red Hill Bulk Fuel Storage Facility Final Groundwater Protection Plan," January 2008 (Interim Update August 2014).

134 (U) According to United Facilities Guide Specification (UFGS)-01 78 00, as-built information includes the "marked-up drawings … that depict actual conditions and deviations from the Contract Drawings. […] These files serve as the basis for the creation of the record drawings." For example, as-built drawings are the engineering drawings that depict the actual configuration of the delivered equipment or infrastructure. UFGS-01 78 00 defines record drawings as "the final compilation of actual conditions reflected in the as-built drawings" which we refer to as the final as-builts throughout this report.

(U) UFGS-01 78 00, "Closeout Submittals," May 2019 (Incorporating Change 1, August 2021).

135 (U) According to the American Society of Quality, a process flow diagram is a picture of the separate steps of a process in sequential order used to show the sequence of process inputs and outputs within a manufacturing process.

(U) We repeatedly asked DoD officials if they had engineering drawings showing the original fuel facility infrastructure and changes to the infrastructure over time, a complete set of engineering drawings for the current configuration of DFSP JBPHH infrastructure, an inventory of engineering drawings for DFSP JBPHH, or a hydraulic model of the system that matches the current configuration of DFSP JBPHH.

(U) NAVSUP FLC PH officials told us that they keep engineering drawings of DFSP JBPHH in the NAVSUP FLC PH technical library. We visited the NAVSUP FLC PH technical library during our site visits with a NAVSUP FLC PH official and contractor. During our visit, we saw evidence that the library was disorganized, with documents overflowing into the hallway, a lack of labeling, and piles of engineering drawings scattered on various tables. We asked NAVSUP FLC PH officials about the disorganization we saw. The NAVSUP FLC PH contractor told us that NAVSUP FLC PH did not have a full-time librarian or records keeper to organize the inventory of engineering drawings and to collect and integrate drawings from projects that changed the DFSP JBPHH infrastructure over time.

(U) Additionally, during our evaluation, NAVSUP FLC PH officials provided us with engineering drawings for various DFSP JBPHH infrastructure. However, neither we nor NAVSUP FLC PH officials could determine whether they were accurate or complete. For example, NAVSUP FLC PH officials had the original as-built drawings of the Red Hill BFSF but could not verify whether the engineering drawings they had reflected current conditions in the facility. In another example, NAVSUP FLC PH officials told us that they received some as-built drawings from NAVFAC officials at the JBPHH PWD at different stages of projects but could not determine if they received the final as-built drawings.[136]

(U) Navy officials were not sure if the engineering drawings of the fuel infrastructure were accurate or complete.

[136] (U) According to JBPHH Instruction 5400.2, the JBPHH PWD is "a forward deployed organizational element" of NAVFAC. Therefore, JBPHH PWD employees are also NAVFAC employees.
(U) JBPHH Instruction 5400.2, "Joint Base Pearl Harbor Hickam Standard Organization and Regulations Manual," August 19, 2019.

(U) Furthermore, we repeatedly asked NAVFAC officials at the JBPHH PWD if they had a complete set of DFSP JBPHH drawings. According to JBPHH Instruction 5400.2, the JBPHH PWD:

> (U) serves as the delivery point of products and services by providing comprehensive shore facilities management, operations management, operations maintenance, construction, base operating support services and environmental management [...] In simple terms, the PWD is the one-stop shop for a Navy Installation to receive facilities engineering and acquisition support ... ."

(U) Because the JBPHH PWD provides facilities engineering services at JBPHH, including to NAVSUP FLC PH, it is responsible for maintaining as-built information for projects that it contracts for and manages in the permanent installation files at JBPHH.[137] However, JBPHH PWD officials told us that they did not believe they were responsible for engineering drawings of DFSP JBPHH. In sum, we determined that Navy officials did not have accurate and up to date as-built drawings of DFSP JBPHH tanks, pipelines, and supporting infrastructure.

(U) We determined that the lack of accurate and accessible engineering drawings has negatively affected operations and maintenance of DFSP JBPHH infrastructure and contributed to ineffective incident response. For example, as discussed in Part III, Navy officials believed that a leaking and abandoned defuel pipeline caused the 2020 fuel incidents at Naval Station Pearl Harbor. Navy officials told us that the abandoned defuel pipeline had no external markings and was not shown on any engineering drawings that Navy officials reviewed.

[137] (U) In addition to the UFC 3-460-03 requirement, the Federal Acquisition Regulation (FAR) and NAVFAC Business Management System include requirements for as-built drawings to be delivered to the JBPHH PWD. Specifically, FAR subpart 4.8 states that the head of each office performing contracting, such as NAVFAC, or contract administration "shall establish files containing the records of all contractual actions," such as receipt of as-built drawings. Additionally, FAR subpart 4.8 states that "files must be maintained at organizational levels that ensure ... effective documentation of contract actions." Furthermore, the NAVFAC Business Management System states that, during contract and project closeout, final as-built drawings must be delivered to the installation public works department, such as the JPBHH PWD. Therefore, we concluded that JBPHH PWD officials would have received the as-built drawings and should have maintained the as-built drawings for projects that they contract for and manage.

(U) FAR Part 4, "Administrative and Information Matters," Subpart 4.8, "Government Contract Files."

(U) NAVFAC Business Management System, "B-1.7 Contract and Project Closeout," March 29, 2022.

3. (U) Poor Infrastructure Conditions at DFSP JBPHH

(U) The Navy and regulatory agencies performed various inspections and condition assessments of DFSP JBPHH infrastructure. We reviewed the reports that described the results of these inspections and assessments at DFSP JBPHH. For example, we reviewed:

- (U) the December 2016 Hotel Pier report, the October 2018 Bravo Pier report, the December 2018 Bravo, Kilo, and Mike Pier report, and the March 2019 Sierra Pier report;[138]
- (~~CUI~~) [redacted] and[139]
- (U) the EPA Region 9's August 2022 Spill Prevention, Control, and Countermeasure (SPCC) and Underground Storage Tank (UST) Compliance Evaluation Inspections (CEI) reports.[140]

(U) Inspection and assessment reports described the poor condition of fuel infrastructure at DFSP JBPHH.

(~~CUI~~) The inspection and assessment reports described degraded material conditions throughout DFSP JBPHH. [redacted] In another example, the EPA Region 9 report stated that some of the systems used to prevent pipelines from corroding were not functioning properly and described an unrepaired crack in the secondary containment of aboveground storage tanks (ASTs) at Hickam AFB.

[138] (U) Contractors delivered to NAVFAC EXWC a joint inspection report for Hotel Pier, "Waterfront Facilities Inspections and Assessments at Joint Base Pearl Harbor Hickam, Pearl Harbor, Hawaii, CR-NAVFAC EXWC-CIOFP 1642," December 12, 2016. We refer to this report as the December 2016 Hotel Pier report.
(U) Contractors delivered to NAVFAC EXWC a report for inspection of Bravo Pier, "Waterfront Facilities Inspections and Assessments at Joint Base Pearl Harbor Hickam, Pearl Harbor, HI, CR-NAVFAC EXWC-CIOFP-1838," October 8, 2018. We refer to this report as the October 2018 Bravo Pier report.
(U) Contractors delivered to NAVFAC EXWC reports for inspections of Bravo, Kilo, and Mike Piers, Vol. II of VI, "Waterfront Facilities Inspections and Assessments at Joint Base Pearl Harbor Hickam, Pearl Harbor, HI, CR-NAVFAC EXWC-CIOFP-1846," December 5, 2018. We refer to this report as the December 2018 Bravo, Kilo, and Mike Pier report.
(U) Contractors delivered to NAVFAC EXWC a report for an inspection of Sierra Pier, "Waterfront Facilities Inspections and Assessments at Joint Base Pearl Harbor Hickam, Pearl Harbor, HI, CR-NAVFAC EXWC-CIOFP-1863," March 15, 2019. We refer to this report as the March 2019 Sierra Pier report.

[139] (~~CUI~~) [redacted]
(CUI) [redacted]

[140] (U) EPA Region 9, "SPCC Inspection Report, Bulk Fuel Storage Systems Including Red Hill and the Airport Hydrant System Serving Joint Base Pearl Harbor-Hickam," August 17, 2022.
(U) EPA Region 9, "Underground Storage Tank System Inspection Report, Bulk Fuel Storage Systems Including Red Hill and the Airport Hydrant System Serving Joint Base Pearl Harbor-Hickam," August 17, 2022.

(U) We visited and evaluated the interconnected fuel systems at DFSP JBPHH multiple times during our two site visits. We observed areas of the DFSP in good condition, such as the ASTs at Hickam AFB. However, we also observed areas of the DFSP in degraded material condition. Ultimately, we determined that poor infrastructure conditions and safety deficiencies existed at DFSP JBPHH. For example, we observed:

- (U) corroded piping and tank corrosion in the Fuel Oil Recovery Facility and Upper Tank Farm at Naval Station Pearl Harbor;
- (U) standing water in low-lying areas of the harbor tunnel in the Red Hill BFSF where water should not be present;[141] and
- (U) corrosion and disrepair on all the fueling piers.

~~(CUI)~~ We asked NAVSUP FLC PH officials how many maintenance tasks they complete and if they have to defer any maintenances tasks. NAVSUP FLC PH officials told us that they complete approximately 1,300 quarterly maintenance tasks on approximately 1,000 components. However, NAVSUP FLC PH officials also told us that maintenance is not consistently completed and that the NAVSUP FLC PH maintenance team consistently works high levels of overtime to try and keep up. NAVSUP FLC PH officials told us that the maintenance team had to defer as much as 100 percent of corrective maintenance tasks monthly.[142] NAVSUP FLC PH officials told us that maintenance is deferred due to operational requirements, as well as a lack of maintenance instructions, a maintenance work order system, parts, and available maintenance technicians. [redacted]

(U) Maintenance of fuel infrastructure was inconsistent.

~~(CUI)~~ Because DFSP JBPHH consists of interconnected fuel systems at Naval Station Pearl Harbor, Red Hill BFSF, and Hickam AFB, degraded material conditions within one or more areas of the DFSP introduces risk to operation, maintenance, and management across the entire DFSP. [redacted]

[141] (U) Standing water degrades concrete over time, which also reduces the concrete's ability to contain a fuel release. Additionally, standing water contributes to humidity in the enclosed tunnel space, which accelerates corrosion of pipelines and supports.

[142] (U) Preventative maintenance tasks, also known as preventive maintenance tasks, are the scheduled maintenance tasks that are completed to prevent a component failure. Corrective maintenance tasks are the maintenance tasks performed after a component has failed to restore it to an operational status.

~~(CUI)~~ [redacted] See Figure 18 for examples of degraded material conditions we found at DFSP JBPHH.

(U) Figure 18. Examples of Material Degradation at DFSP JBPHH
(U) Source: The DoD OIG.

~~(CUI)~~ Note: [redacted]

(U) Additionally, according to CNIC Manual 5100.1, CNIC, regional commands, such as the CNRH, installation commands, such as the JBPHH installation command, and tenant commands, such as NAVSUP FLC PH, each play a role in the management of key safety processes. According to OPNAVINST 5100.23H, OPNAV M-5100.23 "contains the Navy's implementing guidance for the management of the safety

(U) and occupational health for all Navy ships and shore activities," including adopting Occupational Safety and Health Administration (OSHA) standards. Specifically, installation commands providing base operating support functions, such as the JBPHH installation command, are required to provide "safety services, performance tracking and monitoring" in accordance with OPNAVINST 5100.23H.[143] However, based on our site visits, interviews, and review of documentation, we identified safety and occupational health deficiencies at DFSP JBPHH.

(U) During our April 2022 site visit, we observed that Lockout/Tagout, a critical safety program for components not in their normal operating configuration, and the fuels lockout system (FLS) were not implemented.[144] Specifically, the April 2022 fuel incident occurred because a valve that should have been locked out and tagged by a NAVFAC Hawaii contractor was left open during a maintenance procedure, resulting in the release of fuel. We asked the NAVSUP FLC PH Fuels Director if they had a Lockout/Tagout program. The NAVSUP FLC PH Fuels Director told us that they refer to Lockout/Tagout of fuel components as an FLS and that they had a Lockout/Tagout program and an FLS; however, "it is pretty weak and it is not consulted when creating the [operation orders]. There is not a consolidated list for all the contractors."[145]

(U) According to 29 CFR sec. 1910.151:

> (U) where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use.[146]

~~(CUI)~~ UFC 3-420-01 states that emergency showers and eyewash stations should be accessible to workers within 10 seconds of exposure, or within 100 feet of a hazard. During our evaluation, we received documentation showing that there were only three emergency showers within the LAT at Red Hill BFSF, [redacted]. All of the emergency showers were located in the lower tank gallery, [redacted] and none of the emergency showers

[143] (U) During our site visits, Navy officials told us that when CNIC was established in 1999, safety and environmental responsibilities were consolidated. Accordingly, a 1998 memorandum of agreement realigned NAVSUP FLC PH safety and environmental billets to JBPHH. However, according to Navy officials, base support funding was reduced over time and the services JBPHH provided stopped. Due to the decline in services, a NAVSUP FLC PH official told us that they hired personnel for safety and environmental support for the NAVSUP FLC PH Fuels Department.
(U) CNRH, COMPACFLT, and NAVSUP, "Agreement Number N61449-98261-303," May 4, 1999.

[144] (U) OPNAV M-5100.23 requires procedures for locking out or tagging the sources of energy to equipment or systems, known as lockout/tagout. According to 29 CFR section 1910.147, an energy source is any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.
(U) Title 29 CFR section 1910.147, "General Environmental Controls."

[145] (U) Later in Part V, we explain that NAVSUP FLC PH officials document fuel movement processes in operation orders.

[146] (U) Title 29 CFR section 1910.151, "Medical and First Aid."

(~~CUI~~) were located downhill of the oil-tight door in the rest of the LAT.[147] According to the VCNO command investigation report, during the November 20, 2021 fuel incident, which occurred downhill of the oil-tight door, a NAVSUP FLC PH rover was doused in fuel. However, the nearest emergency shower was in the opposite direction of the exit of the LAT, and there were no emergency showers at the exits. Instead, the NAVSUP FLC PH rover went home and showered to relieve the burning and itching sensation on their skin, and later went to the emergency room for treatment.[148]

(U) Critical safety programs and systems were not implemented, insufficient, or inoperable.

(U) Furthermore, Navy officials partially disabled the Red Hill BFSF fire protection system in May 2018, less than 4 months after it was accepted by the Government. Specifically, Navy officials disabled a valve that supplies AFFF concentrate to the AFFF fire suppression system.[149] DoDI 6055.01 requires each installation to assign a risk assessment code (RAC) to any facility-related hazards, including fire safety deficiencies, that will not be corrected within 30 calendar days and to maintain an installation hazard abatement plan. Additionally, the installation must prioritize correction of the hazards and track all hazards assigned a RAC until closure.

- (U) In April 2022, CNRH FFD officials told us that NAVSUP FLC PH officials notified them via email when the Red Hill BFSF fire suppression system was partially disabled in 2018, and that they assigned a RAC to the hazard. However, they were unable to provide us with any documentation of the RAC or show that the Navy officials were tracking the hazard.
- (U) In July 2022, a CNRH FFD official told us that a RAC should have been assigned and that a "compensatory plan of how they will manage the fire risk in the meantime" should have been prepared and tracked in the Enterprise Safety Application Management System.[150] However, Navy officials did not prepare a compensatory plan or assign a RAC to the hazard.

[147] (U) As previously discussed, within the Red Hill BFSF, the portions of the UAT and the LAT that are directly between the two rows of USTs are the upper tank gallery and the lower tank gallery, respectively.

[148] (U) VCNO command investigation report.

[149] (U) According to documentation we reviewed, we could not determine which specific valve was disabled.

[150] (U) The Enterprise Safety Application Management System is a software application that enables Navy commands to manage their safety programs.

(U) According to OSHA officials, Navy officials did not inform personnel working in the Red Hill BFSF, including Navy employees and contractors, that the Red Hill BFSF fire protection system was partially inoperable.[151] In fact, in March 2022, OSHA officials issued a "Notice of Unsafe or Unhealthful Working Conditions" to Navy officials for a "serious" violation. Specifically, the notice stated:

> (U) The AFFF fire suppression system for the 12-million gallon storage tanks which contained hydrocarbon fuels, was disabled and locked out for more than a year. Welding and hot work on the tanks, and the tank gallery area of the tunnel was ongoing. Alternative firefighting measures were not put in place, exposing employees to fire hazards.[152]

(U) Ultimately, we determined that poor infrastructure conditions and safety and occupational health issues at DFSP JBPHH persisted and increased environmental and safety risks.

4. (U) Release Detection Methods at DFSP JBPHH Were Ineffective

(U) As discussed in Part III, unintended fuel releases have occurred from the interconnected systems and infrastructure at DFSP JBPHH. According to 40 CFR part 280, owners and operators of bulk fuel facilities must implement release detection methods.[153] Additionally, Federal laws and Hawaii regulations for the management of USTs have changed over the years, including for release detection methods. Specifically, the field-constructed Red Hill BFSF tanks and the airfield fuel hydrant systems at Hickam AFB were deferred from the release detection requirements in Federal UST regulations from 1988 to 2018.[154] However, the 2015 AOC began applying release detection requirements to the Red Hill BFSF tanks before the release detection requirements were included in revisions to the Federal and Hawaii UST regulations.

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151 (U) In November 2021, OSHA officials performed an inspection at the Red Hill BFSF and reported their findings in a report.

152 (U) OSHA, "Notice of Unsafe or Unhealthful Working Conditions, Inspection Number 1563668," March 3, 2022.
(U) Navy officials corrected the OSHA findings and repaired the AFFF fire protection system on April 26, 2022.
(U) CNRH, "Inspection Number 1563668, Agency Name: Department of the Navy, Naval Supply Systems Command (NAVSUP), Inspection Site: Red Hill Bulk Fuel Storage Facility, Icarus Way, Honolulu HI 96819, Issuance Date: 03/03/2022," May 2, 2022.

153 (U) The requirements for release detection methods differ based on factors, including the type of tanks and pipelines; the location of tanks and pipelines, such as aboveground or underground; the capacity of tanks and pipelines, which is the volume of fuel the infrastructure can contain; and the year the tanks and pipelines were installed or built, which determines the applicable laws and regulations.

154 (U) In September 1988, the EPA first implemented UST regulations, including leak detection requirements. The 1988 UST regulation deferred UST systems with field-constructed tanks and airport fuel hydrant systems from most of the regulation because these systems were designed and operated differently than conventional USTs. Sufficient information and technology, in particular, release detection for piping, were not readily available for these unique systems. The deferral meant that field-constructed tanks and airport fuel hydrant systems were not required to meet many of the UST requirements. However, updates to 40 CFR part 280, effective October 13, 2015, no longer exempt field-constructed tanks, and the Hawaii DOH incorporated these changes into the State's UST program in 2018.

(U) At DFSP JBPHH, there are three primary release detection methods: (1) semiannual tank tightness testing, (2) annual pipeline tightness testing, and (3) automated tank gauges (ATGs).[155] Additionally, the Red Hill BFSF FRP states that the closed-circuit television (CCTV) camera system is an "integral part of release detection." However, in the following sections, we explain that release detection methods at DFSP JBPHH were ineffective or inoperable.

a. (U) Primary Release Detection Methods at DFSP JBPHH Were Ineffective

(U) According to a 2019 Navy report prepared in response to the 2015 AOC, an unintended fuel release can be classified as minor, significant, or catastrophic.[156] Specifically, the 2019 Navy report states that a significant release:

> (U) occurs at rates above the detectable limits of release detections systems that meet Federal and state regulations, or above 0.5 gallons per minute, and can be caused by similar events as a minor release. Significant releases may be detected in a timely manner by primary release detection methods, such as tank gauging, tank tightness testing, or statistical inventory reconciliation.[157]

(U) When used in accordance with Federal and state regulations, the three primary methods of release detection at DFSP JBPHH—ATGs, semiannual tank tightness testing, and annual pipeline tightness testing—may detect a significant release in a timely manner. For example, according to 40 CFR part 280, UST owners and operators may use ATGs with tank tightness testing as a method of release detection.[158] According to the DFSP JBPHH OMES Plan, active fuel storage tanks require daily tank gauging before and after fuel movements. At DFSP JPBHH,

[155] (U) NAVFAC Hawaii, "Red Hill Bulk Fuel Storage Facility Administrative Order on Consent Tank Upgrade Alternatives and Release Detection Decision Document," September 2019.

[156] (U) NAVFAC Hawaii, "Red Hill Bulk Fuel Storage Facility Administrative Order on Consent Tank Upgrade Alternatives and Release Detection Decision Document," September 2019.

[157] (U) NAVFAC Hawaii, "Red Hill Bulk Fuel Storage Facility Administrative Order on Consent Tank Upgrade Alternatives and Release Detection Decision Document," September 2019.

[158] (U) ATGs are gauges installed in the tanks at DFSP JBPHH that measure and record pressure and temperature in the tanks with pressure sensors and temperatures sensors located within a probe. The pressure and temperature data are mathematically converted to determine the volume of fuel in the tanks. DFSP JBPHH has two types of ATG systems installed in its tanks: the mass tank gauge system is used in the Red Hill BFSF tanks, and the electronic telemetered gauging system is used in the ASTs at Naval Station Pearl Harbor. Throughout this report, we refer to both systems as the ATG system.

(U) Additionally, the 2015 AOC required Navy officials to conduct "monthly inventory control with ATGs and tank tightness testing every year" for the Red Hill BFSF tanks.

(U) ATGs provide tank volume data to the AFHE.[159] Additionally, NAVSUP FLC PH officials must verify the accuracy of ATG data by performing manual tank gauging once per month.[160]

(U) According to DLA and Navy officials, ATGs are well established within the tank industry; however, ATGs are typically used in shop-fabricated tanks that are relatively smaller than the tanks at DFSP JBPHH.[161] Additionally, according to DLA and Navy officials, when used in accordance with 40 CFR part 280, ATGs with continuous in-tank leak detection is an improved approach to manual tank gauging. Specifically, the ATG takes numerous tank level measurements to determine a fuel inventory result accurate enough for leak detection measurements of 0.1 gallons per hour. This is a common approach to leak detection for small tanks, storing less than 50,000 gallons, found in typical service station facilities but is not typically applied to bulk fuel storage tanks storing more than 50,000 gallons. All the bulk fuel storage tanks at DFSP JBPHH with ATGs hold more than 50,000 gallons of fuel. Therefore, the bulk fuel storage tanks at DFSP JBPHH are larger than the type of tanks for which ATGs are generally used.

(U) According to DLA officials, large field-constructed tanks, like the USTs and ASTs at DFSP JBPHH, represent a small fraction of tanks within the tank industry. Additionally, as previously discussed, field-constructed tanks were deferred from release detection requirements until 2018. Accordingly, DLA officials told us that the tank industry had little incentive to develop release detection systems capable of supporting large field-constructed tanks, such as the USTs and ASTs at DFSP JBPHH. Therefore, according to the DLA, the ATGs installed within the USTs and ASTs at DFSP JBPHH are not intended for such large tanks.

[159] (U) The DFSP JBPHH AFHE is a Supervisory Control and Data Acquisition (SCADA) system. A SCADA system consists of computers, networked data communications, and graphical user interfaces. Additionally, a SCADA system includes networked components, which consist of motor operated valves, ATGs, positive displacement and turbine fuel meters, flow computers, pressure indicating transmitters, tank level sensors, and pump control panels at the DFSP JBPHH AFHE. NAVSUP FLC PH officials monitor the DFSP JBPHH fuel systems and control fuel movement throughout the DFSP with the AFHE. The AFHE is monitored from a control room that is staffed 24 hours per day, 7 days per week in the underground pump house.

[160] (U) To perform manual gauging, a manual measurement is taken by inserting a marked stick into the tank two different times to obtain the daily starting volume and the daily ending volume, which is subtracted for comparison. The measured volume changes are compared to known transfer volumes, either into or out of the tank, and should equal the net amount of transfers. Due to the large size of the Red Hill BFSF tanks, NAVSUP FLC PH officials perform a manual gauging method known as "outage." To collect inventory measurements using the outage method, NAVSUP FLC PH officials use a tape measure calibrated annually by the National Institute of Standards and Technology to measure the distance from the surface of the fuel to a reference mark at the top of the tank.

[161] (U) DLA and Navy, "Administrative Order on Consent Statement of Work Section 4.6 New Release Detection Alternative Report, Red Hill Bulk Fuel Storage Facility (Red Hill), Joint Base Pearl Harbor-Hickam, Oahu Hawaii," July 26, 2018.

(U) According to NAVSUP FLC PH officials, they have constant issues with the ATGs, including:

- (U) "probe drift," which occurs when the ATG probes "drift" out of calibration due to little or no fuel movement in the tank;
- (U) "zeroed out" sensors that are nonfunctional; and
- (U) intermittent technology errors.

(U) For example, the ATGs are designed to recalibrate their settings every time fuel moves inside the tanks. However, according to a NAVSUP FLC PH official there is very little fuel movement within the DFSP JBPHH tanks once they are filled with fuel, which prevents the ATGs from recalibrating and increases the frequency of probe drift. NAVSUP FLC PH officials also told us that the ATG probes are past their 10-year life expectancy.[162] Specifically, the probes inside the ATGs have not been upgraded since they were installed in 2001, more than 20 years ago. According to the DFSP JBPHH OMES Plan, NAVSUP FLC PH officials need to verify the ATG data with manual tank gauging once per month; however, NAVSUP FLC PH officials told us that the location of the probes within the tanks interferes with their ability to perform manual tank gauging.

(U) Furthermore, NAVSUP FLC PH officials told us that they have to submit a "trouble ticket" to the Naval Information Warfare Center Atlantic every 2 to 3 days to fix various issues with the ATGs, such as when nonfunctional sensors "zero out." NAVSUP FLC PH officials told us that it often takes more than a week to get the issue resolved. NAVSUP FLC PH officials also told us that they do not trust the accuracy of the ATGs. Therefore, we determined NAVSUP FLC PH officials cannot consistently trust the ATG data or rely on the ATGs to identify possible fuel leaks.

(U) Navy officials did not trust automatic tank gauges or rely on them to identify leaks.

[162] (U) The ATGs at DFSP JBPHH were installed in their current configuration in 2001. In 2003, the Navy implemented a DLA-funded contract intended to: (1) upgrade the ATGs to comply with expected changes to 40 CFR part 280 and HAR 11-208, and (2) determine if the ATGs could pass a third-party certification. However, after 1 year, DoD officials did not move forward with the contract. In 2009, the electronics in the ATGs were updated with new technology; however, the sensor probes have not been upgraded since the original installation. The ATGs within the tanks at DFSP JBPHH continually provide the data they collect to the AFHE. However, the data the ATGs provide are not real-time leak detection because the ATGs do not have the required analytic components. Instead, the ATGs work in unison with the AFHE to perform inventory management. Specifically, DoDM 4140.25, Volume 8, also states: "Do not use the AFHE systems to provide certified static or dynamic leak detection monitoring for either pipelines or tanks." Instead, DoDM 4140.25, Volume 8, states that DFSP officials can use the AFHE for "environmental monitoring and potential leak detection during transfers."
(U) According to DoD officials, the manufacturer life expectancy for the electronics within the ATGs is 10 years.

(U) Based on our interviews with DoD officials and our review of documentation, we determined that it was likely that NAVSUP FLC PH officials ignored the ATG and AHFE indicators in the January 2014 and May 2021 fuel incidents discussed in Part III. Specifically, according to:

- (U) a Navy report, during the January 2014 fuel incident, the AFHE identified 1,777 alarms associated with filling Red Hill BFSF UST #5 with fuel; however, the NAVSUP FLC PH operators reset the alarms, effectively ignoring them.[163]
- (U) a Navy report, during the May 2021 fuel incident, NAVSUP FLC PH officials conducting the nightly fuel inventory identified that the AFHE recorded a significant tank level drop of approximately 20,139 gallons of fuel in Red Hill BFSF UST #12; however, NAVSUP FLC PH officials told us that they assumed the missing 20,139 gallons of JP 5 fuel was somewhere in the JP 5 pipeline and did not conduct any further investigation.[164]

(U) Therefore, due to their general mistrust of the ATGs and AFHE, Navy officials did not act upon indicators of fuel incidents, including AFHE alarms.

~~(CUI)~~ When we met with officials from Navy DFSPs, we asked them about their ATGs. NAVSUP FLC Norfolk officials told us that they also experience ATG issues at DFSP Craney Island. [redacted] Specifically, NAVSUP FLC Norfolk officials told us that they have constant issues with the ATGs [redacted], such as electronic errors in the probes. NAVSUP FLC Norfolk officials told us that DLA and Naval Information Warfare Center Atlantic officials are aware of the issues but have not communicated a plan to fix the ATGs or implement an alternative.

(U) Both NAVSUP FLC PH and NAVSUP FLC Norfolk officials told us that they regularly rely on manual tank gauging because the ATGs are not reliable. However, according to 40 CFR part 280, manual tank gauging for release detection is allowed as a method of release detection on a long-term basis only for small tanks that hold a maximum of 2,000 gallons.

~~(CUI)~~ As previously discussed, ATGs are typically used in small, shop-fabricated tanks, but we found that the DoD has ATGs in large bulk fuel storage tanks. The DLA manages an AFHE system integrated with ATGs [redacted]. Therefore, there may be other DFSPs that cannot reliably conduct release detection with ATGs.

[163] ~~(CUI)~~ [redacted]

[164] (U) VCNO command investigation report.

b. (U) Other Release Detection Methods at DFSP JBPHH Were Ineffective

(U) DFSP JBPHH has other methods of release detection. Specifically, DFSP JBPHH has two supplemental release detection methods: (1) soil vapor monitoring and (2) groundwater monitoring. When used in accordance with Federal and state regulations, the two supplemental methods of release detection at DFSP JBPHH may detect a minor release of fuel in a timely manner.

(U) According to the 2019 report, a minor release:

> (U) occurs at rates below the detectable limits of release detection systems that meet Federal and state regulations, or below 0.5 gallons per minute, and can be caused by minor corrosion or minor operational releases. Minor releases may not be detected by primary release detection methods, such as tank gauging, tank tightness testing, or statistical inventory reconciliation. However, minor releases may be identified through inventory trend analysis, visual inspection of pipelines, or by routine groundwater monitoring and soil vapor monitoring.[165]

(U) However, our review of documentation determined that neither the soil vapor monitoring nor groundwater monitoring were conducted in accordance with Federal and state regulations. Therefore, they cannot be used to detect a minor fuel release.

(U) Additionally, according to the 2019 Navy report, a catastrophic release:

> (U) occurs at rates well above the detectable limits of release detection systems that meet Federal and state regulations, and can be caused by events such as industrial or construction incidents or major seismic events. Catastrophic releases are easily and quickly detected by release detection methods, such as automatic tank gauges, manual tank gauging, visual observation, or statistical inventory reconciliation.[166]

(U) The Red Hill BFSF FRP states that the CCTV camera system is a method of release detection. When used in accordance with the Red Hill BFSF FRP, the CCTV camera system may detect a catastrophic release of fuel at the Red Hill BFSF in a timely manner.[167] According to the Red Hill BFSF FRP, NAVSUP FLC PH officials in the control room monitored the CCTV cameras to control facility access and to look for evidence of a fuel release.

[165] (U) NAVFAC Hawaii, "Red Hill Bulk Fuel Storage Facility Administrative Order on Consent Tank Upgrade Alternatives and Release Detection Decision Document," September 2019.

[166] (U) NAVFAC Hawaii, "Red Hill Bulk Fuel Storage Facility Administrative Order on Consent Tank Upgrade Alternatives and Release Detection Decision Document," September 2019.

[167] (U) The Red Hill BFSF FRP also states that the CCTV cameras are in place for security.

~~(CUI)~~ [redacted] ~~(CUI)~~ [redacted] Therefore, NAVSUP FLC PH officials did not see:

- (U) the NAVSUP FLC PH rover to verify the rover's safety;
- (U) that pipeline damage occurred;
- (U) the flow of fuel in the LAT; and
- (U) the operation of the sump pumps in the AFFF sump pit.

~~(CUI)~~ [redacted] If NAVSUP FLC PH officials had seen the sump pumps running in the AFFF sump pit during the May 2021 fuel incident, it is possible that they would have known that fuel was in the overhead AFFF drainage pipe, and possible that they could have prevented the November 2021 fuel incident.[169] In sum, we determined that the release detection methods at DFSP JBPHH were not effective in identifying fuel releases at DFSP JBPHH.

[168] ~~(CUI)~~ [redacted]

[169] ~~(CUI)~~ Additionally, the lack of CCTV camera coverage in the LAT negatively affected the response to the November 2021 fuel incident. [redacted] If NAVSUP FLC PH officials had known that a significant amount of fuel was pumped to the leach field system [redacted], they might have recognized earlier that this caused a release to the environment. We discuss this aspect of the November 2021 fuel incident in more detail later in this report.

5. (U) NAVFAC Officials Did Not Properly Manage the Planning, Design, and Construction of the P-1551 MILCON Project

(U) A project intended to reduce fire risks and reduce environmental risks in the case of a catastrophic fuel release at the Red Hill BFSF was mismanaged and did not achieve its intent.

(U) UFC 1-300-09N required design specifications to be definitive and free of ambiguities.[170] Additionally, UFC 3-600-01 establishes fire protection engineering policies and requirements for the DoD.[171] Specifically, UFC 3-600-01 states that pipelines containing AFFF must be stainless steel pipe. However, according to documentation we reviewed, the design specification that Navy officials developed for the P-1551 MILCON project did not clearly specify the required material for the AFFF pipeline.[172] Additionally, we could not find evidence that DoD officials identified or attempted to correct the inconsistencies in the Basis of Design and design specifications before entering the construction phase of the project.

~~(CUI)~~ According to documentation we reviewed, in October 2015, before the start of the construction, [redacted] issued a request for information to NAVFAC officials asking whether the use of polyvinyl chloride (PVC) material for AFFF pipelines was acceptable.[173] According to documentation we reviewed, PVC would deform at 180°F, making it unsuitable for fire exposure. In addition, PVC is not designed to handle the transport of pure fuel, which was a requirement of P-1551. According to the documentation we reviewed, on March 24, 2016, [redacted] sent the material submittals showing its plan to use PVC piping to NAVFAC officials. However, according to documentation we reviewed, the NAVFAC contract did not require government approval for material submittals. Therefore, NAVFAC officials did not formally accept or approve the piping material submittals.

[170] (U) UFC 1-300-09N, "Design Procedures," May 25, 2005 (Incorporating Change 9, July 1, 2013).
(U) These criteria have been updated several times since 2013, and the current version is FC 1-300-09N, "Navy and Marine Corps Design Procedures," May 17, 2024. For this report, we refer to the version incorporating Change 9 which was effective when the design specification for the P-1551 MILCON project was developed.

[171] (U) UFC 3-600-01, "Fire Protection Engineering for Facilities," September 26, 2006 (Incorporating Change 3, March 1, 2013).
(U) These criteria have been updated several times since 2013. For this report, we refer to the version incorporating Change 3 which was effective when the design specification for the P-1551 MILCON project was developed.

[172] ~~(CUI)~~ [redacted]

[173] ~~(CUI)~~ [redacted]

~~(CUI)~~ [redacted].[174] In August 2017, NAVFAC officials proposed three potential courses of action to fix the inadequate use of PVC piping. Ultimately, in June 2018, DoD officials decided to change the overhead AFFF drainage pipeline close to the AFFF sump pits to steel, and maintain the rest of the PVC pipes in an engineering change project, known as Change R.[175]

(U) Furthermore, UFGS-21-13-24.00-10 requires DoD officials to test all fire suppression system components and subsystems to confirm that they will function as intended and are ready for service. Our review of documentation determined that NAVFAC officials did not perform operation tests of the entire Red Hill BFSF fire protection system, including the AFFF sump pumps, to make sure the system functioned as intended before accepting the system.[176]

B. (U) Navy Officials Did Not Effectively Manage the Response to Fuel Incidents

(U) In the following sections, we explain that Navy officials did not effectively respond to fuel incidents. We determined that the OHS incident response plans were inadequate and not maintained. However, we will explain that Navy officials did not follow any one of the incident response plans or initiate required notifications to the May 2021 and November 2021 fuel incidents at the Red Hill BFSF. Although the incident response plans were inadequate, we determined that, if Navy officials had followed any one of the incident response plans, the effects of the May 2021 and November 2021 fuel incidents might have been mitigated or prevented.

[174] (U) Based on our review of documents concerning the P-1551 MILCON, we could not determine when DoD and Navy officials held these meetings.

[175] (U) Specifically, DoD officials implemented Change R to address two issues: improving the probability that the PVC pipeline would remain functional as a drain after a fire incident, and addressing concerns that a mix of fuel and AFFF reaching the retention tank could reignite the fire due to a static electricity discharge.

[176] (U) According to the VCNO command investigation report, on December 21, 2017, Navy officials began conducting commissioning testing of the AFFF supply system. The VCNO command investigation report states that on January 13, 2018, Navy officials completed commissioning testing of the AFFF retention system. During this testing all the AFFF sump pumps were successfully tested by manipulating the float switches, but no water was pumped. However, as previously discussed, commissioning testing of the AFFF retention system was not performed again after Change R was completed. Therefore, we determined that commissioning testing of the AFFF retention system was not performed in accordance with UFGS-21-13-24.00-10, and that commissioning testing of the Red Hill BFSF fire protection system was incomplete and inadequate.

1. (U) The DFSP JBPHH OHS Incident Response Plans Were Insufficient for Navy Officials Responding to Fuel Incidents

(U) As previously discussed, OPNAV M-5090.1 requires Navy officials to prepare for, and respond to, fuel incidents at Navy facilities. Additionally, OPNAV M-5090.1 states that all "Navy facilities must maintain [incident response] plans to combat releases of … oil and minimize hazards to human health and the environment."[177] We determined that the OHS incident response plans were insufficient for Navy officials responding to fuel incidents. Specifically, in the following sections, we will explain that the incident response plans:

- (U) are unclear about roles and responsibilities;
- (U) contradicted one another;
- (U) did not provide adequate specifics for Navy officials responding to fuel incidents; and
- (U) did not describe probable fuel incident scenarios.

a. (U) OHS Incident Response Roles and Responsibilities Are Unclear and Contradictory

(U) According to each of the OHS incident response plans, the Incident Commander is in charge of incident response. The CNRH Integrated Contingency Plan (ICP), Red Hill BFSF FRP, and JBPHH Emergency Management Program describe the role of the Incident Commander; however, we found that each OHS incident response plan designates a different person for the role of Incident Commander. According to the:

- (U) CNRH ICP, the CNRH CO, who is the Navy On-Scene Coordinator (NOSC), or the NOSC's Representative (NOSC-R), is the Incident Commander for fuel releases that exceed the response capability of the "spiller";[178]
- (U) Red Hill BFSF FRP, the CNRH Federal Fire Department (FFD) is the Incident Commander; and
- (U) JBPHH Emergency Management Program, either the CNRH CO or the JBPHH CO can be the Incident Commander.[179]

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177 (U) Later in this report, we analyze the adequacy of the incident response plans.

178 (U) According to OPNAV M-5090.1, the NOSC is the Navy official who is pre-designated to coordinate Navy OHS incident contingency planning and direct Navy OHS incident response efforts in a pre-assigned area.
(U) Although the CNRH ICP does not define the term "spiller," it refers to the spiller in terms of the individual or command that spilled the fuel.

179 (U) The JBPHH Emergency Management Program states that the CNRH CO will direct all major responses to OHS incidents. The JBPHH Emergency Management Program states that this does not apply to incidents on land that do not require emergency response and cleanup or incidents that do not require NOSC cleanup. Additionally, the JBPHH Emergency Management Program states that the JBPHH CO must directly support the IC or may be the IC. Furthermore, the JBPHH Emergency Management Program states that the JBPHH Commanding Officer (CO) has the "authority and responsibility to protect personnel, equipment and facilities."

(U) Our review of the OHS incident response plans determined that none of the OHS incident response plans refer to the Incident Commander roles and responsibilities within the other OHS incident response plans. Therefore, it is also unclear whether there should be one Incident Commander or multiple Incident Commanders for different aspects of an incident response.

(U) Additionally, our review of the OHS incident response plans determined that there were inconsistencies across the OHS incident response plans regarding the NOSC-R's responsibilities. For example, the CNRH ICP repeatedly refers to the NOSC-R carrying out the role of Incident Commander and their authority to direct the response efforts and liaise with regulators, including for required notifications. However, Navy officials we interviewed told us about a caveat in the CNRH ICP and the Red Hill BFSF FRP. Specifically, the CNRH ICP and the Red Hill BFSF FRP state that the spiller must summon the NOSC-R for an incident that does not exceed the response capability of the spiller. Our review of the CNRH ICP and the Red Hill BFSF FRP determined that this statement implied that the spiller does not have to summon the NOSC-R for an incident that is within the spiller's response capability. Furthermore, the JBPHH Emergency Management Program states that the NOSC-R responsibilities apply "primarily to large-scale emergency and disaster events that could cause substantial harm to public health or the environment and is beyond the response capability of the local command."

(U) We determined that it is unclear how Navy officials can be sure of the spiller's response capability. Our review of the OHS incident response plans determined that they do not specifically state who is ultimately responsible for determining if a spill is beyond the spiller's response capability, and we found no Qualified Individual at NAVSUP FLC PH designated to make that determination.[180] We determined that this lack of clarity could allow a command to respond to an incident that exceeded their capability without asking for support early in the incident, which we discuss later in this report.

b. (U) OHS Incident Response Plans Do Not Provide Adequate Details About Fuel Infrastructure or Describe Probable Fuel Incident Scenarios

(U) Our review of OHS incident response plans determined that each of the OHS incident response plans included fuel incident scenarios to inform the decisions and procedures described within the plans. We reviewed the fuel incident scenarios described in the CNRH ICP, and we found that the "analysis of the major oil hazards" in the CNRH area of responsibility describes fuel storage

[180] (U) According to OPNAV M-5090.1, the NOSC may designate a Qualified Individual to implement OHS incident response requirements on behalf of the NOSC. The NOSC formally delegated the Qualified Individual responsibility to oversee the response to "actual or potential" incidents within the CNRH area of responsibility, including at JBPHH, to the NOSC-R.

(U) in the upper tank farm at Naval Station Pearl Harbor, Hickam AFB, and the Fuel Oil Recovery Facility. However, the Red Hill BFSF is not included. Additionally, we found that the CNRH ICP has a table describing the "potential for oil spills at facility transfer operations, pumping operations, and pipelines." The CNRH ICP table rates the following probabilities as low.

- (U) "Probability of spills due to maintenance deficiencies."
- (U) "Probability of spills due to operator training, job knowledge, and [standard operating procedure] shortfalls."
- (U) "Probability that corrective actions for spills will not eliminate/minimize same spills in future."

(U) Although the CNRH ICP table states these probabilities of spills as low, our analysis of the documentation did not reveal how Navy officials made this conclusion. As previously discussed, there were fuel leaks at Naval Station Pearl Harbor in 2007 and at the Red Hill BFSF in 2014—both before the date of the 2018 CNRH ICP. Therefore, Navy officials should have been aware of the potential for fuel leaks in the area. Furthermore, later in this report, we explain that we found significant maintenance deficiencies, a lack of operator training, unclear operations orders, and a history of not taking corrective actions at DFSP JBPHH.

(U) The CNRH ICP also lists the potential environmental impacts of fuel releases. As discussed further in DODIG-2025-012, groundwater is the source of drinking water for each of the three groundwater supply wells that serve the JBPHH Community Water System at JBPHH, including the Red Hill well located in the Red Hill BFSF. However, we found that the CNRH ICP had one sentence in total discussing the potential impact of a fuel release to groundwater, which stated: "Spills could spread on the surface and begin to migrate downward through the soil and have the potential to impact groundwater." The CNRH IPC does not discuss any risk to groundwater or include the Red Hill well on the list of "environmental, cultural, and economically sensitive areas."

~~(CUI)~~ Additionally, our review of the Red Hill BFSF FRP determined that the Red Hill BFSF FRP did not provide adequate specifics and did not describe probable fuel incident scenarios. For example, the Red Hill BFSF FRP described a worst-case discharge scenario and a "maximum most probable" discharge scenario. The worst-case discharge scenario involves the complete release of the contents of one of the USTs and the failure of the oil-tight door. [redacted]

~~(CUI)~~ [redacted][181] However, the scenario does not discuss the Red Hill well or acknowledge that a significant amount of fuel would continue to flow toward Adit 3 and the entrance to the Red Hill well pump station. In fact, Navy officials had a 2015 simulation that showed the worst-case discharge scenario would threaten the Red Hill well even with the oil-tight door closed.[182] We determined that the Red Hill BFSF FRP placed significant emphasis on closing the oil-tight door to prevent a release in the LAT from flowing downhill. However, based on our review of the 2015 simulation and observation during our site visits, we determined that, although the oil-tight door would substantially reduce the impacts of a worst-case scenario discharge, it would not eliminate risks to the Red Hill well.[183]

~~(CUI)~~ We also determined that the Red Hill BFSF FRP did not describe any scenario involving a fuel incident downstream of the oil-tight door, such as the November 2021 fuel incident. There are [redacted] pipelines in the LAT and the harbor tunnel downstream of the oil-tight door that could be a source of a release. Additionally, the entrance to the Red Hill well pump station is downstream of the oil-tight door. According to Navy officials, the pipelines are filled with fuel at all times. For example, at the time of the May 2021 fuel incident, the JP-5 fuel pipeline at the Red Hill BFSF contained 182,308 gallons of fuel.[184] A Navy official told us:

> (U) All the spill plans, the response plans, [were] based on the premise of a tank failure. All the incidents post 2015 have been infrastructure failures. The bad assumption we made was that the tunnel system would be containment. There was never a leak from a tank [since the January 2014 fuel incident]. There was no emphasis put on other potential impacts to the drinking water well, because we believed it would be contained in the tunnel.

[181] (U) See Figure 7 in Part II.

[182] (U) The maximum most probable discharge scenario described in the Red Hill BFSF involves damage to the largest fuel pipeline in the lower tank gallery that causes the pipe to rupture. In this scenario, the oil-tight door closes to contain the release. On December 1, 2015, the Naval Information Warfare Center Pacific, formerly Space and Naval Warfare Systems Center Pacific, delivered a simulation of fuel flow in the Red Hill LAT. The 2015 simulation concluded that, in the event of a release of the entire contents of Red Hill BFSF UST #15, the entire UST would completely drain in 2.63 hours; fuel flow would reach the Red Hill pump station at 144 seconds and cover the entire floor at 155 seconds; and fuel would reach Adit 2, within the harbor tunnel, and flow outside approximately 45 minutes after release. Additionally, the 2015 simulation showed that in a worst-case discharge, fuel passed the location of the oil-tight door within 69 seconds and reached the harbor tunnel within 96 seconds.

[183] (U) On July 20, 2022, during our site visit, we observed a test of the oil-tight door in the LAT. We observed that, once the door closed, it did not immediately close tightly. Instead, it bounced against the doorframe and did not properly seal along the bottom of the door. Additionally, it took 115 seconds for the door to close, which, based on our analysis of the 2015 simulation, would likely allow some amount of fuel to flow past. We compared our observation of the oil-tight door test to the 2015 simulation of a worst-case discharge, and we found that the oil-tight door would not close in time to prevent any fuel from flowing past.

[184] (~~CUI~~) [redacted]

(U) Lastly, the Red Hill BFSF FRP does not direct Navy officials responding to any fuel incident to contact JBPHH PWD officials to activate the JBPHH Community Water System Emergency Response Plan, as discussed in DODIG-2025-012.[185]

(U) Title 40 CFR part 112 states that the owner or operator of a facility with an FRP must revise "portions of the response plan within 60 days of each facility change that materially may affect the response to a release," and then implement the revisions.[186] As previously discussed, the Red Hill BFSF FRP states that the CCTV camera system strategically located throughout the LATs are in place for release detection. The Red Hill BFSF FRP states that the use of the CCTV camera systems is an integral part of the critical actions for a Red Hill BFSF fuel release emergency.

~~(CUI)~~ [redacted] Navy officials did not take either action. Therefore, we determined that the Red Hill BFSF FRP was not maintained in accordance with 40 CFR part 112.

2. (U) Navy Officials Did Not Follow the Incident Response Plans During the May 2021 and November 2021 Fuel Incidents

(U) We determined that Navy officials did not follow the incident response plans or initiate required notifications to the May 2021 and November 2021 fuel incidents at the Red Hill BFSF. Although we determined that the OHS incident response plans were insufficient, all of the OHS incident response plans had the basic tenets to initiate an incident response. In the following sections, we explain that Navy officials did not:

- (U) establish incident command, and no one took on the role of the Incident Commander during the May 6, 2021 and November 20, 2021 fuel incidents at the Red Hill BFSF;

[185] (U) Although JBPHH PWD officials responsible for the Red Hill well learned of the November 2021 fuel incident, they did not stop the Red Hill well pumps from continuing to draw water from the Red Hill well into the JBPHH Community Water System during and immediately after the incident. We discuss this further in DODIG-2025-012.

[186] (U) According to 40 CFR part 112, owners of a facility with an FRP must commit to implementation. Specifically, 40 CFR part 112 states that the FRP "must have the full approval of management at a level of authority to commit the necessary resources to fully implement the plan."

- (U) carry out required incident response actions; and
- (U) initiate the required notifications to the Navy chain of command and Federal and state regulators.

a. (U) Navy Officials Did Not Establish Incident Command for the May 2021 and November 2021 Fuel Incidents

(U) According to the CNRH ICP, the Incident Commander is in charge of incident response and responsible for:

- (U) assessing the magnitude of the fuel incident, including the amount of fuel released and the locations impacted;
- (U) "determining the type of mitigating actions required based on the hazards present with input from operations, planning, and other technical support personnel";
- (U) directing the mitigating actions;
- (U) requesting additional support and activating emergency response personnel; and
- (U) ensuring that the necessary notifications and communications occur, such as reporting to the Navy chains of command and to the Hawaii DOH.

(U) No single Navy official took charge of the 2021 fuel incidents at the Red Hill BFSF.

(U) However, no Navy official assumed the role of the Incident Commander during the May 2021 and November 2021 fuel incidents, as required by the CNRH ICP, the Red Hill BFSF FRP, and the JBPHH Emergency Management Program. We interviewed Navy officials who responded to each of the 2021 fuel incidents. We determined there was no consensus among Navy officials regarding who was in charge during either fuel incident. Specifically, neither the NOSC, NOSC-R, CNRH FFD, JBPHH CO, nor NAVSUP FLC PH officials, as the spilling command, took on the role of the Incident Commander.

(U) According to the VCNO command investigation report, the CNRH CO, who is the NOSC, was notified about the 2021 fuel incidents; however, the CNRH CO did not go to the Red Hill BFSF for either of the 2021 fuel incidents, and was, therefore, not the Incident Commander. OPNAV M-5090.1 states that the NOSC may designate a representative to implement incident response requirements on behalf of the NOSC. According to the CNRH ICP, the NOSC formally designated a CNRH official as the NOSC-R to implement incident response requirements. According to the VCNO command investigation report, the NOSC-R was notified about the 2021 fuel incidents. However, Navy officials told us that the NOSC-R did not go to the Red Hill BFSF for either of the 2021 fuel incidents.

(U) We were unable to confirm why the NOSC-R did not go to the Red Hill BFSF. We reviewed the VCNO command investigation report and interviewed Navy officials who responded to each of the 2021 fuel incidents, and we found various discrepancies among these sources. For example, one NAVSUP FLC PH official stated that the NOSC-R was often unresponsive or wanted to "respond remotely." Other NAVSUP FLC PH officials told us that they contacted the NOSC-R for both of the 2021 fuel incidents, but the NOSC-R did not respond since the release was not over water. Conversely, the NAVFAC Hawaii CO told us that the NOSC-R was called for the November 2021 fuel incident but was told they were not needed. The VCNO command investigation report states the NOSC-R was not informed that the release contained fuel until December 2021. Because the NOSC-R did not respond to these two fuel incidents, we concluded that the NOSC-R was not the Incident Commander.

(U) Additionally, the VCNO command investigation report states that on May 6, 2021, and November 20, 2021, CNRH FFD officials went to the Red Hill BFSF, monitored the air for fuel vapors, and limited access to the tunnels for more than 1 hour and for more than 4 hours, respectively. However, CNRH FFD officials did not establish themselves as the Incident Commander. Instead, once CNRH FFD officials determined the area was safe from fuel vapors, they left the scene.

(U) Furthermore, the VCNO command investigation report states:

> (U) Navy regulations and instructions unambiguously identifies the [JBPHH CO] as the individual who is singularly responsible for all facets of an installation – and Red Hill is no exception. In response to both [of the 2021 fuel] spills, … only the [JBPHH CO] had authority over all aspects of Red Hill, including the well and the response efforts.

(U) The VCNO command investigation report also states that the JBPHH CO was notified of the 2021 incidents. However, the JBPHH CO did not report to either fuel incident at the Red Hill BFSF, and was, therefore, not the Incident Commander. The JBPHH CO stated that "to [their] understanding, there is no requirement for [them] to serve as the Incident Commander for a spill."[187]

(U) The Red Hill BFSF FRP states that the NAVSUP FLC PH Fuels Director is the "emergency spill coordinator," and the NAVSUP FLC PH Fuels Deputy Director is the backup if the Fuels Director is unavailable. The Red Hill BFSF FRP did not define the role of "emergency spill coordinator" or explain whether this role is the same as that of the Incident Commander. Therefore, we determined that this was another example of the unclear roles and responsibilities in the OHS incident response plans.

[187] (U) VCNO command investigation report.

(U) On May 6, 2021, the NAVSUP FLC PH CO did not go to the Red Hill BFSF.[188] Instead, the NAVSUP FLC PH CO went to their office. According to the VCNO command investigation report, the NAVSUP FLC PH CO was unable to provide many details to CNRH officials who called to inquire about the incident. The NAVSUP FLC PH Fuels Deputy Director went to the Red Hill BFSF.[189] However, the NAVSUP FLC PH Fuels Deputy Director did not establish incident command. Therefore, neither the NAVSUP FLC PH CO nor the NAVSUP FLC PH Fuels Deputy Director was the Incident Commander or the emergency spill coordinator on May 6, 2021.

(U) On November 20, 2021, the NAVSUP FLC PH CO, the NAVSUP FLC PH Fuels Director, and the NAVSUP FLC PH Fuels Deputy Director reported to the scene of the fuel incident.[190] However, according to the VCNO command investigation report, neither the NAVSUP FLC PH CO, NAVSUP FLC PH Fuels Director, nor the NAVSUP FLC PH Fuels Deputy Director was the Incident Commander or the emergency spill coordinator on November 20, 2021. In sum, no Navy official assumed the role of the Incident Commander during the May 2021 and November 2021 fuel incidents, as required by the CNRH ICP, the Red Hill BFSF FRP, and the JBPHH Emergency Management Program.

b. (U) Navy Officials Did Not Perform Required Incident Response Actions to Mitigate Environmental Contamination

(U) We determined that Navy officials did not perform some of the response actions required by the OHS incident response plans for the November 2021 fuel incident. For example, the CNRH ICP directs Navy officials responding to a fuel incident to "[p]revent spill[s] from escaping the containment systems or spill[s] on the ground from entering manmade or natural drainage, sanitary sewers, streams, etc." However, on November 20, 2021, Navy officials did not take response actions to prevent the fuel that was flowing downhill from entering the groundwater sump pit. As discussed in Part II, the groundwater sump pit is part

(U) Navy officials did not prevent fuel from entering drainage systems during the November 2021 fuel incident, which resulted in drinking water and environmental contamination.

[188] (U) When we refer to the NAVSUP FLC PH CO responding to the May 2021 fuel incident, we are referring to the Navy officer who was the NAVSUP FLC PH CO from June 2019 to August 6, 2021.

[189] (U) On May 6, 2021, the NAVSUP FLC PH Fuels Director did not report to the scene of the incident. According to the Vice Chief of Naval Operations command investigation report, NAVSUP FLC PH had a Fuels Director from May 30, 2020, to May 12, 2021. Although the NAVSUP FLC PH Fuels Director was formally in the role of NAVSUP FLC PH Fuels Director until May 12, 2021, they were no longer performing duties as the NAVSUP FLC PH Fuels Director starting on February 11, 2021. A new NAVSUP FLC PH Fuels Director assumed duties on July 13, 2021.

[190] (U) Throughout this report, we refer to the official taking action at the time of the action. The NAVSUP FLC PH CO responding to the May 2021 fuel incident was a different Navy officer from the NAVSUP FLC PH CO responding to the November 2021 fuel incident due to a change of command.

(U) of a drainage system constructed in the Red Hill BFSF LAT. According to the VCNO command investigation report, Navy officials recovered fuel from various locations after the November 2021 fuel incident, including the fuel they pumped from the groundwater sump pit into tanker trucks for disposal. A total of 5,542 gallons of fuel remained unaccounted for, and some or all of that fuel backed up into the French drain, seeped through the ground and into the Red Hill well water development tunnel located below the LAT, and contaminated the Red Hill well.[191] We discuss the reasons why Navy officials did not perform some of the response actions required by the OHS incident response plans later in this report.

(U) Additionally, the Red Hill BFSF FRP specifically describes response actions and directs NAVSUP FLC PH officials to "immediately" de-energize, or turn off, the sump pumps in the groundwater sump pit and "check [the] outlet for fuel" in the event of a fuel release.[192] On November 20, 2021, NAVSUP FLC PH officials did not immediately de-energize the sump pumps in the groundwater sump pit. Specifically, the fuel release began at 4:50 p.m., but the sump pumps were not turned off until approximately 9:57 p.m., 5 hours later.

(U) Furthermore, NAVSUP FLC PH officials did not check the outlet point at the leach field system for fuel. According to the VCNO command investigation report, the NAVSUP FLC PH CO and the NAVSUP FLC PH Fuels Deputy Director correctly believed that the outlet point was an underground leach field system near the Halawa stream. Because the NAVSUP FLC PH CO's primary concern was contamination of the Halawa stream, NAVSUP FLC PH officials checked the Halawa stream for a sheen or smell of fuel and found none. However, they did not check the leach field system itself. CNRH environmental officials told us that they did not know the leach field system existed until December 2021.

~~(CUI)~~ As discussed in Part II, the leach field system consists of an underground holding tank and leaching pit buried near the Halawa stream. The fuel that was pumped to the leach field system filled the underground storage tank, overflowed into the leaching pit, leached into the surrounding soil, and contaminated the environment. On December 9, 2021, Navy officials cleared overgrowth and found evidence of fuel contamination in the soil surrounding the leach field system [redacted] Specifically, Navy officials recovered 1,369 gallons of JP-5 fuel from the underground holding tank and its associated piping leading from the groundwater sump pit, and

[191] (U) We discuss the contamination of the Red Hill well in more detail in DODIG-2025-012.

[192] (U) The Red Hill BFSF FRP does not describe the outlet of the groundwater sump pit, which is the leach field system.

~~(CUI)~~ an undetermined amount of fuel entered the environment via the leaching pit.[193] As previously discussed, the VCNO command investigation report states that Navy officials did not recover 5,542 gallons of the 20,957 gallons of JP-5 fuel released during the 2021 fuel incidents. Although Navy officials recovered 1,369 gallons of JP-5 fuel from the underground holding tank, some of the 5,542 gallons of unrecovered fuel entered the environment via the leaching pit.[194]

(U) In sum, Navy officials missed the opportunity to mitigate to at least some extent both the drinking water contamination and the environmental contamination that resulted from the November 2021 fuel incident by not performing response actions required by the OHS incident response plans.

c. (U) Navy Officials Did Not Initiate the Required Notifications During the May 2021 and November 2021 Fuel Incidents

(U) Hawaii Administrative Rules (HAR) 11-451, OPNAV M-5090.1, the CNRH ICP, the Red Hill BFSF FRP, and the JBPHH Emergency Management Program require Navy officials to initiate notifications to regulatory authorities and the Navy chain of command when a fuel incident occurs. HAR 11-451 establishes the reportable quantities and notification requirements for fuel incidents.[195] Additionally, HAR 11-451 states that Navy officials must report any amount of fuel "which when released to the environment causes a sheen to appear" on water and any amount of fuel "released to the environment greater than 25 gallons."[196] Furthermore, HAR 11-280.1 includes reporting requirements specific to fuel incidents originating from a UST system, such as the Red Hill BFSF.[197] Based on our review of the HAR requirements, we determined that each of the incidents we discuss in Part III of this report were reportable releases to the environment

[193] (U) VCNO command investigation report.
(U) See Figure 6 in Part II for a depiction of the piping leading from the groundwater sump pit and the underground holding tank (item #2) from which Navy officials recovered fuel.

[194] ~~(CUI)~~ As previously discussed, Navy officials who conducted investigations after the November 2021 fuel incident recalculated the fuel volumes relevant to the May 2021 and November 2021 fuel incidents. The VCNO command investigation report included the updated calculations. According to the VCNO command investigation report and our interviews with Navy officials, Navy officials recovered fuel from the November 2021 fuel incident from various places, including from the groundwater sump pit and the underground holding tank in the leach field system. The 5,542 gallons of fuel that was not easily recoverable from a tank or pipeline contaminated the soil [redacted] the soil surrounding the leaching pit at the leach field system near the Halawa stream, the soil below the LAT, and the groundwater that supplies the Red Hill well. Fuel vapors also contaminated the air near the Red Hill BFSF on November 20, 2021.

[195] (U) HAR, chapter 11-451, "State Contingency Plan."

[196] (U) According to HAR 11-451, Navy officials must also report any fuel floating on groundwater and any amount of fuel "released to the environment which is less than 25 gallons, but which is not contained and remedied within 72 hours." See the Glossary for the definition of the term environment.

[197] (U) HAR, chapter 11-280.1, "Underground Storage Tanks."

(U) because they either caused a sheen to appear on water or were greater than 25 gallons.[198] Therefore, according to HAR 11-451, Navy officials must initiate notifications immediately by calling regulatory authorities, including:

- (U) the Hawaii DOH Hazard Evaluation and Emergency Response office; and
- (U) the Local Emergency Planning Committee, which is the Honolulu Local Emergency Planning Committee for JBPHH.

(U) Additionally, OPNAV M-5090.1 includes requirements for Navy officials to report fuel incidents through the Navy chain of command. Specifically, OPNAV M-5090.1 requires a Special Incident Report for any fuel spill "that may endanger critical water areas, have the potential to generate public concern, become the focus of an enforcement action, or pose a threat to public health or welfare … ."[199] Furthermore, OPNAV M-5090.1 includes an Oil Spill Report template for reporting fuel incidents.[200]

(U) Our review of the CNRH ICP and the Red Hill BFSF FRP determined that the incident response plans reflected the HAR 11-451 and OPNAV M-5090.1 reporting requirements. The JBPHH Emergency Management Program refers to the CNRH ICP for OHS incident response. Additionally, our review of Navy documentation determined that Navy officials communicated the May 2021 and November 2021 fuel incidents. However, their communication was inaccurate and incomplete, and did not meet HAR 11-451, OPNAV M-5090.1, CNRH ICP, Red Hill BFSF FRP, and JBPHH Emergency Management Program reporting requirements. For example, we did not receive an Oil Spill Report in the OPNAV M-5090.1 template for either the May 2021 or the November 2021 fuel incidents.

(U) On May 7, 2021, CNRH, NAVSUP FLC PH, and NAVFAC Hawaii officials jointly prepared an email report for the Navy chain of command that incorrectly stated that there was "no known release to the environment," and that a report to regulatory authorities was not necessary in a contained release. According to the email and documentation Navy officials gave us in response to our request

[198] (U) According to HAR 11-451, a release includes "any spilling, leaking, emitting, discharging, escaping, leaching, or disposing from an UST system into groundwater, surface water, or subsurface soils." Additionally, according to HAR 11-451, the environment is "any waters, including surface water, ground water, or drinking water; any land surface or any subsurface strata; or any ambient air, within the State or under the jurisdiction of the State."

[199] (U) A Special Incident Report is also referred to as an OPREP-3 Navy Blue.

[200] (U) The OPNAV M-5090.1 incident report template requires Navy officials to include, among other things, the spill volume; documentation of which required notifications were made, including to Federal and state regulators; and identification of the parties involved, including who was the Incident Commander. See Appendix D, for a copy of the OPNAV M-5090.1 incident report template with the full list of aspects Navy officials must report to the Navy chain of command.

(U) for details of their incident reporting, Navy officials reported the incident to the Hawaii DOH on the morning of May 7, 2021, as a "courtesy" and "for transparency."[201]

(U) Hawaii DOH officials provided us with a timeline describing the notifications they received from Navy officials. Additionally, Hawaii DOH officials told us that Navy officials met the requirement to call the Hawaii DOH and report the release within 24 hours of the May 2021 fuel incident.[202] However, HAR 11-280.1 required Navy officials to follow up the verbal notification of the fuel release with a written notification within 7 days. Navy officials did not submit the required written notification until June 21, 2021, after the Hawaii DOH sent a letter on June 9, 2021, reminding them to do so.[203]

(U) Despite correction from regulators, Navy officials did not properly document or report fuel incidents.

(U) A Navy official told us that Hawaii DOH officials reminded them of the HAR reporting requirements after the May 2021 fuel incident. Specifically, the dual-hatted CNRH Environmental Program Manager and NAVFAC Hawaii Environmental Director told us that Hawaii DOH officials explained to Navy officials on May 7, 2021, that any release of fuel from its primary containment, whether a tank or a pipeline, that "hits the air" constitutes a release to the environment. Hawaii DOH officials also reminded Navy officials that if a release of fuel is more than 25 gallons, then, according to HAR 11-451, it is a reportable release to the environment.

(U) On November 20, 2021, a Navy official reported to the Hawaii DOH by telephone that there was a crack in the overhead AFFF drainage pipeline that was releasing water. On November 21, 2021, a Navy official reported to the Hawaii DOH by telephone that fuel was also flowing from the overhead AFFF drainage pipeline. However, in the Hawaii DOH notification timeline, the next information they received was in a CNRH media release on November 21, 2021, that stated "no signs or indication of any release to the environment." CNRH officials also reported, "no known fluid was released to the environment" on the Naval message they sent up the chain of command on November 22, 2021.

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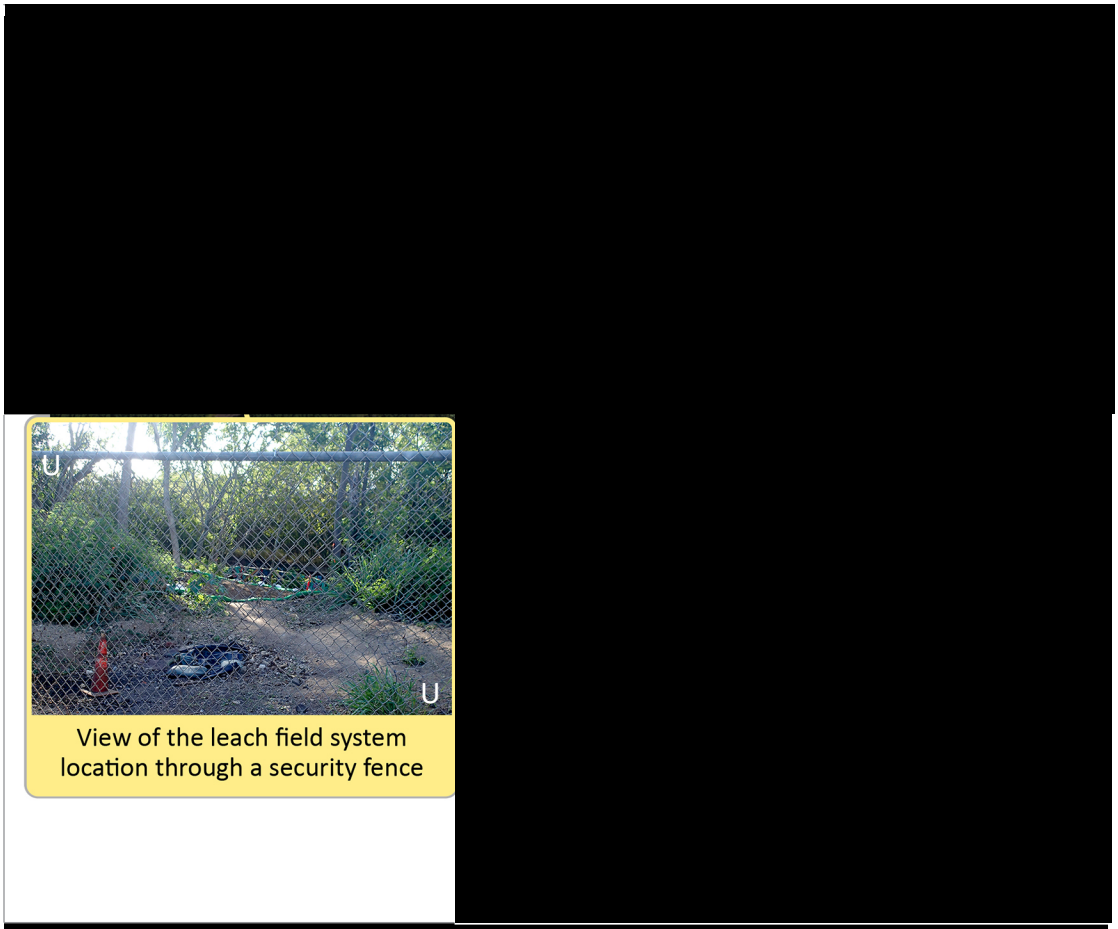
[201] (U) Documentation we reviewed indicated that various Navy officials, including the NOSC-R, communicated with Hawaii DOH officials on May 7, 2021. Additionally, Navy officials could not provide us any evidence that they reported the release to the Honolulu Local Emergency Planning Committee. We concluded that Navy officials might not have initiated this report because they incorrectly believed that there was no release to the environment and that a report to regulatory authorities was not necessary in a contained release.

[202] (U) We reviewed HAR reporting requirements. We found that HAR 11-451 requires immediate reporting and that HAR 11-280.1 requires reporting within 24 hours.

[203] (U) Additionally, Navy officials did not submit the required written notification to Hawaii DOH officials reporting the November 20, 2021 fuel incident until December 5, 2021, 15 days later. Hawaii DOH officials told us that, on December 5, 2021, they received a letter via email dated December 3, 2021, confirming the November 20, 2021 fuel release. We also found that Navy officials were also late in submitting the required paperwork to the Hawaii DOH for the March 2020 and June 2020 fuel incidents at Naval Station Pearl Harbor. Hawaii DOH officials did not receive the required paperwork reporting the 2020 fuel incidents at Pearl Harbor until July 14, 2021, more than a year later.

(U) As previously discussed, the sump pumps in the groundwater sump pit pumped fuel to the underground leach field system for nearly 5 hours on November 20, 2021. According to the VCNO command investigation report, at the time of the incident, the NAVSUP FLC PH CO believed that the outlet point of the groundwater sump pit was an underground leach field system near the Halawa stream, and that a release to the environment was possible. However, Navy officials did not report this aspect of the release to regulatory authorities or the Navy chain of command.[204] Figure 19 shows the location of the leach field system behind a security fence at the Red Hill BFSF and the leach field system's location in relation to Adit 3 and the LAT.



{CUI} Figure 19. The Leach Field System in Relation to Adit 3 and the LAT and Behind a Red Hill BFSF Security Fence (bottom left)
(U) Source: The DoD OIG, based on figures provided by NAVFAC Hawaii and NAVSUP FLC PH and DoD OIG photo taken during an April 2022 site visit.

(U) Note: The leach field system was constructed in an area of heavy brush behind a chain link fence near the Halawa stream. Over time, the heavy brush grew over the openings to the two buried tanks, items 3 and 4 in the figure. The photo was taken after Navy officials cleared the overgrowth in December 2021.

[204] (U) As discussed in the previous section, on December 9, 2021, Navy officials found fuel in the concrete holding tank and found evidence that additional fuel overflowed into the concrete leaching pit and then leached into the surrounding soil.

(U) Additionally, HAR 11-451 requires officials to report releases immediately and to provide certain information, such as the type of fuel released, the source of the release, and the approximate quantity of the fuel released. HAR 11-451 states that reporting "shall not be delayed due to incomplete notification information related to the release."

(U) In addition to inaccurate and incomplete reporting, our review of the VCNO command investigation report determined that Navy officials delayed reporting the November 20, 2021 release to Hawaii DOH officials until they had more information. Navy officials did not notify the Honolulu Local Emergency Planning Committee. Furthermore, Navy officials did not issue the Special Incident Report until the afternoon of November 21, 2021.

(U) Navy officials told us that, at first, they did not know that the fluid released from the overhead AFFF drainage pipeline on November 20, 2021, was fuel. We asked Navy officials how long it took them to realize that the fluid released from the overhead AFFF drainage pipeline was fuel. We could not gain a consensus from Navy officials. Additionally, the VCNO command investigation report states that, on November 20, 2021:

> (U) [l]eaders at the scene failed to communicate the seriousness of the incident. Every person physically present at Red Hill on the evening of November 20, 2021 knew within a short time after arriving that the spill was all or mostly fuel. The fact that the spill was from a non-fuel system was undoubtedly confusing and led to initial reports of a water spill. However, those initial reports were never fully corrected.

(U) Accordingly, the VCNO command investigation found "a persistent bias by Red Hill leadership toward assuming and reporting the 'best case' scenario following incidents," including a bias toward assuming the best case scenario for environmental risk.

C. (U) Navy Officials Lacked the Operation and Maintenance Programs Needed to Operate DFSP JBPHH Safely and Protect the Environment

(U) In this section, we explain the reasons why the fuel incidents mentioned in this report occurred and why Navy officials did not effectively respond. Specifically, we determined that DoD officials:

- (U) lacked the operation and maintenance programs needed to operate DFSP JBPHH safely and protect the environment;

- (U) were not adequately prepared to respond to incidents; and
- (U) were not adequately prepared to perform release analysis and did not identify and correct incident root causes and internal control weaknesses.

1. (U) Navy Officials Lacked Process Control, Change Management, and an Effective Maintenance Program

(U) Title 33 CFR parts 154–156 and 49 CFR part 195 require the owners and operators of DFSP JBPHH to develop a manual of written procedures for conducting normal operations, maintenance activities, and handling abnormal operations and emergencies. Title 49 CFR part 195 includes requirements for bulk fuel facility owners and operators to monitor and control the facility and its operation.[205] Specifically, among other things, 49 CFR part 195 requires owners and operators of facilities that transport hazardous liquids, such as fuel, by pipelines to:

- (U) develop and follow written process management procedures and include in those process management procedures the roles and responsibilities of managers and operators during "normal, abnormal, and emergency operating conditions";
- (U) develop and implement an operator training program and review the training program content to identify potential improvements at least annually;
- (U) implement a "change management" process, require coordination between management and operators when planning, and require management and operators to contact the control room when "emergency conditions exist and when making changes that affect control room operations"; and
- (U) provide the necessary information, tools, processes, and procedures for managers and operators to carry out their roles and responsibilities.[206]

(U) Furthermore, OPNAV M-5100.23 requires "all levels of Navy leadership" to:

- (U) "develop and implement a change management strategy to minimize the introduction of new hazards and risks into the environment"; and
- (U) "identify and manage risk caused by changes that may affect established processes and services."

[205] (U) Title 49 CFR part 195, "Transportation of Hazardous Liquids by Pipeline."
(U) Title 49 CFR part 195 defines an "operator" as "a person who owns or operates pipeline facilities." Additionally, 49 CFR part 195 defines a "pipeline facility" as "new and existing pipeline, rights-of-way and any equipment, facility, or building used in the transportation of hazardous liquids or carbon dioxide." Furthermore, 49 CFR part 195 defines "hazardous liquids" as "petroleum, petroleum products, anhydrous ammonia, and ethanol or other non-petroleum fuel, including biofuel, which is flammable, toxic, or would be harmful to the environment if released in significant quantities."

[206] (U) As previously discussed, at DFSP JBPHH: The CNRH, on behalf of CNIC, owns the physical DFSP JBPHH infrastructure; the DLA owns the fuel in DFSP JBPHH; NAVSUP FLC PH operates DFSP JBPHH; and the JBPHH installation command is responsible for installation operations, such as utilities and safety, on JBPHH.

(U) Therefore, DLA and Navy officials who are the owners and operators of DFSP JBPHH are required to maintain: (1) an operations manual, (2) a training plan, (3) a change management strategy, and (4) information, tools, processes, and procedures necessary to operate DFSP JBPHH, which we collectively refer to as operational information.[207]

a. (U) Navy Officials Did Not Control Fuel Evolutions at DFSP JBPHH

(U) To perform their bulk fuel mission, NAVSUP FLC PH officials must move fuel at DFSP JBPHH. NAVSUP FLC PH officials told us that fuel movements are commonly referred to as "fuel evolutions" and that the term refers to any type of fuel movement, including receiving fuel, moving it around within the DFSP, such as from one tank to another, or distributing it to customers. Our review of the DFSP JBPHH OMES Plan found that it describes the "operational tasks" to complete processes at DFSP JBPHH, such as a fuel evolution where NAVSUP FLC PH officials move fuel from one tank to another tank. According to UFC 3-460-03, operational tasks are the:

> (U) actions taken to control and run the petroleum fuel system on a day-to-day basis. These tasks include monitoring control systems, bulk issue and receipt, and storage of petroleum fuel. Operating tasks help ensure the safety of personnel and the environment.

(U) Additionally, 49 CFR part 195 requires owners and operators of pipelines transporting hazardous liquids, such as fuel, to monitor operational data within the pipelines, such as pressure, volume, and flow. Title 49 CFR part 195 also requires a communication system to "transmit the operational data needed for the safe operation of pipelines transporting hazardous liquids" to the owners and operators.[208]

[207] (U) We discuss the lack of training plans at DFSP JBPHH in the next section.

[208] (U) Most aboveground pipelines are regulated by 40 CFR part 112. However, 40 CFR part 112 exempts some completely buried USTs, as well as connected underground piping, underground ancillary equipment, and containment systems, when those systems are subject to all the technical requirements of 40 CFR part 280 or a state program approved under 40 CFR part 280, such as HAR 11-280.1 that regulates the USTs at Red Hill BFSF. Pipelines exempted from 40 CFR part 112 are regulated by 49 CFR part 195. Therefore, the 49 CFR part 195 requirements apply to a significant portion of aboveground and underground pipelines at DFSP JBPHH.

(U) As previously discussed, the automated fuel handling equipment (AFHE) provides NAVSUP FLC PH officials with remote access to and operational data from a variety of equipment throughout DFSP JBPHH, including motor-operated valves and sensors, such as pressure-indicating transmitters and automatic tank gauges (ATGs).[209]

(U) To conduct safe fuel evolutions, NAVSUP FLC PH officials must control the process. Specifically, DFSP JBPHH owners and operators must institute process control by defining their processes, monitoring their processes, identifying processes that are not producing the desired outcome, and making changes to bring the process back into control. According to the National Institute of Standards and Technology, process control requires measures to ensure that each step in a process is completed in a specific and consistent manner in order to achieve a successful outcome. For example, each step in the process must be controlled within boundaries, such as closing one valve before opening another.

(U) However, we determined that NAVSUP FLC PH officials could not effectively control the fuel evolution process because they lacked sufficient operational data. NAVSUP FLC PH officials did not have enough equipment to monitor operational data within the pipelines. Specifically, Navy officials told us that they do not have sensors on the fuel pipelines throughout DFSP JBPHH capable of providing operational data to the AFHE, such as pressure, volume, or flow data.[210] Additionally, a NAVSUP FLC PH official told us that they do not know how much fuel is in the pipelines at any given time. Therefore, Navy officials cannot effectively control the fuel evolution process because they do not have the operational data needed to make operational decisions, including during a fuel evolution.

[209] (U) As previously discussed, motor-operated valves in the pipelines throughout DFSP JBPHH are valves equipped with a motor that fully opens or fully closes valves. Pressure-indicating transmitters throughout DFSP JBPHH are sensors that measure the pressure of liquids or gases in pipelines. ATGs in the ASTs and USTs throughout DFSP JBPHH, including at the Red Hill BFSF, are sensors that monitor fuel levels in the fuel storage tanks and provide the fuel level data to the AFHE.

[210] ~~(CUI)~~ As previously discussed, there are three fuel pipelines that extend [redacted] from the underground pump house [redacted], up the harbor tunnel, through the LAT, and to the USTs in the Red Hill BFSF. At the time of the 2021 fuel incidents and our site visits, there was one pressure-indicating transmitter located on each of the fuel pipelines in the underground pump house [redacted], for a total of three transmitters, to provide pressure data for the fuel pipelines extending to Red Hill BFSF USTs. However, DoD officials told us that the pressure-indicating transmitters did not provide the operational data needed for the Red Hill BFSF fuel pipelines and for the rest of the DFSP. The NAVSUP FLC PH Lead Regional Engineer and a DLA J6 official told us that NAVSUP FLC PH officials requested a project for pressure-indicating transmitters across DFSP JBPHH in 2018. However, as late as August 2021, the project request was not prioritized or funded. In July 2022, the NAVSUP FLC PH Lead Regional Engineer and the DLA J6 official told us that DLA approved the purchase and installation of transmitters necessary to monitor the fuel in the pipeline while defueling the Red Hill BFSF.

(U) NAVSUP FLC PH officials document the fuel evolution process in operation orders (OpOrds). NAVSUP FLC PH officials develop OpOrds based on the steps required from the DFSP JBPHH OMES Plan for the type of fuel evolution, current infrastructure configuration, and real-time operational data from the AFHE. Based on our review of the DFSP JBPHH OMES Plan, we determined that the OpOrds developed by NAVSUP FLC PH officials should list the steps to be completed in a specific and consistent manner to safely control the fuel evolution process.

(U) However, we determined that NAVSUP FLC PH officials did not effectively control fuel evolutions because they did not prepare and implement OpOrds in accordance with the operational tasks described in the DFSP JBPHH OMES Plan. On the day of the May 2021 fuel incident, NAVSUP FLC PH control room operators were scheduled to perform two fuel evolutions for tank tightness testing.[211] According to the VCNO command investigation report, the control room operators misaligned valves by opening and closing valves out of order during the fuel evolutions, causing a pressure surge in the system and the fuel release.[212] According to the DFSP JBPHH OMES, the first five process steps for a fuel evolution where NAVSUP FLC PH officials move fuel from one tank to another tank should be: (1) create the OpOrd; (2) prepare systems, equipment, supplies, and documents; (3) check the fuel quality; (4) fill and pressure test the fuel pipelines; and (5) gauge the tank. Our review of the May 6, 2021 OpOrds associated with the tank tightness testing determined that the OpOrds did not include the elements required by the DFSP JBPHH OMES Plan and enough detail to control the fuel evolution. Specifically, the May 6, 2021 OpOrds did not include the required DFSP JBPHH OMES Plan steps to:

- (U) prepare systems, such as operational safety check before starting the fuel evolution;
- (U) prepare equipment, such as identifying the normal fuel pipeline system configuration or returning the fuel pipeline system to its normal configuration;
- (U) check fuel quality; and
- (U) fill and pressure test the fuel pipelines.

[211] (U) On May 6, 2021, NAVSUP FLC PH control room operators performed various fuel evolutions. The fuel evolutions associated with the tank tightness testing that contributed to the May 2021 fuel incident were fuel evolution 3 and fuel evolution 4. First, NAVSUP FLC PH control room operators moved JP-5 fuel from Red Hill BFSF UST#12 to Red Hill BFSF UST#20 in fuel evolution 3. Next, NAVSUP FLC PH control room operators moved JP-5 fuel from Red Hill BFSF UST#12 to Red Hill BFSF UST#9 in fuel evolution 4.

[212] (U) According to the VCNO command investigation report, NAVSUP FLC PH control room operators did not close all the valves used during fuel evolution 3 to return the fuel piping system to its normal configuration. Then, a NAVSUP FLC PH control room operator misaligned valves by opening and closing valves out of order during fuel evolution 4.

(U) Additionally, the May 6, 2021 OpOrds did not specify the order in which valves should be opened or closed and include warning or consequences statements to inform the operator of the risks associated with not following OpOrd steps. Therefore, NAVSUP FLC PH officials who prepared the OpOrds did not provide the NAVSUP FLC PH control room operators with enough detail to safely control the fuel evolutions. In fact, the NAVSUP FLC PH Fuels Deputy Director told us that there was no standard for OpOrds across DFSPs.

(U) In sum, we determined that the OpOrds used on May 6, 2021, did not include the elements required by the DFSP JBPHH OMES Plan and enough detail to control the fuel evolution. We also determined that a NAVSUP FLC PH operator performing the OpOrds on May 6, 2021 might have triggered a pressure-related incident due to the inadequate OpOrds.

(U) A NAVSUP FLC PH officials told us that NAVSUP FLC PH implemented significant changes to the OpOrd format. Specifically, NAVSUP FLC PH officials implemented changes to the OpOrd format after the May 6, 2021 fuel incident in July 2021, August 2021, September 2021, and October 2021. As shown in Figures 22 and 23 in Appendix C, NAVSUP FLC PH officials implemented the most significant changes on October 25, 2021. These format updates included adding operational safety checks, normal fuel piping system configuration, valve ordering, and warning and consequence statements. If NAVSUP FLC PH officials had adequate OpOrds before performing the May 6, 2021 fuel evolutions, it is possible that both the 2021 fuel incidents would not have occurred.

(U) The lack of equipment to monitor fuel operations and the lack of process control increased the risk of fuel incidents occurring.

b. (U) Navy Officials Did Not Implement a Change Management Process at DFSP JBPHH

(U) As previously discussed, 49 CFR part 195 requires owners and operators of facilities that transport hazardous liquids, such as fuel, by pipelines to implement a change management process, require coordination between management and operators when planning, and require management and operators to contact the control room when "emergency conditions exist and when making changes that affect control room operations." Additionally, OPNAV M-5100.23 requires Navy officials to "[d]evelop and implement a change management strategy to minimize the introduction of new hazards and risks into the environment. Identify and manage risk caused by changes that may affect established processes."

(U) However, we determined that DoD officials did not have a change management process, as required by 49 CFR part 195 and OPNAV M-5100.23. We repeatedly asked DLA and Navy officials if they had a change management process to keep track of process and infrastructure changes at DFSP JBPHH. DLA Energy, NAVSUP Naval Petroleum Office, NAVSUP FLC PH, NAVFAC Pacific, NAVFAC Hawaii, and JBPHH PWD officials told us that they were not aware of a change management process at DFSP JBPHH or a requirement for change management.

(U) Specifically, during our site visit in April 2022, the:

- (U) DLA Energy East Pacific CO told us that they were "not aware of" any change management process for the DFSP JBPHH;
- (U) NAVSUP FLC PH CO stated that "for [fuel] systems, NAVFAC EXWC is the technical authority and configuration control"; and
- (U) dual-hatted NAVFAC Hawaii CO and CNRH N4 told us that "NAVFAC EXWC doesn't do change management … . As the construction agent, NAVFAC does the drawings, then turns them over to the user … . There is no master list of drawings with updated information for all systems [that] exists at any DFSP … . [Drawings for DFSPs are] nothing like the drawings for a ship … . There are no uniform drawing systems or standards."[213]

(U) We requested management, operation, and maintenance documents, such as operating procedures, maintenance plans, quality control plans, lists of repair and replacement projects, maps, engineering drawings, and real property records. We asked DoD officials whether they had operational information for DFSP JBPHH, such as:

- (U) documentation of operational and infrastructure changes over time, including requests, approvals, and implementation;[214]
- (U) an inventory of DFSP JBPHH infrastructure components, maintenance plans, maintenance task orders, and maintenance records; and
- (U) up-to-date as-built drawings of DFSP JBPHH tanks, pipelines, and supporting infrastructure.

(U) However, the officials could not provide us with complete records across these categories of operational information. Therefore, we concluded that the DoD did not have a change management process for DFSP JBPHH.

[213] (U) The CNRH N4 is the administrative authority for facilities and environmental activities.

[214] (U) We requested a history of operational and infrastructure changes since 2000.

(U) Furthermore, during our evaluation, NAVSUP FLC PH officials told us that DFSP JBPHH did not have effective communication for component modifications, such as the addition of skillets to pipelines.[215]

(U) Risks to infrastructure, personnel, and the environment were increased because changes to the fuel infrastructure were not accounted for when making operational decisions.

(U) If DoD officials had a change management process and had effectively implemented it, they could have had a better understanding of the operations and infrastructure of DFSP JBPHH and might have been better prepared to mitigate or prevent fuel incidents.

c. (U) DoD Officials Did Not Implement an Effective Maintenance Program at DFSP JBPHH

(U) The interconnected fuel systems at DFSP JBPHH consist of thousands of components, such as tanks, pipes, structural supports, valves, electrical equipment, and containment infrastructure. UFC 3-460-03 requires inspection and maintenance to avoid system shutdowns, prevent fuel contamination, and decrease fire, safety, and health hazards.[216]

(U) The DLA Energy Sustainment, Restoration, and Modernization program divides maintenance tasks into several categories of maintenance, as depicted in Figure 20.[217]

[215] (U) NAVSUP FLC PH officials told us that they receive a verbal announcement about component modifications. However, NAVSUP FLC PH officials do not document this in a central location. NAVSUP FLC PH officials told us that before performing maintenance, NAVSUP FLC PH maintainers often print out an AFHE schematic and take it to NAVSUP FLC PH operators to ask them about any component modifications.

[216] (U) UFC 3-460-03 defines maintenance tasks as recurring, daily, periodic, or schedule work required to: preserve a facility; prevent deterioration, component failure, and unscheduled outages; and identify components requiring replacement or repair.

[217] (U) Within the DLA Energy Petroleum, Oils, and Lubricants (POL) Facility Sustainment, Restoration, and Modernization program, minor maintenance is the daily, weekly, monthly, or as-needed maintenance tasks performed on components as a result of normal use. Minor maintenance is further broken down into operator maintenance and recurring maintenance, based on the skills needed to perform the work. According to UFC 3-460-03, operator maintenance is normally performed by "facility operator personnel as part of normal use." According to UFC 3-460-03, system maintenance is normally performed by "trained personnel of base facility maintenance, facility operating contracts, or maintenance contracts for recurring maintenance and repair."

(U) Figure 20. DFSP JBPHH Maintenance Structure
(U) Source: NAVSUP FLC PH.

(U) LEGEND

(U) APWO Area Public Works Officer
(U) CIR Clean, Inspect, and Repair (CIR)
(U) CMP Centrally Managed Program
(U) DWWCF Defense-Wide Working Capital Fund
(U) HI Hawaii
(U) PAC Pacific
(U) PW Public Works
(U) RMMR Recurring Maintenance and Minor Repair
(U) RPE Regional Petroleum, Oils, and Lubricant Engineer
(U) SRM Sustainment, Restoration, and Modernization
(U) USACE U.S. Army Corps of Engineers

(U) According to the DFSP JBPHH OMES Plan, NAVSUP FLC PH officials are responsible for performing all operator maintenance, as defined by UFC-3-460-03.[218] However, the DFSP JBPHH OMES Plan does not provide guidance on how the maintenance should be completed or a maintenance schedule. Additionally, NAVSUP FLC PH officials could not provide us with a maintenance plan for DFSP JBPHH.

[218] (U) The DFSP JBPHH OMES Plan states that operator maintenance tasks are performed by NAVSUP FLC PH officials based on maintenance schedules and that maintenance instructions as described in the NAVSUP FLC PH maintenance plan. Typically, a maintenance plans includes a complete component inventory; critical component priority list; the maintenance schedule; maintenance, service, and repair instructions; information on how to request maintenance; information on the electronic maintenance management system; a communication plan; and maintenance goals. Additionally, the DFSP JBPHH OMES Plan states that all contractors executing DLA Energy Sustainment, Restoration, and Modernization and military construction (MILCON) projects are required to submit operating instructions, maintenance, service, and repair instructions, and a parts manual in accordance with UFGS-1-78-23.33.

(U) During our site visit, we attended a NAVSUP FLC PH meeting where NAVSUP FLC PH maintenance team members told the NAVSUP FLC PH Fuels Director that they did not have maintenance training and that maintenance orders were not specific enough to complete the work. Furthermore, during our evaluation, NAVSUP FLC PH officials told us that DFSP JBPHH did not have:

- (U) a formal system for tracking maintenance work orders;
- (U) a complete set of original technical manuals for installed components in the NAVSUP FLC PH technical library; and
- (U) a parts supply or a tool control program.

(U) Specifically, NAVSUP FLC PH officials told us that for many maintenance actions they must find the component model and serial number and then call the manufacturer or use the internet to request the technical manual or find information on the component before they can create a maintenance task instruction. NAVSUP FLC PH officials also told us that they have a large parts warehouse and someone to purchase parts; however, they do not have staff to receive, inventory, and keep records for future parts orders. They told us that the process to order parts is long and unreliable—they spend a lot of time finding the original manufacturer information, finding a vendor, and determining how to fund the purchase, and then wait long lead times, and find an empty spot in the warehouse to store the parts. NAVSUP FLC PH officials told us that they have sometimes spent their own money to order parts to keep maintenance tasks moving. Similarly, because NAVSUP FLC PH lacks a formal tool control program, accountability for the tools needed to perform operator maintenance is left to individual maintainers who hold onto their own tools to perform their maintenance tasks.

(U) Based on our review of maintenance records and interviews, we also determined that maintenance and repair performed by organizations other than NAVSUP FLC PH was also inconsistent or incomplete across DFSP JPBHH. For example, we determined that NAVFAC officials did not conduct system maintenance on the fueling piers at Naval Station Pearl Harbor.

~~(CUI)~~ As previously discussed, NAVFAC EXWC officials commissioned inspections and assessments for Hotel, Bravo, Kilo, Mike, and Sierra Piers at Naval Station Pearl Harbor in 2016, 2018, and 2019, which we refer to as the pier reports.[219]

[redacted]

[219] (U) The pier reports provided the operational capability and structural capability of the piers, and projected the operational and structural capability of the piers over a 10-year time frame if Navy officials took no action.

~~(CUI)~~ [redacted]

~~(CUI)~~ [redacted]

(U) Maintenance and inspection programs were complicated and inconsistent and did not achieve improvements in material conditions.

[redacted] Navy officials also told us that DLA Energy, NAVSUP FLC PH, and NAVFAC Hawaii were working to catalog DFSP components in April 2022 and had already identified approximately 11,000 previously uncatalogued or forgotten components.[220]

(U) As previously discussed, NAVFAC Pacific officials accepted portions of the Red Hill BFSF fire protection system built under the P-1551 MILCON project on January 31, 2018, and July 2, 2019, respectively. According to documentation we reviewed, on July 1, 2018, NAVFAC Hawaii officials awarded a contract for fire protection system maintenance and repair services at DFSP JBPHH. However, this contract did not include all components of the Red Hill BFSF fire protection system and the oil-tight door.[221] Therefore, NAVFAC officials did not maintain and service all components of the Red Hill BFSF fire protection system and the oil-tight door for approximately 2 years.

[220] (U) According to a DLA Energy official, the components that make up DFSP JBPHH are considered Navy real property. According to DoD policy, the installation is required to identify and add these components to conduct real property asset management. However, based on documentation we reviewed, we determined that the process to record real property assets is ineffective. For example, our review of documentation determined that a lack of updated property records repeatedly caused the P-1551 MILCON project to be delayed, because the LAT, where Navy officials planned to install much of the fire protection system, was not properly recorded in real property records. In another example, once the P-1551 MILCON was completed, Navy officials did not add the fire protection system to the real property records until March 17, 2022, approximately two years after acceptance.

[221] (U) The scope of the P-1551 MILCON also included repairs to existing doors and a new oil-tight door. The oil-tight door is designed to automatically close when oil is detected in its sump or can also be manually activated by a push button. The doors are designed to provide a fuel-tight seal once closed and are designed to withhold the contents of one of the storage tanks. According to documentation we reviewed, NAVFAC officials did not add the oil-tight door to the maintenance and service contract until November 4, 2020. Additionally, according to the VCNO command investigation report, NAVFAC officials did not add the entire Red Hill BFSF fire protection system and the oil-tight door to the maintenance and service contract until July 15, 2021.

(U) Based on our review of documentation, we identified the following instances where the lack of maintenance introduced risk to the operation of the Red Hill BFSF.

- (U) In October 2020, the oil-tight door was not in service due to a hydraulic fluid leak. Therefore, it could not have prevented fuel from reaching Pearl Harbor and the Red Hill well in the event of a fuel release from one of the Red Hill BFSF USTs.
- (U) At the conclusion of the P-1551 MILCON project, NAVFAC officials did not provide NAVSUP FLC PH officials with any guidance from the contractor regarding maintenance procedures for the low area in the overhead AFFF drainage pipeline near Adit 3. Because NAVSUP FLC PH officials were not informed of the need to have a procedure to check for large amounts of fluid in the low area or to drain fluid from this low area, they did not develop any procedures for these actions. If there had been a procedure to check this low area, NAVSUP FLC PH officials might have found the fuel in the low area before the November 2021 fuel incident and the incident could have been prevented.

(U) Therefore, DoD officials installed the Red Hill BFSF fire protection system and oil-tight door, at a cost of approximately $57.9 million, that it had no plan to maintain, meaning both were at risk of being inoperable when needed.

2. (U) Navy Officials Were Not Adequately Prepared to Respond to Fuel Incidents

(U) Navy officials were not adequately prepared to respond to fuel incidents because they:

- (U) were not sufficiently trained to operate DFSP JBPHH safely;
- (U) were not trained on their OHS incident response plan roles and responsibilities;
- (U) did not exercise the OHS incident response plans; and
- (U) were not sufficiently aware of the roles, responsibilities, and requirements applicable to owners and operators of bulk fuel facilities.

(U) We asked NAVSUP FLC PH officials for the training plans and the corresponding training records for NAVSUP FLC PH operators. NAVSUP FLC PH officials gave us a list of required training and copies of various types of training certificates for NAVSUP FLC PH operators. However, the list did not describe which training courses were required for specific job roles or include details, such as which operators had completed training and when. Based on the information provided, we determined that NAVSUP FLC PH officials were not sufficiently trained to operate DFSP JBPHH.

(U) We also determined that Navy officials were not trained on the OHS incident response plans and did not exercise the plans. OPNAV M-5090.1 states: "All Navy facilities that store oil or [hazardous substances (OHS)] in regulated quantities must ensure personnel are trained to combat discharges of [OHS] and perform response duties as defined in the facility's [incident response] plans."[222] We found that the CNRH ICP, the SPCC Plan, the Red Hill BFSF FRP, and the JBPHH Emergency Management Program each state that Navy officials responding to fuel incidents should be trained on their incident response plan roles and responsibilities and that the plans should be regularly exercised. According to the VCNO command investigation report, installation officials did not conduct sufficient drills or training sessions. EPA Region 9 officials who evaluated the Navy's compliance with Oil Pollution Prevention regulations at JBPHH were:

> (U) not able to verify that all oil-handling personnel have been properly trained in the operation and maintenance of equipment to prevent discharges; discharge procedure protocols; applicable pollution control laws, rules, and regulations; general facility operations; and the contents of the SPCC Plan.[223]

(U) A NAVSUP FLC PH official told us that they participated in spill response exercises with CNRH officials twice per year, but that the spill response exercises were generally focused on a scenario where a fuel incident occurs over water, such as an incident in Pearl Harbor. Three other NAVSUP FLC PH officials each told us that neither they nor CNRH officials, including the NOSC-R and CNRH FFD firefighters, had ever exercised the Red Hill BFSF FRP. According to documentation we reviewed, the dual-hatted CNRH Environmental Program Manager and NAVFAC Hawaii Environmental Director indicated that the Red Hill BFSF has historically been excluded from CNRH spill response drills and tabletop exercises.

(U) Navy officials did not practice how to respond to fuel incidents.

(U) According to the VCNO command investigation report, Navy officials did not conduct any incident response drills or training after the May 2021 fuel incident at the Red Hill BFSF. Therefore, there were:

> (U) no substantive differences in the immediate response to the May and November [2021] spills because there was no learning or assessment with regard to response efforts following the May spill.

[222] (U) OPNAV-M 5090.1, "Environmental Readiness Program Manual," September 3, 2019 (Updated June 25, 2021).
[223] (U) EPA Region 9, SPCC Inspection Report, August 17, 2022.

(U) Moreover, the VCNO command investigation report stated:

> (U) There is no evidence that [JBPHH] or [CNRH officials] had ever conducted comprehensive spill response training or even one drill to prepare for a spill at Red Hill. This lack of preparation even after the May spill, highlights this failure as that event should have served as a bellwether for key leaders to take action.

(U) Furthermore, we determined that CNRH officials did not have the knowledge and skills necessary to oversee incident response.

- (U) As previously discussed, Hawaii DOH officials had to repeatedly remind CNRH officials of the HAR requirements.
- (U) The EPA's June 2022 FRP Review Comments report states that EPA officials could not verify that the NOSC-R had the required training for "personnel who will assume control of [an] incident beyond the first responder awareness level."
- (U) The VCNO command investigation report stated that the acting CNRH Environmental Program Manager who was on scene during the November 2021 fuel incident had "no specific environmental training."
- (U) Additionally, the VCNO command investigation report stated that the CNRH FFD was not trained on emergency response at the Red Hill BFSF and that firefighters were unfamiliar with the layout of the facility, had to rely on NAVSUP FLC PH officials, and did not know about the Red Hill well.[224]

3. (U) Navy Officials Were Not Adequately Prepared to Perform Release Analysis

(U) Federal and state laws and regulations and DoD policies require Navy and DLA officials to manage fuel inventories, perform trend analysis, conduct causative research, investigate releases, confirm root causes, and perform corrective actions to identify and respond to potential or actual fuel incidents.[225] Throughout this report, we refer to this as release analysis. In the following sections, we explain that Navy and DLA officials did not consistently conduct release analysis.

[224] (U) As previously discussed, the Red Hill BFSF FRP states that the CNRH FFD should act as the Incident Commander during fuel incidents at the Red Hill BFSF.

[225] (U) Requirements for Navy and DLA officials to manage fuel inventories, perform trend analysis, conduct causative research, investigate releases, confirm root causes, and perform corrective actions to identify and respond to potential or actual fuel incidents are included in 40 CFR part 280; DoDM 4140.25, Volumes 6, 9, and 11; OPNAV M-5090.1; and HAR 11-280.1.

(U) According to DoDM 4140.25 Volume 11, "causative research" is defined as "[a]n investigation of discrepancies such as gains or losses with a complete review of all transactions and supporting documentation to compare transaction level detail reported with the supporting documentation. Causative research ends when the cause of the discrepancy has been discovered or when, after review of the transactions, no conclusive findings are possible."

a. (U) DoD Officials Did Not Consistently or Effectively Conduct Causative Research

(U) As previously discussed, an unintended fuel release may be classified as minor, significant, or catastrophic. Minor releases may not be detected by release detection systems and may go unnoticed by owners and operators of bulk fuel facilities. Therefore, DoD officials, including DLA and Navy officials, are required to manage fuel inventories on an ongoing basis and to perform regular and recurring trend analysis to identify unintended fuel releases. DoD officials also must conduct causative research when changes or trends in the fuel inventory at DFSPs indicate a potential fuel incident or in response to actual fuel incidents.

(U) Specifically, both 40 CFR part 280 and the HAR 11-280.1 include requirements for causative research and release investigations. DoDM 4140.25, Volume 11, states: "DoD Components will investigate losses or gains that exceed the standard allowable tolerance factors for energy commodities … to determine cause."[226] Additionally, DoDM 4140.25, Volume 11, requires Navy and DLA officials to:

> (U) Analyze whether cumulative operating gains and losses … indicate a trend … . […] When a gain or loss trend is found, notify the supporting DLA Energy regional office, research the cause, and investigate … .

(U) According to DoDM 4140.25, Volume 11, the Responsible Officer, who is the Fuels Director at NAVSUP FLC PH, is responsible for regular and recurring trend analysis and for performing causative research when changes or trends in the fuel inventory at DFSP JBPHH indicate a potential fuel release. The Responsible Officer must review accounting records and work with the supporting DLA Energy regional office when performing causative research. Additionally, DoDM 4140.25, Volume 11, requires the Responsible Officer to perform causative research to determine root causes in response to actual incidents, and DoDM 4140.25, Volume 8, requires Navy officials to use the AFHE system to manage fuel inventories on an ongoing basis and to perform mass balance calculations.[227]

[226] (U) DoD Manual 4140.25, Volume 11, "DoD Management of Energy Commodities: DFSP Inventory Accounting Investigations," effective March 2, 2018.

[227] (U) Mass balance is a fundamental concept in process engineering. Mass balance calculations involve analyzing the flow of matter into and out of a system, as well as the storage of matter within the system, and applying the principle that the flow of matter should balance. NAVSUP FLC PH officials use the AFHE system to perform mass balance calculations at DFSP JBPHH. For example, NAVSUP FLC PH officials manage the fuel inventory at the Red Hill BFSF by accounting for the flow of fuel into the system when they receive fuel, out of the system when they distribute fuel, and stored in the system. When an unintended fuel release occurs, a mass balance calculation that compares the inventory of fuel in the system before the event to the inventory after the event indicates the amount of fuel released during the event, because the equation must balance.

(U) As discussed in Part III, on May 6, 2021, JP-5 fuel from the incident flowed into the nearby AFFF sump pit. The AFFF sump pumps turned on and pumped approximately 19,000 gallons of the fuel into the overhead AFFF drainage pipeline in the Red Hill BFSF. Based on readings from the AFHE, NAVSUP FLC PH officials entered a loss of 20,139 gallons of fuel in the inventory and accounting system. The JP-5 fuel remained in a low point of the overhead AFFF drainage pipeline until it was released during the November 2021 fuel incident. We determined that Navy officials missed several opportunities to find the missing fuel, because they did not effectively conduct causative research in response to the May 2021 fuel incident.

(U) Specifically, NAVSUP FLC PH officials told us that they checked the outlet tank to which the overhead AFFF drainage pipeline drains and did not find fuel. Next, they worked with a contractor to check the AFFF sump pump control system to see whether the AFFF sump pump control system recorded that the AFFF sump pumps operated. The AFFF sump pump control system did not indicate that the pumps turned on; however, there was an open work order for known issues with the AFFF sump pump control system. Additionally, as previously discussed, NAVFAC Hawaii did not establish a maintenance contract in a timely manner, so the sump pump control system had not been maintained. Therefore, NAVSUP FLC PH officials should not have trusted the AFFF sump pump control system when conducting their causative research and missed the first opportunity to locate the missing fuel.

(U) After checking the AFFF sump pump control system, NAVSUP FLC PH officials told us that they checked the booster pump at the low point in the overhead AFFF drainage pipeline, but found that it was inoperable.[228] Although NAVSUP FLC PH officials found the booster pump inoperable, they did not check any of the low-point drains for the missing fuel in the overhead AFFF drainage pipeline.[229] We asked NAVSUP FLC PH officials why they stopped their causative research after they found the booster pump inoperable, but NAVSUP FLC PH officials could not provide us a reason. Therefore, NAVSUP FLC PH officials missed another opportunity to locate the missing fuel.

(U) As discussed in Part III, NAVSUP FLC PH officials told us that they assumed the missing 20,139 gallons of JP-5 fuel was somewhere in the JP-5 pipeline and did not conduct any further investigation. As previously discussed, NAVSUP FLC PH officials did not have enough sensors, such as pressure-indicating transmitters,

[228] ~~(CUI)~~ The overhead AFFF drainage pipeline is approximately [redacted] long. The pumps in the sump pits are not strong enough to push fluid in the overhead AFFF drainage pipeline all the way to the outlet tank. Therefore, a booster pump was installed to boost the flow to the outlet tank.

[229] (U) As discussed in Part III, the November 2021 fuel incident occurred when one such low-point drain was struck by the battery-powered locomotive and cart in the Red Hill BFSF LAT.

(U) on the fuel pipelines to know how much fuel was in the pipelines at any given time. Because of this, NAVSUP FLC PH officials told us that they needed to keep the pipelines full with fuel to balance the equations used to reconcile the fuel inventory. According to the DFSP JBPHH OMES Plan, the first step in each fuel evolution required NAVSUP FLC PH officials to ensure the pipelines were full so that the amount of fuel accepted or distributed could be properly calculated.

(U) Causative research and release investigations were ineffective because Navy officials could not trust their fuel inventory.

(U) We asked NAVSUP FLC PH officials how they could assume that the missing JP-5 fuel was somewhere in the JP-5 pipeline if the pipelines were always full. The NAVSUP FLC PH Deputy Fuels Director told us that they never knew whether the pipelines were actually full, because NAVSUP FLC PH operators often skipped that step in the fuel evolution and that the practice of skipping the step to ensure the pipelines were full was "institutionalized."[230]

(U) The explanation for where NAVSUP FLC PH officials assumed the missing fuel was located conflicted with how the DFSP JBPHH OMES Plan required them to operate DFSP JBPHH. Additionally, the assumption was incorrect because the missing JP-5 fuel was in the low point of the overhead AFFF drainage pipeline. Therefore, NAVSUP FLC PH officials missed an additional opportunity to locate the missing fuel and prevent the November 2021 fuel incident and drinking water contamination incident.

b. (U) The DoD Does Not Have Clear Requirements for Performing Release Analysis

(U) NAVSUP FLC PH officials told us that they re-balanced the missing 20,139 gallons as a discrepancy in the fuel inventory by submitting a disposition memorandum to DLA Energy, in accordance with DoDM 4140.25, Volume 11. NAVSUP FLC PH officials told us that this was possible because 20,139 gallons was within their standard allowable tolerance factor, which is the amount of fuel that could disappear in the fuel inventory before the loss triggered causative research.

[230] (U) As previously discussed, we found that NAVSUP FLC PH officials did not effectively control operations at the DFSP JBPHH.

(U) According to DoDM 4140.25, Volume 11, the standard allowable tolerance factor for storage or operating fuels is 0.25 percent.[231] However, our analysis of DoDM 4140.25, Volume 11, determined that it does not define how the 0.25 percent should be applied. Specifically, DoDM 4140.25, Volume 11, does not define whether the allowable tolerance factor of 0.25 percent:

- (U) is storage by volume or storage by weight;
- (U) should be applied to the DFSP's storage capacity or the actual amount of fuel stored at any given time; and
- (U) should be applied across the entire DFSP, to a subset of the DFSP, such as the Red Hill BFSF, on a tank-by-tank basis, or on any other basis.

(U) We reviewed the NAVSUP FLC PH disposition memorandum and found that it did not include the basis for how they determined that the missing 20,139 gallons was within the 0.25 standard allowable tolerance factor regardless of the vagueness of DoDM 4140.25, Volume 11. Additionally, our interviews with DoD officials determined that there was no consensus regarding the allowable tolerance factor, or allowable loss, at DFSP JBPHH. Specifically, NAVSUP FLC PH officials we met told us that they believed that the 0.25 standard allowed for an actual loss ranged from 50,000 gallons to 250,000 gallons of fuel at DFSP JBPHH.

D. (U) Effects of the Ineffective Management and Oversight of DFSP JBPHH

(U) As a result of the ineffective management and oversight of DFSP JBPHH, there were increased environmental and safety risks. Specifically, Navy officials lacked operation and maintenance programs and lacked preparation for incident response. Additionally, critical tasks associated with DFSP JBPHH and supporting shore infrastructure were not completed, and the infrastructure degraded over time. The poor infrastructure conditions at DFSP JBPHH contributed to the fuel incidents we discussed in Part III, including the incidents at Naval Station Pearl Harbor in 2020 and at the Red Hill BFSF in 2021, that contaminated the environment and drinking water.

(U) As a result, the 2021 fuel incidents at the Red Hill BFSF led to the contamination of the:

- (U) soil near Adit 3, at the leach field system near the Halawa stream, and below the LAT; and
- (U) groundwater that supplies the Red Hill well.[232]

[231] (U) According to DoDM 4140.25, Volume 11, the standard allowable tolerance factor for "in-transit" fuels is 0.5 percent.
[232] (U) Fuel vapors also contaminated the air near the Red Hill BFSF on November 20, 2021.

(U) As detailed in DODIG-2025-012, JBPHH Community Water System users may have been exposed to contaminated drinking water. Specifically, the drinking water supply for more than 90,000 people was contaminated with JP-5, and it was nearly 4 months before the Hawaii DOH cleared the drinking water in all the zones on JBPHH as safe for use.

(U) Additionally, Navy employees were injured during the November 2021 fuel incident and subsequent site cleanup. Specifically:

- (U) both of the NAVSUP FLC PH rovers on duty during the fuel incident suffered from chemical burns and rashes and had to visit the emergency room after being doused with fuel;[233]
- (U) the NAVSUP FLC PH Lead Regional Engineer was covered in fuel when they slipped in the flow of fuel and fell;[234] and
- (U) on December 6, 2021, heavy rain caused a tank outside of Adit 3 to overflow and exposed three NAVFAC officials to a mixture of sewage and fuel from the November 2021 incident.

(U) As a result of the improper management of the P-1551 MILCON project, DoD officials spent approximately $57.9 million to install a fire protection system at the Red Hill BFSF that included improper substitution of PVC pipelines, which contributed to the November 2021 fuel incident and drinking water incident.[235] Because the fire protection system was not properly tested before acceptance and was not maintained, it was quickly inoperable.[236] Therefore, the serious life-safety deficiencies at Red Hill BFSF were never effectively mitigated for the many people who accessed the facility, including NAVSUP FLC PH operators, contractors working in the facility, and visitors.

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233 (U) Documentation we reviewed stated that each of the rovers missed 2 days of work to recover.

234 (U) According to the VCNO command Investigation report, the NAVSUP FLC PH official "sustained minor chemical burns and left the scene, but he did not require further medical attention."

235 ~~(CUI)~~ The P-1551 MILCON project cost approximately $8 million more than the original estimate, and construction errors, such as the misplacement of pipelines and the installation of PVC pipelines instead of stainless steel pipe, accounted for some of the cost overruns. Based on our review of documentation, interviews, and site visits, we determined that the P-1551 MILCON project had several indicators of waste. For example, NAVFAC officials failed to verify that [redacted] had the necessary permits to begin construction before NAVFAC officials awarded them the contract, resulting in a 130-day delay that cost the Government $733,437. In another example, fire protection system cameras included in the scope of the P-1551 MILCON project were not provided as complete and usable when the Red Hill BFSF fire protection system was accepted in January 2018, and have been inoperable since 2020.

236 (U) As discussed in Part V, the Red Hill BFSF fire protection system was partially disabled less than 4 months after it was accepted by the NAVFAC officials.
~~(CUI)~~ [redacted] We discuss this in Management Advisory No. DODIG-2025-012.

(~~CUI~~) Finally, military readiness in a critically important region was impacted. Specifically, the Hawaii DOH and the SecDef ordered the Navy to defuel and close the Red Hill BFSF, [redacted]

VI. (U) Overall Conclusions

(U) In this section, we discuss our overall conclusions based on the analysis provided in Part V. We determined that Navy officials did not effectively manage DFSP JBPHH and that there was an inherent risk to the environment and the Red Hill well from DFSP JBPHH. Specifically, the improperly managed P-1551 MILCON project, lack of maintenance, poor infrastructure conditions, and lack of effective release detection increased environmental and safety risks. We found that these risks were documented and that DoD officials had plans to mitigate these risks. However, Navy officials did not effectively manage the response to fuel incidents. Specifically, Navy officials did not follow the incident response plans, did not establish incident command, and did not meet the reporting requirements for fuel releases.

(U) These conditions occurred because Navy officials lacked the operation and maintenance programs needed to operate DFSP JBPHH safely and protect the environment. Specifically, we determined that:

- (U) Navy officials lacked process control, change management, and effective maintenance programs;
- (U) Navy officials were not adequately prepared to respond to fuel incidents; and
- (U) Navy officials were not adequately prepared to perform release analysis to prevent or respond to a fuel incident.

(~~CUI~~) As a result, fuel incidents occurred that contaminated the environment and drinking water. As detailed in DODIG-2025-012, JBPHH Community Water System users may have been exposed to contaminated drinking water. Additionally, Navy employees were injured during the November 2021 fuel incident and subsequent site cleanup. Furthermore, military readiness in the region is impacted. Specifically, the Hawaii DOH and the SecDef ordered the Navy to defuel and close the Red Hill BFSF, [redacted]

(U) As discussed in the VCNO command investigation report, the complicated command and control structure associated with DFSP JBPHH created opportunities for misinterpretation of roles and responsibilities. The findings in our report are likely an outcome of the complicated command and control at DFSP JBPHH.

(U) We believe that the current focus on the closure of the Red Hill BFSF may distract focus from effective management and oversight of the DFSP JBPHH infrastructure that will remain in operation at Naval Station Pearl Harbor, such as the fueling piers, and at Hickam AFB. If the Navy does not address ongoing challenges with management and oversight, there may be future fuel incidents that impact the surrounding community and the environment.

VII. (U) Recommendations, Management Comments, and Our Response

(U) In this section, we provide three recommendations to the Secretary of Defense and six recommendations to the Secretary of the Navy based on the findings in this report. We did not duplicate recommendations that were already made by the U.S. Environmental Protection Agency (EPA). Additionally, we did not duplicate recommendations that were already made in the Vice Chief of Naval Operations (VCNO) command investigation report. Furthermore, we did not include recommendations that were already addressed by the 2023 Administrative Consent Order (ACO).

(U) As a result of management comments, we revised Recommendation 4 to clarify the actions needed to ensure that all laws, policies, and agreements related to DFSP JBPHH are implemented and that appropriate action is taken with regard to recommendations made in prior oversight reports and command investigations.

(U) Recommendation 1

(U) We recommend that the Secretary of Defense, in coordination with the Secretary of the Navy, designate a single point of command or leadership for Defense Fuel Support Point Joint Base Pearl Harbor–Hickam operations, maintenance, safety, and environmental protection.

(U) Under Secretary of Defense for Acquisition and Sustainment Comments

(U) The Under Secretary of Defense for Acquisition and Sustainment (USD[A&S]), responding on behalf of the Secretary of Defense (SecDef), agreed with the recommendation. Specifically, the USD(A&S) stated that the Commander, Navy Closure Task Force–Red Hill (NCTF-RH) was the single point of contact for closure of the Red Hill Bulk Fuel Storage Facility (BFSF) responsible for any operations, maintenance, safety and environmental protection associated with the permanent closure of the facility. Additionally, the USD(A&S) stated that the Joint Base Pearl Harbor–Hickam (JBPHH) Commanding Officer (CO) was the single point of contact for the remainder of the JBPHH Defense Fuel Support Point (DFSP).

(U) Our Response

(~~CUI~~) Comments from the USD(A&S) partially addressed the recommendation. Specifically, the USD(A&S) named two separate points of contact. The USD(A&S) stated that the NCTF-RH is responsible for operations, maintenance, safety and environmental protection associated with the permanent closure of the

~~(CUI)~~ Red Hill BFSF. The USD(A&S) also stated that the JBPHH CO was the single point of contact for the remainder of the DFSP JBPHH. However, the USD(A&S) did not specify whether the JBPHH CO was responsible for the operations, maintenance, safety, and environment protection associated with the continuing operations at DFSP JBPHH. Additionally, the USN's response to Recommendation 4.d and 8 in this report [redacted] appear to conflict with the USD(A&S)'s response to this recommendation. [redacted] Therefore, the recommendation is unresolved. We request that the SecDef provide additional comments in response to the final report within 30 days clarifying the single point of command or leadership responsible for operations, maintenance, safety, and environment protection for the remainder of the JBPHH DFSP.

(U) Recommendation 2

(U) We recommend that the Secretary of Defense direct the Secretary of the Navy and the Director of the Defense Logistics Agency to:

a. **(U) Perform a review of leak detection systems at Navy Defense Fuel Support Points, including an analysis of leak detection effectiveness and reliability.**

b. **(U) Implement corrective actions based on the review that will ensure effective leak detection at Navy Defense Fuel Support Points.**

(U) Under Secretary of Defense for Acquisition and Sustainment Comments

(U) The USD(A&S), responding on behalf of the SecDef, agreed with the recommendation. Specifically, the USD(A&S) stated that the Defense Logistics Agency (DLA), in partnership with the Navy, will review leak detection systems and testing protocols at all DFSPs to verify effectiveness and reliability. Additionally, the USD(A&S) stated that the DLA, in partnership with the Navy, will implement any corrective actions generated from the review.

[237] ~~(CUI)~~ [redacted]

(U) Our Response

(U) Comments from the USD(A&S) addressed the recommendation by agreeing to review leak detection systems and testing protocols at all Navy DFSPs and implement corrective actions. Therefore, the recommendation is resolved but will remain open. We request that the SecDef clarify the timeline for completing the review. We will close the recommendation once we receive documentation of the results from the review and documentation verifying that the corrective actions have been completed.

(U) Recommendation 3

(U) We recommend that the Secretary of Defense direct the Under Secretary of Defense for Acquisition and Sustainment to update the DoD Manual 4140.25 series to address the deficiencies discussed in this report.

(U) Under Secretary of Defense for Acquisition and Sustainment Comments

(U) The USD(A&S), responding on behalf of the SecDef, agreed with the recommendation. Specifically, the USD(A&S) stated that officials in the Office of Under Secretary of Defense for Acquisition and Sustainment (OUSD[A&S]) were updating DoD Instruction (DoDI) 4140.25 and would initiate formal coordination of the publication in the summer of 2024. Additionally, the USD(A&S) stated that OUSD(A&S) officials will ensure that DoD Manual (DoDM) 4140.25 is updated to address the deficiencies in this report during formal coordination of DoDI 4140.25.

(U) Our Response

(U) Comments from the USD(A&S) addressed the recommendation. Specifically, the USD(A&S) stated that updates to DoDI 4140.25 were initiated and that DoD officials would ensure the DoDM 4140.25 was updated to address the deficiencies in this report. Therefore, the recommendation is resolved but will remain open. We request that the SecDef provide additional comments specifying which volumes of the DoDM 4140.25 series will be updated to address the deficiencies discussed in this report and the timeline for the updates. We will close the recommendation once we receive the completed updates to the applicable DoDM 4140.25 volumes and verify that the updates address the deficiencies discussed in this report.

(U) Recommendation 4

(U) We recommend that the Secretary of the Navy designate an entity to be responsible for ensuring that all laws, policies, and agreements made in response to the fuel incident at Defense Fuel Support Point Joint Base Pearl Harbor–Hickam are implemented, and that appropriate action is taken with regard to recommendations made in prior oversight and command investigation reports. Specifically:

a. **(U) Implement the requirements of the 2015 Administrative Order on Consent and 2023 Administrative Consent Order related to Defense Fuel Support Point Joint Base Pearl Harbor–Hickam.**

b. **(U) Implement the recommendations of the U.S. Environmental Protection Agency Region 9 compliance evaluation inspections for Oil Pollution Prevention regulations.**

c. **(U) Implement the recommendations of the Occupational Safety and Health Administration Inspection 1563668.**

d. **(U) Implement the recommendations of the Vice Chief of Naval Operations command investigation related to Defense Fuel Support Point Joint Base Pearl Harbor–Hickam.**

(U) Under Secretary of the Navy Comments

(U) The Under Secretary Navy (USN), responding on behalf of the Secretary of the Navy (SecNav), agreed with the recommendation.

(U) For Recommendation 4.a, the USN stated that Navy officials are implementing requirements of the 2015 Administrative Order on Consent (AOC) and the 2023 ACO. The USN stated that Navy officials work with EPA and Hawaii Department of Health (DOH) officials, as appropriate, to modify the 2015 AOC and 2023 ACO as needed during the implementation. Furthermore, according to the USN, the requirements governing fuel storage and operation of the underground storage tanks are no longer applicable due to the defueling and pending closure of the Red Hill BFSF.

(U) For Recommendation 4.b, the USN stated that Navy officials are implementing the EPA recommendations applicable to systems that are not subject to closure.

(U) For Recommendation 4.c, the USN stated that the Occupational Safety and Health Administration Inspection (OSHA) 1563668 recommendation was closed because one recommendation was removed by OSHA and the second was corrected.

(~~CUI~~) For Recommendation 4.d, the USN stated that of 56 of the 104 recommendations from the Vice Chief of Naval Operations (VCNO) command investigation report are complete. Additionally, the USN stated that 32 of the 104 recommendations are no longer applicable due to the closure of Red Hill BFSF. The USN stated that 16 of the 104 recommendations are open due to their complex nature, 11 of which are related to streamlining command and control of DFSPs. [redacted]

(U) Our Response

(U) For Recommendation 4.a, comments from the USN partially addressed the recommendation by agreeing to implement the requirements of the 2015 AOC and 2023 ACO. However, the USN did not designate an entity to be responsible for the 2015 AOC and the 2023 ACO requirements. Therefore, the recommendation is unresolved. We request that the SecNav provide additional comments in response to the final report within 30 days specifying the designated entity for ensuring that the 2015 AOC and the 2023 ACO requirements are met, and the timeline for completion.

(U) For Recommendation 4.b, comments from the USN partially addressed the recommendation by agreeing to implement the EPA recommendations applicable to systems that are not subject to closure. However, the USN did not designate an entity to be responsible for implementing the EPA recommendations or identify which recommendations are applicable to systems that are not subject to closure. Therefore, the recommendation is unresolved. We request that the SecNav provide additional comments in response to the final report within 30 days specifying which entity will be responsible for closure of the EPA recommendations, which recommendations they are implementing, and the timeline for completion.

(U) For Recommendation 4.c, comments from the USN addressed the recommendation. Specifically, the USN stated that the OSHA 1563668 recommendations were closed. Additionally, we received documentation confirming the closure including two memorandums from the CNRH CO to OSHA requesting closure of the recommendations in OSHA 1563668. Furthermore, we verified that the recommendations were closed on the OSHA Inspection Information Search website.[238] Therefore, the recommendation is resolved and closed.

[238] (U) The OSHA Inspection Information Search website is at https://www.osha.gov/ords/imis/inspectionNr.html.

(~~CUI~~) For Recommendation 4.d, comments from the USN partially addressed the recommendation by agreeing to implement the recommendations from the VCNO command investigation. However, the comments from the USN did not designate an entity to be responsible for implementing the VCNO command investigation recommendations or identify which recommendations fell into the specific categories mentioned in the ASN(EI&E) memorandum. [redacted] Therefore, the recommendation is unresolved. We request that the SecNav provide additional comments in response to the final report within 30 days specifying which entity will be responsible for the VCNO command investigation recommendations, which recommendations are no longer applicable, open, or closed, and the timeline for completion.

(U) Recommendation 5

(U) We recommend that the Secretary of the Navy direct:

a. **(U) A comprehensive review of the operation and maintenance programs at Defense Fuel Support Point Joint Base Pearl Harbor–Hickam. This review should include a review of: authorities; reporting chain of command; operational procedures; process control; change management; records management; maintenance planning, tracking, and support programs, such as supply and tool control; staffing levels and skill sets; training; and safety.**

b. **(U) Implementation of corrective actions based on the review that will ensure safe operations at Defense Fuel Support Point Joint Base Pearl Harbor–Hickam.**

(U) Under Secretary of the Navy Comments

(U) The USN, responding on behalf of the SecNav, agreed with the recommendations.

(U) Our Response

(U) Comments from the USN addressed the recommendations by agreeing to conduct a comprehensive review of operation and maintenance programs at DFSP JBPHH, and implement corrective actions based on the review. Therefore, the recommendations are resolved but will remain open. We request that the SecNav provide additional comments specifying the timeline for the comprehensive review of the operation and maintenance programs at DFSP JBPHH. We will close the recommendations once we receive documentation of the review and the evidence that corrective actions identified in the review were completed.

(U) Recommendation 6

(U) We recommend that the Secretary of the Navy direct:

a. **(U) A comprehensive review of the operational safety programs at Joint Base Pearl Harbor–Hickam. This review should include a review of authorities, reporting chain of command, policies, and safety office staffing levels at the Joint Base Pearl Harbor–Hickam, including safety oversight of tenant commands.**

b. **(U) Implementation of corrective actions based on the review that will ensure safe operations at Joint Base Pearl Harbor–Hickam, including tenant commands.**

(U) Under Secretary of the Navy Comments

(U) The USN, responding on behalf of the SecNav, agreed with both recommendations.

(U) Our Response

(U) Comments from the USN addressed the recommendations by agreeing to conduct a comprehensive review of the operational safety programs at JBPHH, and implement corrective actions. Therefore, the recommendations are resolved but will remain open. We request that the SecNav provide additional comments specifying the timeline for the comprehensive review of the operational safety programs at JBPHH. We will close the recommendations once we receive documentation of the review and the evidence that corrective actions identified in the review were completed.

(U) Recommendation 7

(U) We recommend that the Secretary of the Navy direct the Commander, Navy Region Hawaii, in coordination with the Director of the Defense Logistics Agency, to update the oil and hazardous substance incident response plans to address the deficiencies discussed in this report and implement the updated oil and hazardous substance incident response plans, including training and exercises.

(U) Under Secretary of the Navy Comments

(U) The USN, responding on behalf of the SecNav, agreed with the recommendation.

(U) Our Response

(U) Comments from the USN addressed the recommendation by agreeing to update the oil and hazardous substance incident response plans, and implement the updated plans, including training and exercises. Therefore, the recommendation is resolved but will remain open. We request that the SecNav provide additional comments

(U) specifying the timeline for updating the oil and hazardous substance incident response plans to address the deficiencies discussed in this report and implementing the updated oil and hazardous substance incident response plans, including training and exercises. We will close the recommendation once we receive and review the updated incident response plans.

(U) Recommendation 8

(U) We recommend that the Secretary of the Navy direct the Commander, Naval Supply Systems Command to develop and implement a standard operating procedure for causative research and post-incident investigations and reporting for oil or hazardous substance incidents at Navy Defense Fuel Support Points.

(U) Under Secretary of the Navy Comments

(~~CUI~~) The USN, responding on behalf of the SecNav, agreed with the recommendation. [redacted]

(U) Our Response

(~~CUI~~) Comments from the USN partially addressed the recommendation. Specifically, the USN agreed to develop and implement a standard operating procedure for causative research and post incident investigations and reporting for oil or hazardous substance incidents at Navy DFSPs. [redacted] However, the USD(A&S)'s response to Recommendation 1 in this report stated that the single point of contact for DFSP JBPHH is the JBPHH CO, which appears to conflict with the response to this recommendation. Therefore, the recommendation is unresolved. We request that the SecNav provide additional comments in response to the final report within 30 days clarifying the roles and responsibilities [redacted] for Recommendations 1 and 8. Additionally, we request that SecNav specify the timeline for developing and implementing a standard operating procedure for causative research and post incident investigations and reporting for oil or hazardous substance incidents.

(U) Recommendation 9

(U) We recommend that the Secretary of the Navy initiate a review of the P-1551 Military Construction project to determine whether any Federal law, acquisition regulation, or contracting requirements were violated or funds were wasted and take appropriate action.

(U) Under Secretary of the Navy Comments

(U) The USN, responding on behalf of the SecNav, agreed with the recommendation.

(U) Our Response

(U) Comments from the USN addressed the recommendation by agreeing to initiate a review of the P-1551 Military Construction project. Therefore, the recommendation is resolved but will remain open. We request that the SecNav provide additional comments specifying the timeline for a review of the P-1551 Military Construction project to determine whether any Federal law, acquisition regulation, or contracting requirements were violated or funds were wasted. We will close the recommendation once we receive documentation of the review and verify actions taken in response to the review.

(U) Appendix A

(U) Scope and Methodology

(U) We conducted this evaluation from December 2021 through May 2024 in accordance with the "Quality Standards for Inspection and Evaluation," published in January 2012 by the Council of the Inspectors General on Integrity and Efficiency. Those standards require that we adequately plan the evaluation to ensure that objectives are met and that we perform the evaluation to obtain sufficient, competent, and relevant evidence to support the findings, conclusions, and recommendations. We believe that the evidence obtained was sufficient, competent, and relevant to lead a reasonable person to sustain the findings, conclusions, and recommendations.

(U) This report was reviewed by the DoD Component(s) associated with this oversight project to identify whether any of their reported information, including legacy FOUO information, should be safeguarded and marked in accordance with the DoD CUI Program. In preparing and marking this report, we considered any comments submitted by the DoD Component(s) about the CUI treatment of their information. If the DoD Component(s) failed to provide any or sufficient comments about the CUI treatment of their information, we marked the report based on our assessment of the available information.

(U) To conduct this evaluation, we assembled a multidisciplinary team of 20 DoD OIG personnel, including engineers, auditors, a program analyst, and an attorney. Before conducting site visits, eight team members attended formal training on environmental compliance, fuel storage tank compliance, or both. Due to the breadth of our evaluation, we spent approximately 1 year performing fieldwork and 1 year performing our analysis, documenting our conclusions, and preparing two reports and a management advisory.

(U) To determine the extent that DoD officials managed the operation, maintenance, safety, and oversight of Defense Fuel Support Point (DFSP) Joint Base Pearl Harbor-Hickam (JBPHH), including the Red Hill Bulk Fuel Storage Facility (BFSF); and protected the environment and drinking water systems in compliance with Federal and state regulations and DoD policy, we collected and reviewed applicable criteria and documentation, conducted interviews, and

(U) performed site visits. Although we conducted one evaluation, we developed two reports and a management advisory with our findings and conclusions. For brevity, the following sections in this Appendix describing our scope and methodology focus on the portion of our objective addressed in this report.[239]

(U) Criteria and Documentation

(U) We formally requested information from DoD officials in 35 extensive requests for information (RFI). We received the requested documentation from DoD officials from January 2022 through May 2023, and concluded our field work in April 2023. To support our findings and conclusions, we received, collected, and reviewed over 100 written responses to our requests, engineering drawings, historical reports, public affairs materials, operations and maintenance records, internal communications and regulatory notifications, incident investigation reports, and technical reports. Additionally, we reviewed over 240 Federal and State of Hawaii laws, regulations, and guidance; and DoD, Navy, and DLA directives, instructions, manuals, and policies, management plans, operating procedures, reports, contracts, memorandums of agreement, and administrative orders. Table 2 includes the criteria related to fuel management, environmental protection, drinking water quality, health, and safety that we reviewed for aspects of our objective addressed in this report.

(U) Table 2. DoD OIG Evaluation Criteria

(U) Type	Title
Public Laws	• Public Law 91-596, "Occupational Safety and Health Act of 1970" • Public Law 105-241, "Postal Employees Safety Enhancement Act" • Public Law 113-291, Carl Levin and Howard P. "Buck" McKeon National Defense Authorization Act for Fiscal Year 2015 • United States Code (U.S.C.), title 33, chapter 26, "Clean Water Act" • U.S.C., title 29, chapter 15, "Occupational Health and Safety" • U.S.C., title 33, sections 2701–2761, "The Oil Pollution Act of 1990" • U.S.C., title 42, chapter 82, subchapter IX, "Regulation of Underground Storage Tanks" **(U)**

[239] (U) In this report, we address the extent to which DoD officials managed the operation, maintenance, safety, and oversight of DFSP JBPHH, including the Red Hill BFSF; and protected the environment, in compliance with Federal and state regulations and DoD policy. We address the extent to which DoD officials protected the JBPHH Community Water System, in compliance with Federal and state regulations and DoD policy, in DODIG-2025- 012. Appendix A in that report overlaps significantly with this section because we conducted this evaluation as a single evaluation with two reports.

(U) Table 2. DoD OIG Evaluation Criteria (cont'd)

(U) Type	Title
Federal Rules and Regulations	• Title 29 Code of Federal Regulations (CFR) part 1960, "Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters" • Title 29 CFR section 1910.147, "General Environmental Controls" • Title 29 CFR section 1910.151, "Medical and First Aid" • Title 33 CFR part 154, "Facilities Transferring Oil or Hazardous Material in Bulk" • Title 33 CFR part 155, "Oil or Hazardous Material Pollution Prevention Regulations for Vessels" • Title 33 CFR part 156, "Oil or Hazardous Material Transfer Operations" • Title 40 CFR part 110, "Discharge of Oil" • Title 40 CFR part 112, "Oil Pollution Prevention" • Title 40 CFR part 141, "National Primary Drinking Water Standards" • Title 40 CFR part 280, "Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST)" • Title 40 CFR part 280, subpart K, "UST Systems with Field-Constructed Tanks and Airport Hydrant Fuel Distribution Systems" • Title 40 CFR part 302, "Designation, Reportable Quantities, and Notification" • Title 49 CFR part 195, "Transportation of Hazardous Liquids by Pipeline" • Federal Acquisition Regulation (FAR) Part 4, "Administrative and Information Matters," Subpart 4.8, "Government Contract Files."
Executive Orders	• Executive Order 11612, "Occupational Safety and Health Programs for Federal Employees," July 26, 1971 • Executive Order 11807, "Occupational Safety and Health Programs for Federal Employees," September 28, 1974 • Executive Order 12196, "Occupational Safety and Health Programs for Federal Employees," February 26, 1980
Occupational Safety and Health Administration (OSHA) Policy	• OSHA 3909-03 2017, "Process Safety Management for Storage Facilities," 2017
Environmental Protection Agency (EPA) Guidelines	• EPA Facility Response Planning, "Compliance Assistance Guide," August 2002 • EPA, "Requirements for Field-Constructed Tanks and Airport Hydrant Systems," April 2016. • EPA, "Release Detection for Underground Storage Tanks and Piping: Straight Talk on Tanks," August 2020 • EPA, "Approval of State Underground Storage Tank Program Revisions; Hawaii," March 7, 2022

(U)

(U) Table 2. DoD OIG Evaluation Criteria (cont'd)

(U) Type	Title
State of Hawaii Laws, Regulations, and Agreements	• Hawaii Revised Statutes, title 10, chapter 128D, "Environmental Response Law" • Hawaii Administrative Rules (HAR), title 11, chapter 11-280.1, "Underground Storage Tanks" • HAR, title 11, chapter 11-451, "The State Contingency Plan (SCP)" • Hawaii DOH Users Guide, "Evaluation of Environmental Hazards at Sites with Contaminated Soil and Groundwater," Fall 2017
Consent Orders	• U.S. EPA Region 9 and the Hawaii DOH in the matter of the Department of the Navy and DLA respondents Red Hill BFSF, Oahu, Hawaii, "Administrative Order On Consent," May 27, 2015 • U.S. EPA Region 9 in the matter of the Department of the Navy and DLA respondents Red Hill BFSF, Oahu, Hawaii, Joint Base Pearl Harbor-Hickam Water System PWS, "Red Hill Bulk Fuel Storage Facility Defueling, Closure, and Joint Base Pearl Harbor-Hickam Drinking Water System 2023 Consent Order," June 2, 2023
U.S. Treasury Form	• United States Government General Terms & Conditions (GT&C) Fiscal Service Form 7600A
Joint Doctrine	• Joint Chiefs of Staff Joint Publication 4-03, "Joint Bulk Petroleum and Water Doctrine," January 11, 2016
DoD Directives (DoDD)	• DoDD 4715.1E, "Environment, Safety, and Occupational Health (ESOH)," March 19, 2005 (Incorporating Change 2, December 30, 2019) • DoDD 5101.08E, "DoD Executive Agent (DoD EA) for Bulk Petroleum," September 19, 2017 (Incorporating Change 2, May 2, 2019) • DoDD 5101.01, "DoD Executive Agent," February 7, 2022 • DoDD 5105.22, "Defense Logistics Agency (DLA)," June 29, 2017 • DoDD 5135.02, "Under Secretary of Defense for Acquisition and Sustainment (USD[A&S])," July 15, 2020 • DoDD 5124.02, "Under Secretary of Defense for Personnel and Readiness (USD[P&R])," June 23, 2008 • DoDD 5124.11, "Assistant Secretary of Defense for Readiness (ASD[R])," September 6, 2019 • DoDD 5136.01, "Assistant Secretary of Defense for Health Affairs (ASD[(HA])," September 30, 2013 (Incorporating Change 1, August 10, 2017) **(U)**

(U) Table 2. DoD OIG Evaluation Criteria (cont'd)

(U) Type	Title
DoD Instructions (DoDI)	• DoDI 3000.15, "Plan Review and Approval Process," November 3, 2020 • DoDI 4140.25, "DoD Management Policy for Energy Commodities and Related Services," June 25, 2015 (Incorporating Change 3, December 31, 2019) • DoDI 4165.70, "Real Property Management," April 6, 2005 (Incorporating Change 1, August 31, 2018) • DoDI 4715.06, "Environmental Compliance in the United States," May 4, 2015 (Incorporating Change 2, August 31, 2018) • DoDI 4715.07, "Defense Environmental Restoration Program (DERP)," May 21, 2013 (Incorporating Change 2, August 31, 2018) • DoDI 4715.15, "Environmental Quality Systems," April 17, 2017 (Incorporating Change 3, July 8, 2019) • DoDI 4715.17, "Environmental Management Systems," April 15, 2009 (Incorporating Change 2, August 31, 2018) • DoDI 6050.05, "DoD Hazard Communication (HAZCOM) Program," February 26, 2019 (Incorporating Change 1, June 10, 2019) • DoDI 6055.01, "DoD Safety and Occupational Health (SOH) Program," October 14, 2014 (Incorporating Change 3, April 21, 2021) • (U) DoDI 6200.05, "Force Health Protection Quality Assurance (FHPQA) Program," June 16, 2016 (Incorporating Change 1, December 21, 2017)
DoD Manuals (DoDM)	• DoDM 4140.25, Volume 6, "DoD Management of Energy Commodities: DFSP Management," March 2, 2018 (Incorporating Change 2, April 4, 2019) • DoDM 4140.25, Volume 8, "DoD Management of Energy Commodities: Energy Commodity Infrastructure Operations," March 2, 2018 (Incorporating Change 2, April 4, 2019) • DoDM 4140.25, Volume 9, "DoD Management of Energy Commodities: DFSP Bulk Petroleum Inventory Accounting," March 2, 2018 (Incorporating Change 2, April 4, 2019) • DoDM 4140.25, Volume 11, "DoD Management of Energy Commodities: DFSP Inventory Accounting Investigations," March 2, 2018 • DoDM 4165.63, "DoD Housing Management," October 28, 2010 (Incorporating Change 2, August 31, 2018) • DoDM 4715.20, "Defense Environmental Restoration Program (DERP) Management," March 9, 2012 (Incorporating Change 1, August 31, 2018) **(U)**

(U) Table 2. DoD OIG Evaluation Criteria (cont'd)

(U) Type	Title
DoD Military Standard (MIL-STD)	• MIL-STD-3004D, "Department of Defense Standard Practice Quality Assurance/Surveillance for Fuels, Lubricants and Related Products," October 10, 2014 (Incorporating Change 1, March 28, 2016)
DoD Policy Memorandums	• Office of the Under Secretary of Defense Memorandum, "Real Property Financial Reporting Responsibilities Policy Update (FMP #19-05)," March 15, 2019
Defense Logistics Agency (DLA) Policy	• DLA Standard Operating Procedure, "DLA Energy Petroleum, Oils and Lubricants (POL) Facility Sustainment, Restoration and Modernization (SRM) Program Execution Processes," received January 5, 2021 • DLA Energy P-1, "Recording and Processing Inventory Transactions," December 23, 2013 (Incorporating Change 3, April 4, 2019) • DLA Energy P-15, "Defense Wide Working Capital Fund Capitalization," April 9, 2019 • DLA Energy Environmental Guidance, "Defense Logistics Agency Energy Environmental Guide for Fuel Facilities," March 2019 • Defense Transportation Regulation 4500.9-R, "Individual Missions, Roles, and Responsibilities," April 29, 2022
Unified Facilities Criteria (UFC) and United Facilities Guide Specifications (UFGS)	• UFC 1-300-09N, "Design Procedures," May 25, 2005, (Incorporating Change 9, July 1, 2013) • UFC 3-460-01, "Petrol Fuel Facilities," July 16, 2019 (Incorporating Change 1, May 1, 2020) • UFC 3-460-03, "Petroleum Fuel Systems Maintenance," November 10, 2017 (Incorporating Change 1, April 29, 2021) • UFC 3-600-01, "Fire Protection Engineering for Facilities," August 8, 2016 (Incorporating Change 6, May 6, 2021) • UFC 3-600-01, "Fire Protection Engineering for Facilities," September 26, 2006 (Incorporating Change 3, March 1, 2013) • UFC 3-601-02, "Operation and Maintenance: Inspection, Testing, and Maintenance of Fire Protection Systems," September 8, 2010 • UFC 3-230-02, "Operation and Maintenance: Water Supply Systems," December 10, 2019 (Incorporating Change 1, April 1, 2021) • UFC 4-711-01, "Family Housing," August 10, 2018 • UFGS 01-30-00, "Administrative Requirements," November 2020 (Incorporating Change 2, May 2022) • UFGS 01 78 00, "Closeout Submittals," May 2019 (Incorporating Change 1, August 2021) • UFGS 21-13-24.00-10, "Aqueous Film-Forming Foam (AFFF) Fire Protection System," October 2007 (Validated July 2022) **(U)**

(U) Table 2. DoD OIG Evaluation Criteria (cont'd)

(U) Type	Title
Secretary of the Navy (SECNAV) Policy	• SECNAV Instruction 5100.10K, "Department of the Navy Safety Program," May 12, 2015
Chief of Naval Operations (CNO) Policy	• OPNAVINST 4020.27, "Capitalized Bulk Fuel Tank Management at Navy Installations," September 18, 2017 • OPNAVINST 5090.1E, "Environmental Readiness Program," September 3, 2019 • OPNAVINST 5100.23H, "Safety and Occupational Health Program," June 5, 2020 • OPNAVINST 5450.337B, "COMPACFLT Missions Functions" • OPNAVINST 5450.348A, "Mission, Functions and Tasks of Commander, Naval Facilities Engineering Systems Command," June 23, 2021 • OPNAVINST 5450.349A, "Mission, Functions and Tasks of Commander, Naval Supply Systems Command," December 16, 2019 • OPNAVINST 11010.20H, "Navy Facilities Projects," June 24, 2015 • OPNAV M 5090.1, "Environmental Readiness Program Manual," September 3, 2019 (Updated June 25, 2021) • OPNAV M-5100.23, "Navy Safety and Occupational Health Manual," June 5, 2020 • OPNAVINST 4020.15P, "Operating Stock and War Reserve Requirements and Stock for Petroleum Products," June 26, 2018 • OPNAVINST 11014.3, "Facility Maintenance Unit Identification Code Holder Responsibilities," March 26, 2019 • OPNAVINST 11320.23G, "Navy Fire and Emergency Services Program," February 4, 2013
Commander, Navy Installations Command (CNIC) Policy	• CNIC, "HQ Standard Organization and Regulations Manual (SORM)," May 23, 2013 • CNIC Instruction 3440.3A, "All-Hazards Plan," April 9, 2018 • CNIC Instruction 3440.17, "Addition of Evacuation Planning Procedures to the CNIC Emergency Management Program Manual," July 8, 2006 • CNIC Instruction 5090.4, "Navy On-Scene Coordinator Designation and Navy Policy Guidance for Oil and Hazardous Substance Spill Reporting On-Shore and Near Shore," March 16, 2015 • CNIC Instruction 5450.8B, "Mission, Functions and Tasks of Commander, Navy Region Hawaii," April 16, 2013 • CNIC Manual 5100.1, "Base Operating Support Safety Services Manual," July 21, 2020 **(U)**

(U) Table 2. DoD OIG Evaluation Criteria (cont'd)

(U) Type	Title
Commander, Navy Region Hawaii (CNRH) Policy	• CNRH Instruction 3120.2D, "Commander, Navy Region Hawaii Standard Organization and Regulations Manual," March 9, 2018 • CNRH Instruction 3440.18, "COMNAVREG Hawaii Red Hill BFSF Emergency Response Notification Coordination Plan," June 25, 2021
JBPHH Policy	• JBPHH Instruction 3440.17D, "Joint Base Pearl Harbor-Hickam Installation Emergency Management Program," February 27, 2018 • JBPHH Instruction 5400.2, "Joint Base Pearl Harbor-Hickam Standard Organization and Regulations Manual," August 19, 2019
Naval Supply Systems Command (NAVSUP) Policy	• NAVSUP Fleet Logistics Center Pearl Harbor Instruction 5450.3T, "Missions, Functions, and Organization of the NAVSUP Fleet Logistics Center Pearl Harbor," May 12, 2021
Naval Facilities Engineering Command (NAVFAC) Policy	• NAVFAC Instruction 5100.1, "Naval Facilities Engineering Command (NAVFAC) Occupational Safety and Health Program," February 10, 2020 • NAVFAC Instruction 5400.7B, "Technical Authority Policy," January 13, 2021 • NAVFAC, Business Management System (BMS) B-1.6.11, "Red Zone," November 21, 2017 • NAVFAC, BMS B-1.7, "Contract and Project Closeout," March 29, 2022
Army Policy and Contract Documents	• Recurring Maintenance and Minor Repair contract No. 47QSHA18D000Y, January 29, 2021, U.S. Army Corps of Engineers' contract with Pond Constructors Inc. • Performance Work Statement, U.S. Army Corps of Engineers Fuel Program Recurring Maintenance and Minor Repair, August 25, 2020 • Quality Assurance Surveillance Plan (QASP), U.S. Army Corps of Engineers Fuels Recurring Maintenance and Minor Repair Program, February 1, 2021 **(U)**

(U) Table 2. DoD OIG Evaluation Criteria (cont'd)

(U) Type	Title
Memorandums of Agreement (MOA) / Memorandums of Understanding (MOU)	• MOA between NAVSUP and NAVFAC, "Memorandum of Agreement for Naval Facilities Command Regional Petroleum, Oil, and Lubricant Engineers for the Defense Logistics Agency Petroleum, Oil, and Lubricants Facilities Sustainment, Restoration and Modernization Program," August 5, 2014 • MOA between CNIC and NAVSUP, "Management of Bulk Fuel Facilities," April 30, 2015 • MOA between Commander, DLA Energy and Commander, NAVSUP Global Logistics Support, "Defense Logistics Agency Energy Funding of Naval Supply Systems Command Fuel Terminal Operations," December 22, 2015 • MOU between NAVSUP, NAVFAC and DLA, "Roles and Responsibilities for Petroleum, Oil, and Lubricants Facilities Sustainment, Restoration and Modernization of Navy Capitalized Facilities," June 30, 2016 • MOA between NAVFAC and DLA Energy, "Memorandum of Agreement between Naval Facilities Engineering Systems Command (NAVFAC) … and Defense Logistics Agency Energy (DLA Energy) … to Fund Program Execution for Sustainment, Restoration and Modernization (SRM) of DLA Capitalized D33 Fuel Facilities," October 6, 2016 • MOA between NAVSUP and NAVFAC, "Memorandum of Agreement for Naval Facilities Command Regional Petroleum, Oil, and Lubricant Engineers for the Defense Logistics Agency Energy Petroleum, Oil, and Lubricants Facilities Sustainment, Restoration and Modernization Program," August 23, 2017 • MOA between NAVFAC and NAVSUP and DLA Energy and Marine Corp Installations Command (MCIC), "Roles, Responsibilities and Funding for Sustainment, Restoration and Modernization of DLA Capitalized Petroleum, Oil, and Lubricant Facilities," not signed **(U)**

(U) Source: The DoD OIG.

(U) Interviews with Officials

(U) Throughout our evaluation, we met and interviewed individuals responsible for operation, maintenance, safety, and oversight of DFSPs and drinking water systems. Specifically, we conducted 95 meetings and interviews with DoD officials. We began conducting meetings and interviews in March 2022, including interviews of the DoD officials responsible for responding to incidents at DFSP JBPHH, including the Red Hill BFSF, and the JBPHH Community Water System. We also met with officials from the U.S. Environmental Protection Agency (EPA) and the Hawaii Department of Health (DOH) to discuss Federal and state law and regulations applicable to DFSPs and drinking water systems, including the DFSP JBPHH and the JBPHH Community Water System. Specifically, we met with the following commands and organizations.

- (U) U.S. Environmental Protection Agency, including the EPA Region 9
- (U) Occupational Safety and Health Administration
- (U) Office of the Assistant Secretary of Defense (Readiness)
- (U) Office of the Assistant Secretary of Defense (Energy, Installations, and Environment)
- (U) Defense Health Agency
- (U) Office of the Assistant Secretary of the Navy (Energy, Installations, and Environment)
- (U) Defense Logistics Agency, including DLA Energy
- (U) Navy Bureau of Medicine and the Navy and Marine Corps Public Health Center
- (U) Commander, U.S. Pacific Fleet
- (U) Commander, U.S. Indo-Pacific Command
- (U) Commander, Navy Installations Command and Commander, Navy Region Hawaii
- (U) Joint Base Pearl Harbor–Hickam
- (U) Naval Supply Systems Command (NAVSUP), including NAVSUP Fleet Logistic Center Pearl Harbor, and NAVSUP Naval Petroleum Office
- (U) Naval Facilities Engineering Systems Command (NAVFAC), including NAVFAC Pacific, NAVFAC Hawaii, Naval Facilities Engineering and Expeditionary Warfare Center
- (U) Naval Information Warfare Center
- (U) U.S. Army Pacific

- (U) U.S. Army Corps of Engineers
- (U) State of Hawaii, Department of Health
- (U) University of Hawaii

(U) Furthermore, we met with officials responsible for operation, maintenance, safety, and oversight of DFSP Craney Island, DFSP Manchester, and DFSP Point Loma.

(U) Site Visits

(U) We visited JBPHH in April 2022 and in July 2022. During the site visits, we conducted additional interviews, visually assessed relevant infrastructure, and visited areas of JBPHH affected by each of the incidents described in Part III. We interviewed DoD officials, including officials responsible for management, operations and maintenance, environmental, engineering, safety, health, and public affairs. We also interviewed maintenance contract workers employed by the companies contracted for maintenance of the Red Hill BFSF.

(U) During our first site visit to JBPHH, from April 1 to April 14, 2022, we held 30 meetings, one of which included a visit to the Hawaii DOH offices. Additionally, we performed eight walk-throughs of JBPHH infrastructure and visually assessed the Red Hill BFSF, Naval Station Pearl Harbor, Hickam Air Force Base, and JPBHH Community Water System. Furthermore, we visited family housing neighborhoods and met with affected community members.

(U) During our second site visit to JBPHH, from July 12 to July 22, 2022, we held 32 meetings, including a second visit to the Hawaii DOH offices and a visit to a University of Hawaii laboratory to learn about drinking water testing methods. Additionally, we performed five walk-throughs of JBPHH infrastructure and visually assessed the Red Hill BFSF, including the underground pump house; the Red Hill well; Naval Station Pearl Harbor, including a boat tour to visually assess the piers; the Upper Tank Farm; and the Fuel Oil Recovery Facility.

(U) Finally, we made a site visit to DFSP Craney Island in Norfolk, Virginia, in August 2022. Figure 21 depicts the four Navy DFSPs we referred to in this report.

(U) Figure 21. DFSPs at JBPHH, Craney Island, Point Loma, and Manchester
(U) Source: The DoD OIG based on images provided by NAVSUP.

(~~CUI~~) Note: In the top left image, DFSP JBPHH on the Hawaiian island of Oahu, is a GOGO DFSP owned and operated by the Navy with three types of fuel: F-24, F-76, and JP-5. DFSP JBPHH consists of three interconnected fuel systems that support its Pacific region fuel mission.

(~~CUI~~)

(~~CUI~~)

(~~CUI~~)

(U) Use of Computer-Processed Data

(U) We did not use computer-processed data to perform this evaluation.

(U) Prior Coverage

(U) During the last 23 years, the DoD Office of Inspector General (DoD OIG) and the Naval Audit Service issued six reports related to operations, maintenance, safety, environmental, and construction aspects of bulk fuel management. Unrestricted DoD OIG reports can be accessed at http://www.dodig.mil/reports.html. Naval Audit Service reports are not available over the Internet.

(U) DoD OIG

(U) Report No. D-2002-137, "Bulk Fuel Infrastructure Military Construction and Maintenance, Repair, and Environmental Project Review Process: Navy," August 9, 2002

> (U) The objective of this audit was to evaluate the accuracy and reliability of DoD MILCON and maintenance, repair, and environmental requirements for bulk fuel storage and delivery systems infrastructure. The DoD OIG determined that although the bulk fuel-related military construction and maintenance, repair, and environmental projects were valid requirements, the Navy did not properly validate and prioritize the requirements for each project in accordance with Navy and DoD guidance. This resulted in an increased risk of the Navy submitting bulk fuel-related military construction projects that are incorrectly prioritized, and bulk fuel-related maintenance, repair, and environmental projects with incorrect requirements and priorities to the Defense Energy Support Center for funding.

(U) Report No. D-2001-134, "Bulk Fuel Infrastructure Military Construction Project Review Process: Pacific," June 4, 2001

> (U) The objective of this audit was to evaluate the accuracy and reliability of DoD MILCON and maintenance, repair, and environmental requirements for bulk fuel storage and delivery systems infrastructure. The DoD OIG determined that Headquarters, Pacific Air Forces officials approved and validated requirements for four bulk fuel-related MILCON projects at Hickam, Eielson, and Elmendorf Air Force Bases, and project requirements were accurate and necessary. However, requirements for an additional bulk fuel storage MILCON project

(U) at Elmendorf AFB were inaccurate and unnecessary. Specifically, responsible officials did not validate the project requirement in accordance with DoD guidance. As a result, the Installation Planning and Review Board, Defense Energy Support Center, considered a MILCON project that was not necessary to support operational requirements.

(U) Navy

(U) Report No. N2013-0026, "Summary of Department of the Navy Bulk Fuel Storage Facilities and Farms," May 6, 2013

(U) The objective of this audit was to summarize systemic issues identified in previous BFSF audit reports across five locations audited: Red Hill BFSF, Honolulu, HI; Naval Air Facility El Centro, El Centro, CA; Naval Air Station Fallon, Fallon, NV; SFSP Craney Island, Norfolk, VA; and DFSP San Pedro, CA. The Naval Audit Service identified systemic weaknesses in controls over tank management and oversight for Navy fuel facilities. Specifically, inspections and maintenance of fuel facilities were irregular and insufficient; tank management plans were missing or incomplete; quality assurance measures were either not completed or insufficient; and the Navy had not established clear roles and responsibilities for the oversight and operational responsibility of fuel storage facilities. The Naval Audit Service determined that there was a lack of management and oversight from higher commands for fuel facilities across the Navy that resulted in the Navy not providing assurance that fuel storage tanks and infrastructure are properly and timely inspected and repaired, that inspection histories and schedules are documented and retained, or that the fuel tanks and pipelines are built according to Federal, state, and industry standards.

(U) Report No. N2012-0053, "Department of the Navy Bulk Fuel Storage Facilities and Farms–Mid-Atlantic Region, Craney Island," June 29, 2012

(U) The objectives of this audit were to verify that DFSP Craney Island was operating within Federal environmental standards; had appropriate contingency plans in place to protect the environment and groundwater sources; and had effective physical security controls in place for anti-terrorism/force protection. The Naval Audit Service determined that two break-out tanks had not been properly maintained per Federal regulations due to improper classification, and the pipeline was not in compliance with mandatory Federal inspection

(U) and maintenance criteria. The Naval Audit Service identified weakness in tank classification; tank and pipeline inspection intervals; tank and pipeline corrosion; pipeline pressure testing; recent pipeline leaks; and compliance requirements of infrastructure. As a result of irregular inspection and maintenance, the tank required and received extensive repairs in order to be returned to service, and the pipeline had two leaks of approximately 300 gallons and failed pressure testing.

(U) Report No. N2012-0046, "Department of the Navy Bulk Fuel Facilities and Farms–Southwest Region, Defense Fuel Support Point San Pedro, CA," June 14, 2012

(U) The objectives of this audit were to verify that DFSP San Pedro fuel facilities and farms were in compliance with Federal and state standards for underground and aboveground bulk fuel storage tanks; were operating within Federal environmental standards and have appropriate contingency plans in place to protect the environment and groundwater sources; and had effective physical security controls and antiterrorism measures in place to ensure the protection of the Navy's fuel farms. The Naval Audit Service determined that DFSP San Pedro fuel storage facilities were not in compliance with maintenance requirements in Federal and state standards for the underground and aboveground bulk fuel storage tanks. The Naval Audit Service attributed the noncompliance to Navy's lack of oversight of its bulk fuel storage tanks, as well as DLA Energy's lack of accountability to regulatory agencies, industry's best business practices, and subject matter experts' recommendations. The report states that this noncompliance may lead to the fuel tanks being at risk of corrosion and degradation, possibly resulting in groundwater contamination, which could adversely affect the safety and occupational health of installation personnel and the community's drinking water supply.

(U) Report No. N2010-0049, "Department of the Navy Red Hill and Upper Tank Farm Fuel Storage Facilities," August 16, 2010

(U) The objectives of this audit were to verify that Navy's management of the Red Hill and Upper Tank Farm bulk fuel storage facilities were operating within Federal environmental standards; appropriate contingency plans were in place to protect the environment and groundwater sources; effective physical controls and security were in place; and potential responsibility for catastrophic spills or contamination were delineated. The Naval Audit Service determined that the environment in the Pearl Harbor area had not been sufficiently protected.

(U) The report identified four areas of concern: groundwater contamination resulting from irregular maintenance and insufficient inspection; delays in completion of the maintenance cycle due to operational and time constraints; effectiveness of current leak detection methods in detecting slow, chronic fuel releases; and non-compliance with terms of the Groundwater Protection Plan. In addition, maintenance records were incomplete for six of the 18 active tanks and the Navy could not provide assurance that slow, chronic fuel releases could have been detected and mitigated in a timely manner.

(U) Appendix B

(U) Defense Fuel Support Point Joint Base Pearl Harbor–Hickam

(U) As previously discussed, Defense Fuel Support Point Joint Base Pearl Harbor–Hickam consists of the interconnected fuel systems and infrastructure components at Naval Station Pearl Harbor, Hickam Air Force Base, and the Red Hill Bulk Fuel Storage Facility. We describe the interconnected fuel systems and infrastructure components in the next three sections.

(U) Naval Station Pearl Harbor Fuel Infrastructure

(U) Additionally, DFSP JBPHH receives fuel from tanker ships, tank trucks, and containers at Naval Station Pearl Harbor. Table 3 lists the DFSP JBPHH fuel system infrastructure at Naval Station Pearl Harbor.

(U) Table 3. Naval Station Pearl Harbor Fuel Infrastructure at DFSP JBPHH

(~~CUI~~) Location		Infrastructure
1	Fueling piers	[redacted]
2	Upper tank farm	[redacted]
3	Fuel truck loading rack	[redacted]
4	Fuel oil recovery facility	[redacted]
5	AFFF fire protection systems	[redacted] (~~CUI~~)

(U) Source: The DoD OIG.

(U) Hickam Air Force Base Fuel Infrastructure

(U) Hickam AFB has fuel receiving systems, ASTs, and fuel distribution systems. Table 4 lists the DFSP JBPHH fuel system infrastructure at Hickam AFB.

(U) Table 4. Hickam Air Force Base Fuel Infrastructure at DFSP JBPHH

(~~CUI~~) Location		Infrastructure
1	Aboveground storage tanks	[redacted]
2	Cryogenic tanks	[redacted]
3	Airfield fuel hydrant system	[redacted]
4	Pump houses	[redacted]
5	Fuel truck loading racks	[redacted] (~~CUI~~)

(U) Source: The DoD OIG.

(U) Red Hill Bulk Fuel Storage Facility Fuel Infrastructure

(U) NAVSUP FLC PH officials pumped fuel via pipelines to the Red Hill BFSF for storage. Table 5 lists the DFSP JBPHH fuel system infrastructure at the Red Hill BFSF at the time of our evaluation.

(U) Table 5. Red Hill Bulk Fuel Storage Facility Fuel Infrastructure at DFSP JBPHH

(~~CUI~~) Location		Infrastructure
1	Adits	[redacted]
2	Underground storage tanks	[redacted] (~~CUI~~)

(U) Table 5. Red Hill Bulk Fuel Storage Facility Fuel Infrastructure at DFSP JBPHH (cont'd)

(~~CUI~~) Location		Infrastructure
3	Tunnels and elevators	[redacted]
4	Surge tanks[1]	[redacted]
5	Pipelines	[redacted] (~~CUI~~)

(U) Table 5. Red Hill Bulk Fuel Storage Facility Fuel Infrastructure at DFSP JBPHH (cont'd)

(~~CUI~~) Location		Infrastructure
6	Fire protection systems	[redacted]
7	AFFF sump pits and sump pump systems	[redacted]
8	Fuel oil recovery sump pits and sump pump systems	[redacted] (~~CUI~~)

(U) Table 5. Red Hill Bulk Fuel Storage Facility Fuel Infrastructure at DFSP JBPHH (cont'd)

~~(CUI)~~ Location		Infrastructure
9	Groundwater and septic sump pits and sump pump systems	[redacted]
10	Underground pump house	[redacted]
11	Soil vapor monitoring points	[redacted][3]
12	Groundwater monitoring wells	[redacted][4]
13	Closed-circuit television (CCTV) camera system	[redacted] ~~(CUI)~~

(U) Table 5. Red Hill Bulk Fuel Storage Facility Fuel Infrastructure at DFSP JBPHH (cont'd)

~~(CUI)~~ Location		Infrastructure
14	Oil-tight door	[redacted] ~~(CUI)~~

[1] (U) A surge tank is a tank that can accommodate fuel and provide pressure relief in case of a pressure surge in the system. NAVSUP FLC PH officials also use the surge tanks for temporary fuel storage during fuel transfers.

[2] (U) A retention structure, such as a retention pipe or a retention tank, is designed to collect and prevent the release of a given volume of a liquid, in order to retain the liquid.

[3] (U) Some tanks have two soil vapor monitoring points at shallow and combined middle/deep depths, and others have three soil vapor monitoring points. A total of 50 soil vapor monitoring points are below the tanks. In order to assess the environmental impacts following the November 2021 fuel incident, CNRH officials directed the installation of additional soil vapor monitoring points throughout the LAT.

[4] (U) Groundwater monitoring wells are also located in the area surrounding the Red Hill BFSF to detect whether fuel from fuel incidents has migrated into the groundwater. To assess the environmental impacts following the November 2021 fuel incident, CNRH officials directed the installation of additional groundwater monitoring wells.

(U) Source: The DoD OIG.

(U) Appendix C

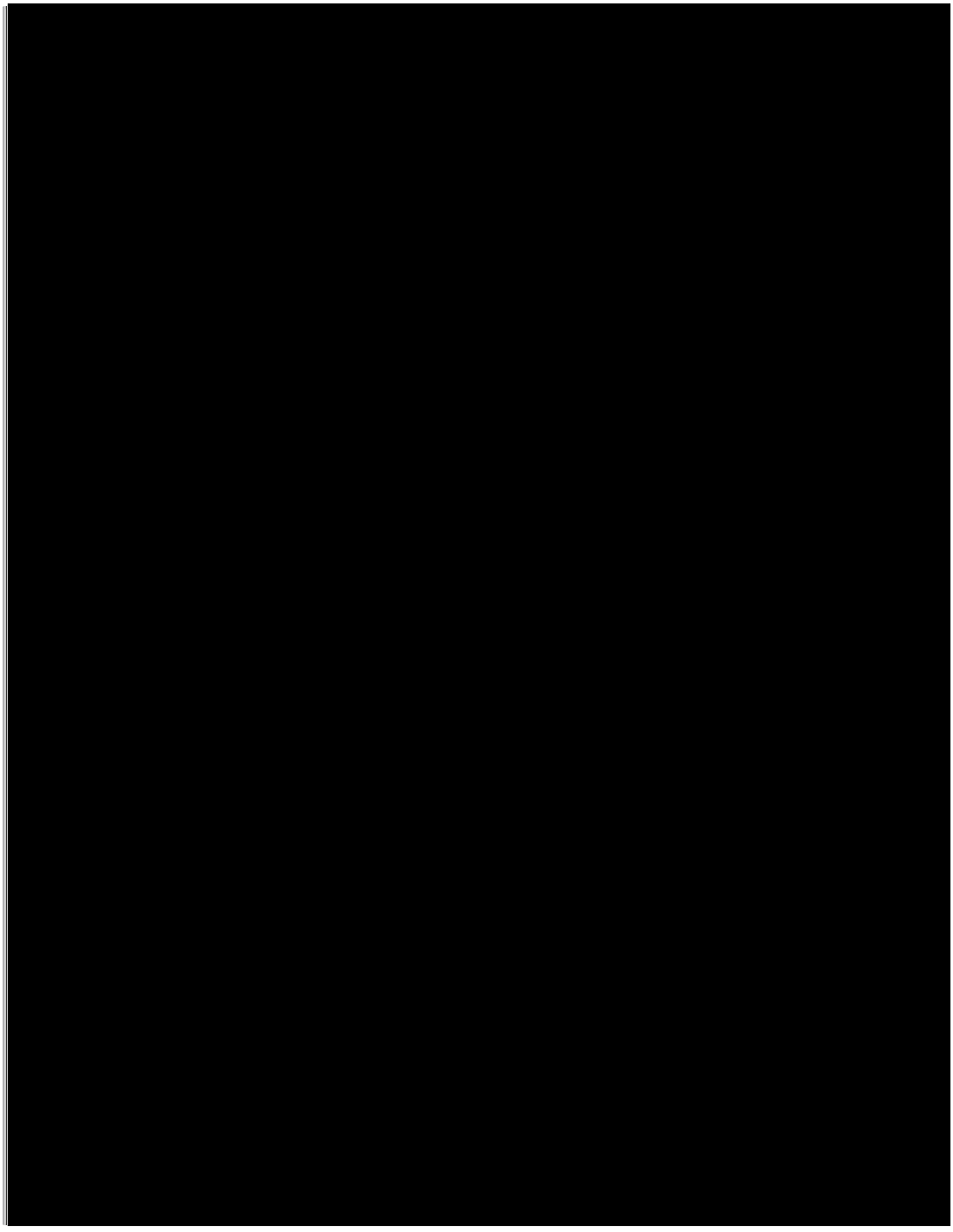
(U) Defense Fuel Support Point Joint Base Pearl Harbor–Hickam Operation Orders

(U) Defense Fuel Support Point (DFSP) Joint Base Pearl Harbor–Hickam (JBPHH) officials document the specifics of each fuel evolution in operation orders (OpOrds). Figure 22 is the OpOrd developed and given to Naval Supply Systems Command (NAVSUP) Fleet Logistics Center Pearl Harbor (FLC PH) control room operators for the May 6, 2021 fuel evolution 3 that contributed to the May 2021 fuel incident.

(U) Figure 23 is an OpOrd developed and implemented by NAVSUP FLC PH officials for a fuel evolution on October 25, 2021. We provide this OpOrd to show the changes NAVSUP FLC PH officials made to their OpOrds during 2021.

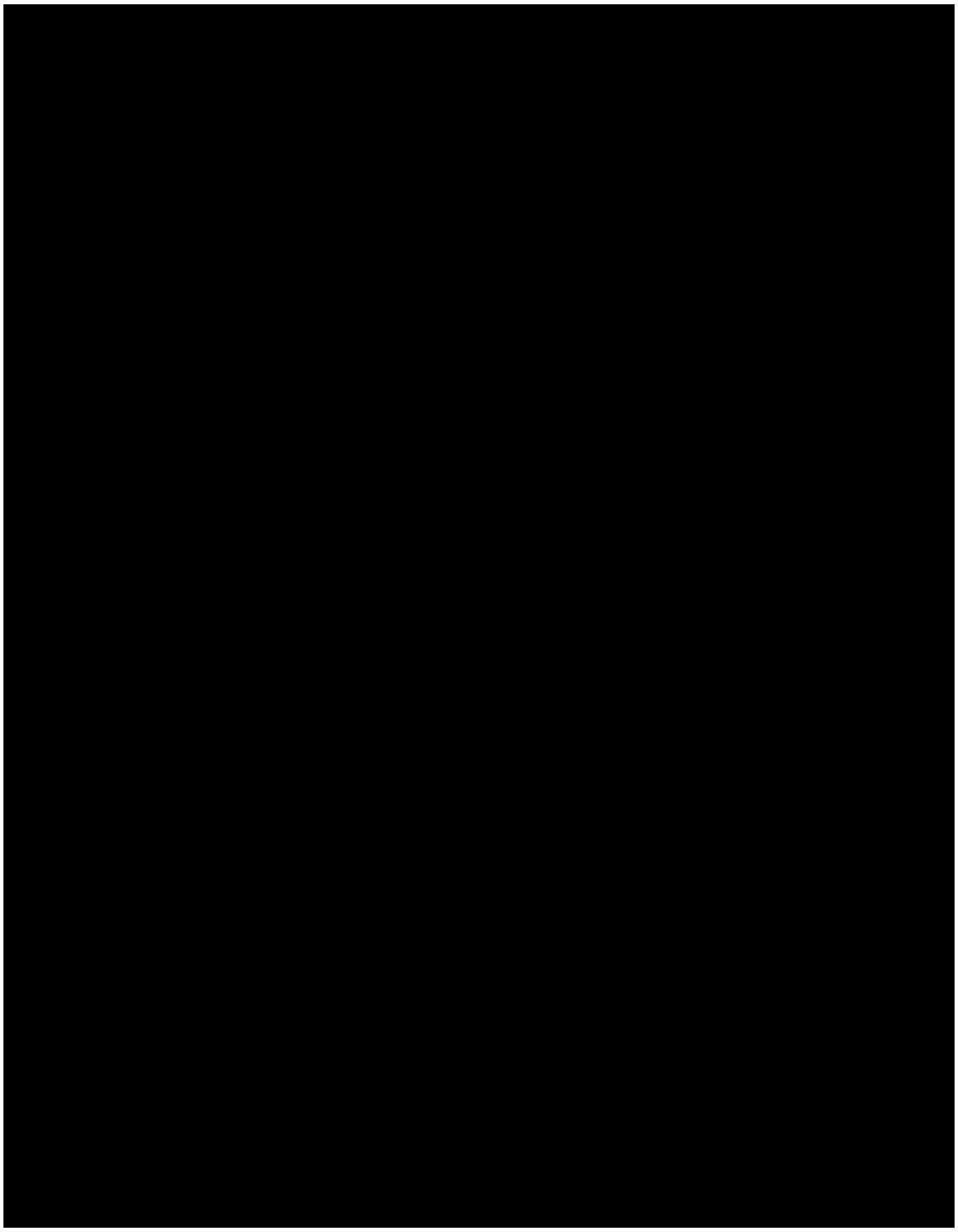
(U) DFSP JBPHH May 6, 2021 Fuel Evolution 3 Operation Order

(U) Figure 22. DFSP JBPHH May 6, 2021 Fuel Evolution 3 Operation Order



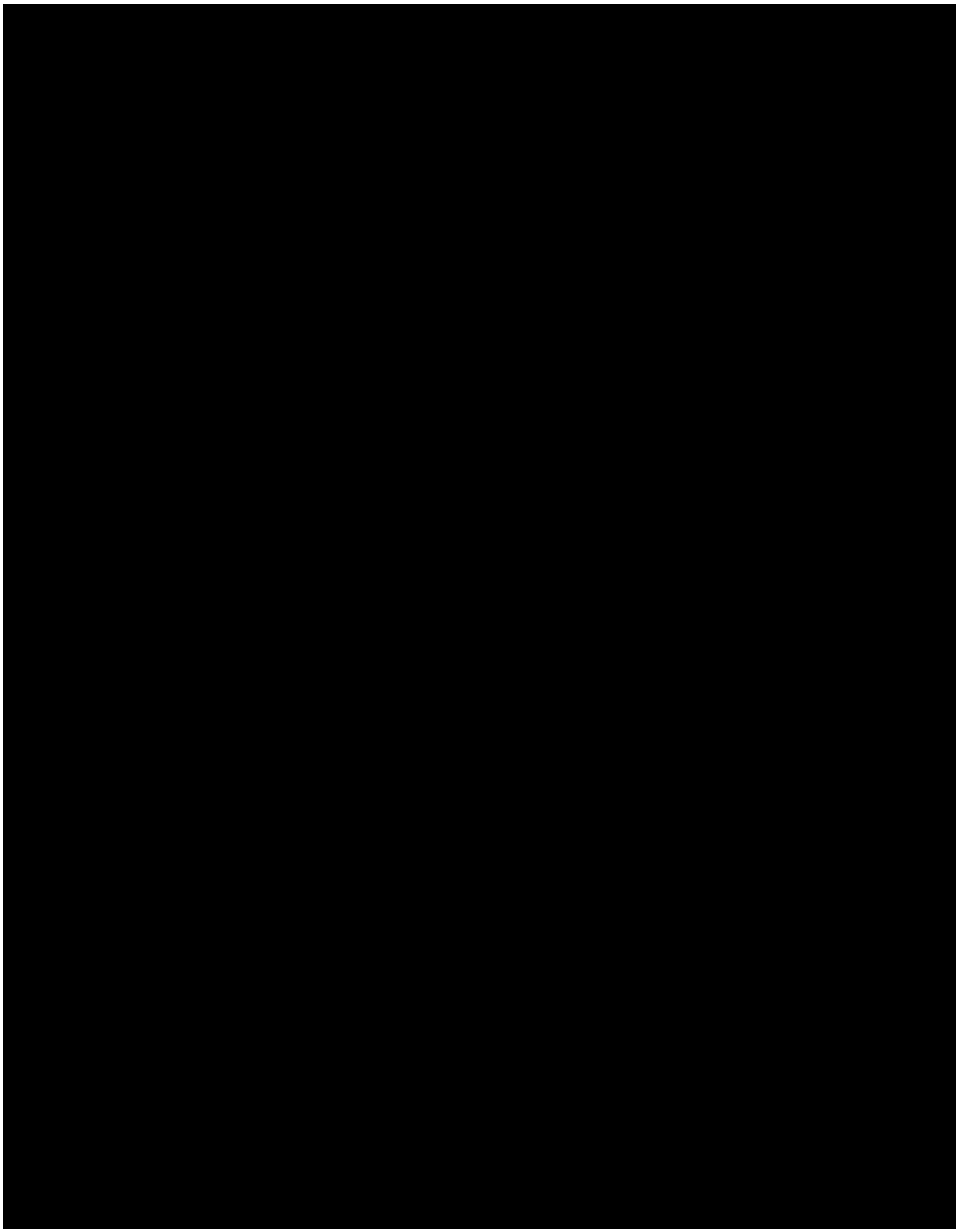
(U) Source: NAVSUP FLC PH.

(U) Figure 22. DFSP JBPHH May 6, 2021 Fuel Evolution 3 Operation Order (cont'd)



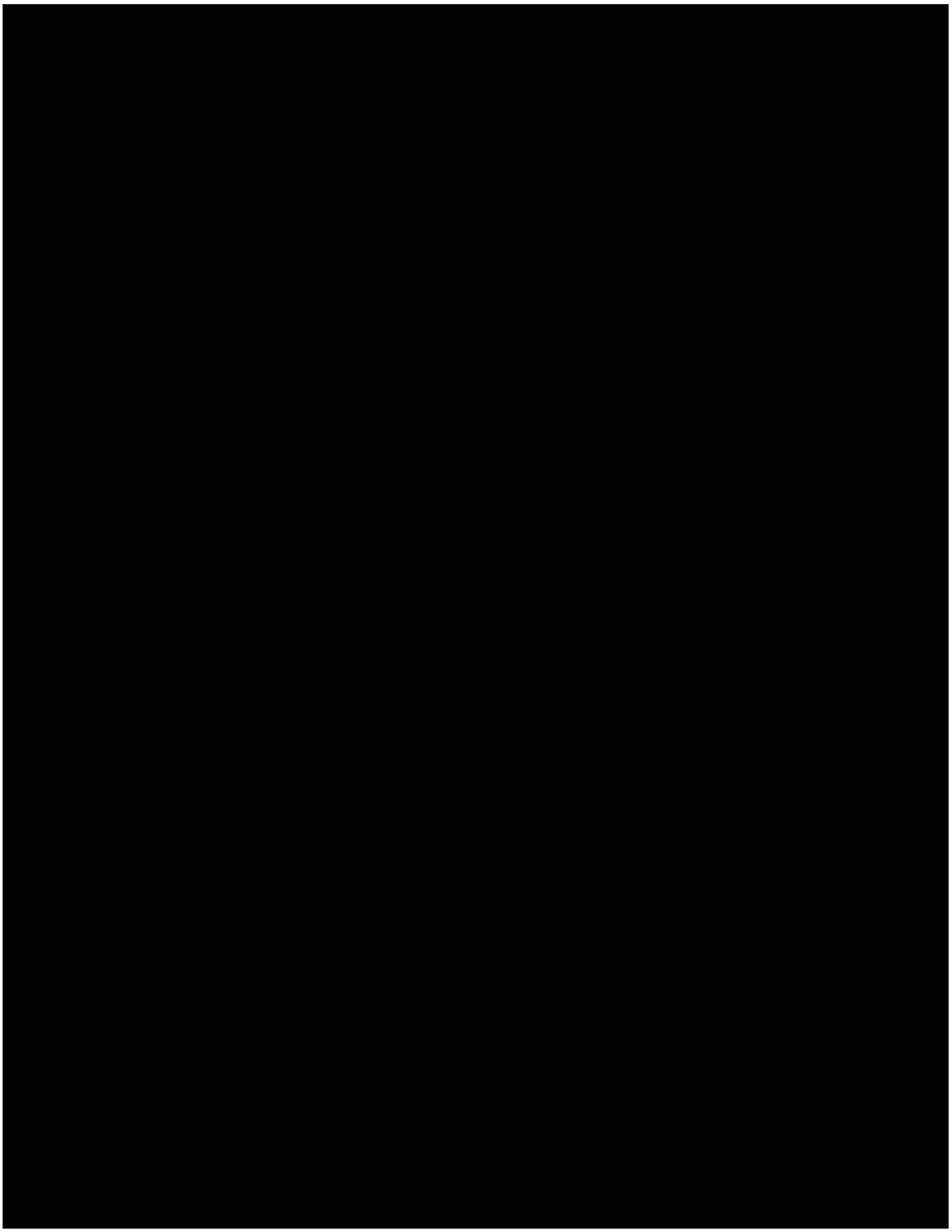
(U) Source: NAVSUP FLC PH.

(U) Figure 22. DFSP JBPHH May 6, 2021 Fuel Evolution 3 Operation Order (cont'd)



(U) Source: NAVSUP FLC PH.

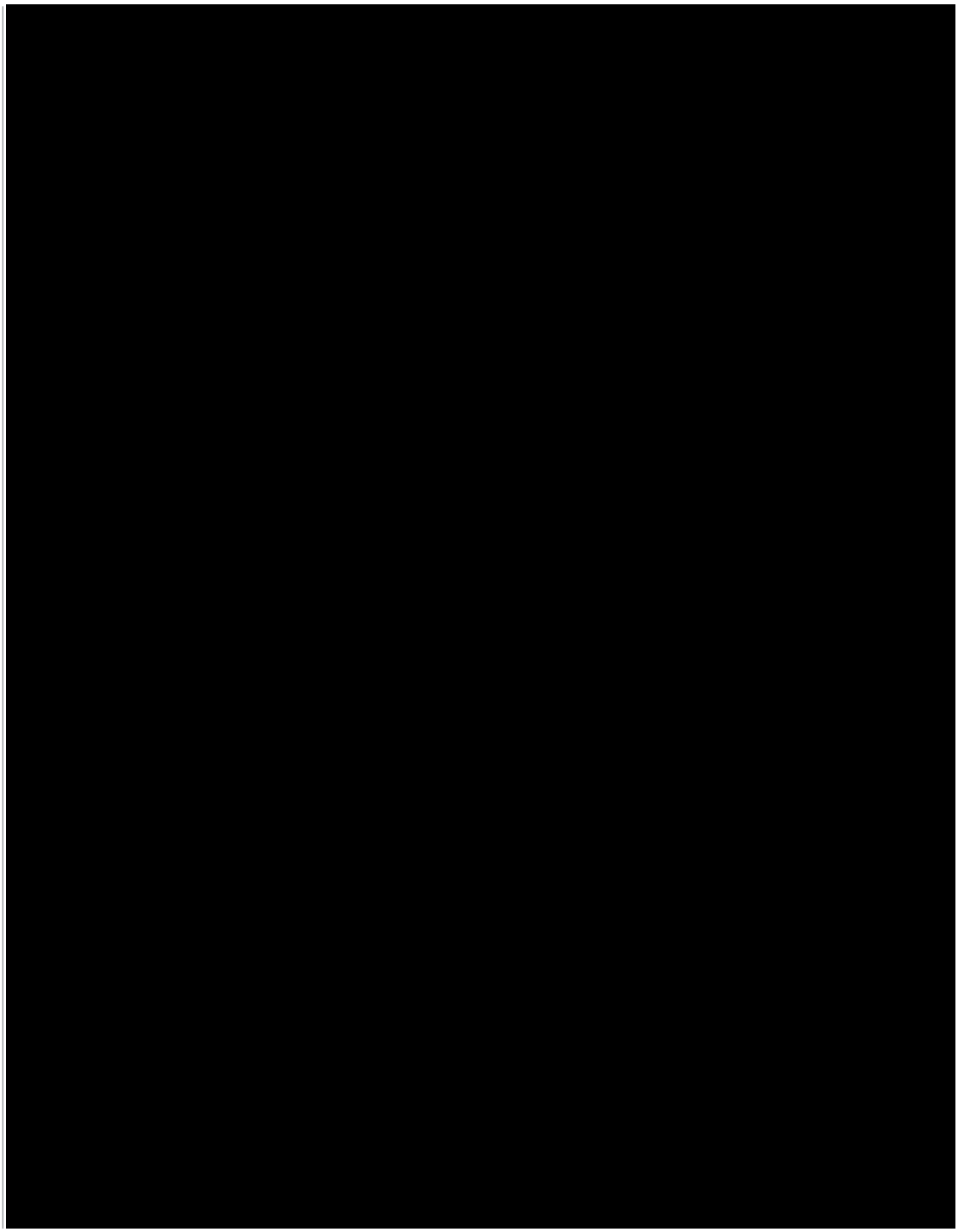
(U) Figure 22. DFSP JBPHH May 6, 2021 Fuel Evolution 3 Operation Order (cont'd)



(U) Source: NAVSUP FLC PH.

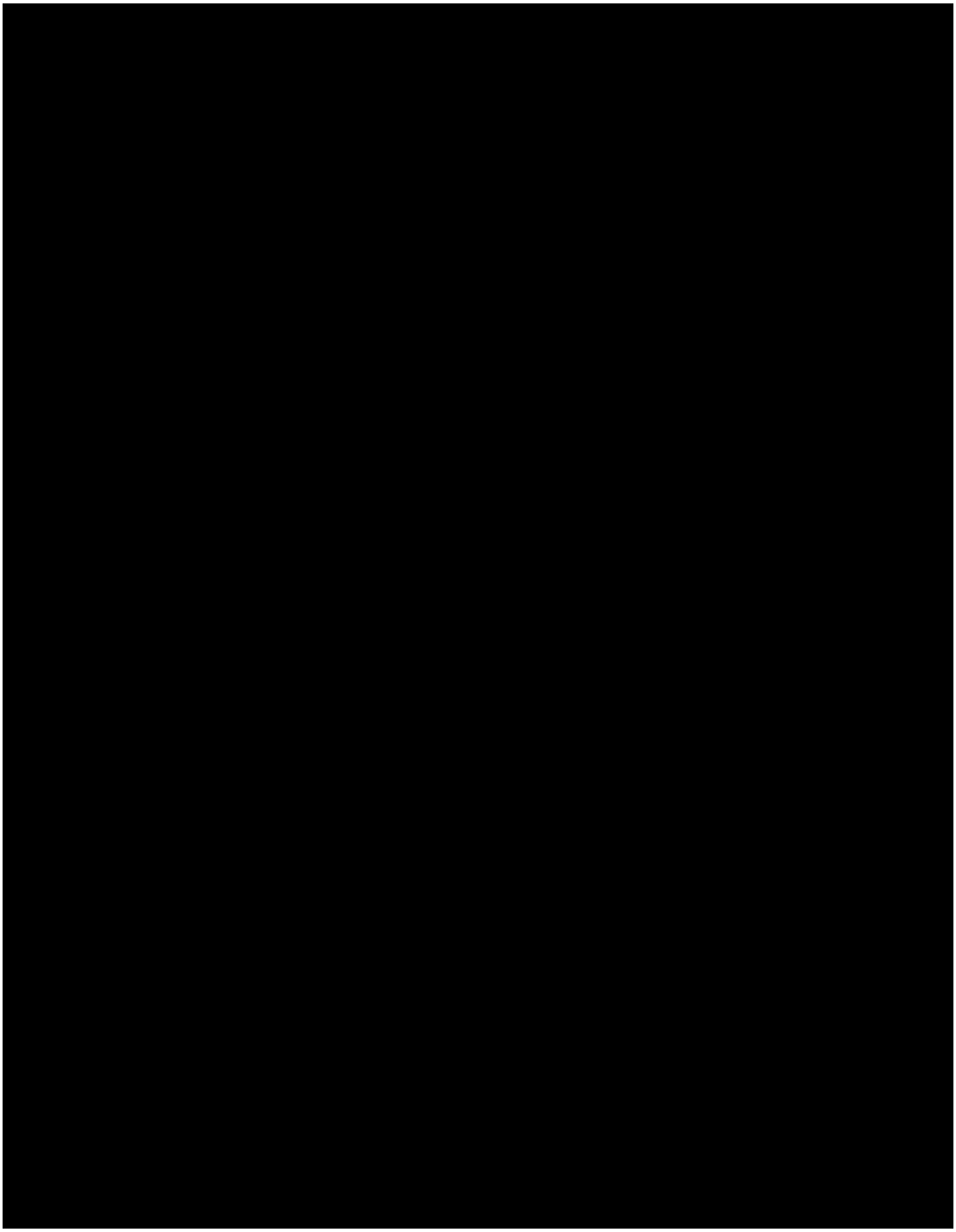
(U) DFSP JBPHH October 25, 2021 Fuel Evolution Operation Order

(U) Figure 23. DFSP JBPHH October 25, 2021 Fuel Evolution Operation Order



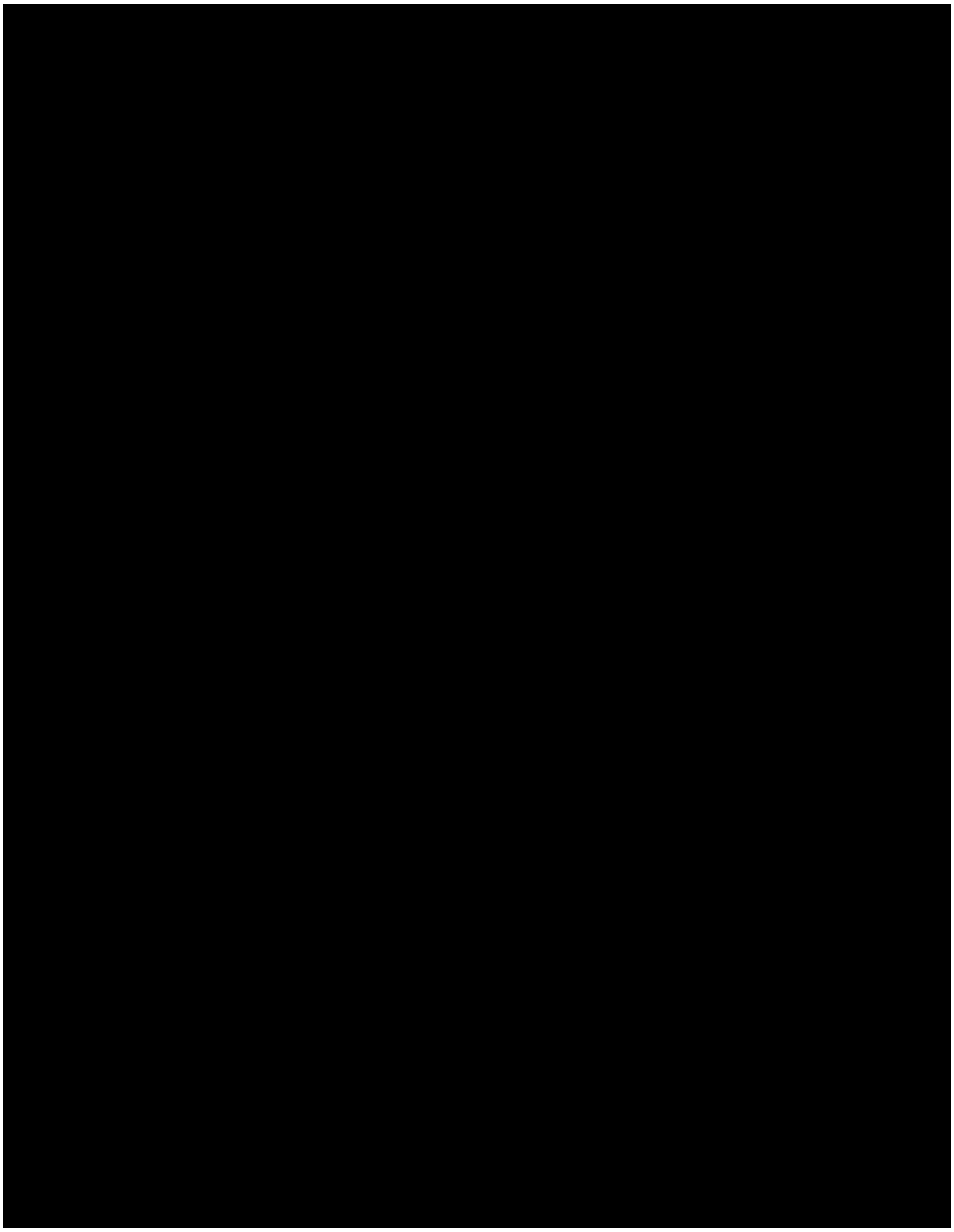
(U) Source: NAVSUP FLC PH.

(U) Figure 23. DFSP JBPHH October 25, 2021 Fuel Evolution Operation Order (cont'd)



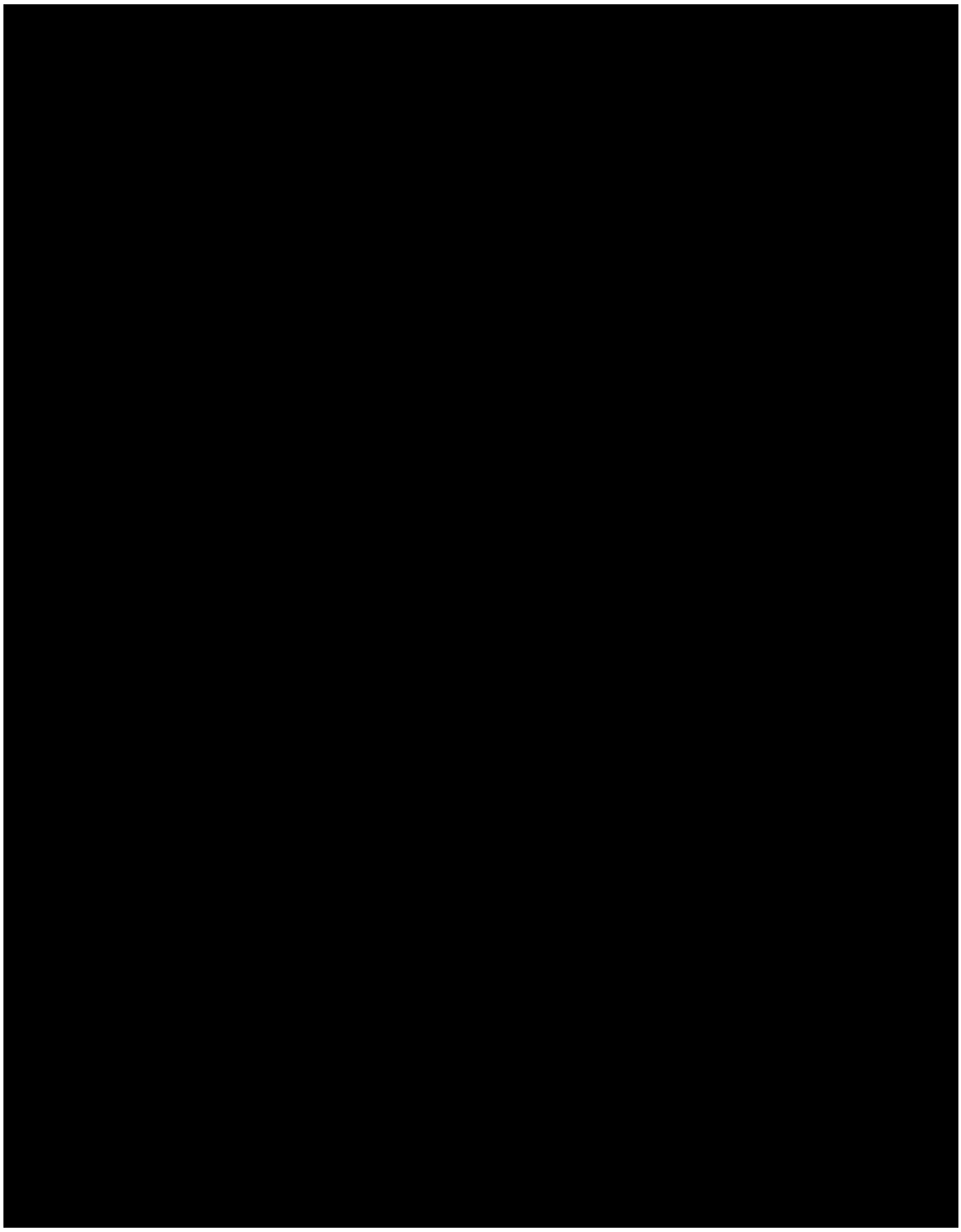
(U) Source: NAVSUP FLC PH.

(U) Figure 23. DFSP JBPHH October 25, 2021 Fuel Evolution Operation Order (cont'd)



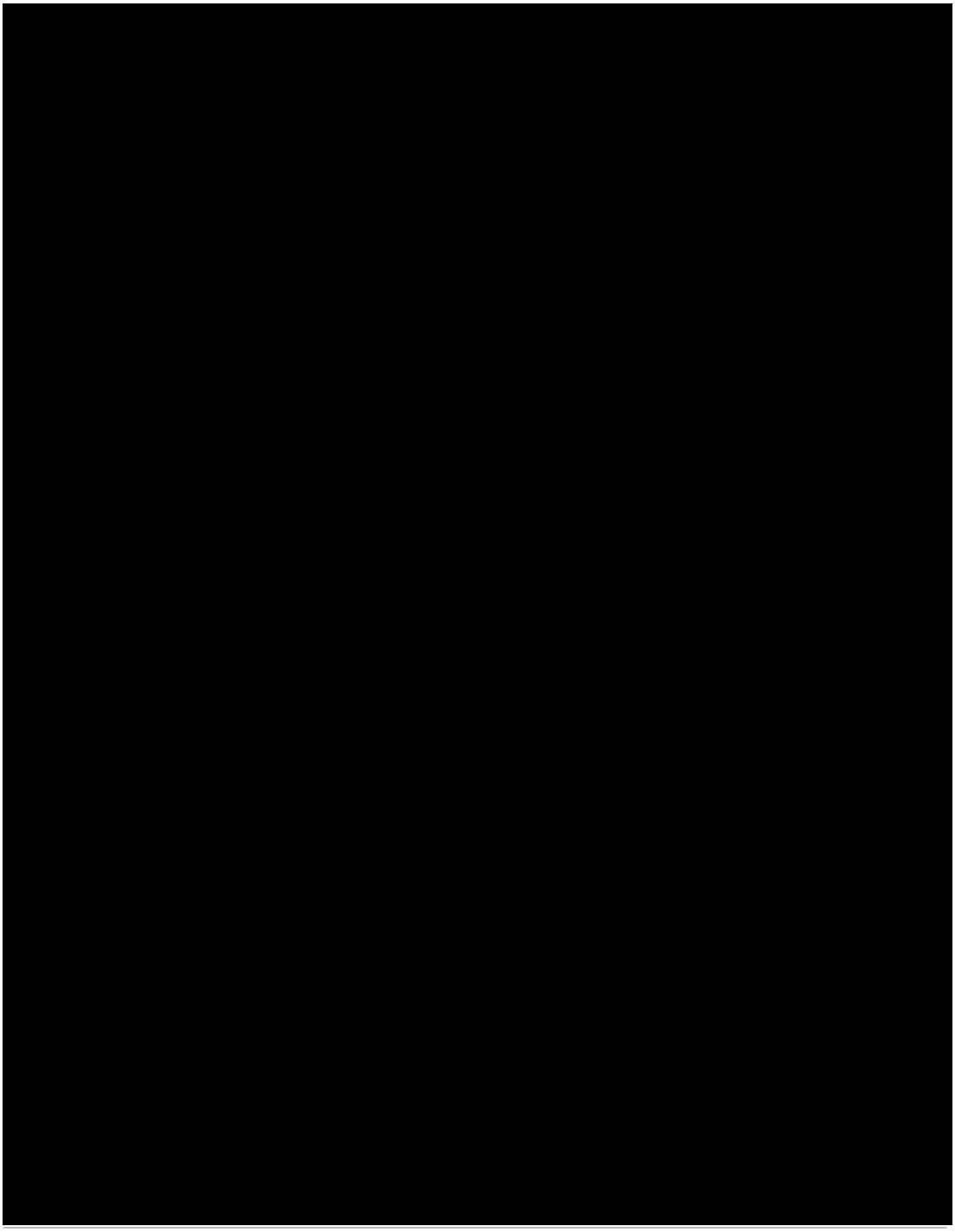
(U) Source: NAVSUP FLC PH.

(U) Figure 23. DFSP JBPHH October 25, 2021 Fuel Evolution Operation Order (cont'd)



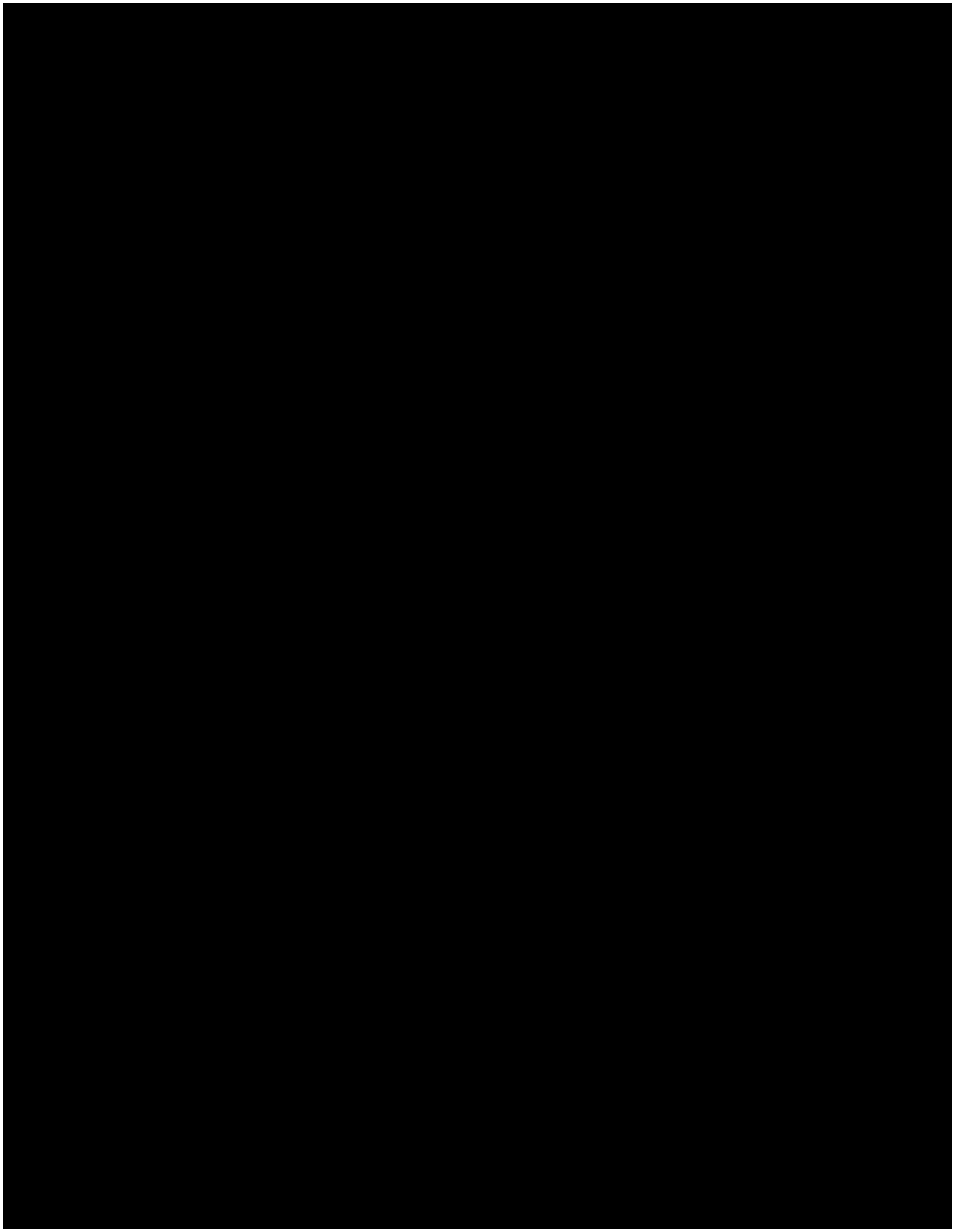
(U) Source: NAVSUP FLC PH.

(U) Figure 23. DFSP JBPHH October 25, 2021 Fuel Evolution Operation Order (cont'd)



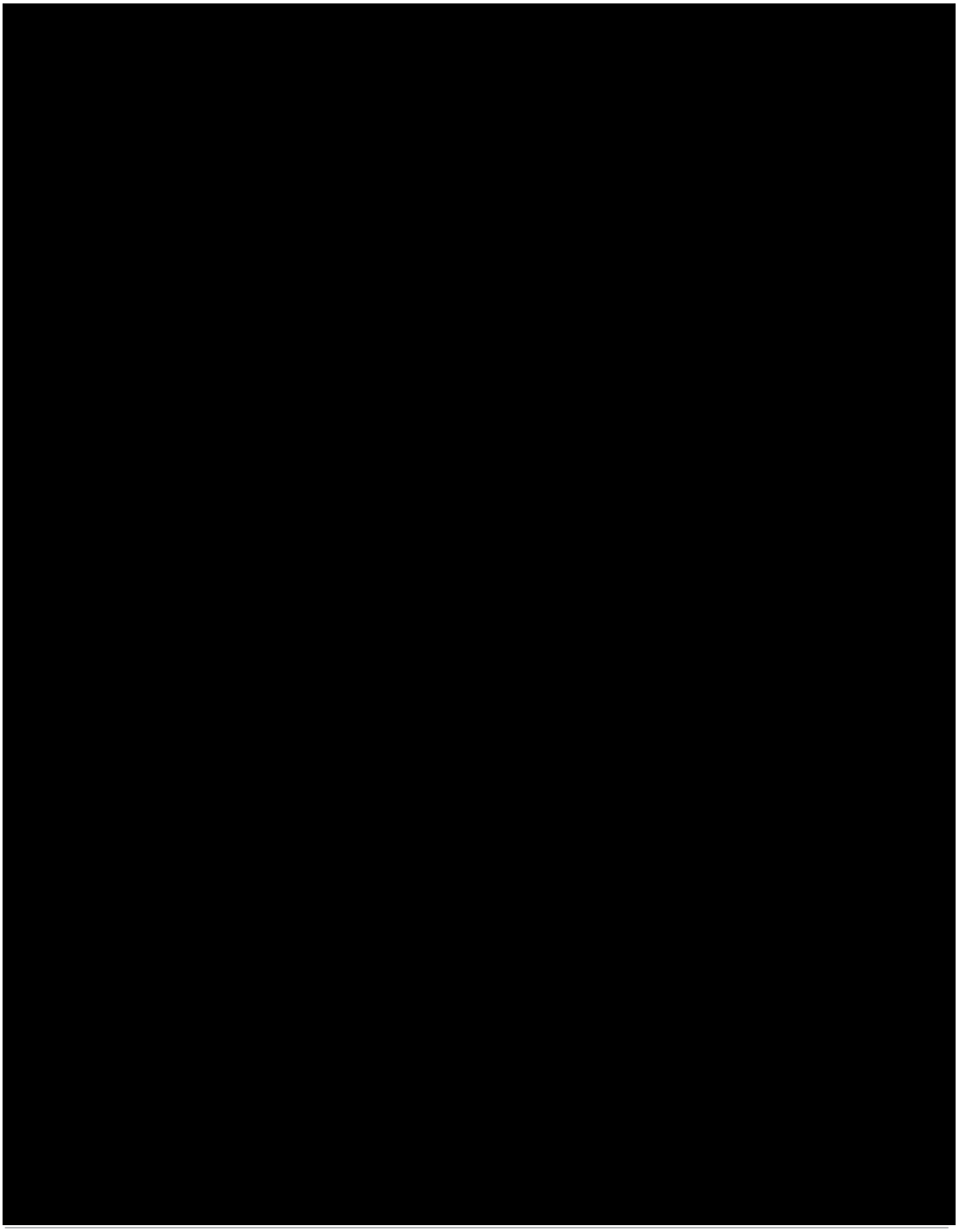
(U) Source: NAVSUP FLC PH.

(U) Figure 23. DFSP JBPHH October 25, 2021 Fuel Evolution Operation Order (cont'd)



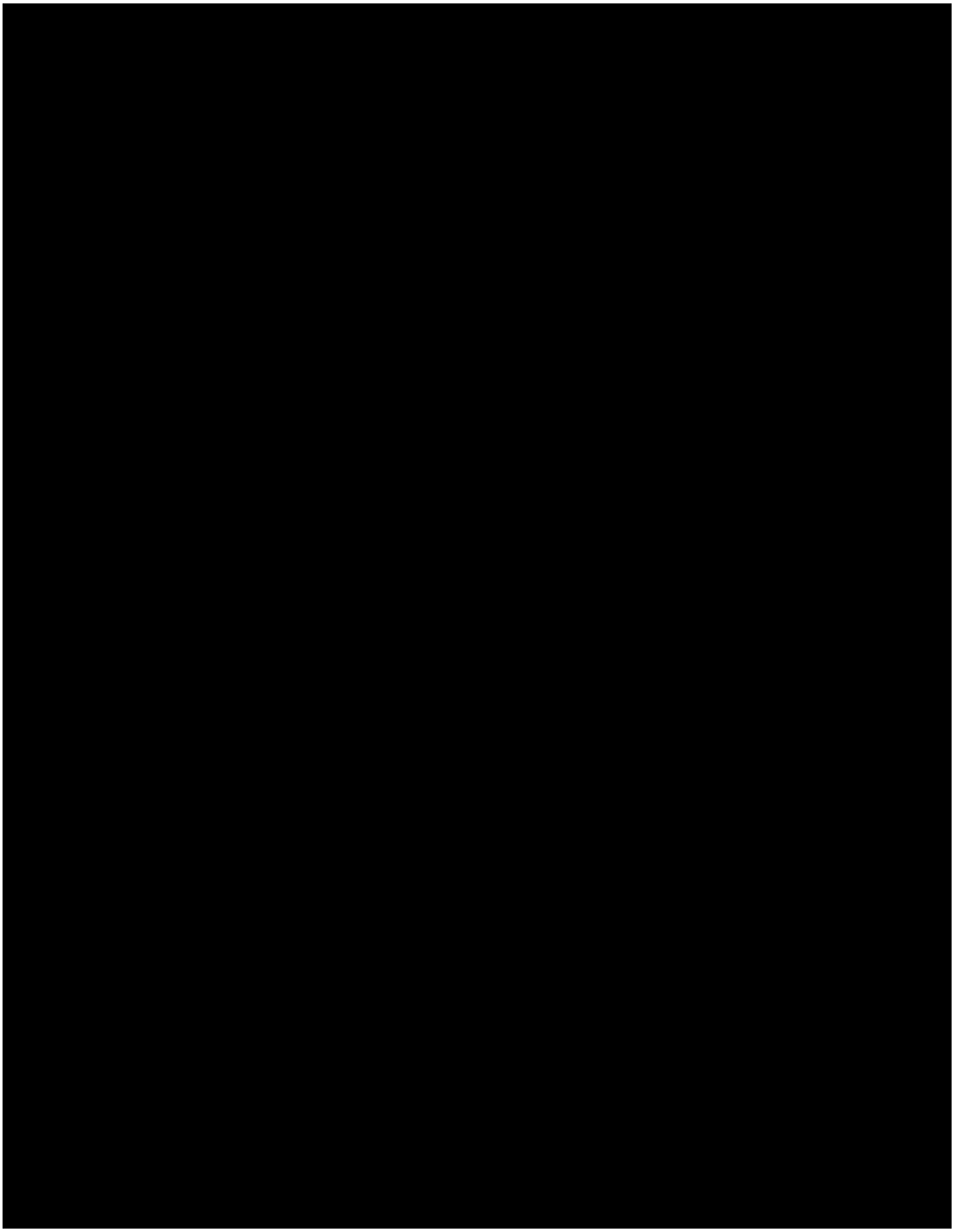
(U) Source: NAVSUP FLC PH.

(U) Figure 23. DFSP JBPHH October 25, 2021 Fuel Evolution Operation Order (cont'd)



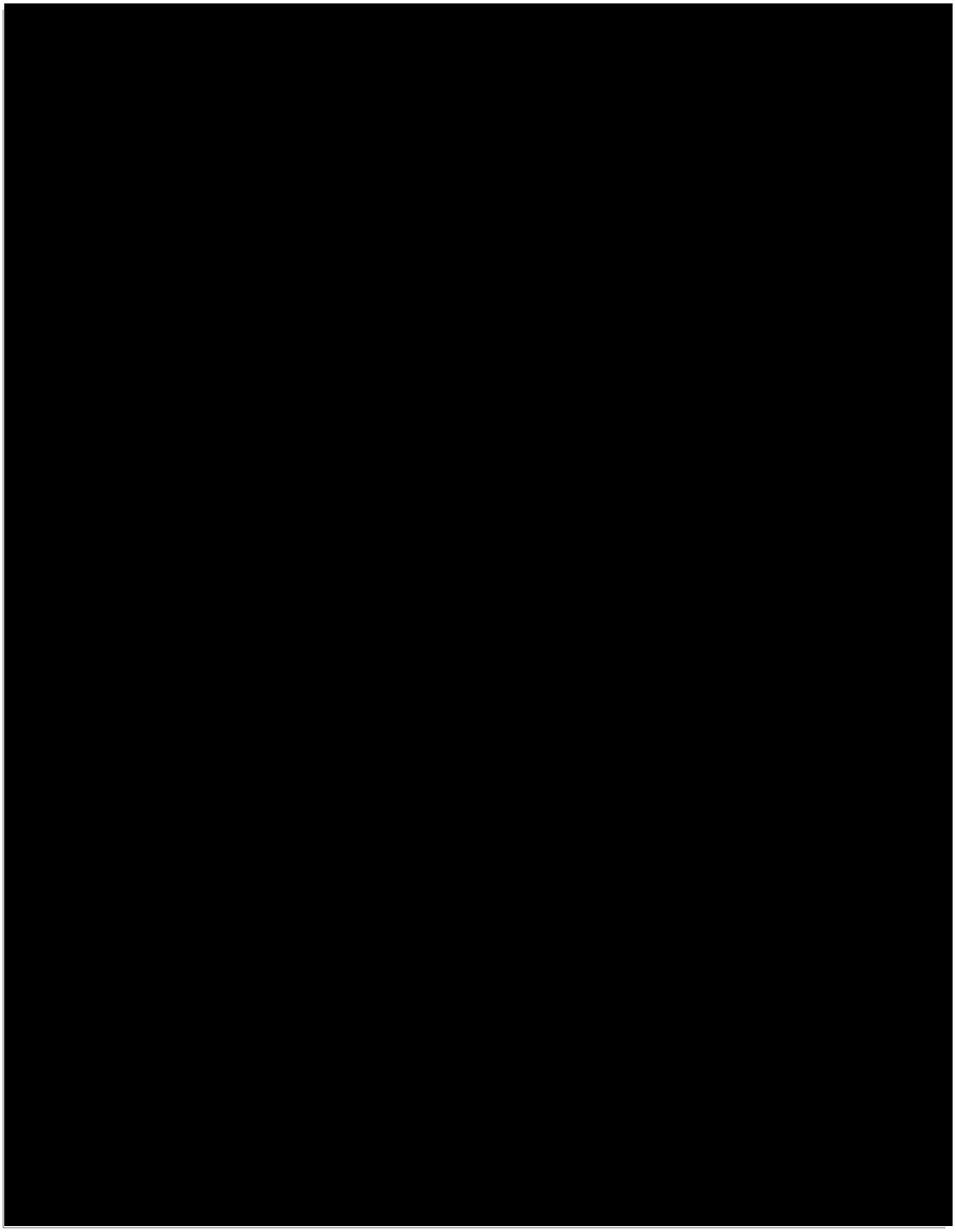
(U) Source: NAVSUP FLC PH.

(U) Figure 23. DFSP JBPHH October 25, 2021 Fuel Evolution Operation Order (cont'd)



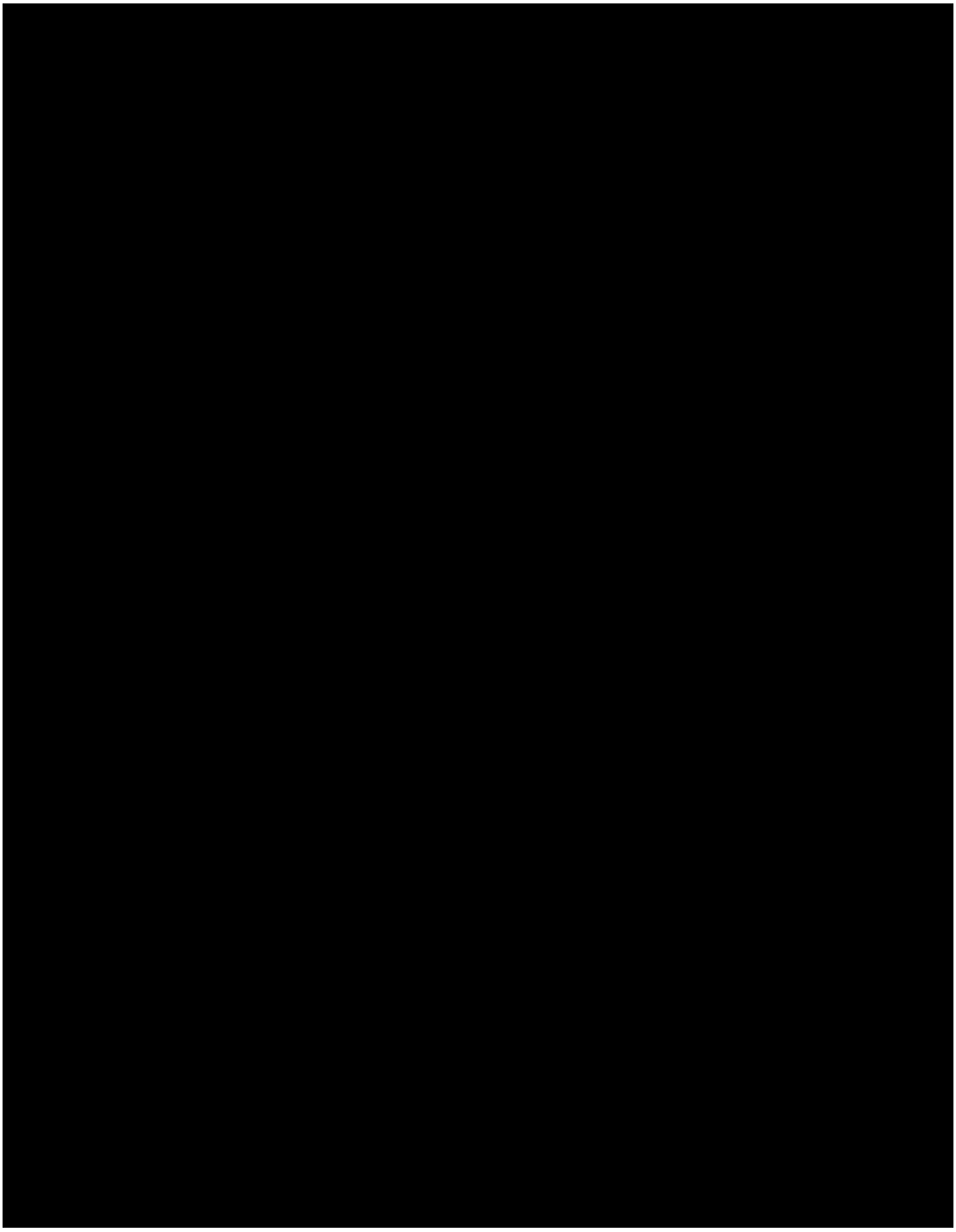
(U) Source: NAVSUP FLC PH.

(U) Figure 23. DFSP JBPHH October 25, 2021 Fuel Evolution Operation Order (cont'd)



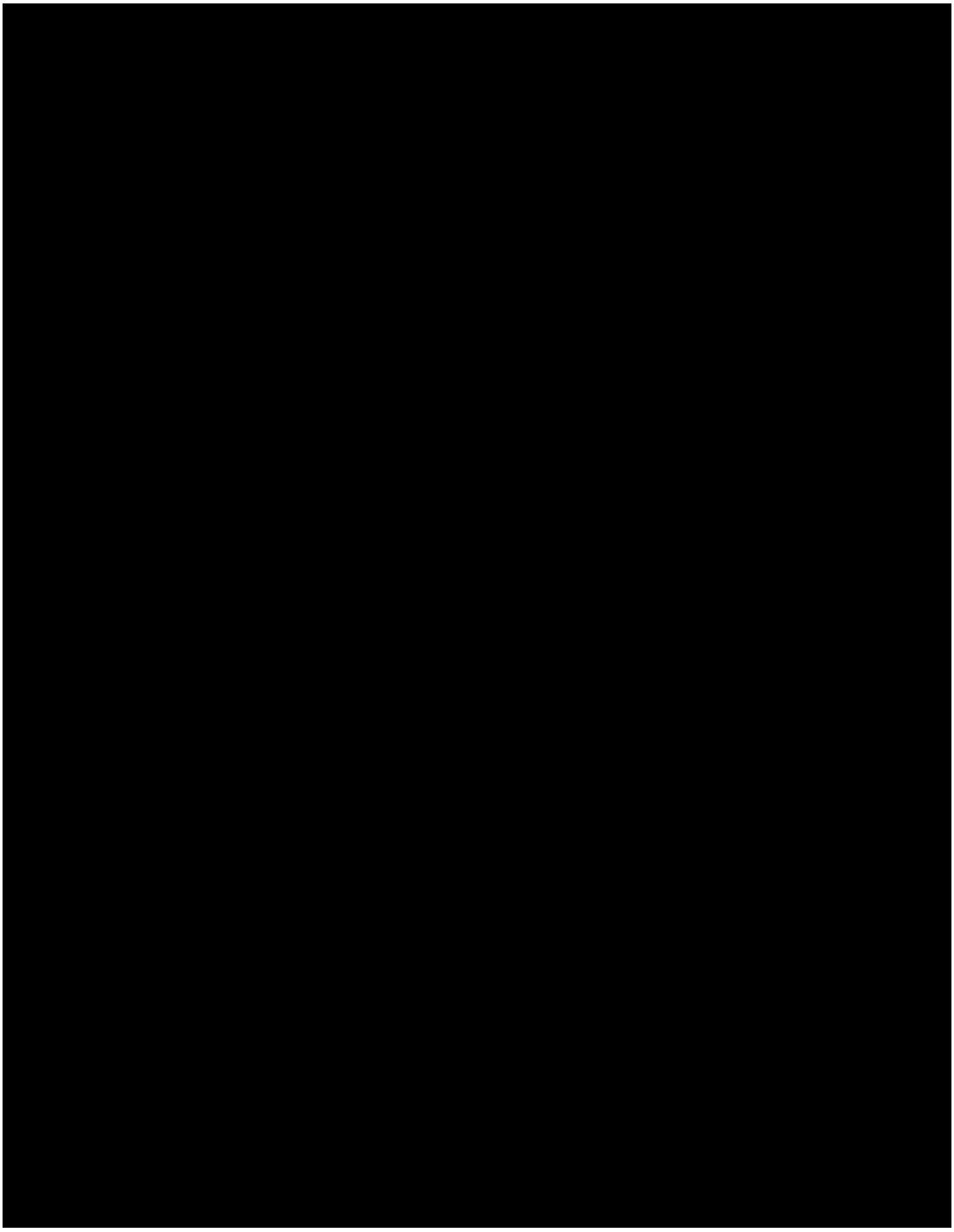
(U) Source: NAVSUP FLC PH.

(U) Figure 23. DFSP JBPHH October 25, 2021 Fuel Evolution Operation Order (cont'd)



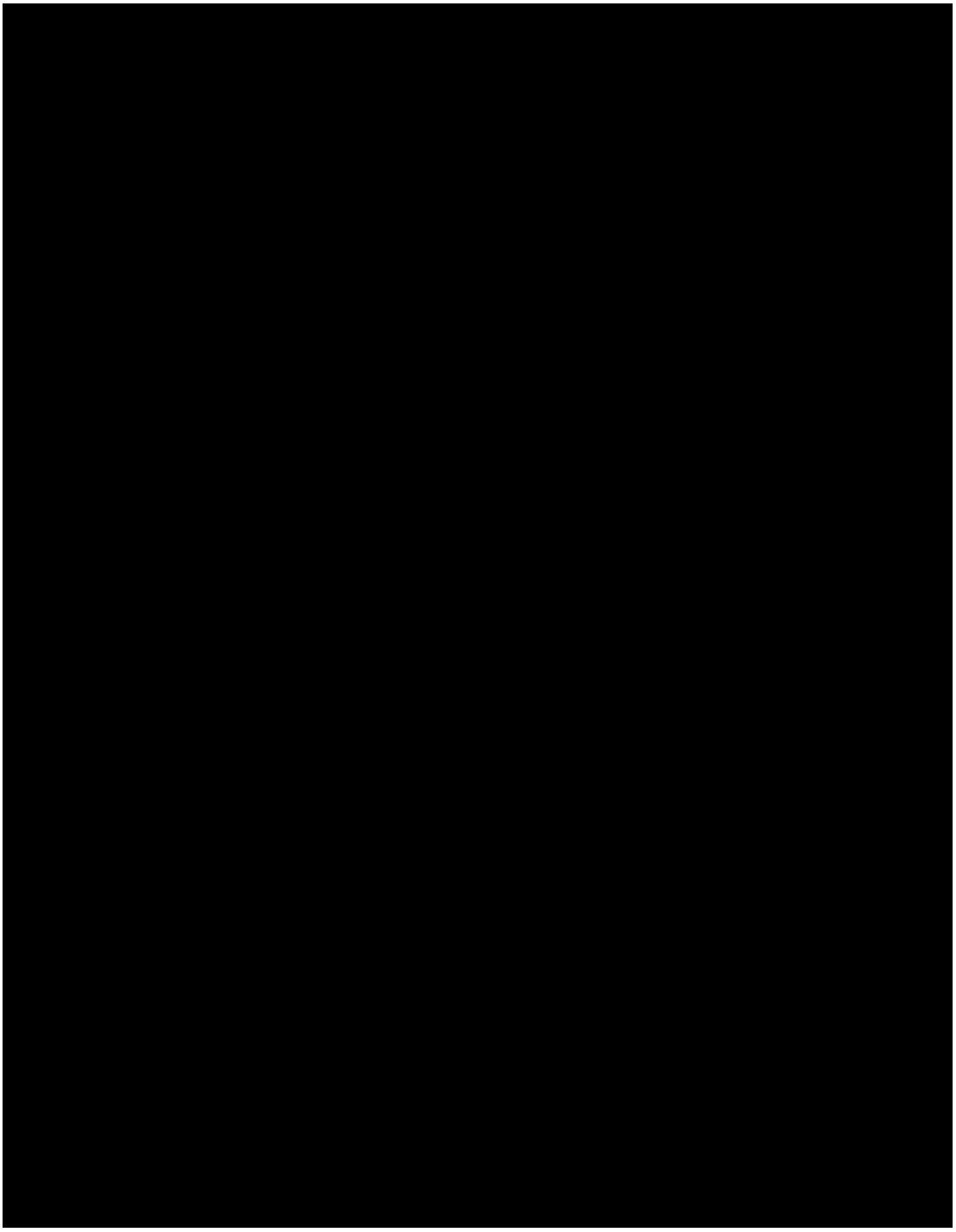
(U) Source: NAVSUP FLC PH.

(U) Figure 23. DFSP JBPHH October 25, 2021 Fuel Evolution Operation Order (cont'd)



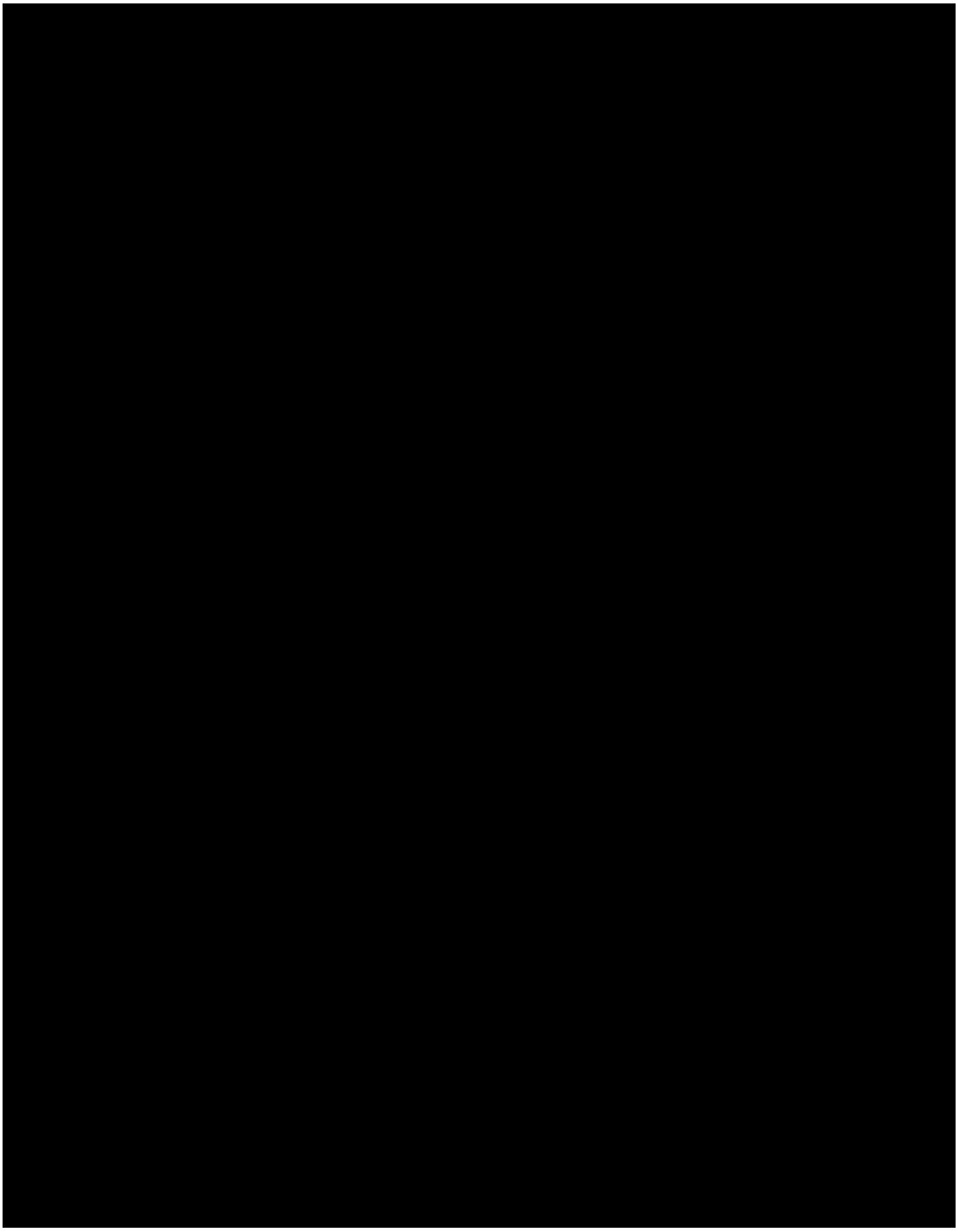
(U) Source: NAVSUP FLC PH.

(U) Figure 23. DFSP JBPHH October 25, 2021 Fuel Evolution Operation Order (cont'd)



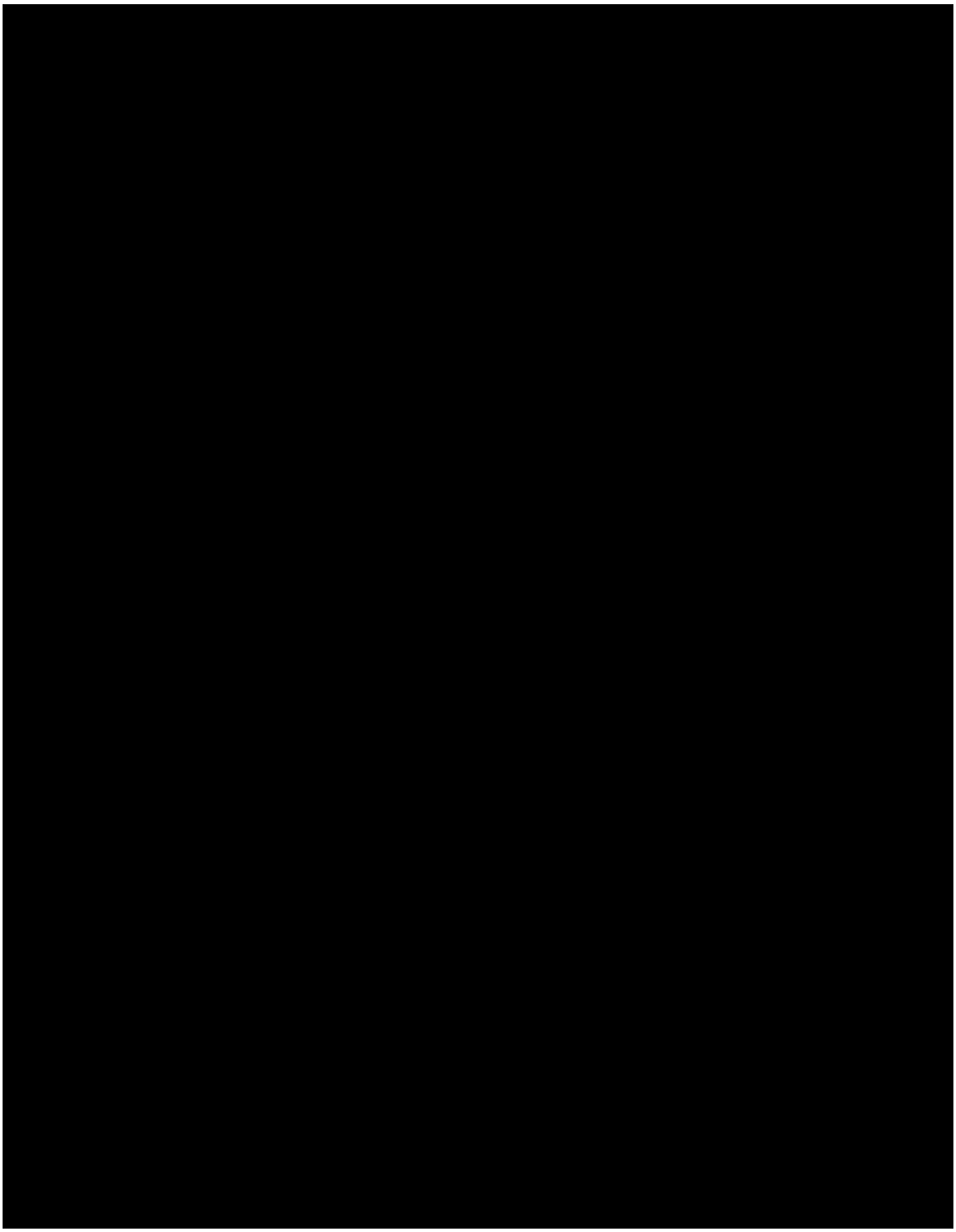
(U) Source: NAVSUP FLC PH.

(U) Figure 23. DFSP JBPHH October 25, 2021 Fuel Evolution Operation Order (cont'd)



(U) Source: NAVSUP FLC PH.

(U) Figure 23. DFSP JBPHH October 25, 2021 Fuel Evolution Operation Order (cont'd)



(U) Source: NAVSUP FLC PH

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(U) Appendix D

(U) Navy Chain of Command Reporting Template for Fuel Incidents

(U) According to OPNAV M-5090.1, the Navy activity responsible for a fuel incident or who discovers a fuel release must prepare an Oil Spill Report describing 21 elements of the incident and must update the report:

> (U) as soon as the reporting activity becomes aware of new information concerning the origin, quantity, type, operation under way, root cause, or lessons learned of the spill. Similarly, if the final estimate of the amount spilled differs substantially from the amount initially reported, the reporting activity must send an update message to all action and information addressees on the original spill message.

(U) Navy officials must address the report to the Navy On-Scene Coordinator, the Navy activity's chain of command, and must copy a list of Navy officials, including the headquarters officials in Washington, D.C., at the Operations Navy command, CNIC, and the Navy Judge Advocate General. Figure 24 is the OPNAV M-5090.1 Oil Spill Report template.

(U) Figure 24. OPNAV M-5090.1 Oil Spill Report Template

OPNAV M-5090.1
25 Jun 2021

UNCLAS//NO5090//
SUBJ: OIL SPILL REPORT, X GALLONS, [ACTIVITY NAME] (MINIMIZE CONSIDERED) or OIL SPILL REPORT, UNKNOWN VOLUME, [ACTIVITY NAME] (MINIMIZE CONSIDERED) or OIL SPILL SHEEN SIGHTING, (MINIMIZE CONSIDERED)
MSGID/GENADMIN/ORIGINATOR//
RMKS/

1. LOCAL TIME AND DATE SPILL [OCCURRED/DISCOVERED]

2. [FACILITY/VESSEL] ORIGINATING SPILL:

a. For Navy ships, list ship name and hull number.

b. For Navy shore facilities, list facility name.

c. For non-Navy spills, list name of responsible party, if known.

d. For organizations under contract to the Navy, list firm name and contracting Navy activity.

e. If the facility or vessel of spill is unknown at time of this report, list only "Unknown" until such time as definitively established.

3. SPILL LOCATION:

a. For spills at sea, list latitude, longitude, and distance to nearest land.

b. For spills in port, list port name, host naval command (NAVSTA, shipyard), and specific location (pier or mooring designation).

c. For spills ashore, list city, State, facility name, and specific location (building designation).

4. VOLUME SPILLED IN GALLONS:

a. Estimates must be made by examining loss at source (e.g., checking the sounding tank, calculating flow rate of spill).

b. If amount is unknown at time of this report, list only "Unknown" until such time as definitively established.

c. Estimating volume by visual observation of oil on water can be very unreliable.

d. If volume estimate can only be made by visual observation of oil on water, do not report estimate here.

e. If oil-and-water mixture, indicate percent oil.

C-10

(U) Source: OPNAV M-5090.1

(U) Figure 24. OPNAV M-5090.1 Oil Spill Report Template (cont'd)

5. TYPE OF OIL SPILLED:

a. List whether marine gas oil, naval distillate (F-76), jet fuel (JP-4 or -5), aviation or automotive gasoline, automotive diesel, heating fuels (e.g., grade 1 or 2, kerosene), residual burner fuel (e.g., grade 4, 5, or 6), lubricating oil; hydraulic oil, oil/oil mixture (including slops and waste oil), or oil/water mixture (including bilge waste).

b. If type unknown at time of this report, list only "Unknown" until such time as definitively established.

6. OPERATION UNDERWAY WHEN SPILL [OCCURRED/DISCOVERED]:

a. If fueling or defueling, list whether underway or in port by pipeline, truck, or barge.

b. Specify whether conducting internal fuel oil transfer operations (including movement from one storage tank to another), pumping bilges, conducting salvage operations, aircraft operations, or "Other" (specify).

c. Include any evolution or operation that had been conducted within 4 hours of spill discovery that may have resulted in oil discharge.

d. If operation unknown or if no evolution can be attributable at time of this report, list only "Operation Not Known" or "To Be Determined" until such time as definitively established.

7. SPILL CAUSE:

a. Classify the spill cause by citing one or more of these categories and then provide a narrative description of the specific spill cause: structural; electrical; hose; valve or fitting; tank level indicator; oil/water separator and oil content monitor; other equipment (specify component that failed); collision, grounding, or sinking; valve misalignment; monitoring error; procedural and communications error; chronic or recurring; or weather related. This information will be used by Commander, Naval Sea Systems Command for causal analysis and spill prevention.

b. If the spill resulted from a mechanical or equipment failure, identify failed equipment or suspected failed equipment by system, nomenclature, allowance part list, service, part number, and location.

c. If cause unknown or undetermined at time of this report, list only "To Be Determined" or "Under Investigation" until such time as definitively established.

8. SLICK DESCRIPTION AND MOVEMENT:

a. Size: Length and width (yards or NM) and percentage of that area covered.

b. Color: Silver transparent, gray, rainbow, blue, dull brown, dark brown, black, or brown-orange mousse.

(U) Source: OPNAV M-5090.1

(U) Figure 24. OPNAV M-5090.1 Oil Spill Report Template (cont'd)

c. Odor: Noxious, light, or undetectable.

d. Slick movement: Set (degrees true toward) and drift (knots).

9. SPILL ENVIRONMENT:

a. Weather: Clear, overcast, partly cloudy, rain, or snow.

b. Prevailing wind at scene: Direction (degrees true from), speed (knots), and fetch (yards or NM).

c. Air and water temperature: Indicate ice cover.

d. Sea state: Beaufort Force number.

e. Tide: High, low, ebb, flood, or slack or current: Set (degrees true toward) and drift (knots).

10. AREAS DAMAGED OR THREATENED:

a. Body of water, area, or resources threatened or affected.

b. Nature and extent of damage to property, wildlife, or other natural resources (if any).

11. TELEPHONIC REPORT TO NATIONAL RESPONSE CENTER [WAS/WAS NOT] MADE:

a. If made, list:

(1) Time and date of telephonic report.

(2) NRC report and case number.

(3) Name of NRC official taking report and quantity of oil reported.

b. If not made, provide reason why. For example, "Beyond 12 NM from U.S. shores, no threat to navigable water."

c. Navy command making telephonic report.

12. SAMPLES [WERE/WERE NOT] TAKEN: If taken, identify location(s) from which taken (e.g., tanks, hoses, piping, slip, jetty) and collecting officer by name, rank, and agency.

13. CONTAINMENT METHOD [PLANNED/USED]:

a. If none, state reason.

(U) Source: OPNAV M-5090.1

(U) Figure 24. OPNAV M-5090.1 Oil Spill Report Template (cont'd)

b. Otherwise, indicate equipment used (e.g., boom, ship's hull, camel, water spray, chemical agent).

14. SPILL REMOVAL METHOD [PLANNED/USED]:

a. If none, state reason.

b. List equipment planned and used (e.g., Rapid Response or Dip 3001 skimmer, portable skimmer, absorbent materials (oil-absorbent pads, chips), dispersants, vacuum trucks or pumps, other (specify)).

15. VOLUME OF OIL RECOVERED IN GALLONS (DECANTED PURE PRODUCT)

16. PARTIES PERFORMING SPILL REMOVAL:

a. Identify lead organization in charge (e.g., Navy command, USCG, EPA).

b. Identify all other parties involved (e.g., commercial firms, supporting Navy activities, State or local agencies).

17. FEDERAL, STATE, OR LOCAL REGULATORY ACTIVITY DURING THIS INCIDENT:

a. Identify by name and agency any official attending on-scene or making telephonic inquiry.

b. Note whether officials boarded vessel and include date, time, and spaces inspected.

18. ASSISTANCE REQUIRED OR ADDITIONAL COMMENTS

19. LESSONS LEARNED: How could this spill have been avoided?

20. COST OF RECOVERY: Probably not known for initial report. Include in follow-up report to the extent known.

21. ACTIVITY CONTACT FOR ADDITIONAL INFORMATION: List name, rank and rate, command, code, e-mail address, and DSN and commercial telephone numbers.//

(U) Source: OPNAV M-5090.1

(U) Appendix E

(U) Management Comments

(U) The Under Secretary of Defense for Acquisition and Sustainment

THE UNDER SECRETARY OF DEFENSE
3010 DEFENSE PENTAGON
WASHINGTON, DC 20301-3010

ACQUISITION
AND SUSTAINMENT

June 13, 2024

MEMORANDUM FOR DEPUTY INSPECTOR GENERAL FOR EVALUATIONS, OFFICE OF THE INSPECTOR GENERAL

SUBJECT: Office of the Inspector General Draft Report, Project No. D2022-DEV0SR-0051.000, "Evaluation of the Operation, Maintenance, Safety, and Oversight of the Navy's Red Hill Bulk Fuel Storage Facility," May 31, 2024

I am responding on the Secretary of Defense's behalf. I appreciate the Department of Defense Office of Inspector General's (DoD IG) recent evaluations, in the aftermath of the November 2021 fuel spill at the Red Hill Bulk Fuel Storage Facility (RHBFSF), respectively titled "Evaluation of the Operation, Maintenance, Safety, and Oversight of the Navy's Red Hill Bulk Fuel Storage Facility," (Project No. D2022 DEV0SR 0051.000) and "Evaluation of DoD Actions Related to the Red Hill Bulk Fuel Storage Facility's Contamination of the Joint Base Pearl Harbor-Hickam Community Water System," (Project No. D2022-DEV0SR-0051.002). I am providing responses to recommendations 1, 2, and 3 in the draft report for Project No. D2022 DEV0SR 0051.000. The Secretary of the Navy will provide responses to the remaining recommendations in both reports.

Recommendation 1:
The Secretary of Defense, in coordination with the Secretary of the Navy, designate a single point of command or leadership for Defense Fuel Support Point Joint Base Pearl Harbor-Hickam operations, maintenance, safety, and environmental protection.

Response:
Concur. The Department has defueled the RHBFSF, and the Department of the Navy is working to permanently close RHBFSF. The Commander NCTF-RH is the single point of contact (POC) for closure of RHBFSF and is responsible for any operations, maintenance, safety and environmental protection associated with the permanent closure of the facility. Separately, the JBPHH Commanding Officer is the single POC for the JBPHH DFSP.

Recommendation 2.a:
Secretary of Defense direct the Secretary of the Navy and the Director of the Defense Logistics Agency (DLA) to:
a. Perform a review of leak detection systems at Navy Defense Fuel Support Points, including an analysis of leak detection effectiveness and reliability.

Response:
Concur. DLA, in partnership with Navy, conducts—at a minimum—annual leak detection testing in accordance with Federal, State, and local technical and regulatory requirements. DLA and Navy will review leak detection systems and testing protocols at all DFSPs to verify effectiveness and reliability.

(U) The Under Secretary of Defense for Acquisition and Sustainment (cont'd)

Recommendation 2.b:
Secretary of Defense direct the Secretary of the Navy and the Director of the Defense Logistics Agency to:
b. Implement corrective actions based on the review that will ensure effective leak detection at Navy Defense Fuel Support Points.

Response:
Concur. DLA, in partnership with Navy, will implement any corrective actions identified in 2.a.

Recommendation 3:
3. Secretary of Defense direct the Under Secretary of Acquisition and Sustainment to update the DoD Manual 4140.25 series to address the deficiencies discussed in this report.

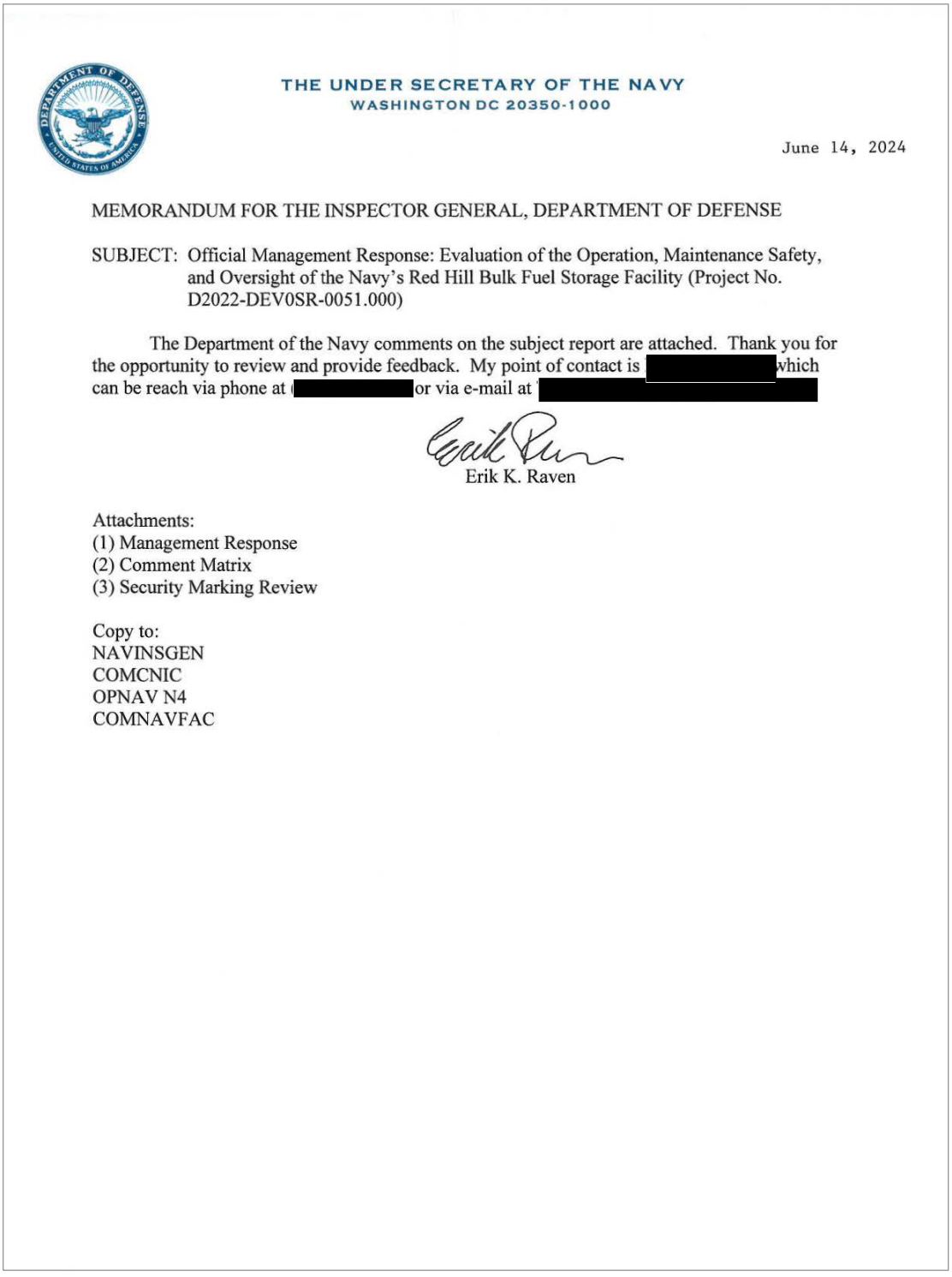
Response:
Concur. The Office of the Under Secretary of Defense for Acquisition and Sustainment (OUSD(A&S)) will update DoD Manual 4140.25. Revision of the DoDI 4140.25 is already underway and will enter formal Washington Headquarter Service (WHS) coordination during the summer of 2024. During the coordination process, OUSD A&S will ensure that the 4140.25 Manual updates address the deficiencies discussed in the report.

My office has already taken steps to develop the policies recommended in the draft report, consistent with the included comments. My point of contact is [redacted] at [redacted]

William A. LaPlante

2

(U) The Under Secretary of the Navy



THE UNDER SECRETARY OF THE NAVY
WASHINGTON DC 20350-1000

June 14, 2024

MEMORANDUM FOR THE INSPECTOR GENERAL, DEPARTMENT OF DEFENSE

SUBJECT: Official Management Response: Evaluation of the Operation, Maintenance Safety, and Oversight of the Navy's Red Hill Bulk Fuel Storage Facility (Project No. D2022-DEV0SR-0051.000)

The Department of the Navy comments on the subject report are attached. Thank you for the opportunity to review and provide feedback. My point of contact is [redacted] which can be reach via phone at [redacted] or via e-mail at [redacted]

Erik K. Raven

Attachments:
(1) Management Response
(2) Comment Matrix
(3) Security Marking Review

Copy to:
NAVINSGEN
COMCNIC
OPNAV N4
COMNAVFAC

(U) The Under Secretary of the Navy (cont'd)

~~CUI~~

Department of Defense Inspector General (DoDIG) Draft Report D2022-DEV0SR-0051.000 of 15 May 2024:

EVALUATION OF THE OPERATION, MAINTENANCE, SAFETY, AND OVERSIGHT OF THE NAVY'S RED HILL BULK FUEL STORAGE FACILITY

The Department of Navy's (DON) responses to the recommendations of the DoD IG Draft Report D2022-DEV0SR-0051.000 of 15 May 2024 are provided below.

DoD IG recommends the Secretary of the Navy:

(U) Recommendation 4. Designate an entity to be responsible for ensuring that all laws, policies, and agreements made in response to the fuel incident at Joint Base Pearl Harbor–Hickam are implemented, and that appropriate action is taken with regard to recommendations made in prior oversight reports and command investigation reports. Specifically:

a. (U) Implement the requirements of the 2015 Administrative Order on Consent and 2023 Administrative Consent Order.

(U) DON Response: Concur. The Department of the Navy (DON) is implementing its requirements of the 2015 Administrative Order on Consent and 2023 Administrative Consent Order. Note that the provisions governing fuel storage and operation of the underground storage tanks are no longer applicable as the Red Hill Bulk Fuel Storage Facility (RHBFSF) has been defueled and is in the process of permanent closure. The DON also works with the U.S. Environmental Protection Agency and Hawaii Department of Health, as appropriate, to modify the consent orders as needed during implementation. The Defense Logistics Agency has its own requirements under the 2015 Administrative Order on Consent and 2023 Administrative Consent Order separate from Navy's requirements.

b. (U) Implement the recommendations of the U.S. Environmental Protection Agency Region 9 compliance evaluation inspections for Oil Pollution Prevention regulations.

(U) DON Response: Concur. The DON is implementing the U.S. Environmental Protection Agency recommendations to the extent that they are applicable to systems that are not subject to closure.

c. (U) Implement the recommendations of the Occupational Safety and Health Administration Inspection 1563668.

(U) DON Response: Concur. OSHA Inspection 1563668 has been closed with OSHA. Note that one notice item (recommendation) was removed and the second item was corrected.

~~Controlled by: OASN (EI&E)~~
~~CUI Category(ies): DCRIT~~
~~Limited Dissemination Control: FEDCON~~
~~POC:~~ [redacted]

~~CUI~~

Att (1) Management Response D2022-DEV0SR-0051.000

1

(U) The Under Secretary of the Navy (cont'd)

~~CUI~~

d. (U) Implement the recommendations of the Vice Chief of Naval Operations command investigation.

~~(CUI)~~ [redacted]

(U) Recommendation 5. Direct:

a. (U) A comprehensive review of the operation and maintenance programs at Defense Fuel Support Point Joint Base Pearl Harbor–Hickam. This review should include a review of: authorities; reporting chain of command; operational procedures; process control; change management; records management; maintenance planning, tracking, and support programs, such as supply and tool control; staffing levels and skillsets; training; and safety.

(U) DON Response: Concur.

b. (U) Implementation of corrective actions based on the review that will ensure safe operations at Defense Fuel Support Point Joint Base Pearl Harbor–Hickam.

(U) DON Response: Concur.

(U) Recommendation 6. Direct:

a. (U) A comprehensive review of the operational safety programs at Joint Base Pearl Harbor–Hickam. This review should include a review of authorities, reporting chain of command, policies, and safety office staffing levels at the Joint Base Pearl Harbor–Hickam, including safety oversight of tenant commands.

(U) DON Response: Concur.

b. (U) Implementation of corrective actions based on the review that will ensure safe operations at Joint Base Pearl Harbor–Hickam, including tenant commands.

(U) DON Response: Concur.

(U) Recommendation 7. Direct the Commander, Navy Region Hawaii, in coordination with

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Att (1) Management Response D2022-DEV0SR-0051.000

2

(U) The Under Secretary of the Navy (cont'd)

~~CUI~~

the Director of the Defense Logistics Agency, to update the oil and hazardous substance incident response plans to address the deficiencies discussed in this report and implement the updated oil and hazardous substance incident response plans, including training and exercises..

(U) DON Response: Concur.

(U) Recommendation 8. Direct the Commander, Naval Supply Systems Command to develop and implement a standard operating procedure for causative research and post-incident investigations and reporting for oil or hazardous substance incidents at Navy Defense Fuel Support Points.

~~(CUI)~~ [redacted]

(U) Recommendation 9. Officials initiate a review of the P-1551 Military Construction project to determine whether any Federal law, acquisition regulation, or contracting requirements were violated or funds were wasted and take appropriate action.

(U) DON Response: Concur.

~~Controlled by: OASN (EI&E)~~
~~CUI Category(ies): DCRIT~~
~~Limited Dissemination Control: FEDCON~~
~~POC~~:

~~CUI~~

Att (1) Management Response D2022-DEV0SR-0051.000

3

(U) Appendix F

(U) Acronyms and Abbreviations

ACO	Administrative Consent Order
AFB	Air Force Base
AFFF	Aqueous Film Forming Foam
AFHE	Automated Fuel Handling Equipment
AOC	Administrative Order on Consent
AST	Aboveground Storage Tank
ATG	Automatic Tank Gauge
BFSF	Bulk Fuel Storage Facility
CCTV	Closed-circuit Television
CFR	Code of Federal Regulations
CIR	Clean, Inspect, and Repair
CNIC	Commander, Navy Installations Command
CNO	Chief of Naval Operations
CNRH	Commander, Navy Region Hawaii
COMPACFLT	Commander, U.S. Pacific Fleet
DFSP	Defense Fuel Support Point
DLA	Defense Logistics Agency
DoDI	Department of Defense Instruction
DoDD	Department of Defense Directive
DoDM	Department of Defense Manual
DOH	Department of Health
EPA	Environmental Protection Agency
FFD	Federal Fire Department
FLC	Fleet Logistics Center
FRP	Facility Response Plan
GOCO	Government-Owned, Contractor-Operated
GOGO	Government-Owned, Government-Operated
GWPP	Groundwater Protection Plan
HAR	Hawaii Administrative Rules
JBPHH	Joint Base Pearl Harbor–Hickam
LAT	Lower Access Tunnel
MILCON	Military Construction
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding

NAVFAC	Naval Facilities Engineering Systems Command
NAVFAC EXWC	Naval Facilities Engineering and Expeditionary Warfare Center
NAVSUP	Naval Supply Systems Command
NAVSUP FLC PH	Naval Supply Systems Command Fleet Logistics Center Pearl Harbor
NOSC	Navy On-Scene Coordinator
NOSC-R	Navy On-Scene Coordinator's Representative
OHS	Oil and hazardous substances
OMES	Operation, Maintenance, Environmental, and Safety
OPNAV	Office of the Chief of Naval Operations
OPNAVINST	Chief of Naval Operations Instruction
OPNAV M	Chief of Naval Operations Manual
OSHA	Occupational Safety and Health Administration
SCADA	Supervisory Control and Data Acquisition
SPCC	Spill Prevention, Control, and Countermeasures
UFC	United Facilities Criteria
USC	United States Code
UST	Underground Storage Tank System

(U) Appendix G

(U) Glossary

(U) Aboveground Storage Tanks. Bulk storage containers or storage tanks not clearly identified as USTs and normally placed on or above the surface of the ground. Containers in vaults, bunkered tanks, or partially buried tanks are considered aboveground storage tanks.

(U) Administrative Control. The authority to direct a subordinate or another organization on administrative matters, such as personnel management, and other matters that are not part of the operational missions of the subordinate or other organization.

(U) Airport Fuel Hydrant System. An underground storage tank system used to fuel aircraft that consists of pipelines operating under high pressure that typically terminate into one or more hydrants, or fill stands, on an airfield used to fill aircraft with fuel.

(U) Aqueous Film-Forming Foam (AFFF). A foam made at the time of use by mixing air into a water solution containing a specially formulated foam concentrate (concentrated version), by means of suitably designed equipment. The resulting foam flows freely over a burning liquid surface and acts as a barrier both to exclude air or oxygen and to develop a film on the fuel surface that is capable of suppressing combustible vapors to quickly extinguish the flames.

(U) As-Built Information. As-built information is information delivered by a contractor to the government for delivered equipment or infrastructure. For example, as-built drawings are the engineering drawings that depict the actual configuration of the delivered equipment or infrastructure.

(U) Authority. The powers to command, enforce laws, exact obedience, determine, or judge.

(U) Bulk fuel. Fuel delivered in volumes greater than 55 U.S. gallons by delivery modes, such as tank trucks, pipelines, hydrant systems, and ships.

(U) Causative Research. An investigation of discrepancies such as gains or losses with a complete review of all transactions and supporting documentation to compare transaction level detail reported with the supporting documentation. Causative research ends when the cause of the discrepancy has been discovered or when, after review of the transactions, no conclusive findings are possible.

(U) Command. The authority that a commander in the military service lawfully exercises over subordinates by virtue of rank or position. Command includes the authority and responsibility for effectively using available resources and for planning the employment of, organizing, directing, coordinating, and controlling military forces for the accomplishment of assigned missions. Command also includes responsibility for health, welfare, morale, and discipline of assigned personnel.

(U) Defense Fuel Support Points. Bulk fuel storage facilities where Defense Logistics Agency-owned fuel is stocked for distribution to multiple military end users. Defense Fuel Support Points range in size and scope from a single tank to a pipeline system with a network of multiple terminals.

(U) Drinking Water Incident. A confirmed occurrence related to drinking water that requires response actions to prevent or minimize loss of life or damage to property and natural resources. A drinking water contamination incident occurs when the presence of a harmful contaminant has been confirmed in drinking water.

(U) Effectiveness. Meeting the military mission while fully complying with Federal and state laws, regulations, and DoD policies, including environmental requirements.

(U) Environment (Hawaii). Any waters, including surface water, ground water, or drinking water supply, any land surface or any subsurface strata, or any ambient air within the State of Hawaii or under the jurisdiction of the State.

(U) Environmental Impact. An effect of a practice's aspect on an environmental or other resource. Each practice may have several impacts. Typical impacts associated with practices operated on Navy installations or regional complexes include: personnel exposure, indoor air quality degradation, outdoor air quality degradation, surface water degradation, groundwater degradation, soil quality degradation, wildlife or plant population or habitat disturbance, other resources such as landfill space, consumption, cost to mitigate risk, adverse regulatory exposure, negative public perception, real property damage, historic or cultural resource damage, natural resource disturbance, soil erosion, and human health effects.

(U) Executive Agent. A DoD Executive Agent is the head of a DoD Component assigned specific responsibilities, functions, and authorities by the Secretary of Defense or Deputy Secretary of Defense to provide operational, administrative, or other designated activities involving two or more DoD Components.

(U) Field-Constructed Tank. Any tank constructed in the field. For example, a tank constructed of concrete that is poured in the field, or a steel or fiberglass tank primarily fabricated in the field, is considered field-constructed.

(U) Fuel Incident. In terms of oil and hazardous substances (OHS), including fuel, an incident is any occurrence or series of occurrences having the same origin, involving one or more vessels, facilities, or any combination thereof, resulting in the release or substantial threat of release of OHS.

(U) Incident. In terms of OHS, an incident is any occurrence or series of occurrences having the same origin, involving one or more vessels, facilities, or any combination thereof, resulting in the release or substantial threat of release of OHS. In terms of water, an incident is a confirmed occurrence that requires response actions to prevent or minimize loss of life or damage to property and natural resources. A drinking water contamination incident occurs when the presence of a harmful contaminant has been confirmed.

(U) Infrastructure. Any structures, systems, and assets, whether physical or cyber-based, that support economic or other activities. Infrastructure also refers to shore facilities and their components, such as the tanks, pipes, and other supporting structures and equipment that make up the DFSP JBPHH shore facility. A shore facility is any refinery, terminal, storage, or port facility taking deliveries of a commodity from or making deliveries of a commodity to a vessel. A shore facility does not have to be on land.

(U) Management. A process of establishing and attaining objectives to carry out responsibilities. Management consists of those continuing actions of planning, organizing, directing, coordinating, controlling and evaluating the use of personnel, money, materials and facilities to accomplish missions and tasks. Management is inherent in military command, but it does not include as extensive authority and responsibility as military command.

(U) Military Departments. The Military Departments, created by the National Security Act of 1947, are the Army, Navy, and Air Force.

(U) Mitigate. To lessen or try to lessen the seriousness or extent of something.

(U) Navy On-Scene Coordinator (NOSC). The NOSC is the Navy official who is pre-designated to coordinate Navy OHS pollution contingency planning and direct Navy OHS pollution response efforts in a pre-assigned area.

(U) Operation. A military action or the carrying out of a strategic, tactical, service, training or administrative military mission.

(U) Owner or operator. Any person owning or operating an onshore facility or an offshore facility, and in the case of any abandoned facility, the person who owned or operated or maintained the facility immediately prior to such abandonment.

(U) Permanently Closed. Permanently closed means any container or facility for which (1) all liquid and sludge has been removed from each container and connecting line; and (2) all connecting lines and piping have been disconnected from the container and blanked off, all valves (except ventilation valves) have been closed and locked, and signs have been posted conspicuously on each container stating that it is a permanently closed container and noting the date of closure.

(U) Petroleum, oil, and lubricants. All petroleum products used by the DoD and other agencies.

(U) Public Health. The science focused on improving and protecting community health and well-being, with an emphasis on prevention among groups of people, rather than individuals.

(U) Qualified Individual. The individual identified in spill response plans who: (1) is available on a 24-hour basis and able to arrive at the facility in a reasonable time; (2) is familiar with the implementation of the plan; (3) is trained in the responsibilities of the Qualified Individual under the plan; (4) has authority to activate the OHS spill response organization; (5) has authority to direct the obligation of funds required to carry out response activities; and (6) will act as a liaison with the pre-designated Federal On Scene Coordinator. Navy On-Scene Coordinators (NOSCs) and facility commanders are assigned these responsibilities but may delegate qualified individual responsibility to trained personnel.

(U) Release. Any spilling or substantial threat of spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment of any hazardous substance, including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance, pollutant, or contaminant. A release may be either aboveground or belowground. An aboveground release is any release to the surface of the land or to surface water. A belowground release is any release to the subsurface of the land and to groundwater.

(U) Release detection. Determining whether a release of a regulated substance has occurred from the UST system into the environment or a leak has occurred into the interstitial space between the UST system and its secondary barrier or secondary containment around it.

(U) Reportable Quantity. The amount of a hazardous substance that must be reported to regulatory authorities if released.

(U) Response. Response is the containment or removal of OHS released into the natural environment; and the taking of other actions as may be necessary to minimize or mitigate damage to the public health or welfare, including, but not limited to injuries to fish, shellfish, wildlife, and public or private property.

(U) Risk. An effect of uncertainty. An effect is a deviation from the expected—positive or negative. Uncertainty is the state, even partial, of deficiency of information related to understanding or knowledge of an event, its consequence, or its likelihood. Risk is often characterized by reference to potential "events" or a combination of these. It is often expressed in terms of a combination of the consequences of an event and the associated "likelihood" of occurrence.

(U) Root Cause. The cause of an occurrence that, if corrected, would prevent recurrence of that and similar occurrences. There may be a series of identifiable causes, one leading to another. Commands and practice owners should pursue that series of causes until identifying the fundamental correctable cause, which is the root cause.

(U) Secondary Containment. A release prevention and release detection system for a tank or piping. These systems include structures or equipment to prevent a release of OHS from its primary containment tank or piping, where the structure is a liquid-tight container that protects the environment by containing leaks and spills of regulated substances, such as fuel, from piping, dispensers, pumps, and related components in the containment area.

(U) Sump. A pit or low space that collects liquids. Liquids collect in sumps by various means. Any liquid flowing nearby can flow into a sump from openings, such as grates, in the top of the sump. Additionally, liquids can be directed to sump pits through drainage systems that collects the liquid elsewhere and directs it toward the sump, such as floor trenches. Furthermore, subsurface liquids naturally flowing toward the low space can be collected in subsurface drainage pipelines, such as French drains, and then directed to the sump.

(U) Underground Storage Tanks. Any tank or combination of tanks, including underground pipes connected thereto, used to contain an accumulation of regulated substances, such as OHS. In order to be considered an underground storage tank system, 10 percent of the volume of the tank or combination of tanks and the associated piping must be located beneath the surface of the ground.

(U) Well. A bored, drilled, or driven shaft whose depth is greater than the largest surface dimension.

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