

# Naval Audit Service



## Audit Report



### Department of the Navy Red Hill and Upper Tank Farm Fuel Storage Facilities

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**N2010-0049**  
**16 August 2010**

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**MEMORANDUM FOR DISTRIBUTION**

**Subj: DEPARTMENT OF THE NAVY RED HILL AND UPPER TANK FARM  
FUEL STORAGE FACILITIES (AUDIT REPORT N2010-0049)**

**Ref:** (a) NAVAUDSVC memos 7510/N2009-NIA-0032, dated 15 October 2008 and  
30 October 2008  
(b) SECNAV Instruction 7510.7F, "Department of the Navy Internal Audit"

1. This report provides results of the subject audit announced in reference (a). Section A of this report provides our findings and recommendations, summarized management responses, and our comments on the responses. Section B provides the status of the recommendations. The full texts of management responses are included in the Appendixes. The table below notes the status by action command for each recommendation. The findings provide additional details on the responses (including explanations for the status), and Section B provides the target completion dates for each recommendation.

Command	Recommendation No.	Status
Assistant Secretary of the Navy (Energy, Installations, and Environment)	1, 15	Open
	16	Closed
Commander, Naval Installations Command	2-5, 9, 12	Open
	10, 11, 13, 17	Undecided
Naval Facilities Engineering Command, Hawaii	6, 7	Open
	14	Closed
Fleet and Industrial Supply Command, Pearl Harbor	8	Closed
Naval Station Pearl Harbor	18	Open

2. The undecided recommendations are being resubmitted to the original action addressee. The addressee is required to provide comments on the undecided recommendations within 30 days, and they may comment on other aspects of the report,

Subj: **DEPARTMENT OF THE NAVY RED HILL AND UPPER TANK FARM  
FUEL STORAGE FACILITIES (AUDIT REPORT N2010-0049)**

if desired. Open recommendations are subject to monitoring in accordance with reference (b). Management should provide a written status report on the open recommendations within 30 days after target completion dates.

3. Please provide all correspondence to the Assistant Auditor General for Installations and Environment Audits, XXXXXXXXXXXXXXXXXXXXXXXXXXXX, with a copy to the Director, Policy and Oversight, XXXXXXXXXXXXXXXXXXXXXXXXXXXX. Please submit correspondence in electronic format (Microsoft Word or Adobe Acrobat file), and ensure that it is on letterhead and includes a scanned signature.

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4. We appreciate the cooperation and courtesies extended to our auditors.

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# Executive Summary

## Overview

Red Hill (RH) and Upper Tank Farm (UTF) are Department of the Navy (DON) bulk fuel storage facilities located at Naval Station (NAVSTA) Pearl Harbor, HI.<sup>1</sup> Serving collectively as a Defense Fuel Support Point (DFSP), the two fuel facilities provide fuel support for accomplishing Department of Defense (DoD), DON, and various Federal Agencies' missions in the Pacific. The fuel facilities are owned by Commander, Navy Installations Command (CNIC) and operated by Fleet and Industrial Supply Center (FISC) Pearl Harbor, HI. The actual fuel inventory is owned by the Defense Logistics Agency. The RH facility, built in the 1940s, consists of 20 underground storage tanks (USTs) located within a mountain of volcanic rock. UTF houses six above-ground storage tanks, five of which were built in 1925 and one in 1978.

We conducted our audit between 15 October 2008 and 13 May 2010 at FISC Pearl Harbor, Defense Energy Support Center (DESC) Pacific and Middle Pacific (MIDPAC); Naval Facilities Engineering Command (NAVFAC) (Headquarters, Pacific, and Hawaii); Naval Facilities Engineering Service Center; Naval Operational Logistics Support Center; and NAVSTA Pearl Harbor. The conditions noted in this report existed at the time of our site visits in December 2008 and April 2009.

## Reason for Audit

The audit objectives were to verify that: (1) DON's management of the RH and UTF bulk fuel storage facilities were operating within Federal environmental standards; (2) appropriate contingency plans were in place to protect the environment and groundwater sources; (3) effective physical controls and security were in place; and (4) potential responsibility for catastrophic spills or contamination were delineated.

This audit topic was identified by Naval Supply Systems Command as high-risk in the Fiscal Year (FY) 2009 Risk and Opportunity Assessment.

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<sup>1</sup> Naval Station Pearl Harbor and Hickam Air Force base were consolidated into Joint Base Pearl Harbor-Hickam (JBPHH) (Initial Operational Capability (IOC) - 31 January 2010; Full Operational Capability - 1 October 2010) as a result of a 2005 Defense Base Realignment and Closure recommendation. At the time of our audit, JBPHH had not entered into IOC. Since our audit work was performed at NAVSTA Pearl Harbor, this report will only make reference to NAVSTA Pearl Harbor, as this was the formal installation name at the time of our audit.

According to the “Red Hill Bulk Fuel Storage Facility Final Groundwater Protection Plan” (GPP), site investigations have shown evidence of fuel releases which have resulted in contamination of the rock bed, soil, and groundwater surrounding the RH tanks. In response to the fuel releases and site investigations, the Navy and Hawaii Department of Health<sup>2</sup> (HDOH) formed an agreement to establish a plan of action for protecting the environment and valuable groundwater sources in the RH area. However, based on the results of the audit work, we determined that the environment in the Pearl Harbor area has not been sufficiently protected. Specifically, we identified four areas of concern: (1) groundwater contamination resulting from irregular maintenance and insufficient inspection; (2) delays in completion of the maintenance cycle due to operational and time constraints;<sup>3</sup> (3) effectiveness of current leak detection methods in detecting slow, chronic fuel releases; and (4) non-compliance with terms of the “GPP.” With regards to irregular maintenance, we found that maintenance records were incomplete (last entry on record dates from 27 to as much as 46 years ago) for 6 of the 18 active tanks. This concern is addressed in detail in Finding 4.

[illegible][illegible]

<sup>2</sup> The U.S. Environmental Protection Agency, through the Code of Federal Regulations 40, Section 282, designates the State of Hawaii as the regulatory authority for Underground Storage Tanks (UST) within the State. The Hawaii Department of Health Solid Waste Branch is the regulatory office for USTs.

<sup>3</sup> It should be noted that since our site visits, according to CNIC and FISC-Pearl Harbor, the proposed FY 2016 maintenance schedule is not being executed (see Finding 1, section "Tank Inspection and Maintenance Schedule" for details).



In addition to environmental, security, and safety concerns, we noted weaknesses in management and oversight of the RH and UTF facilities. Since the Secretary of the Navy visited the facilities in 2007, the Navy has taken steps to improve management and oversight of the two fuel farms. However, we noted areas in which the Navy could continue to improve such as tank management, financial reporting (to include reporting of potential environmental liabilities as well as development of cost sharing agreements in the event of fuel releases), physical security, and safety. Proper oversight of the facilities is essential to ensure that CNIC is fulfilling its responsibilities as owners of real property and that the fuel farms are operated in an environmentally responsible manner.

As a result of an April 2007 fuel release at UTF, a “double wall” is being installed in the bottom of Tank 48 to provide a means of secondary fuel containment. FISC Pearl Harbor personnel anticipate returning Tank 48 to service in November 2010. Further, Commander, Navy Region Hawaii (CNRH) and FISC Pearl Harbor are taking measures to incorporate “lessons learned” into standard operating procedures and release response plans.

- 60-minute Self-Contained Self-Rescuer respirators were acquired and stored near the operations room in the RH lower tunnel;
- Each FISC Pearl Harbor Fuel Department employee was issued an Emergency Escape Breathing Device; and

- A secondary power supply and emergency generator was installed at RH.

During the course of the audit, additional funding requested by FISC Pearl Harbor, on its own initiative prior to and during the audit, was received to:

- Install oil-tight doors (project completed 30 September 2009);
- Upgrade the existing ventilation system (estimated completion date – December 2011); and
- Install a two-way radio communication system in the RH tunnel (estimated completion date – June 2010).

On 13 March 2009, Task Order (TO) 0005 to Design-Build P-028 (“Construct Entry Facility at Red Hill”) was approved under Contract N62478-07-D-4003. This TO was for the installation of retractable barriers at the RH Halawa main gate. Date of completion is expected on or about 30 May 2010.

As a result of our audit, NAVSTA Pearl Harbor has initiated efforts to establish a Tank Management Plan in accordance with OPNAVINST 5090.1C.

Prior to our audit, FISC Pearl Harbor ensured service maintenance was performed on existing, unused flow meters and placed one of those meters into service in order to electronically monitor fuel transfers. Further, FISC Pearl Harbor leadership implemented additional internal controls regarding the issuance and expiration of access cards required for ingress/egress at secured areas, such as RH and the AFHE control room. During our site visit, we identified a potential weakness regarding controlled access to the AFHE control room during normal business hours. FISC Pearl Harbor leadership took immediate action to improve this control.

Finally, the audit team identified a discrepancy between the Restricted Level classification mentioned in the FY 2007 annual survey performed by FISC Pearl Harbor<sup>4</sup> and the Restricted Level indicated in FISC Pearl Harbor Instruction 5530.1C, 4 February 2008, Appendix D. FISC Pearl Harbor took immediate action and updated their instruction to properly state the Restricted Level for the RH fuel facility and ADIT 1.<sup>5</sup>

Since the beginning of our audit, FISC-Pearl Harbor has made improvements to fuel operations and has received awards and recognitions to include the 2009 American Petroleum Institute Command Award and received third place for the 2009 Chief of

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<sup>4</sup> The 2007 annual survey mentioned that a Commander, Pacific Fleet Anti-Terrorism/Force Protection assessment was conducted on the Red Hill fuel Complex, which resulted in the Complex being classified as Restricted Level III. FISC Pearl Harbor updated their Instruction (5530.1C) to re-classify the Red Hill Complex and ADIT 1 from Level II to Level III.

<sup>5</sup> An ADIT is a horizontal entrance to a mine [or tunnel].



Naval Operations Safety and Occupational Health Shore Safety Award.<sup>6</sup> Additionally, the Fuel Director at FISC-Pearl Harbor was recognized by API for “outstanding performance and contributions to the Fuels mission during calendar year 2009.”

## **Federal Managers’ Financial Integrity Act**

The Federal Managers’ Financial Integrity Act of 1982, as codified in Title 31, United States Code, requires each Federal agency head to annually certify the effectiveness of the agency’s internal and accounting system controls. While conditions noted in this report are not systemic and therefore may not warrant reporting, there are additional fuel audits ongoing and, depending on what is found, the issues may be considered for future inclusion in the Auditor General’s annual FMFIA memorandum identifying management control weaknesses to the Secretary of the Navy.

## **Corrective Actions**

We recommend that the Assistant Secretary of the Navy (Energy, Installations, and Environment):

- Coordinate with DON and DoD stakeholders to:
  - Establish and promulgate guidance mandating specific inspection intervals and procedures for DON fuel tanks, including RH tanks, to ensure inspections are comprehensive, timely, and effective in preventing and detecting fuel releases;
  - Determine, establish, and promulgate guidance outlining the roles and responsibilities of the various internal and external commands and organizations involved in the management and oversight of the fuel facilities. Specifically identify CNIC’s responsibilities for ensuring the efficient and effective management of both facilities; and
  - Develop cost-sharing agreements to clarify the Navy’s potential financial responsibility in the event of a catastrophic spill or leak from RH and UTF into pre-existing contamination sites; determine if environmental liabilities exist; and report, if necessary, in accordance with the DoD Financial Management Regulations.

We recommend that Commander, Navy Installations Command:

- Coordinate with key stakeholders to develop and implement a Plan of Action and Milestones (POA&M) to inspect and maintain fuel tanks at Red Hill;

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<sup>6</sup> Continental U.S. Small Non-Industrial Category.

- We recommend that Naval Facilities Engineering Command Hawaii:

- 6

- Ground maintenance contractor performance complies with the terms of the contract and meets vegetation removal requirements; and
  - Public Works Department (PWD) Pearl Harbor is notified and directed to remove fence line obstructions not covered under the ground maintenance contract; and
- Immediately classify the RH tunnel as a structure to allow for the installation of appropriate basic safety infrastructure systems.

We recommend that Commander, Naval Station Pearl Harbor:

- Develop, and implement a Tank Management Plan in accordance with OPNAVINST 5090.1C.

We recommend that Fleet and Industrial Supply Center Pearl Harbor:

- Implement control mechanisms to ensure that the AFHE control room has 24-hour restricted access to authorized personnel only.

Management submitted responses, most of which meet the intent of the recommendations. Recommendations 1, 2 -7, 9, 12, 15, and 18 are considered open, pending completion of agreed to actions. Recommendations 8, 14, and 16 are closed. However, CNIC did not concur with Recommendation 13 in Finding 3 and this recommendation is considered “undecided.” Recommendations 10 and 11 in Finding 3, and 17 in Finding 4 have incomplete answers, and are therefore considered undecided. The recommendations will be resubmitted to CNIC for their consideration.

## Communication with Management

Throughout the audit, we kept management and stakeholders informed of the conditions noted in this report. Specifically, we communicated our audit results to:

- Defense Energy Support Center:
  - Pacific – 27 May 2009; and
  - Middle Pacific – 4 December 2008;
- Assistant Secretary of the Navy (Energy, Installations, and Environment) - 15 October 2009;
- Commander, U.S. Pacific Fleet, Pearl Harbor, Hawaii - 21 September 2009 and 6 October 2009;
- Commander, Navy Installations Command - 28 September 2009;



- Commander, Navy Region Hawaii - 21 September 2009 and 27 October 2009”
  - Naval Station Police Department; and
  - Federal Fire Department;
- Naval Supply Systems Command - 21 September 2009;
- Commander, Fleet and Industrial Supply Center - 21 September 2009;
- Naval Operational Logistics Support Center Petroleum - 21 September 2009;
- Fleet and Industrial Supply Center – Pearl Harbor - 21 September 2009, 6 October 2009, and 27 October 2009; and
- Naval Facilities Engineering Command:
  - Headquarters - 6 October 2009 ;
  - Engineering Service Center - 6 October 2009;
  - Pacific - 6 October 2009; and
  - Hawaii - 21 September 2009, 6 October 2009, and 27 October 2009.

**Section A:**

# **Findings, Recommendations, and Corrective Actions**

## **Finding 1: Environmental Protection in the Pearl Harbor Area**

### **Synopsis**

In an effort to mitigate the risk associated with inadvertent releases of fuel from the Red Hill (RH) bulk fuel storage facility, the Navy established an agreement with the State of Hawaii. The January 2008 agreement, titled “Red Hill Bulk Fuel Storage Facility Final Groundwater Protection Plan” (GPP), presents a strategy for ensuring that both the RH facility and the potable water sources can continue to operate at optimum efficiency into the future. Our audit revealed room for improvement in regard to protection of groundwater sources and the environment in the Pearl Harbor area, to include RH. Specifically, we identified four areas of concern at RH: groundwater contamination; tank inspection and maintenance requirements and schedule; detection of fuel releases; and completion of response actions required by the GPP.

Groundwater contamination exists around the underground storage tanks (USTs) at RH because of irregular maintenance and insufficient inspection over the life of the fuel tanks. For example, 6 of the 18 active RH tanks have no recorded inspection or maintenance efforts for 27 to as much as 46 years. Additionally, we determined that the inspection and maintenance schedule in place at the time of our site visits was infeasible<sup>7</sup> because fuel requirements and time constraints limit the rate at which this work can be performed. Also, the Navy cannot detect slow, chronic fuel releases from the RH tanks because current methods are not effective for that purpose. Lastly, specific requirements of the GPP (i.e. additional testing and reporting) have not been fulfilled in accordance with the GPP’s terms due to vague verbiage and funding delays.

If the abovementioned concerns are not addressed, the fuel tanks could be at risk of deterioration and, therefore, the risk of further contamination in the Pearl Harbor area may not be sufficiently mitigated. Additionally, the Navy cannot provide assurance that slow, chronic fuel releases can be detected and mitigated in a timely manner and that recent increases in contaminant levels have not impacted other water sources in the RH area.

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<sup>7</sup> It should be noted that since our site visits, according to CNIC and FISC Pearl Harbor, the proposed FY 2016 maintenance schedule is not being executed.



## Pertinent Guidance

Hawaii Administrative Rule (HAR) 11-281 (January 2000) establishes the requirement for both initial and continued response actions to be taken in the event of a suspected or confirmed fuel release from a UST. Under this guidance, owners of USTs in the State of Hawaii are required to report releases to the Hawaii Department of Health (HDOH) and to conduct investigations of the release, the release site, and the surrounding area possibly affected by the release. Further, for sites where response actions are expected to extend past 90 days, HAR 11-281 requires that the UST owner submit “Quarterly Release Response Reports.”

“Hawaii UST Technical Guidance Manual” Section 5.3.4 (March 2000) establishes the technical requirements to be incorporated into quarterly release response reporting for sites where remediation efforts are anticipated to last longer than 90 days. In such cases, the UST owner must continue to conduct groundwater testing on a quarterly basis and submit those results to HDOH in the required “Quarterly Release Response Reports.”

“Evaluation of Environmental Hazards at Sites with Contaminated Soil and Groundwater,” Volume 1: User Guide (Summer 2008; updated March 2009), prepared by the HDOH Environmental Management Division, provides guidance for identification and evaluation of environmental hazards associated with contaminated soil and groundwater. This guidance defines environmental action levels (EALs) as “concentrations of contaminants in soil, soil gas,<sup>8</sup> and groundwater above which the contaminants could pose a potential adverse threat to human health and the environment.” According to the guidance, EALs are used to rapidly screen soil, soil gas, and groundwater data collected for a site and identify potential environmental hazards.

The GPP (January 2008) represents an agreement between the Navy and HDOH regarding specific actions to be accomplished by the Navy in order to protect the environment and valuable groundwater sources in the Pearl Harbor area. As a part of this effort, the Navy has agreed to inspect and repair the 18 active RH tanks and offered a proposed schedule for completion. The GPP also establishes a site specific risk based level (SSRBL) for two petroleum contaminants, total petroleum hydrocarbons (TPH) and benzene, and outlines categories (see Exhibit D) as well as specific response actions to be taken based on levels detected during required quarterly groundwater testing. The SSRBL represents the contamination level at the Red Hill Monitoring Wells (RHMWs) that would have the potential to expose U.S. Navy Well 2254-01<sup>9</sup> (Navy Well) to contamination levels equal to HDOH drinking water EALs.

<sup>8</sup> Air present in soil pore spaces which may contain contaminants in gas phase.

<sup>9</sup> Potable water pumping station located at the base of the Red Hill Mountain accounting for approximately 24 percent of the Pearl Harbor Water System supply.

“Tank Inspection, Repair, Alteration, and Reconstruction (American Petroleum Institute (API) Standard 653)” (February 2008) outlines standards for inspection, repair, alteration and reconstruction of above-ground welded steel storage tanks, and provides the minimum requirements for maintaining the integrity of such tanks. Although this standard does not govern USTs, Fleet and Industrial Supply Center (FISC) Pearl Harbor tank inspections employ a modified version (modified-API 653) incorporating sections of the standard which can be applied to the RH USTs.

## Audit Results

The RH facility is comprised of 20 USTs which are situated in the Red Hill Ridge. The facility sits over an aquifer system that supplies potable water to Naval Station (NAVSTA) Pearl Harbor and public water systems on the island of Oahu, HI. Based on the results of the audit work, we determined that the environment and groundwater sources in the Pearl Harbor area have not been sufficiently protected. Specifically, we identified four areas of concern: groundwater contamination; tank inspection and maintenance schedule; detection of fuel releases; and completion of response actions required by the GPP.

### Groundwater Contamination

According to the GPP, previous site investigations have shown evidence of past fuel releases that have resulted in contamination of the rock bed, soil, and groundwater surrounding the RH tanks. As a result of this documented contamination, HAR 11-281-77 and the “Hawaii UST Technical Guidance Manual” require that the Navy perform quarterly groundwater testing to monitor contamination levels. This testing is conducted at four monitoring wells (three beneath the RH facility; one at the Navy Well) (see Exhibit E). The testing results at all four monitoring wells indicate that the groundwater has been contaminated by various chemical constituents, such as total petroleum hydrocarbons (TPH) and naphthalene, which are found in petroleum based fuels.

Tank inspections results identified uncorrected construction-related defects, such as welding, coating, and corrosion defects. Based on our review of inspection reports, historical documentation, and information obtained during interviews with Naval Facilities Engineering Service Center (NFESC) and FISC Pearl Harbor subject matter experts,<sup>10</sup> we determined that these defects remained uncorrected due to irregular maintenance and insufficient inspection over the life of the tanks. According to subject matter experts, these types of defects could have caused fuel releases and contributed to the environmental contamination at RHMWs and the Navy Well.

<sup>10</sup> NFESC – corrosion and coating engineers. FISC Pearl Harbor – general engineer.

## Quarterly Groundwater Testing

Figure 1

### Red Hill Monitoring Wells

The Navy's quarterly testing results show that RHMW02, situated in the middle of the RH facility, has consistently exhibited the highest levels of contamination, especially that of TPH. Since studies indicate that TPH is one of the risk drivers for migration of dissolved petroleum, the Navy developed an

additional action level, the SSRBL, which represents the contaminant concentration level at the RHMWs that could potentially impact the Navy Well. As shown in the Figure 1, until 1<sup>st</sup> quarter 2008, TPH concentration levels at RHMW02 remained relatively stable and below the SSRBL; however, a 97-percent increase in this contaminant occurred between the 1<sup>st</sup> and 3<sup>rd</sup> quarters of 2008, causing the level to approach, but not exceed, the SSRBL.

In the subsequent testing period, 4<sup>th</sup> quarter 2008, results showed that the concentration level had continued to increase and had exceeded the SSRBL. According to Naval Facilities Engineering Command (NAVFAC) Pacific risk assessments and groundwater flow models cited in the GPP, when levels of TPH exceed the SSRBL, contaminants could migrate from the RH facility and cause unacceptable contamination levels at the Navy Well pumping station.

In the 1<sup>st</sup> quarter of 2009, testing results revealed that TPH concentration levels at RHMW02 had decreased below the SSRBL. This decrease could potentially signify the migration of contaminants away from the RH facility as indicated by NAVFAC Pacific risk assessments which are addressed in the GPP.

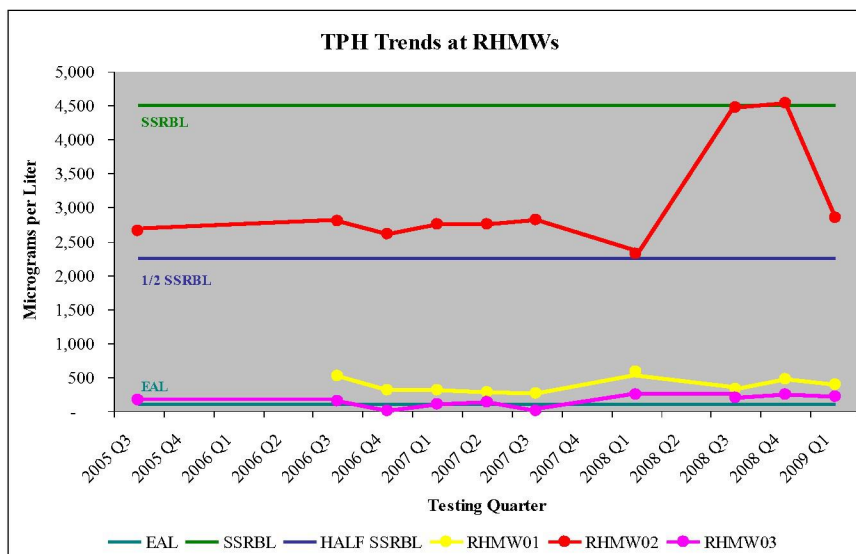
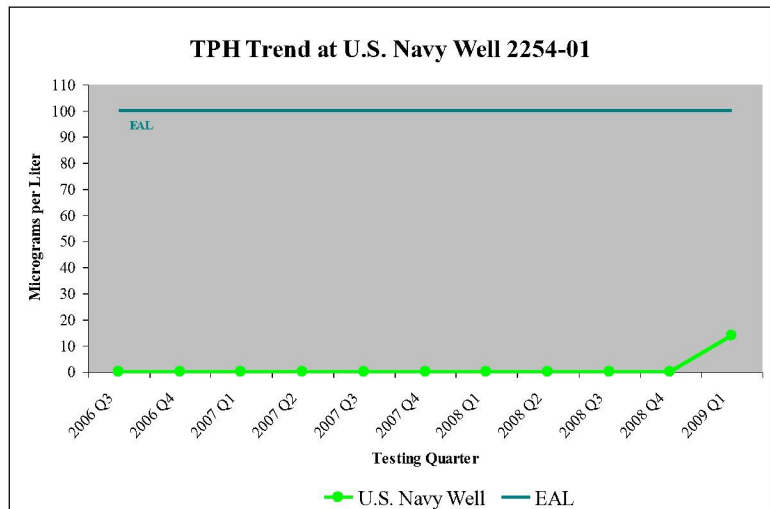




Figure 2

### U.S. Navy Well 2254-01

In the 1<sup>st</sup> quarter of 2009, TPH contaminants were also detected at the Navy Well. Although the concentration that was detected was below the EAL,<sup>11</sup> this sampling event was the first time that TPH had been detected since the Navy began testing for the contaminant in 2006. As mentioned above, the recent detection of contaminants at the Navy Well may indicate migration



of fuel released from RH. The detection of contaminants at the Navy Well pumping station poses an immediate risk to the potable water sources in the RH area. If the Navy Well becomes contaminated beyond acceptable levels, the Navy and the island of Oahu could potentially lose an important source of drinking water. If this occurs, the Pearl Harbor Water System would be reduced by approximately 24 percent. Further, the Navy would be responsible for providing an alternate water source at the Navy Well as indicated in the GPP.

### Irregular Maintenance

Tank histories for the 20 RH fuel storage tanks chronicle maintenance events such as cleanings, inspections, and repairs since the date the tanks were placed in service (early 1940s to mid- to late-1990s). Based on our review of this documentation, we determined that prior to current inspection efforts (2005 to present), the Navy did not have a systematic approach to scheduling and performing the inspection and maintenance of the RH tanks. For example, although each of the 20 RH tanks has some record of inspections and/or maintenance efforts, 6 of the 18 active RH tanks have no recorded efforts for 27 to as much as 46 years (see Exhibit F). Further, we identified concentrations of maintenance related efforts throughout the life of the tanks; however, the type of work varied each time. For instance, in the 1950s, the majority of the work performed was related to cleaning and fuel changeover, while efforts in the 1980s involved resolution of leak issues.

### Insufficient Inspection

According to the GPP and NFESC's petroleum, oil, and lubricant subject matter experts, inspection and maintenance of storage tanks is essential to preserving the structural

<sup>11</sup> The HDOH EAL for drinking water sources is 100 micrograms per liter. The level detected during the sampling event was 14 micrograms per liter.

integrity of the RH tanks and to preventing leaks and further contamination of the environment and groundwater sources in the RH area. Currently, field-constructed USTs, such as the RH tanks, are deferred from compliance with both United States Environmental Protection Agency (EPA) and State of Hawaii UST upgrade and repair requirements. As a result, there is no guidance or standards governing the maintenance of these USTs. Despite the absence of such guidance, FISC Pearl Harbor, in conjunction with the Defense Energy Support Center (DESC), initiated an inspection and repair effort for the 18 active RH tanks using a modified-API 653 approach.

According to FISC Pearl Harbor personnel, previous inspections performed by FISC Pearl Harbor employees consisted of 100 spot checks throughout each tank to determine the thickness of the liner. FISC Pearl Harbor personnel and the current inspection contractor indicated that due to the inspection methodology employed and technology available at that time, these inspections were found to be insufficient. For example, Tank 6 was inspected in 1998, and five flaws requiring repair were found. However, 8 years later, another inspection was performed on Tank 6 using the modified-API 653 method. This inspection method included scanning 100 percent of the tank barrel and extension and resulted in 476 flaws<sup>12</sup> requiring repair before the tank could be returned to service (tanks are temporarily taken out of service during inspection and repair).

To date, 5 of the 18 active RH tanks have been inspected using the modified-API 653 methodology. These inspections have shown defects in the construction of the tanks that were not identified and repaired in previous inspections. For example, inspection results for these five tanks identified a total of 608 welding defects.<sup>13</sup> These defects indicate that liner plates were not sufficiently joined as defined by welding standards and, therefore, may have allowed fuel to seep out of the tanks. Coating defects were also detected during these inspections, resulting in repairs to 57 corroded areas on the interior surface of the tanks, including one through-hole in Tank 2. These types of defects may potentially exist in the remaining 13 active RH tanks that have not been inspected using the modified-API 653 methodology. If similar defects exist and are not corrected, there is a risk of fuel release(s) from the RH tanks.

In addition to the defects noted on the interior of the five tanks, the modified-API 653 inspections identified 206 areas of exterior corrosion which had diminished the thickness of the tanks' liners. The corroded areas were caused by groundwater coming in contact with the tanks; however, given that previous inspection methodologies and testing equipment were not sufficient to detect these exterior defects, the corrosion was not previously identified. A NFESC corrosion engineer explained that this corrosion cannot be prevented at RH due to the construction of the tanks. However, inspection reports and subject matter experts indicate that the impact of this corrosion can be mitigated by

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<sup>12</sup> Examples of flaws include corrosion, coating defects, through holes, and welding defects, such as porosity, cracked welds, and incomplete fusion.

<sup>13</sup> See footnote 13 for examples of welding defects.



applying patch plates to the interior or by removing the corroded plates (see Figures 3 and 4). Until the current inspection cycle is completed, any previously undetected areas of exterior corrosion may continue to worsen, may cause the remaining tanks to be susceptible to through-holes, and could potentially result in future fuel releases.

Figure 3: Tank 16 Exterior Corrosion Area

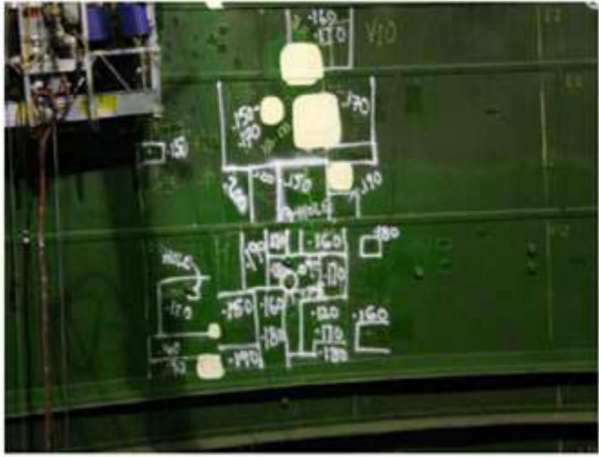


Figure 4: Tank 16 Repair Schematic

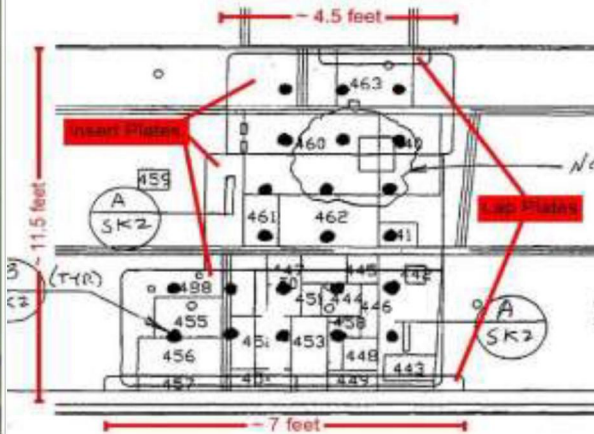


Figure 3: The inspection of Tank 16 revealed a cluster of exterior corrosion (23 flaws) and two through-holes within the cluster.

Figure 4: Repair schematic displays numbered flaws in figure 3, which required replacing the corroded original plates with four insert plates and three lap plates covering an area approximately 11.5 feet high and between 4.5 to almost 7 feet wide. Anchoring rods (represented by the black dots) are used to connect the plates to the concrete. Note: All insert and lap plates are not depicted in the schematic.

### Tank Inspection and Maintenance Schedule

At the time of our site visits, the Navy had established a schedule for the inspection and repair of the remaining tanks with a projected 2016 target completion date. However, our analysis and interviews with DESC and FISC Pearl Harbor personnel indicates that this schedule is not feasible.

FISC Pearl Harbor personnel stated that achieving the Fiscal Year (FY) 2016 target completion date depended on three factors: (1) fuel requirements; (2) the length of time needed to inspect and repair each tank, and (3) returning Tank 19 into service. Specifically, Department of Defense (DoD) and DON stakeholders have placed limitations on the number of tanks that can be taken out of service simultaneously due to fuel requirements in the Pacific area of responsibility. Further, subject matter experts cannot definitively state the amount of time each tank will require for final inspection and repair; however, they estimate an average of 18 months per tank based on the five completed tanks. Together, these factors will limit the rate at which the schedule can be completed, and have already resulted in the schedule being extended twice since January

2008.<sup>14</sup> Only 5 of the 18 tanks have been completed, to date, whereas FISC Pearl Harbor had initially anticipated having 12 tanks completed. Additionally, FISC Pearl Harbor indicated that the target completion date could possibly be extended past 2020 if one or both of the factors above are not adjusted.

While our analysis revealed that the schedule was infeasible, subsequent to our site visit, FISC-Pearl Harbor indicated that the fact that Tank 19 is not in service further prevents the plan from being executed. Although the schedule cannot be achieved, according to FISC-Pearl Harbor, efforts continue to aggressively clean, inspect, and repair the tanks.

It should be noted that the United States Pacific Command (PACOM) commissioned a study to evaluate fuel storage requirements in PACOM's area of responsibility. The study "offered a list of prioritized recommendations for improving the effectiveness and efficiency of fuel storage and distribution in PACOM." The study addresses storage location changes which could impact the storage requirements at the RH facility, and could alter the number of active tanks required for storage. According to Commander, Navy Installations Command (CNIC), a maintenance schedule depends on the outcome of the PACOM study and the recommendation(s) selected for implementation. Once a decision is made on which recommendations from the study will be implemented, a new tank maintenance schedule should be developed to inspect and repair the remaining active tanks.

Conducting inspections to identify, and taking actions to correct potential defects in the remaining 13 active tanks is essential to protecting the environment. If the constraining factors are not adjusted and the target completion date continues to be extended, potential defects may not be identified or corrected in some tanks for 10 or more years. Consequently, undetected defects could lead to future fuel releases, placing the environment at risk for further contamination.

### **Detection of Fuel Releases**

To detect fuel releases, FISC Pearl Harbor relies primarily on trend analysis of hand gauging and automated tank gauging/automated fuel handling equipment (ATG/AFHE) measurements to monitor the RH tanks. According to the GPP, the Navy would have difficulty quickly detecting release rates under approximately 10 gallons per minute, and therefore, these detection methods may not be sufficient to detect slow, chronic leaks from the tanks. For example, the EPA approved hand gauging for use as a precision leak detection method in tanks up to 2,000 gallons, whereas each RH tank's capacity is approximately 12.5 million gallons. Further, a leak detection subject matter expert, who conducted a market survey for the Navy, indicated that the current configuration could

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<sup>14</sup> As of January 2008, FISC Pearl Harbor anticipated schedule completion by FY 2011. At the time of our initial site visit in December 2008, the schedule had been extended to FY 2014. The schedule was extended to FY 2016 due to revised estimates of time need to complete each tank.



only detect leak rates of approximately 23.5 gallons per hour as tracked over a 1-week period. As a result, approximately 4,000 gallons of fuel could potentially be released before trend analysis revealed the leak. The survey also stated that the ATG/AFHE system has not undergone third-party evaluation to determine the minimum detection capabilities. In the absence of a permanent system capable of real-time detection of both large and slow, chronic leaks, there is no assurance that fuel releases will be detected and that the risk of further contamination has been mitigated. The Navy should continue to actively research, test, and ultimately implement precise methods to ensure timely detection of fuel releases.

### **Groundwater Protection Plan Compliance**

As noted above, the GPP is an agreement between the Navy and HDOH established as a plan of action for protecting the environment and valuable groundwater sources in the RH area. The agreement contains specific response actions that the Navy agreed to perform depending on the level of contamination detected at the monitoring wells. Our audit revealed that two specific response actions have not been completed: (1) additional well sampling; and (2) reporting as required by the GPP.

### **Additional Well Sampling**

As stated in the “Groundwater Contamination” section, TPH testing results in the 4<sup>th</sup> quarter of 2008 exceeded the established SSRBL. When this occurs, the Navy is required to request access to Halawa Deep Monitoring Well 2253-03 (Halawa Well) and collect samples from both that well and the Navy’s Oily Waste Discharge Well. There was no deadline associated with this testing in the GPP (see “Reporting Requirements”). Although FISC Pearl Harbor informed its chain of command of the requirement and requested funding in February of 2009, the existing groundwater monitoring contract was not amended until June 2009 to allow for additional sampling. Since the State of Hawaii had already completed its quarterly sampling at the Halawa Well, the Navy was not granted access until the next sampling event in October 2009. Consequently, the required testing was completed approximately 1 year after the samples indicated the increased contamination. According to FISC Pearl Harbor, the results of the testing was completed and the final report is expected to be completed in September 2010. If the GPP had specified a deadline for completion of the required actions, funding may have been provided and testing completed in a timelier manner, which would have allowed the Navy to determine sooner whether the monitoring wells had been impacted.

### **Reporting Requirements**

When contamination results at RHMW02 exceeded the SSRBL in 4<sup>th</sup> quarter of 2008, the Navy was required by the GPP to perform additional studies and to submit corresponding reports and plans of action. First, the Navy was required to re-evaluate the RH risk

assessment and groundwater model results. At the time of our visit, FISC Pearl Harbor, personnel stated that these two actions have not been completed due to the abovementioned funding delays; however, both were included in, and were currently being performed as a part of, the contract amendment mentioned above. FISC Pearl Harbor personnel anticipated that separate reports would be issued for the risk assessment and groundwater modeling in February and August 2010, respectively. The second requirement was to submit a proposed course of action to HDOH. FISC Pearl Harbor personnel stated that the current course of action remained unchanged, and the Navy continues to follow the terms of the GPP.

Based on the 4<sup>th</sup> quarter RHMW02 groundwater testing results and the detection of TPH at the Navy Well in the 1<sup>st</sup> quarter of 2009, the Navy is required by the GPP to submit a proposal for groundwater treatment and prepare for an alternative water source at the Navy Well. NAVFAC Hawaii and FISC Pearl Harbor personnel indicated that a study is being performed as part of the required proposal for groundwater treatment, and designs for a water treatment facility will be included in the report. Although neither one of these requirements had been fully completed at the time of our visit, FISC Pearl Harbor anticipated that a draft report would be issued by February 2010. Through subsequent communication with FISC Pearl Harbor, it was noted that the draft report was completed in February 2010; however, the final report is not expected to be completed until September 2010. Although NAVFAC Hawaii has taken steps to complete these tasks, the GPP does not specify deadlines for their completion. Consequently, over a year has passed since the requirement to prepare for an alternate water source was established.

Our review of the GPP noted that verbiage related to response action deadlines was vague or non-existent. For example, the agreement uses terms such as, “immediately”, “re-evaluate,” and eight of the response actions do not have a specified deadline (as noted above). Vague verbiage and absence of deadlines in the GPP could delay the implementation of protective measures required to ensure that potable water sources in the RH area continue to operate at optimum efficiency. In order for the Navy to fully comply with the GPP, clear deadlines for response actions should be established, and funding should be available, ensuring compliance with these deadlines.

## **Recommendations and Corrective Actions**

Recommendations, summarized management responses, and our comments on the responses are presented below. The complete texts of managements’ responses are included in the Appendices.



We recommend that the Assistant Secretary of the Navy (Energy, Installations, and Environment):

**Recommendation 1.** Coordinate with DON and DoD stakeholders to establish and promulgate guidance mandating specific inspection intervals and procedures for DON fuel tanks, including RH tanks, to ensure inspections are comprehensive, timely, and effective in preventing and detecting fuel releases.

**Management Response to Recommendation 1.** Concur. Inspection and maintenance of tanks at Red Hill (RH) and the Upper Tank Farm (UTF) is the responsibility of the Defense Energy Support Center (DESC). Existing DoD requirements for fuel system inspection and maintenance are in Unified Facilities Criteria (UFC) 3-460-03, "Operation and Maintenance: Maintenance of Petroleum Systems." This document is adopted from AFM 85-16, "Maintenance of Petroleum Systems" and as currently written does not adequately address inspection intervals and procedures for RH and UTF tanks. Headquarters, U.S. Army Corps of Engineers (HQUSACE), NAVFAC, and Air Force Civil Engineer Support Agency (AFCESA) are responsible for administration of the UFC system. By 13 August 2010, the Assistant Secretary of the Navy (Energy, Installations, and Environment) (ASN (EI&E)) will work with NAVFAC to formally submit a Criteria Change Request for UFC 3-360-03 to ensure comprehensive inspections are mandated that address requirements for DON fuel tanks. This may include adopting requirements from NAVFAC MO 230 and adding requirements to address not only compliance with Federal, state, and local regulations, but also to protect DLA-owned product from loss or contamination as per DoD 4140.25-M.

**NAVAUDSVC Comment on Management's Response to**

**Recommendation 1.** ASN (EI&E) planned actions meet the intent of the recommendation. Management should also provide NAVAUDSVC with an update on the final decision to update UFC 3-460-03 by 31 January 2011. The recommendation remains open pending completion of agreed-to actions and supporting documentation. [Note: Reference to "UFC 3-360-03" was a typographical error in the official responses. Through subsequent communication with management, auditors confirmed that the formal criteria change request will be submitted for UFC 3-460-03. Additionally, in subsequent communication, management submitted a target completion date of 16 September 2010.]

We recommend that Commander, Navy Installations Command:

**Recommendation 2.** Coordinate with stakeholders to develop and implement a Plan of Actions and Milestones (POA&M) to inspect and maintain fuel tanks at RH.

**Management Response to Recommendation 2.** Concur. CNIC will coordinate with PACOM, COMPACFLT, NAVSUP, COMFISCS, NOLSC-Petroleum, and FISC Pearl Harbor to evaluate the outcome of the Bearing Point study of fuel placement in the Pacific AOR. When a final determination has been made on fuel stock locations and the amount of fuel to remain at DFSP Pearl Harbor, a detailed tank inspection and repair plan will be developed. Until a final outcome of storage requirements has been determined, FISC Pearl Harbor will continue to aggressively inspect and repair the Red Hill tanks while maintaining operational storage requirements. The interim target completion date is 28 February 2011.

**NAVAUDSVC Comment on Management's Response to Recommendation 2.** Management's planned actions meet the intent of the recommendation. Management estimates an interim target completion date of 28 February 2011; however, in the meantime, they will continue to aggressively inspect and repair the Red Hill tanks while maintaining operational storage requirements. The recommendation remains open pending completion of agreed-to actions and supporting documentation.

**Recommendation 3.** Coordinate with Commander, NAVFAC Headquarters; Commander, Fleet and Industrial Supply Center; and Naval Operational Logistics Support Center to establish a POA&M for the research, development, and installation of a permanent precision leak detection system in the RH tanks.

**Management Response to Recommendation 3.** Concur. NAVAUDSVC should reference studies on the concept of dynamic leak detection technology. Various studies have stated that precision leak detection technology is not currently realistic for these tanks. Given that current technology is not available, a POA&M for implementation is not feasible at this time. With DESC funding, FISC Pearl Harbor currently provides four methods of leak detection when the Federal and State minimum requirement is to provide one method of leak detection. Recommend changing Naval Audit recommendation to state: "Coordinate with Commander, NAVFAC Headquarters and Commander, Fleet and Industrial Supply Center, and NOLSC Petroleum to conduct annual reviews of new technology for potential implementation into the RH Tanks." The interim target completion date is 31 December 2010 with bi-annual status reports until actions are completed.

**NAVAUDSVC Comment on Management's Response to**

**Recommendation 3.** The intent of this recommendation was to ensure that an effective method is implemented to timely and precisely detect leaks of all sizes, including slow, chronic releases at Red Hill. Management's planned actions to conduct annual reviews of new leak detection technology for potential implementation into the Red Hill Tanks meets the intent of the recommendation. Because management's planned actions meet the intent, we are not revising the recommendation as suggested. Management's interim target completion date is 31 December 2010 with bi-annual status updates until actions are completed. The recommendation remains open pending completion of agreed-to actions and supporting documentation.

**Recommendation 4.** Coordinate with HDOH to update the GPP by identifying responsible officials and organizations and establishing clear deadlines for completion of specific response actions required by the GPP.

**Management Response to Recommendation 4.** Concur. The original GPP was approved by the Hawaii Department of Health (HDOH) in August 2009. Updated GPP documentation was submitted to HDOH December 2009. NAVFAC Hawaii is conducting negotiations with HDOH to further update the GPP. Recommend changing the Naval Audit recommendation to state: "Coordinate with HDOH to update the GPP by identifying responsible officials and organizations, and establishing clear internal Navy deadlines for completion of specific response actions required by the GPP." This will prevent the appearance of a commitment by Navy to the state of Hawaii to expend resources on a specific timeline. The interim target completion date is 31 December 2010, with bi-annual status reports until actions are completed.

**NAVAUDSVC Comment on Management's Response to**

**Recommendation 4.** The Environmental Protection Agency deferred oversight responsibility for Red Hill to the HDOH. As a result, the GPP between the Navy and HDOH establishes Navy's commitment to HDOH. Having internal Navy deadlines does not negate the need to coordinate with HDOH. Accordingly, both Navy and HDOH should jointly agree on the deadlines for completion of specific required response actions. While internal Navy deadlines are a good internal control mechanism, establishing clear deadlines between the Navy and HDOH would ensure that the response actions are completed within jointly agreed to timeframes. Accordingly, the recommendation will remain as written with the intent to ensure that the GPP clearly indicates deadlines for specific response actions so that the Navy adheres to those actions in a timely manner. The recommendation remains open pending completion of agreed-to actions and supporting documentation.



**Recommendation 5.** Coordinate with DESC Headquarters to ensure funding is available to comply with the GPP deadlines and provide oversight to ensure performance of all required response actions.

**Management Response to Recommendation 5.** Concur. The GPP is a CNRH responsibility but funding for GPP actions is a DESC responsibility. FISC Pearl Harbor, with support of the CNRH Environmental team, will coordinate with DESC Headquarters to ensure funding is available to comply with the GPP deadlines and provide oversight to ensure performance of all required response actions. Action is completed.

**NAVAUDSVC Comment on Management's Response to Recommendation 5.** Management's planned actions meet the intent of the recommendation. Management indicates that the actions have been completed; however, the recommendation remains open pending receipt of supporting documentation for actions completed. Therefore, the target completion date will be 30 days after the date of publication of this report.

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## Finding 2: Physical Security

### Synopsis

The Office of the Chief of Naval Operations (OPNAV) and the Fleet and Industrial Supply Center (FISC), Pearl Harbor developed physical security criteria in an effort to prevent access of unauthorized persons to restricted areas by requiring controlled access and physical barriers to entry. Although the Navy has security measures in place, the audit revealed weaknesses in their effectiveness. For example, access control procedures that were in place did not restrict unauthorized access to the Automated Fuel Handling Equipment (AFHE) control room during normal business hours. However, once we informed them of the problem, management took immediate action to correct this access control weakness at the AFHE control room. Additionally, although the required barriers are in place at the Red Hill (RH) and Upper Tank Farm (UTF) bulk fuel storage facilities, we noted that the requirement to maintain a clear zone along the restricted area fences was not being met at RH due to overgrown vegetation and construction debris. This security weakness is attributed to non-performance of contract terms and insufficient oversight of the ground maintenance contract. If corrective actions are not taken to comply with minimum security measures, there is a potential for unauthorized access, damage to infrastructure, and loss of inventory at RH.

### Pertinent Guidance

OPNAV Instruction (OPNAVINST) 5530.14E, issued 28 January 2009, supersedes OPNAV Instruction 5530.14D, which was in effect during our initial site visit. The Instruction identifies responsibilities and provides guidance for the protection of people and assets throughout the Navy. The Instruction states that commanders shall ensure that minimum security measures are employed, such as:

- Establishment of a clearly defined protected perimeter;
- Performance of checks for unauthorized entry; and
- Establishment of a system to check restricted areas to detect deficiencies or security violations.

Naval Facilities Engineering Command (NAVFAC) Hawaii awarded a grounds maintenance contract (N6274203D2211) based on the terms of OPNAVINST 5530.14D, which stated that inside and outside clear zones of 30 and 20 feet, respectively, shall be maintained in order to have an unobstructed and clear view of both sides of perimeter fence lines. The contract was in effect at the time of our initial site visit and was reissued in January 2009 (N6247809D2316) with the same terms.



FISC Pearl Harbor Instruction 5530.1C states that areas within FISC Pearl Harbor have different degrees of security depending upon their purpose, nature of work performed within, and information and/or materials contained within. It also states that areas within FISC Pearl Harbor are designated as either restricted or non-restricted areas. This Instruction includes Appendix D, which provides a list of buildings categorized as restricted at FISC Pearl Harbor. Building 1757, which houses the AFHE control room, as well as the RH area, are included in the Appendix. In addition, this Instruction states that physical barriers at FISC Pearl Harbor are for the purpose of denying or impeding access to security areas by unauthorized personnel. This requirement will be accomplished by defining a security perimeter, creating a physical and psychological deterrent to entry, and directing and channeling the flow of personnel and vehicles through designated openings.

## Audit Results

In accordance with OPNAVINST 5530.14E, effective security measures at fuel facilities, such as RH and UTF, are essential to ensure the safety and security of personnel and property as well as to protect assets from criminal activity and terrorism. In addition, the Navy has a combination of physical control measures in place at RH, UTF, and the AFHE control room, such as controlled access points, perimeter fencing, natural terrain, roving patrols, and security cameras. These measures help to deter and detect acts that would impair the Navy's effectiveness in accordance with Antiterrorism/Force Protection standards. However, during the site visit, we noted weaknesses in the controlled access measures at the AFHE control room and the perimeter fence line at RH.

## Automated Fuel Handling Equipment Control Room

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While steps taken by FISC Pearl Harbor would address the access control weakness at the AFHE control room, we are making Recommendation 8 in order to codify those actions into our audit tracking and followup system.

### Perimeter Fence Line Clear Zone

As a restricted area, RH is required to have a clearly defined and protected perimeter, with inside and outside clear zone requirements of 30 and 20 feet respectively, according to OPNAVINST 5530.14D. Accordingly, the RH fence line,<sup>15</sup> along with the natural terrain, serves as a security barrier providing protection along the entire perimeter of the facility. These barriers are intended to prevent unauthorized access and to protect Navy personnel and assets. To meet the intent of the requirement, the Navy has a ground maintenance contract which includes terms to clear vegetation and debris from both the inside and outside of the fence line. OPNAVINST 5530.14D, which was in effect when the contract was awarded, stated that an unobstructed area or clear zone should be maintained on both sides of the restricted area fence in order to eliminate concealment and assistance to the entry/exit of an intruder.

Based on our review of the contract, the contractor is required to submit a monthly work plan which outlines grounds maintenance around NAVSTA Pearl Harbor, and should take into consideration the local weather conditions<sup>16</sup> (i.e., rainfall and temperature) that affect the growth rate of vegetation. In order to comply with the contract, the contractor's monthly work plans should ensure that vegetation in the clear zones does not exceed 8 inches and that debris is removed from along the fence line. However, at the time of our site visit, we observed both overgrown vegetation (approximately half the height of the fence) and construction debris along the RH perimeter fence line (see Figure 5).

Figure 5



According to activity personnel, the ground maintenance contractor cuts the grass once a month. Based on the height of the vegetation along the perimeter fence line at the time of our site visit, we determined that the frequency of actual ground maintenance performance was not sufficient to comply with the contract. The overgrown vegetation and debris can also be attributed to insufficient management of contract terms and performance. These obstructions create opportunities for concealment of unauthorized

<sup>15</sup> The perimeter fence line at RH is composed of chain-link fence with barbed wire on top.

<sup>16</sup> The island of Oahu experiences monthly rainfall averaging approximately 9.1 inches during the winter months versus 1.5 inches during the summer months.



access, damage to infrastructure, and potential loss of inventory at RH. To make certain that the perimeter fence line remains unobstructed, the Navy should ensure that contractor performance is in accordance with the terms of the ground maintenance contract.

## Recommendations and Corrective Actions

Recommendations, summarized management responses, and our comments on the responses are presented below. The complete texts of managements' responses are included in the Appendices.

We recommend that Commander, Naval Facilities Engineering Command (NAVFAC) Hawaii:

**Recommendation 6.** Provide effective oversight to ensure that the ground maintenance contractor performance complies with the terms of the contract and meets vegetation removal requirements.

**Management Response to Recommendation 6.** Concur. Ground maintenance contractor performance complies with the terms of the contract and meets vegetation removal requirements. Funding to remove vegetation with a 30' inside clear zone and 20' outside clear zone has been provided, and the modification to the Grounds Maintenance contract for 3<sup>rd</sup> Quarter FY 2010 is pending. Once the contract modification is executed, oversight will be ensured via increased contract surveillance by Public Works Department Performance Assessment Representatives (PARS) and by educating tenants on the terms of the contract and notification procedures of non-compliance. The new process of monitoring the fence line growth will require a joint effort by Base Security, PWD FEAD FSCM and PARS, and PWD facility manager. The process was communicated via e-mail to Government personnel followed by a site visit, and to the Contractor at the partnering session on 15 June 2010. The estimated completion date for all actions is 30 September 2010.

**NAVAUDSVC Comment on Management's Response to Recommendation 6.** Management's planned actions meet intent of the recommendation. The recommendation remains open pending completion of agreed-to actions and supporting documentation.

**Recommendation 7.** Provide effective oversight to ensure that the Public Works Department (PWD) Pearl Harbor is notified and directed to remove fence line obstructions not covered under the ground maintenance contract.



**NAVFAC Management Response.** Concur. Action is complete. The cited debris was removed immediately when identified in the audit. Any additional debris visually found after vegetation removal will also be removed by PWD maintenance shop personnel. Effective oversight of the grounds maintenance contractor has been implemented via increased contract surveillance by Public Works Dept Performance Assessment Representatives (PARS) and by educating tenants on the terms of the contract and notification procedures of non-compliance. The tenants (all who frequent the area such as FISC, PWD facility managers, and Base Security) should have an active role in not placing obstructions on the fence line and to monitor if such obstructions are placed there by anyone else.

The process of monitoring the fence line for debris will require a joint effort by FISC operators, Base Security, PWD FEAD FSCM and PARS, and PWD facility managers. The process was communicated via e-mail to Government personnel followed by a site visit. New installation personnel will be notified via the NAVFAC HI PWO.

**NAVAUDSVC Comment on Management's Response to Recommendation 7.** Management's actions meet the intent of the recommendation. Management indicates that the actions have been completed; however, the recommendation remains open pending receipt of supporting documentation for actions completed. Therefore, the target completion date will be 30 days after the date of publication of this report.

We recommend that Fleet and Industrial Supply Center Pearl Harbor:

**Recommendation 8.** Implement control mechanisms to ensure that the Automated Fuel Handling Equipment Control Room has 24-hour restricted access to authorized personnel only.

**Management Response to Recommendation 8.** FOIA (b)(2) high XXXXXX  
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**NAVAUDSVC Comment on Management's Response to  
Recommendation 8. FOIA (b)(2) high**

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If corrective measures are not implemented to mitigate these safety hazards, personnel and emergency responders will continue to be exposed to high-risk situations that could result in the loss of life. Also, there is a potential for damage to infrastructure and loss of inventory and equipment, as well as possible suspension of operations and environmental contamination.



## Pertinent Guidance

Department of Defense (DoD) Manual 4140.25 Chapter 10 states that DoD Components, such as the Military Services, are accountable for Government property under their control, including petroleum, oil, and lubricant (POL) inventory. The Military Services, having custodial responsibility for Defense Logistics Agency (DLA)-owned fuel, must provide care and safekeeping for Government POL property in their control.

DoD “Real Property Inventory Requirements” (RPIR), dated January 2005, indicates that real property assets are essential to the preparation for and successful accomplishment of Defense missions. Real property asset data links accountability, regulatory compliance, resource requirements, and decision support. Accurate and timely recording of real property asset data is fundamental to effective management of these assets. In addition, RPIR states that DoD categorizes linear structures as facilities. Further, tunnels are classified as linear structures within RPIR.

FOIA (b)(2) high XX  
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OPNAVINST 5100.23G states that it is Navy policy to provide a safe and healthful workplace for all personnel. According to the Instruction, the Navy will achieve these conditions through an aggressive and comprehensive program which emphasizes the prompt abatement of identified hazards, as well as elimination or minimization of all hazards through engineering or administrative controls.

OPNAVINST 11010.20G requires that all Real Property Facilities have a property record card in the Real Property Inventory of iNFADS.

FISC Pearl Harbor Fuel Department Instruction (FUELDEPTINST) 5100.1A provides a guideline on Personal Protective Equipment required to perform FISC Fuel Department operations. The Instruction mandates that for entry to the RH facility, all FISC Fuel Department personnel and authorized visitors must wear hardhats, an Emergency Escape Breathing Device (EEBD), and have a flashlight.

FOIA (b)(2) high XX  
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[illegible]

## Audit Results

**FOIA (b)(2) high**

[REDACTED]

Subsequent to our site visit, funding was provided to mitigate two of the five remaining hazards; however, these projects have not been completed. Accordingly, to date, five of the outstanding hazards have not been fully mitigated. As a result, the RH tunnel lacks basic safety equipment and systems for use in the event of an emergency. Figure 6 outlines the hazards from the assessment and the surveys and their status to date.



[illegible][illegible]

## Oil-Tight Doors

Prior to our site visit funds were approved for this project, and subsequently, a contract was awarded in February 2009 to restore automatic closing of the oil-tight doors, provide a means to manually open the doors without using excessive force, and integrate a door



**FOIA (b)(2) high** [REDACTED]



### **Emergency Power Supply**

The 1998 assessment recommended the installation of a secondary power supply and emergency generator to operate emergency lighting, exit lights, fire alarm panels, and elevators in the RH tunnel. Based on our review of the 2004 survey as well as interviews, this action has been completed and the tunnel is equipped with an alternate power source in the event of a power outage in the tunnel. In the 2007 survey, NAVFAC Pacific recommended testing the emergency power to determine if the supply is adequate to support critical life safety loads, which currently exist and which are planned. Our review of NAVSTA Pearl Harbor procedures and log books indicates that NAVSTA Pearl Harbor tests the generators as recommended and performs maintenance as necessary. In our opinion, these actions meet the intent of the recommendation in the 2007 survey.

### **Emergency Voice/Alarm Communication System**

The 1998 assessment identified the need for an emergency voice/alarm communication system in the RH facility to alert occupants of a fire or other emergency. To date, this system has not been installed in the RH tunnel because the funding request for the system was included in MILCON P205, which was not funded. In the event of a fire or other emergency inside the tunnel, there is no means of effectively informing employees and/or contractors of the emergency or communicating evacuation instructions. As a result, there is a potential for loss of life since the ability to safely evacuate the tunnel is impacted. In an effort to allow for critical communication during an emergency, the voice/alarm communication system should be funded and installed in the RH tunnel.

### **Self-Contained Breathing Apparatus**

The 1998 assessment recommended that FISC Pearl Harbor provide self-contained breathing apparatus in the lower tank storage access tunnel, as well as the gauger station at RH. During our site visit, we observed that 60-minute Self-Contained Self-Rescuer (SCSR) respirators had been acquired and were stored near the operations room in the lower access tunnel; however, SCSR respirators were not stored at the gauger station as recommended in the assessment. According to FISC Pearl Harbor personnel, it is not necessary to stage SCSRs at the gauger station because each employee was issued and is required to wear a 10-minute personal emergency escape breathing device (EEBD) at all times while working in the tunnel. During our tour, we observed that FISC Pearl Harbor personnel working in the tunnel were wearing their EEBDs in accordance with FUELDEPTINST 5100.1A. According to FISC Pearl Harbor, since SCSRs are located in the RH tunnel and personnel are required to wear EEBDs, the intent of the 1998 recommendation had been met. Additionally, the actions taken by FISC Pearl Harbor were intended to improve personnel's ability to safely evacuate the tunnel in the event of an emergency as stated in the 2007 engineering survey.

The 1998 assessment indicated that the ventilation system should be reviewed to determine the adequacy of the system; however, the 2007 survey provided specific recommendations to (1) confirm the adequacy and reliability of the current ventilation system in the RH tunnel, and (2) investigate the feasibility of providing an emergency ventilation system. The existing ventilation system, which consists of 40-65 year old exhaust fans, requires major renovations and upgrades. According to MILCON P205, if the system is not upgraded, a high probability of fire or explosion exists because the existing system does not always keep fuel vapors below flammability levels.

In 2007, the “Industrial Hygiene Summary of the Red Hill Tunnel” stated that fuel vapors in the RH tunnel did not exceed the permissible exposure limits based on collected monitoring data; however, the ventilation system was not appropriate to remove smoke from the tunnel. This proposes an immediate risk since, according to Federal Fire Department (FEDFIRE) personnel, smoke in the tunnel would reduce visibility, increase emergency response time, and delay evacuation efforts.

In an effort to address the inadequate ventilation in the tunnel, FISC Pearl Harbor submitted MILCON project PRL 08-15 to repair and upgrade the existing ventilation system to enhance safe evacuation of tunnel occupants, and the operation of emergency responders. Subsequent to our site visit, a Military Interdepartmental Purchase Request (October 2009) was initiated to upgrade the existing ventilation system; according to FISC Pearl Harbor personnel, a contract is scheduled to be awarded by early July 2010. The new system is intended to effectively ventilate both fuel and smoke vapors.

The 1998 assessment also stated that communication throughout the tunnel was inadequate. In addition, based on the review of the 2004 and 2007 surveys, we noted that emergency responders were not supported by a two-way radio communication system while inside the RH tunnel. The surveys recommended providing a radio repeater or antenna system capable of supporting fire department two-way communication throughout the tunnel.

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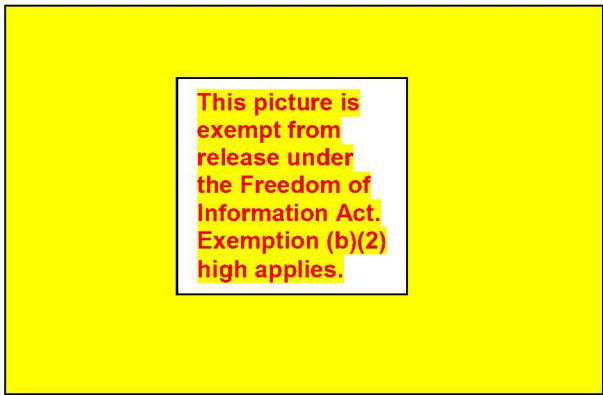


Figure 7

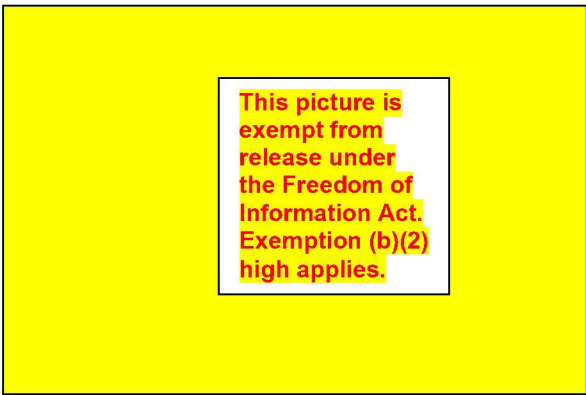


Figure 8

## Recommendations and Corrective Actions

Recommendations, summarized management responses, and our comments on the responses are presented below. The complete text of managements' responses are included in the Appendices.

We recommend that Commander, Naval Installations Command:

**Recommendation 9.** FOIA (b)(2) high XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  
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**Management Response to Recommendation 9.** FOIA (b)(2) high XXXXXXXX  
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**NAVAUDSVC Comment on Management's Response to**

**Recommendation 9. FOIA (b)(2) high** XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  
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**Recommendation 10.** Prioritize as "Critical," fund, and install an emergency voice/alarm communication system at RH in accordance with NAVFAC Pacific recommendations, and provide interim measures to ensure critical communication capabilities in the event of an emergency in the RH tunnels.

**Management Response to Recommendation 10.** Concur. CNIC is currently unable to immediately fund an emergency voice/alarm communication system. Although CNIC concurs that this project is important, it must compete for funding with other projects similar in nature in regard to criticality. NAVFAC Hawaii and FISC Pearl Harbor included an updated emergency voice/alarm communication system as part of the scope for the P-205 MILCON project submitted by CNRH in April 2010 during the PR-13 MILCON cycle as an FY 2013 project. If the MILCON project is picked up for FY 2013, we anticipate a 2015 construction completion date. The interim target completion date is 31 December 2010, with bi-annual status reports until actions are completed.







[illegible][illegible][illegible]

**Management Response to Recommendation 14.** Concur. NAVFAC HI Real Property Officer has been working with Defense Energy Support Center (DESC)



to divide the property record for S21 into four separate property records: (1) tunnel; (2) railroad tracks; (3) pump station; and (4) pipelines, to support repair/renovation projects. Both NAVFAC HI and DESC discussed the plan of action and are in agreement on this approach. NAVFAC Hawaii has the lead on establishing four property records, and will complete action by 30 June 2010.

**NAVAUDSVC Comment on Management's Response on Recommendation 14.** Management's actions meet the intent of the recommendation. During subsequent communication, management provided copies of property record cards for each facility to support the recommendation. The property record card for the tunnel indicates that the facility has been classified as a structure. In subsequent communication on 23 July 2010, management provided copies of the updated property cards, showing that they had been updated on 17 June 2010 and 6 July 2010. The recommendation is considered closed as of 6 July 2010.

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## Finding 4: Management and Oversight

### Synopsis

According to the Naval Facilities Engineering Command (NAVFAC) Real Property Inventory (RPI) Procedures Manual (P-78), Installation Management Claimants (such as Commander, Navy Installations Command (CNIC)) is responsible for managing, reporting, and accounting for Navy Real Property including the Red Hill (RH) and Upper Tank Farm (UTF) bulk fuel storage facilities. However, other Department of Defense (DoD), Department of the Navy (DON), Federal, and State agencies also have roles in regulating operations at RH and UTF. Our audit revealed that CNIC is not providing sufficient management and oversight as owners of these two fuel facilities. Specifically, we identified opportunities for improvement in the following areas: (1) roles and responsibilities related to tank management and oversight; (2) financial reporting to include reporting of potential environmental liabilities and development of cost sharing agreements; (3) physical security; and (4) safety. The insufficient management and oversight can be attributed to CNIC's misunderstanding of its roles and responsibilities. As a result, CNIC cannot provide assurance that the Navy is sufficiently protecting the environment, personnel, property, and inventory as well as accurately reporting financial information for the RH and UTF fuel facilities.

### Pertinent Guidance

The Government Accountability Office's (GAO's) "Standards for Internal Control in the Federal Government" emphasizes that the DON organizational structure should clearly define key areas of authority and responsibility and establish appropriate lines of reporting. Further, DON leadership should comprehensively identify risks, consider all significant interactions with other parties, and determine how to manage those risks accordingly.

"Tank Inspection, Repair, Alteration, and Reconstruction (American Petroleum Institute (API) Standard 653)" developed and published standards for inspection, repair, alteration and reconstruction of above-ground welded steel storage tanks (API 653), which provides the minimum requirements for maintaining the integrity of such tanks. Although this standard does not govern USTs, Fleet and Industrial Supply Center (FISC) Pearl Harbor tank inspectors employ a modified version (modified-API 653) incorporating sections of the standard which can be applied to the RH USTs.

The Hawaii Administrative Rule (HAR) 11-281 regulates the operation of underground storage tanks (USTs) within the State of Hawaii, and administers the performance standards and corrective action requirements for underground storage tanks.

The DoD Financial Management Regulations (FMR), Volume 4, Chapter 13 (Revised) prescribes requirements and procedures for measuring, recognizing, disclosing, and recording all DoD related environmental liabilities. Environmental liabilities are probable, measurable future outflows or expenditures of resources related to cleanup, closure, and/or disposal costs resulting from past transactions or events. DoD FMR requires DoD components to recognize environmental liabilities on financial statements.

DoD 4140.25 Manual, “Management of Bulk Petroleum Products, Natural Gas, and Coal,” defines a Defense Fuel Support Point (DFSP) as a “storage facility wherein Defense Logistics Agency (DLA)-owned fuel is stocked for distribution to multiple military end user Operation and Maintenance accounts.”

The Defense Energy Support Center (DESC) “Environmental Guide for Terminals” implements DoD Manual 4140.25 and states that cleanup projects in areas of pre-existing contamination will only be funded by DESC to a level consistent with a cleanup of the quantity of product that was leaked or spilled on or after 1 October 1992, when ownership of fuel was transferred to DLA. In this scenario, a cost sharing agreement between DESC and the owning service would be established to define cleanup levels and apportion financial responsibilities.

OPNAVINST 5090.1C, “DON Environmental Readiness Program,” mandates compliance with all Federal, State, and local environmental laws and regulations. The Instruction references the DoD FMR which prescribes policy for measuring, recognizing, disclosing, and recording of environmental liabilities as well as the management of Navy storage tanks. OPNAVINST 5090.1C also describes Navy’s managements of storage tanks.

Naval Facilities Engineering Command (NAVFAC) “Real Property Inventory (RPI) Procedures Manual” (P-78) outlines the responsibilities and procedures for managing DON RPI information. Additionally, this manual emphasizes the importance of timely and accurate reporting. P-78, Section 2.2, states that RPI is critical to the development of DON financial statements, Military Construction (MILCON) Program, identification of resource requirements for facilities management, interface with other Navy financial and management programs, and inventory of real property under the control of DON.

## **Audit Results**

Sufficient management and oversight of the RH and UTF facilities is essential to ensure that CNIC is fulfilling its responsibilities as owners of real property, and that the fuel farms are operated in an environmentally responsible manner. Since the Secretary of the



Navy visited the facilities in 2007, the Navy has taken steps to improve management and oversight of the two fuel farms. However, we noted areas in which the Navy can continue to improve, such as tank management, financial reporting, physical security, and safety.

### **Tank Management**

According to P-78, Section 2.2, owners of real property, Installation Commanders, Regional Commanders, and ultimately the Installation Management Claimants (IMCs), are responsible for managing, reporting, and accounting for Navy real property. The role of the IMC is to effectively and efficiently manage, report, and account for real property assets. Specifically, IMCs should ensure that proper maintenance of the facilities is being performed in order to provide assurance that the facilities can fulfill their function in mission accomplishment.

### **Headquarters and Regional Level**

According to property record cards in the internet Navy Facilities Asset Data Store (iNFADS), CNIC serves as the IMC for both the RH and UTF fuel storage facilities, and is responsible for ensuring effective and efficient management of both facilities. As IMC of RH and UTF, CNIC should serve as the “principal advisor” for matters related to facility planning and services. Although CNIC owns the infrastructure and is designated as the IMC, fulfillment of the IMC responsibilities has been limited to environmental compliance and base operations support tasks (i.e., security and fire protection services) which are performed by CNIC’s regional command, CNRH. While CNIC and CNRH actively participate in these areas, the commands have not been providing oversight of areas related to facilities planning, such as long-term plans and tank maintenance. For example, planning efforts have been initiated by Pacific Command, DESC, and Commander, Pacific Fleet to determine the fuel storage options and the future role of the RH facility; however, CNIC has not participated in these initiatives. As owners of the fuel facilities, CNIC should be involved, whether directly or indirectly, in matters regarding the two facilities in order to ensure sufficient management and oversight.

### **Installation Level**

OPNAVINST 5090.1C, dated October 2007, charges installation Commanding Officers (COs) with the responsibility to manage spill prevention plans, prepare and maintain plans for tank management and spill prevention, ensure compliance with regulatory guidance, and maintain records for storage tanks that have the potential to cause environmental damages. To execute this responsibility, the Instruction directs COs of installations to develop and maintain a Tank Management Plan which includes the following elements:

- A listing of all storage tanks at the installation;
- Regulatory requirements for each storage tank;
- A plan of action for achieving and maintaining compliance through monitoring, testing, inspection, removal, repair, retrofit, and replacement of storage tank systems;
- Testing, inspection, maintenance, and repair schedules for storage tanks; and
- A reference to compliance inspection records of the tanks.

At the time of our site visit, NAVSTA Pearl Harbor did not have a Tank Management Plan in place. NAVFAC Hawaii and CNRH personnel stated that funding had not been sought to develop a Tank Management Plan because of current budget guidance which states that money will only be provided to accomplish legally required environmental projects. At this time, while CNO requires a Tank Management Plan, there is no Federal, state or local regulatory/legal requirement to establish one. NAVFAC Hawaii and CNRH stated that, since there is no outside-DON requirement, funding for a Tank Management Plan would not be approved. As a result of the lack of funding, NAVSTA Pearl Harbor did not have a management document, inclusive of the data elements listed above, as required by OPNAVINST 5090.1C. It should be noted that, as a result of our audit, NAVSTA Pearl Harbor realigned funds in an effort to establish a Tank Management Plan as required by OPNAVINST 5090.1C.

OPNAVINST 5090.1C also requires COs of installations to maintain records for the storage tanks on their installations. Based on our review of documentation, we determined that records for both the RH and UTF tanks are incomplete. For example, historical records for RH tanks are not up-to-date, with the exception of the five tanks that have recently been inspected. Records for the six of the RH tanks have not been updated for periods of time ranging from 26 to 45 years. Further, eight RH tanks were inspected in the mid-1990s; however, only four of the eight inspection reports could be located by command personnel. With regard to the above-ground storage tanks at UTF, API 653 states that inspection reports shall include the service history for the tank. Based on our review of the latest inspection reports, limited historical information has been included in these reports. According to command personnel, records for RH and UTF may have been lost during the transfer of tank ownership from FISC Pearl Harbor to CNIC, which occurred in 2004. Given the limited availability of tank data, even though funding was provided for the Tank Management Plan (as a result of our audit) the reports may not be inclusive of all required data elements due to insufficient record keeping.

### **Financial Reporting**

According to OPNAVINST 5090.1C, regional commanders and commanding officers of shore activities have been directed to ensure timely reporting of data related to cost



associated with contingent environmental liabilities. Therefore, promptly identifying and projecting these costs is essential to ensure the Navy is providing an accurate representation of liabilities on its financial statements. Our audit revealed two areas in which the Navy could improve the accuracy of financial information reported for the RH and UTF fuel facilities: reporting of contingent environmental liabilities and cost sharing agreements.

### **Environmental Liabilities**

As discussed in Finding 1, a petroleum-related contaminant was detected at U.S. Navy Well 2254-01 (Navy Well) and could impact the water sources in the Pearl Harbor area. According to DoD FMR, Volume 4, Chapter 13 (Revised), and OPNAVINST 5090.1C, DON is required to recognize probable and measurable liabilities for environmental cleanup, closure, and/or disposal costs related to past events on financial statements. Since contamination has been identified at the Navy Well, which is located in the RH area, the Navy could potentially incur financial liability related to the costs of providing for an alternate water source in accordance with DON's Groundwater Protection Plan. According to NAVFAC Hawaii personnel, environmental liabilities have not been reported for RH; however, as a result of the recent evidence of contamination at the Navy Well, an environmental liability may exist. The Navy should assess this condition and report an environmental liability if necessary in accordance with DoD FMR and OPNAVINST 5090.1C.

### **Cost Sharing Agreements**

In 2007, a fuel release occurred from one tank at the UTF, and the resulting cleanup efforts totaled approximately \$3.2 million. Since the release involved DLA-owned fuel commingling with a pre-existing contamination site, a cost sharing agreement was established between DESC and the Navy in accordance with DoD policy. Our review of the fuel release information revealed that costs were apportioned<sup>17</sup> based on an incident-specific basis rather than a pre-determined rate. Although this practice conforms to DoD policy, the Navy cannot readily estimate and report its environmental liabilities as required by DoD FMR. Further, there is no cost sharing agreement in place for the RH facility in the event of an incident similar to the one discussed above. The Navy should establish a cost sharing agreement verifying the Navy's potential responsibility in the event of a catastrophic spill or leak from the RH and UTF facilities, allowing the Navy to assess, recognize, and report environmental liabilities at these sites, when necessary.

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<sup>17</sup> The \$3.2 million emergency response cost was apportioned 78 percent to DESC and 22 percent to the Navy.

## Physical Security and Safety

Effective measures at the RH and UTF fuel facilities are essential to ensure the safety and security of personnel, real property, and inventory. As indicated in Findings 2 and 3, our audit revealed weaknesses in physical security and safety measures at the RH facility and NAVSTA Pearl Harbor. Installation commanders are responsible for perimeter and area security through coordination efforts with tenant activities. In addition to security measures, in order to ensure a safe and healthful workplace and mitigate the risk of injury, impairment, or loss of life, it is essential that the Navy identify and abate potential safety hazards. To achieve this goal, shore regions and commanding officers are responsible for acquiring, maintaining, requiring, and enforcing the use of approved safety equipment, and other devices necessary to protect employees. CNIC should coordinate with its subordinate and tenant commands to provide additional oversight in the areas of security and safety to ensure that the Navy achieves its physical security and safety objectives.

## Recommendations and Corrective Actions

Recommendations, summarized management responses, and our comments on the responses are presented below. The complete text of managements' responses are included in the Appendices.

We recommend that Assistant Secretary of the Navy (Energy, Installations, and Environment):

**Recommendation 15.** Coordinate with Navy and DoD stakeholders to determine, establish, and promulgate guidance outlining the roles and responsibilities of the various internal and external commands and organizations involved in the management and oversight of the fuel facilities. Specifically, identify CNIC's responsibilities for ensuring the efficient and effective management of both facilities.

**Management Response to Recommendation 15.** Concur. DoD 4140.25-M, Volume II, "Petroleum Management," Chapter 8, "Management of Storage and Distribution Facilities," divides roles and responsibilities for petroleum management between DESC and Military Services. ASN (EI&E) will coordinate with the RCRA Services Steering Committee (SSC) to evaluate the need for further guidance to more specifically outline each organization's roles and coordination processes to ensure proper facility oversight and management. As needed, ASN (EI&E) will also consult with the various DON organizations. A status update of this task will be provided by 15 December 2010. Results from this evaluation will be used to determine if additional internal DON guidance is required.



**NAVAUDSVC Comment on Management' Response to**

**Recommendation 15.** Management's planned actions meet the intent of the recommendation. The recommendation remains open pending completion of agreed-to actions and supporting documentation.

**Recommendation 16.** Coordinate with Navy and DoD stakeholders to develop cost-sharing agreements to clarify the Navy's potential financial responsibility in the event of a catastrophic spill or leak from RH and UTF into pre-existing contamination sites; determine if environmental liabilities exist; and report, if necessary, in accordance with DoD FMR.

**Management Response to Recommendation 16.** Concur. From discussions between NAVFACHQ and AAUSN-NAVAUDIT, ASN (EI&E) understands that the phrase "contingent environmental liabilities" will be changed to "environmental liabilities" in the final report. ASN (EI&E) concurs with this change.

Regarding the first part of the recommendation, this tasking has already been accomplished. ASN (EI&E) staff initiated a meeting with OSD, DLA, Army, and Air Force to discuss potentially establishing pre-arranged cost-sharing agreements for many of the bulk fuel farms to clarify potential financial responsibility in the event of catastrophic spills or leaks. It was determined and agreed by all that due to the site-specific nature of these sites and the long and varied operational histories, such an endeavor would not be value added at this time. All agreed that the existing polices outlined in DoD 4140.25-M were sufficient to address potential future liability issues should they arise in the future.

Regarding the recommendation to clarify the Navy's potential financial responsibility, this tasking has already been accomplished. In order to record an environmental liability on the Department's financial statement, the cleanup costs must be associated with a requirement that is both probable and estimable. Navy has completed the "cost-to-complete" estimate to address the known releases on the site and has reported these on the Department's financial statements.

**NAVAUDSVC Comment on Management's Response to**

**Recommendation 16.** Actions taken by ASN (EI&E) regarding developing cost-sharing agreements to clarify Navy's potential financial responsibility in the event of a catastrophic spill or leak from RH and UTF into pre-existing contamination sites meets the intent of a portion of the recommendation (Paragraph 2 of management response). Since responsible parties have

addressed the situation and have all agreed that developing such cost-sharing agreement would not add value, this portion of the recommendation is closed.

In regard to Paragraphs 1 and 3, NAVAUDSVC has removed all references to “contingent environmental liabilities.” The terminology used throughout the report is now “environmental liabilities.” In addition to the response by ASN (EI&E), in subsequent communication with CNIC, ASN (Financial Management and Comptroller) (Financial Management Office) ((FMC) (FMO)), and NAVFAC HQ, NAVFAC HQ provided the following clarification:

*“1) The DON did report on Note 14 of the DON General Fund Financial Statement, a long-term liability for the Corrective Action at Red Hill Tank Farm. The reported liability was for "Monitoring Only," as this is the only probable Corrective Action solution for the site based on currently available information ("Red Hill Bulk fuel Storage Facility Final Groundwater Protection Plan," January 2008 by TEC, Inc.). No Contingent Liability has been disclosed for this site to date, in that there is no probable solution at this time, above and beyond the "Monitoring Only" solution.*

*2) The Red Hill Tank Farm Corrective Action Site is reviewed annually as part of the Other Accrued Environmental Liability (OEL) Program. Liability and potential Contingent Liability is re-evaluated and re-estimated as appropriate during this review, and reported and/or disclosed as appropriate on DON General Fund Financial Statements.*

*3) The DON has agreed to conduct, as part of its ongoing operations at the site, an analysis of potentially feasible groundwater treatment alternatives. When the study is finalized later in CY2010, if there are any feasible alternatives, they will be considered in the FY11 OEL re-evaluation and re-estimation process as appropriate, in accordance with the financial accounting principles of SFFAS-5 and SFFAS-6, Technical Release 2, and DoDFMR Vol 4 CH.”*

Management’s actions taken to report environmental liabilities for long-term monitoring of fuel tanks at Red Hill, as well as the understanding that management will take appropriate action in accordance with the DoD FMR should results of the groundwater treatment alternatives study indicate the need to record an additional environmental liability or contingent liability, meet the intent of the recommendation. On 19 July 2010, we met with ASN (FMC) (FMO), NAVFAC, and CNIC and received the information regarding the



FY 2009 environmental liabilities. This recommendation is considered closed as the date of that meeting, 19 July 2010.

We recommend that Commander, Navy Installations Command:

**Recommendation 17.** Establish controls and provide oversight procedures at Navy Region Hawaii and NAVSTA Pearl Harbor, and coordinate with NAVSUP and FISC Pearl Harbor to ensure that effective safety and physical security measures are in place to protect personnel, real property, and inventory at RH and UTF.

**FOIA (b)(2) high Management Response to Recommendation 17.** Concur. CNIC/CNRH will review the recommendations from the “Fire, Life Safety, and Environmental Risk Assessment/Analysis” in 1998 and the “Fire Protection Engineering Surveys” in 2004 and 2007, and conduct a holistic analysis of effective safety and physical security measures in place to protect personnel, real property, and inventory at Red Hill and the Upper Tank Farm. The interim target completion date is 28 January 2011. **FOIA (b)(2) high**

**NAVAUDSVC Comment on Management’s Response to Recommendation 17.** Management’s planned actions partially meet the intent of the recommendation. Management has agreed to review and conduct an analysis of effective safety measures to protect personnel, real property, and inventory at RH and UTF. However, upon completing the analysis, controls should be established and implemented at RH and UTF in an effort to fully meet the intent of the recommendation. The recommendation is considered undecided because management did not agree to take planned actions to develop controls and oversight. This recommendation will be resubmitted to management for their response within 30 days after the publication of this report.

We recommend that NAVSTA Pearl Harbor:

**Recommendation 18.** Develop and implement a Tank Management Plan in accordance with OPNAVINST 5090.1C.

**Management Response to Recommendation 18.** Concur. JBPHH is developing and implementing a Tank Management Plan in accordance with OPNAVINST 5090.1C. The target completion date is 30 September 2010.

**NAVAUDSVC Comment on Management’s Response to Recommendation 18.** Management’s planned action meets the intent of the recommendation. The recommendation remains open pending completion of agreed-to actions and supporting documentation.

**Section B:**

# Status of Recommendations

Recommendations							
Finding <sup>18</sup>	Rec. No.	Page No.	Subject	Status <sup>19</sup>	Action Command	Target or Actual Completion Date	Interim Target Completion Date <sup>20</sup>
1	1	19	Coordinate with DON and DoD stakeholders to establish and promulgate guidance mandating specific inspection intervals and procedures for DON fuel tanks, including RH tanks, to ensure inspections are comprehensive, timely, and effective in preventing and detecting fuel releases.	O	Assistant Secretary of the Navy (Energy, Installations, and Environment ) (ASN (EI&E))	1/31/11	9/16/10
1	2	20	Coordinate with stakeholders to develop and implement a Plan of Actions and Milestones (POA&M) to inspect and maintain fuel tanks at RH.	O	Commander, Naval Installations Command (CNIC)		2/28/11 <sup>21</sup>
1	3	20	Coordinate with Commander, NAVFAC Headquarters; Commander, Fleet and Industrial Supply Center; and Naval Operational Logistics Support Center to establish a POA&M for the research, development, and installation of a permanent precision leak detection system in the RH tanks.	O	CNIC		12/31/10 <sup>22</sup>
1	4	21	Coordinate with HDOH to update the GPP by identifying responsible officials and organizations and establishing clear deadlines for completion of specific response actions required by the GPP.	O	CNIC		12/31/10 <sup>23</sup>
1	5	22	Coordinate with DESC Headquarters to ensure funding is available to comply with the GPP deadlines and provide oversight to ensure performance of all required response actions.	O	CNIC	9/15/10	

<sup>18</sup> / + = Indicates repeat finding.

<sup>19</sup> / O = Recommendation is open with agreed-to corrective actions; C = Recommendation is closed with all action completed; U = Recommendation is undecided with resolution efforts in progress.

<sup>20</sup> If applicable.

<sup>21</sup> Final target completion date to be determined upon receipt of supporting documentation.

<sup>22</sup> Final target completion date to be determined upon receipt of supporting documentation.

<sup>23</sup> Final target completion date to be determined upon receipt of supporting documentation.



SECTION B: STATUS OF RECOMMENDATIONS

Recommendations							
Finding <sup>18</sup>	Rec. No.	Page No.	Subject	Status <sup>19</sup>	Action Command	Target or Actual Completion Date	Interim Target Completion Date <sup>20</sup>
2	6	26	Provide effective oversight to ensure that the ground maintenance contractor performance complies with the terms of the contract and meets vegetation removal requirements.	O	Naval Facilities Engineering Command (NAVFAC) Hawaii	9/30/10	
2	7	26	Provide effective oversight to ensure that the Public Works Department (PWD) Pearl Harbor is notified and directed to remove fence line obstructions not covered under the ground maintenance contract.	O	NAVFAC Hawaii	9/15/10	
2	8	27	Implement control mechanisms to ensure that the Automated Fuel Handling Equipment Control Room has 24-hour restricted access to authorized personnel only.	C	Fleet and Industrial Supply Command Pearl Harbor	12/18/08	
3	9	38	FOIA (b)(2) high XXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXX	O	CNIC		12/31/10 <sup>24</sup>
3	10	39	Prioritize as "Critical," fund, and install an emergency voice/alarm communication system at RH in accordance with NAVFAC Pacific recommendations, and provide interim measures to ensure critical communication capabilities in the event of an emergency in the RH tunnels.	U	CNIC	9/15/10	
3	11	40	FOIA (b)(2) high XXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXX XXXXXX	U	CNIC	9/15/10	
3	12	40	FOIA (b)(2) high XXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXXXXXX	O	CNIC	1/15/11	

<sup>24</sup> Final target completion date to be determined upon receipt of supporting documentation.

Recommendations							
Finding <sup>18</sup>	Rec. No.	Page No.	Subject	Status <sup>19</sup>	Action Command	Target or Actual Completion Date	Interim Target Completion Date <sup>20</sup>
3	13	41	FOIA (b)(2) high XXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX XXXXXXX	U	CNIC	9/15/10	
3	14	41	Immediately classify the RH tunnel as a structure to allow for the installation of appropriate basic safety infrastructure systems.	C	NAVFAC Hawaii	7/6/10	
4	15	48	Coordinate with Navy and DoD stakeholders to determine, establish, and promulgate guidance outlining the roles and responsibilities of the various internal and external commands and organizations involved in the management and oversight of the fuel facilities. Specifically, identify CNIC's responsibilities for ensuring the efficient and effective management of both facilities.	O	ASN (EI&E)	12/15/10	
4	16	49	Coordinate with Navy and DoD stakeholders to develop cost-sharing agreements to clarify the Navy's potential financial responsibility in the event of a catastrophic spill or leak from RH and UTF into pre-existing contamination sites; determine if environmental liabilities exist; and report, if necessary, in accordance with DoD FMR.	C	ASN (EI&E)	7/19/10	
4	17	51	Establish controls and provide oversight procedures at Navy Region Hawaii and NAVSTA Pearl Harbor, and coordinate with NAVSUP and FISC Pearl Harbor to ensure that effective safety and physical security measures are in place to protect personnel, real property, and inventory at RH and UTF.	U	CNIC	9/15/10	
4	18	51	Develop and implement a Tank Management Plan in accordance with OPNAVINST 5090.1C.	O	Naval Station Pearl Harbor	9/30/10	



**Exhibit A:**

# Background

Fleet and Industrial Supply Center (FISC) Pearl Harbor is a shore activity that serves as a Defense Fuel Support Point (DFSP) for Defense Logistics Agency (DLA)-owned bulk petroleum products. These products support Fleet units, Navy overseas activities, the Coast Guard, and other authorized customers. DFSP, operated by FISC Pearl Harbor, consists of two fuel farms: Upper Tank Farm (UTF) and the Red Hill (RH) Underground Fuel Storage Facility.

UTF is located at Naval Station (NAVSTA) Pearl Harbor and consists of six vertical, cylindrical, above-ground, steel storage tanks, five of which were built in 1925 and one in 1978. These tanks are approximately 160 feet in diameter, 40 feet high, and can hold 6.3 million gallons of fuel.

The RH facility is located several hundred feet inside a mountain of volcanic rock known as Red Hill. This fuel farm consists of 20 capsule-shaped tanks built in the early 1940s, which are situated vertically underground. The tanks are approximately 100 feet in diameter, 250 feet high, and can hold approximately 12.6 million gallons of fuel.

The RH facility overlies a valuable groundwater resource that produces between 4.5 and 16 million gallons of potable water per day for Pearl Harbor and NAVSTA Pearl Harbor via U.S. Navy Well 2254-01. According to risk assessments performed at the RH facility, this water resource would be difficult to replace. These assessments also indicated that the age of the facility presents a future risk of a moderate to large release of fuel to the underlying groundwater. As a result, Naval Supply Systems Command has identified the RH facility as a high-risk.

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UTF is located within the perimeter of NAVSTA Pearl Harbor. Therefore, physical security is provided by barriers to entry and manned access points at NAVSTA Pearl Harbor. In addition, the UTF tanks are also protected by fencing around the fuel farm. Though considered part of the NAVSTA Pearl Harbor installation, the RH facility is remotely located from the main base and is protected by a combination of security personnel, secured gates, fence line, thick vegetation, and rugged natural terrain.

There are many players involved in regulating operations of the RH and UTF fuel storage facilities, to include Department of Defense (DoD), Department of the Navy (DON), and Federal and State agencies. The following table describes the major roles and responsibilities of key players involved in the management and operation of these facilities.

Agency / Command	Function Overview
DoD	
DLA	<ul style="list-style-type: none"><li>• Owner of fuel stored at RH and UTF</li></ul>
Defense Energy Support Center (DESC)	<ul style="list-style-type: none"><li>• Develops inventory levels for DFSPs</li><li>• Plans, programs, budgets, and funds maintenance, repair, and environmental compliance projects</li></ul>
DON	
Naval Operational Logistics Support Center	<ul style="list-style-type: none"><li>• Service Control Point – Navy</li><li>• Central management function in coordinating requirements, technical issues, and supply actions with DESC</li></ul>
Naval Facilities Engineering Service Center	<ul style="list-style-type: none"><li>• Provides technical expertise for inspection, maintenance, and repair of petroleum, oil, and lubricant facilities</li></ul>
FISC Pearl Harbor	<ul style="list-style-type: none"><li>• Day-to-day operation of RH and UTF</li><li>• Coordination of maintenance and repair projects with DESC</li></ul>
Naval Facilities Engineering Command (NAVFAC) Pacific	<ul style="list-style-type: none"><li>• Development of environmental protection and remediation plans</li></ul>
NAVFAC Hawaii	<ul style="list-style-type: none"><li>• Environmental compliance</li><li>• Oversight of grounds maintenance performance</li></ul>
Commander, Navy Installations Command	<ul style="list-style-type: none"><li>• Designated owner of the real property</li><li>• Serves as the Installation Management Claimant for the RH and UTF fuel storage facilities</li><li>• Effectively and efficiently manages, reports, and accounts for real property assets.</li></ul>
Commander, Navy Region Hawaii	<ul style="list-style-type: none"><li>• Ensures effective security for CNRH Installations and areas of responsibility</li><li>• Performs safety and environmental compliance requirements</li></ul>
State of Hawaii	
Hawaii Department of Health	<p>In accordance with U.S. Environmental Protection Agency guidance:</p> <ul style="list-style-type: none"><li>• Establishes environmental compliance requirements for RH and UTF</li><li>• Performs regulatory oversight of RH and UTF</li></ul>



## Scope and Methodology

Our audit concentrated on the Red Hill (RH) and Upper Tank Farm (UTF) fuel storage facilities. We focused on risk areas as a result as environmental protection, emergency response action, infrastructure management and internal controls, safety, physical security, and antiterrorism /force protection measures. To achieve the audit objectives, we conducted site visits to the following commands:

- Defense Energy Support Center (DESC)
  - Pacific
  - Middle Pacific (MIDPAC)
- Naval Facilities Engineering Command (NAVFAC), Pacific
- NAVFAC Service Center (NFESC)
- Naval Operational Logistics Support Center (NOLSC), Petroleum
- Commander, Naval Region Hawaii (CNRH); and
- Fleet and Industrial Supply Center (FISC), Pearl Harbor

[illegible]

We also conducted a review of the Management Internal Control Program at FISC Pearl Harbor. We interviewed FISC Pearl Harbor command personnel and reviewed their Management Evaluation Forms for 20007 and 2008, and applicable material weaknesses assessments; and SECNAVINST 5200.35E. Additionally, we reviewed FISC-Pearl Harbor training documentation; and fuel department policies, procedures and training.

Lastly, we reviewed policies and procedures related to safety measures and physical security such as emergency response plans, and access controls, respectively. We reported weaknesses in Finding sections of this report.

We reviewed reports and testimonies by the Department of Defense Inspector General (DoDIG), NAVAUDSVC, Army Audit Service, and the United States Postal Service Inspector General. While the reports covered fuel storage tanks, none specifically referred to the Red Hill or Upper Tank Farm fuel facilities, therefore, no followup is required. In addition, we coordinated efforts with Government Accountability Office, DoDIG, Naval Inspector General, and Naval Criminal Investigative Services to determine if their agency had any current or planned projects which may impact this fuels audit.

Our audit work was conducted from 15 October 2008 to 13 May 2010. We conducted this audit in accordance with Generally Accepted Government Auditing Standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.



**Exhibit C:**

## **Pertinent Guidance**

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**Code of Federal Regulations (CFR) 29, Section 1910.120 (April 2006)**

This section states, “Employees shall not be permitted to participate in or supervise field activities until they have been trained to a level required by their job function and responsibility.”

**CFR 30, Section 254 (September 2009)**

This section states, “if you are the owner or operator of an oil handling, storage, or transportation facility, and it is located seaward of the coast line, you must submit a spill-response plan for approval. Your spill-response plan must demonstrate that you can respond quickly and effectively whenever oil is discharged from your facility.”

**CFR 40, Section 112 (July 2002)**

This section “establishes procedures, methods, equipment, and other requirements to prevent the discharge of oil from non-transportation-related onshore facilities into waters of the United States (US).” Sections 112.7, 112.8, and 112.12 outline requirements for a spill prevention, control, and countermeasure plans.

**CFR 40, Section 280 (September 1995)**

This section applies to all owners and operators of underground storage tank (UST) systems. However, UST systems with field constructed tanks [i.e. Red Hill] are deferred from Subparts: B (Design, Construction, Installation and Notification), C (General Operating Requirements), D (Release Detection), E (Release Reporting, Investigating, and Confirmation), and G (Out-of-Service and Closure). Subpart F states that owners and operators have 24 hours to report a release, take immediate action to prevent further release, and identify and mitigate fire, explosion, and vapor hazards. Subpart F also includes requirements for initial abatement measures and site checks, initial site characterization, product removal, investigations for soil and groundwater cleanup, a corrective action plan, and public participation.

**CFR 40, Section 282 (September 2008)**

This section “sets forth the applicable state underground storage tank programs” and under Subpart B (Approved State Programs), it states that the State of Hawaii’s UST program was approved by the United States Environmental Protection Agency (EPA) and is administered by the Hawaii Department of Health.

**Federal Managers’ Financial Integrity Act of 1982 (1982)**

This Act amends the Accounting and Auditing Act of 1950 to require ongoing evaluations and reports of the adequacy of the systems of internal accounting and administrative control of each executive agency, and for other purposes.

**Occupational Safety and Health Act of 1970 (January 2004)**

This Act states, “The head of the agency shall also provide safe and healthful places and conditions of employment; acquire, maintain, and require the use of safety equipment, personal protective equipment, and devices reasonably necessary to protect employees; and keep adequate records of all occupational accidents and illness for proper evaluation and necessary correction.”

**Oil Pollution Act 1990 (December 2000)**

This Act states that “exercises shall be practiced not less than two times per year which test the capacity of the required equipment and personnel along with periodic testing and certification of the equipment.”

**Energy Policy Act 2005 (August 2005)**

This Act requires the U.S. Environmental Protection Agency (EPA) or States to conduct compliance inspections of USTs every 3 years and add operator training requirements. In addition, it authorizes EPA and States to enforce tank release prevention and detection requirements. The bill also expands UST compliance requirements for Federal facilities.

**Department of Defense Financial Management Regulations (DoD FMR), Volume 4, Chapter 13 (Revised) (April 2008)**

This Chapter prescribes requirements and procedures for measuring, recognizing, disclosing, and recording all DoD related environmental liabilities. Environmental liabilities are probable, measurable future outflows or expenditures of resources related to cleanup, closure, and/or disposal costs resulting from past transactions or events. DoD FMR requires DoD components to recognize environmental liabilities on financial statements.

**DoD Instruction 4715.6 (April 1996)**

This Instruction “implements policy for reporting, programming, and planning environmental compliance costs.” This document was created to ensure that environmental programs achieve, maintain, and monitor compliance with all applicable Executive Orders and Federal, State, interstate, regional, and local statutory and regulatory requirements, both substantive and procedural (environmental requirements).

**DoD Manual 4140.25 Chapters 8 and 10 (June 1994)**

Chapter 8 states that Services having custodial responsibility for Defense Logistics Agency (DLA)-owned fuel, must provide care and safekeeping for Government lubricant property in their control. Chapter 10 states that DoD Components, such as the Military Services, are accountable for Government property under their control, including petroleum, oil, and lubricant inventory and equipment.



**DoD Real Property Inventory Requirements Installations & Environment Document (January 2005)**

This document states that real property assets are essential to the preparation for and successful accomplishment of Defense missions. Real property asset data links accountability, regulatory compliance, resource requirements, and decision support.

**Defense Energy Support Center (DESC) Environmental Guide for Terminals, Chapter 13**

Chapter 13 highlights DESC's financial support. Section 13.3.8 stated that "if a leak or spill of DESC capitalized product should occur in an area where pre-existing service contamination of any type resides, DESC will only fund the portion of the cleanup that DESC determines is directly related to the quantity of capitalized product that was leaked or spilled." It also states that it will not pay for cleanup of any fuel spilled before 1992. If there is a spill or leak that occurs and mixes with pre-existing fuel in the ground, then "a cost sharing agreement between DESC and the owning service will be established to define cleanup levels and apportion responsibilities"

**Governmental Accountability Office (GAO) "Standards of Internal Control in the Federal Government" (November 1999)**

These standards state that management should comprehensively identify risks and consider all significant interactions between entity and other parties as well as internal factors at both the entity-wide and activity level. Once risks have been identified, they should be analyzed for their possible effect. Risk analysis generally includes estimating the risk's significance, assessing the likelihood of its occurrence, and deciding how to manage the risks and what actions should be taken. An agency must establish physical control to secure and safeguard vulnerable assets. Examples include security for and limited access to assets such as cash, securities, inventories, and equipment which might be vulnerable to risk of loss or unauthorized use.

**Office of the Secretary of the Navy Instruction 5200.35E (November 2006)**

This Instruction states that Department of the Navy (DON) personnel are responsible for the proper stewardship of Federal resources as a basic obligation of their public service. They must ensure Government resources are used in compliance with the laws and regulations, consistent with mission, and with minimal potential for waste, fraud, and mismanagement. Management Internal Control programs shall encompass the GAO's five standards for internal controls: (1) control environment, (2) risk assessment, (3) control activities, (4) information and communications, and (5) monitoring.

**Office of the Chief of Naval Operations Instruction (OPNAVINST) 5090.1C (October 2007)**

This Instruction requires facilities to develop operations manuals and spill contingency plans, provide personnel training, and conduct testing of transfer equipment. Chapter 13 of the Environmental Readiness Program Manual states that the Navy should have a tank

management plan that contains a list of all the storage tanks at the installation, requirements of the tanks, plans of action for achieving and maintaining compliance through, monitoring, testing, inspection, removal, repair, retrofit, and replacements. Also, there should be a schedule of tests, inspections, maintenance, and repairs.

**OPNAVINST 5100.23G (December 2005)**

This Instruction states that Navy policy is to provide a safe and healthful workplace for all personnel. The Navy achieves these conditions through an aggressive and comprehensive program fully endorsed by the Secretary of the Navy and implemented through the appropriate chain of command.

**OPNAVINST 5530.14E (January 2009)**

This Instruction states that Commanders shall further identify entry requirements, to include; personnel authorized access; visitor controls; identification systems; access control procedures; and security clearance requirement when the decision to designate an area as restricted is made. Additionally, commanders shall ensure that the minimum security measures are employed for restricted areas to include a clearly defined protected perimeter, controlled access, limited to those with appropriate clearance and “need-to-know”; establishment of a personnel identification system; maintenance of access list and visit log documentation; performance of checks for unauthorized entry every 8 hours during normal working hours or every 4 hours after normal working hours; and designation of a response force.

**OPNAVINST 5530.14D (January 2007)**

This Instruction states that each commander shall clearly define the access control measures required to safeguard facilities and ensure accomplishment of the mission. These measures will be identified in installation Antiterrorism plans. The plan will include maintenance of adequate physical barriers that will be installed to control access to the installation or restricted area. Level three restricted will be protected in accordance with the policy requirements for the security of the types of assets located therein. If no other policy pertains, the protected perimeter may consist of a fence or barrier. In addition, the Instruction requires that an unobstructed area or clear zone will be maintained on both sides of the restricted area fences. The Instruction mandates that security force personnel should check restricted area perimeter barriers at least weekly for defects that would facilitate unauthorized entry and report such defects to supervisory personnel.

**OPNAVINST 11010.20G (October 2005)**

According to OPNAVINST 11010.20G, titled “Facilities Project Instruction,” facilities projects are for the purpose of supporting Navy’s mission and eventually reach Navy’s goals. It is Navy policy that the construction, operation, maintenance, and repair of Navy real property facilities shall be in accordance with laws, Congressional guidance, DoD policy, and Navy guidance; in direct support of mission requirements; performed with



full consideration for total life-cycle costs; and accomplished through the most economic means. The instruction states that when a facility requirement is identified, the property must first be classified according to Government property<sup>25</sup> classifications. For example, real property improvements to land are considered Class 2 property. Class 2 properties can include improvements such as buildings, structures, ground improvement structures, and utilities located within a building or structure. The Instruction defined Real Property Facility as a separate and individual building, structure, or other real property improvement assigned a 5-digit category code. In addition, the Instruction mandates that all Real Property Facilities shall have a Property Record Card (PRC) in the Real Property Inventory (RPI) of the internet Navy Facility Assets Data Store (iNFADS). As a result, facilities projects such as Military Construction (MILCON) projects, must comply with the requirements describe above for project funding purposes.

**Naval Facilities Engineering Command Real Property Inventory (RPI) Procedures Manual (P-78) (July 2008)**

This Manual outlines the responsibilities and procedures for managing DON RPI information. P-78, Section 2.2, emphasizes the importance of timely and accurate reporting of RPI which is critical to the development of DON Financial Statements, the MILCON Program, identification of resource requirements for facilities management, interface with other Navy financial and management programs, and inventory of real property under the control of DON.

**American Petroleum Institute Standard 653 (February 2008)**

This standard provides minimum requirements for maintaining the integrity of such tanks after they have been placed in service and addresses inspection, repair, alteration, relocation, and reconstruction.

**Hawaii Administrative Rule Sections 11-281-77 and 11-281-80.1 (January 2000)**

Section 11-281-77 states that after confirmed releases, owners and operators must determine the extent and location of the soil contaminated by the release and the presence and concentrations of dissolved product contamination in the groundwater, and must conduct investigations of the release, the release site, and the surrounding area possibly affected by the release. Section 11-281-80.1 states that owners and operators must submit this information in required, quarterly reports.

**Hawaii UST Technical Guidance Manual” Section 5 (March 2000)**

This Section establishes the technical requirements to be incorporated into quarterly release response reporting for sites where remediation efforts are anticipated to last longer than 90 days. In such cases, the UST owner must continue to conduct groundwater testing on a quarterly basis and submit those results to the Hawaii Department of Health (HDOH) in the required “Quarterly Release Response Reports.”

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<sup>25</sup> Government property includes all physical assets owned by the Government.

**Evaluation of Environmental Hazards at Sites with Contaminated Soil and Groundwater, Volume 1: User Guide** (Summer 2008; updated March 2009)

In this User Guide, HDOH Environmental Management Division provides guidance for identification and evaluation of environmental hazards associated with contaminated soil and groundwater. This guidance defines environmental action levels (EALs) as “concentrations of contaminants in soil, soil gas, and groundwater above which the contaminants could pose a potential adverse threat to human health and the environment.” According to the guidance, EALs are used to rapidly screen soil, soil gas, and groundwater data collected for a site and identify potential environmental hazards.

**Red Hill Bulk Fuel Storage Facility Final Groundwater Protection Plan (GPP)** (January 2008)

GPP represents an agreement between the Navy and HDOH regarding specific actions to be accomplished by the Navy in order to protect the environment and valuable groundwater sources in the Pearl Harbor area. GPP also establishes a site specific risk-based level (SSRBL) for two petroleum contaminants; total petroleum hydrocarbons (TPH) and benzene, and outlines categories (see Exhibit D) as well as specific response actions to be taken based on levels detected during required quarterly groundwater testing.

**Fleet and Industrial Supply Center (FISC) Fuel Department Instruction 5100.1A** (November 2008)

This Instruction provides a guideline on Personal Protective Equipment required to perform FISC Fuel Department operations. The Instruction mandates that for entry to the Red Hill Fuel Storage Complex, all FISC Fuel Department personnel and authorized visitors must wear hardhats, an Emergency Escape Breathing Device, and have a flashlight.

**FISC Pearl Harbor Instruction 5530.1C** (February 2008)

This Instruction states that areas within FISC Pearl Harbor have different degrees of security depending upon their purpose, nature of work performed within, and information and/or materials contained within. It also states that areas within FISC Pearl Harbor are designated as either restricted or non-restricted areas. This Instruction includes Appendix D, which provides a list of buildings categorized as a restricted area at FISC Pearl Harbor. Building 1757, which houses the Automated Fuel Handling Equipment control room; as well as the Red Hill area are included in the Appendix. In addition, the Instruction states that physical barriers at FISC Pearl Harbor are for the purpose of denying or impeding access to security areas by unauthorized persons. This Instruction also includes guidelines on types of acceptable barriers (structural and natural), periodic inspection of barriers, reports of defects, and types of defects to be reported.





**Exhibit D:**

## **Groundwater Protection Plan Categories**

### Contamination Level Categories

Category	Contamination Level Range
1	Detection limit to Environmental Action Level (EAL)
2	Increasing trend in concentration level or exceeds EAL
3	Benzene: > 1/10 <sup>th</sup> of Site Specific Risk Based Level (SSRBL) but < SSRBL Total Petroleum Hydrocarbons (TPH): > 1/2 of SSRBL but < SSRBL
4	Exceeds SSRBL or Free Product in Sampling Well

In accordance with Hawaii Administrative Rule 11-281 and the “State of Hawaii Underground Storage Tank Technical Guidance Manual,” quarterly groundwater testing is performed at both the Red Hill (RH) facility and the U.S. Navy Well 2254-01 (Navy Well). Samples are extracted from three monitoring wells (MWs) situated under the tanks at RH (RHMW01, RHMW02, and RHMW03). One sampling well is also located at the Navy Well. Based on the levels of contamination detected at each of the wells, the wells are assigned to a category, as indicated above. Response actions depend both on the well at which the contamination was detected and the concentration level indicated in the sampling results.

Category 1: This category applies to concentration levels for each of the 13 contaminants<sup>26</sup> for which testing is conducted. The detection limit is the smallest concentration that can be detected in the groundwater samples. The EAL represents the concentration level that could pose a potential adverse threat to human health and the environment. This category requires the least action by the Navy.

Category 2: This category also applies to concentration levels for each of the 13 tested contaminants. If the sampling events indicate an increasing trend in concentration levels or if the EAL is exceeded, the number of actions to be taken by the Navy increases

Category 3: This category only applies to concentration levels of Benzene and TPH. SSRBLs for Benzene and TPH were developed because these contaminants are risk drivers for migration of fuel in the groundwater. The SSRBL also represents the concentration level at the RH facility that could potentially impact the water quality at the Navy Well. If the concentration levels fall within this category, the number of required actions increases. Note:

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<sup>26</sup> Contaminants to be tested: benzene, ethylbenzene, methyl tert butyl ether, toluene, xylenes, acenaphthene, benzo(a)pyrene, fluoranthene, naphthalene (volatile organic compounds and polynuclear aromatic hydrocarbons), lead, TPH (diesel range organics and gasoline range organics).

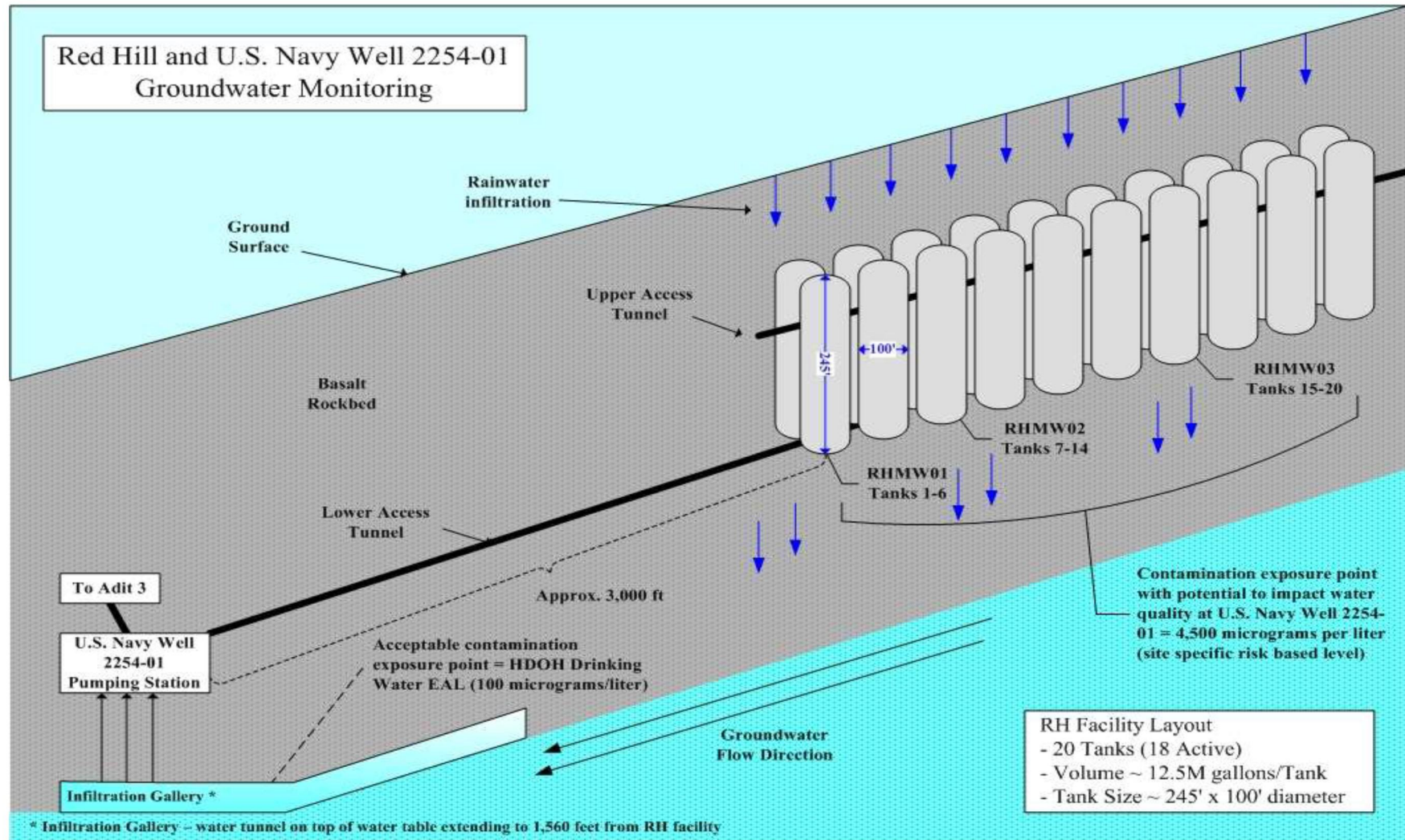


SSRBLs for Benzene and TPH are 750 and 4,500 micrograms per liter, respectively.

Category 4: As above, this category only applies to Benzene and TPH contaminants. A sampling well is placed in this category if the established SSRBL is exceeded. This category requires the highest level of response from the Navy.

Exhibit E:

# Groundwater Monitoring Wells





**Exhibit F:**

# Tank Inspection and Record of Maintenance Intervals

Tank #	Status	Fuel Type	Last Inspection or Record of Maintenance	Approximate years since last Inspection of ANY kind (as of 2009)	Next API 653 Inspection Scheduled (per MTMP Apr 09 or Inspection Report)	Approximate years between last and next scheduled inspection
1	Out-of-service	N/A	2007	2	N/A	N/A
2	Active	JP8	2008	1	2028	20
3	Active	JP8	1982	27	2012	30
4	Active	JP8	1982	27	2011	29
5	Active	JP8	1982	27	2009	27
6	Active	JP8	2007	2	2027	20
7	Active	JP5	1998	11	2014	16
8	Active	JP5	1998	11	2014	16
9	Active	JP5	1996	13	2012	16
10	Active	JP5	1998	11	2015	17
11	Active	JP5	1980	29	2011	31
12	Active	JP5	1995	14	2012	17
13	Active	F76	1995	14	2013	18
14	Active	F76	1995	14	2010	15
15	Active	F76	2005	4	2026	21
16	Active	F76	2006	3	2026	20
17	Active	JP5	1974	35	2009	35
18	Active	JP5	1963	46	2010	47
19	Out-of-service	JP5	1989	20	2009	20
20	Active	JP5	2008	1	2028	20

\* Yellow shading indicates tanks with longest intervals since last recorded inspection/maintenance event.

**Exhibit G:**

# Acronyms

<b>XXXX FOIA (b)(2) high</b>	<b>XXXXXXXXXXXXXXXXXXXX</b>
AFHE	Automated Fuel Handling Equipment
API	American Petroleum Institute
ASN EI&E	Assistant Secretary of the Navy (Energy, Installations, and Environment)
CNIC	Commander, Naval Installations Command
CNO	Chief of Naval Operations
CNRH	Commander, Navy Region Hawaii
CO	Commanding Officer
DESC	Defense Energy Support Center
DFSP	Defense Fuel Supply Point
DLA	Defense Logistics Agency
DoD	Department of Defense
DON	Department of the Navy
DRO	Diesel Range Organics
EAL	Environmental Action Level
EPA	Environmental Protection Agency
EPC	Exposure Point Concentration
FEDFIRE	Federal Fire Department
FISC Pearl Harbor	Fleet and Industrial Supply Center Pearl Harbor
FMFIA	Federal Managers' Financial Integrity Act
FMR	Financial Management Regulations
GPP	Red Hill Bulk Fuel Storage Facility Final Groundwater Protection Plan
HAR	Hawaii Administrative Rule
HDOH	Hawaii Department of Health
iNFADS	internet Facilities Asset Data Store
IMC	Installation Management Claimant
MILCON	Military Construction
MIDPAC	Middle Pacific
MOA	Memorandum of Agreement
NAVFAC Hawaii	Naval Facilities Engineering Command Hawaii
NAVFAC Headquarters	Naval Facilities Engineering Command Headquarters
NAVFAC Pacific	Naval Facilities Engineering Command Pacific
NAVSTA Pearl Harbor	Naval Station Pearl Harbor
NFESC	Naval Facilities Engineering Service Center
NOLSC	Naval Operational Logistics Support Center
OPNAV	Office of the Chief of Naval Operations



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OPNAVINST	Office of the Chief of Naval Operations Instruction
PACOM	United States Pacific Command
POA&M	Plan of Action and Milestones
RH	Red Hill
RHMW	Red Hill Monitoring Well
RPIR	Real Property Inventory Requirements
SSRBL	Site Specific Risk Based Level
TMP	Tank Management Plan
TPH	Total Petroleum Hydrocarbons
UST	Underground Storage Tank
UTF	Upper Tank Farm

**Exhibit H:**

# Technical Terminology

## ADIT

Horizontal entrance to a mine.

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## Defect

A defect is a discontinuity or discontinuities that by nature or accumulated effect, render a part or product unable to meet minimum applicable acceptance standards or specifications. The term designates rejectability.

## Environmental Action Level (EAL)

EALs are concentrations of contaminants in soil, soil gas and groundwater above which the contaminants could pose a potential adverse threat to human health and the environment.

## Field Constructed

A field constructed underground oil storage tank, where the primary containment structure is constructed at the location of installation and is not delivered to the installation site without further assembly required.

## Incomplete Fusion

Incomplete fusion is a welding defect that occurs when there is no fusion between the weld metal and the surfaces of the base plate. The most common cause of incomplete fusion is a poor welding technique but may also be caused by the use of a very wide weld joint.

## Modified American Petroleum Institute Standard 653 (API 653) Inspection

Since the Red Hill fuel storage tanks are not free-standing above-ground storage tanks, not all of the principles and checklists provided in API 653 can be used to inspect the tanks. Therefore, for these inspections, the applicable portions of API 653 have been utilized, resulting in a modified-API 653 inspection.



### **Porosity**

Porosity is caused by gas pores found in a solidified weld. The pores vary in size, are generally distributed in a random manner, and occur under or on the weld surface.

### **Potable Water**

Potable water is fit to drink.

### **Repair**

A repair is work necessary to maintain or restore a tank to a condition for safe operation.

### **Site Investigation**

A site investigation determines the extent and location of the soil contaminated by a fuel release and the presence and concentrations of dissolved product contamination in the groundwater. The owner/operator of the storage tank must conduct investigations of the release, the release site, and the surrounding area possibly affected by the release.

### **Site Specific Risk Based Level (SSRBL) at Red Hill**

SSRBLs represent the monitoring point concentration level that would result in an acceptable exposure point concentration (EPC) at the U.S. Navy well 2254-01. The EPCs for the U.S. Navy well 2254-01 are equal to the Hawaii Department of Health EALs (for total petroleum hydrocarbons (4.5 mg/L) and benzene (0.75 mg/L).

### **Soil Gas**

Gaseous elements and compounds that occur in the small spaces between particles of soil. Such gases can move through or leave the soil or rock, depending upon the changes in pressure.

### **Total Petroleum Hydrocarbons**

Petroleum is a complex mixture of hundreds of different compounds composed of hydrogen and carbon or “hydrocarbon” compounds. The bulk of these compounds are evaluated collectively under the all-inclusive category of TPH. TPH consists of fuels such as: kerosene, diesel fuel, home heating fuel, jet fuel, etc.

### **Ullage**

Ullage is the amount by which a tank falls short of being full.

### **Underside Corrosion**

Underside or backside corrosion is found on the exterior of the tank liner, and the rate of underside corrosion is also used in the computation of the repair threshold.

**Weld**

A localized coalescence of metals or nonmetals produced either by heating the materials to the welding temperature, with or without the application of pressure, or by the application of pressure alone and with or without the use of filler material.



**Exhibit I:**

# **Activities Visited and/or Contacted**

Defense Energy Support Center

Defense Energy Support Center – Pacific – Pearl Harbor, HI

Defense Energy Support Center – Mid-Pacific\* - Pearl Harbor, HI

Assistant Secretary of the Navy (Energy, Installations, and Environment) – Arlington, VA

Antiterrorism/Force Protection Office\*

Deputy Assistant Secretary of the Navy, Infrastructure  
Strategy and Analysis\*

Chief of Naval Operations – Washington, DC

Commander, U.S. Pacific Fleet - Pearl Harbor, Hawaii\*

Naval Criminal Investigative Service\* - Washington, DC

Commander, Naval Installation Command\* - Washington, DC

Commander, Navy Region Hawaii – Pearl Harbor, HI

Federal Fire Department\*

Naval Station Police Department\*

Security Training Division\*

Naval Supply Systems Command – Philadelphia, PA

Commander, Fleet and Industrial Supply Center\* – Pearl Harbor, HI

Naval Operational Logistics Support Center\* - Ft. Belvoir, VA

Naval Facilities Engineering Command Headquarters – Washington, DC

Naval Facilities Engineering Service Center\* - Port Hueneme, CA

Naval Facilities Engineering Command\* – Pacific and Hawaii – Pearl Harbor, HI

United States Environmental Protection Agency\* - San Francisco, CA

Hawaii Department of Health\* - Honolulu, HI

University of Hawaii\* - Honolulu, HI

\*Activities Visited

**Appendix 1:**

**Management Responses from Assistant Secretary  
of the Navy (Energy, Installations, and Environment)**



DEPARTMENT OF THE NAVY  
THE ASSISTANT SECRETARY OF THE NAVY  
(ENERGY, INSTALLATIONS & ENVIRONMENT)  
1000 NAVY PENTAGON  
WASHINGTON DC 20350-1000

JUN 18

MEMORANDUM FOR ASSISTANT AUDITOR GENERAL (INSTALLATIONS AND  
ENVIRONMENT AUDITS)

SUBJECT: Department of the Navy Red Hill and Upper Tank Farm Fuel Storage  
Facilities (Draft Audit Report N2009NIA000.0032)

Reference: (a) NAVAUDIT Memo of 13 May 2010

Enclosure: (1) Draft Audit Report N2009-NIA.000.0032 ASN (EI&E) Response

In response to reference (a), DoN concurs with the draft audit findings for ASN  
(EI&E). Corrective actions taken/planned as well as target/interim completion dates are  
provided in enclosure (1).

ASN (EI&E) appreciates the significant effort of the Naval Audit Service in  
development of this report and looks forward to resolution of issues identified. These  
efforts will go a long way towards mission sustainment and continuation of our  
dedication to environmental stewardship.



FOIA (b)(6)



**Department of the Navy Red Hill and Upper Tank Farm Fuel Storage Facilities  
Draft Audit Report**  
Assistant Secretary of the Navy (Energy, Installations and Environment) Response

**Recommendation 1.**

Coordinate with DON and DoD stakeholders to establish and promulgate guidance mandating specific inspection intervals and procedures for DON fuel tanks, including RH tanks, to ensure inspections are comprehensive, timely, and effective in preventing and detecting fuel releases.

**Response.** Concur.

**Discussion.** Inspection and maintenance of tanks at Red Hill (RH) and the Upper Tank Farm (UTF) is the responsibility of the Defense Energy Support Center (DESC). Existing DoD requirements for fuel system inspection and maintenance are in Unified Facilities Criteria (UFC) 3-460-03, Operation and Maintenance: Maintenance of Petroleum Systems. This document is adopted from AFM 85-16, Maintenance of Petroleum Systems and as currently written does not adequately address inspection intervals and procedures for RH and UTF tanks. Headquarters, U.S. Army Corps of Engineers (HQUSACE), NAVFAC, and Air Force Civil Engineer Support Agency (AFCESA) are responsible for administration of the UFC system. By 13 August 2010, ASN (EI&E) will work with NAVFAC to formally submit a Criteria Change Request for UFC 3-360-03 to ensure comprehensive inspections are mandated that address requirements for DON fuel tanks. This may include adopting requirements from NAVFAC MO 230 and adding requirements to address not only compliance with federal, state, and local regulations, but also to protect DLA-owned product from loss or contamination as per DOD 4140.25-M.

**Recommendation 15.**

Coordinate with Navy and DoD stakeholders to determine, establish, and promulgate guidance outlining the roles and responsibilities of the various internal and external commands and organizations involved in the management and oversight of the fuel facilities. Specifically identify CNIC's responsibilities for ensuring the efficient and effective management of both facilities.

**Response.** Concur.

**Discussion.** DoD 4140.25-M Volume II Petroleum Management, Chapter 8, Management of Storage and Distribution Facilities divides roles and responsibilities for petroleum management between DESC and Military Services. ASN (EI&E) will coordinate with the RCRA Services Steering Committee (SSC) to evaluate the need for further guidance to more specifically outline each organization's roles and coordination processes to ensure proper facility oversight

and management. As needed, ASN (EI&E) will also consult with the various DON organizations. A status update of this task will be provided by 15 December 2010. Results from this evaluation will be used to determine if additional internal-DON guidance is required.

**Recommendation 16.**

Coordinate with Navy and DoD stakeholders to develop cost-sharing agreements to clarify the Navy's potential financial responsibility in the event of a catastrophic spill or leak from RH and UTF into pre-existing contamination sites; determine if contingent environmental liabilities exist; and report, if necessary, in accordance with DoD FMR.

**Response.** Concur.

**Discussion.** From discussions between NAVFACHQ and AAUSN-NAVAUDIT, ASN (EI&E) understands that the phrase "contingent environmental liabilities" will be changed to "environmental liabilities" in the final report. ASN (EI&E) concurs with this change.

Regarding the first part of the recommendation, this tasking has already been accomplished. OASN (EI&E) staff initiated a meeting with OSD, DLA, Army, and Air Force to discuss potentially establishing pre-arranged cost-sharing agreements for many of the bulk fuel farms to clarify potential financial responsibility in the event of catastrophic spills or leaks. It was determined and agreed by all that due to the site specific nature of these sites and the long and varied operational histories that such an endeavor would not be value added at this time. All agreed that the existing policies outlined in DoD 4140.25-M were sufficient to address potential future liability issues should they arise in the future.

Regarding the recommendation to clarify the Navy's potential financial responsibility, this tasking has already been accomplished. In order to record an environmental liability on the Department's financial statement, the cleanup costs must be associated with a requirement that is both probable and estimable. Navy has completed the cost to complete estimate to address the known releases on the site and has reported these on the Department's financial statements.



**Appendix 2:**

# Management Responses from Commander, Naval Installations Command



DEPARTMENT OF THE NAVY  
COMMANDER, NAVY INSTALLATIONS COMMAND  
716 SICARD STREET, SE, SUITE 1000  
WASHINGTON NAVY YARD, DC 20374-5140

7510  
N00G Ser/10U52204  
29 Jul 10

From: Inspector General, Navy Installations Command  
To: Assistant Auditor General for Installations and  
Environment Audits, Naval Audit Service

Subj: DRAFT NAVAUDSVC REPORT DEPARTMENT OF THE NAVY RED HILL  
AND UPPER TANK FARM FUEL STORAGE FACILITIES (N2009-  
NIA000.0032)

Ref: (a) NAVAUDSVC memo 7510 N2009-NIA000.0032 of 13 May 10

Encl: (1) CNIC Response to the Subject Draft Report

1. Per reference (a), enclosure (1) is provided.

2. The technical point of contact is [REDACTED] CNIC N45,  
at commercial [REDACTED] or email [REDACTED]  
The Audit Liaison is [REDACTED] CNIC OIG, at commercial  
[REDACTED] or email [REDACTED]

[REDACTED]  
[REDACTED]

Copy to:  
CNIC N4  
CNIC N3

FOIA (b)(6)

FOIA (b)(6)

Commander, Navy Installations Command (CNIC) Response to  
NAVAUDSVC Department of the Navy Red Hill and Upper Tank Farm  
Fuel Storage Facilities (Draft Audit Report N2009-NIA000.0032)

We reviewed the draft audit report and concur, partially concur, and non-concur with the findings and recommendations contained therein that relate to the CNIC. Below are our responses to the recommendations addressed to CNIC.

We recommend the Commander, Navy Installations Command (CNIC):

**Recommendation 2:** Coordinate with stakeholders to develop and implement a Plan of Actions and Milestones (POA&M) to inspect and maintain fuel tanks at RH.

**Management Response:** Concur. CNIC will coordinate with PACOM, COMPACFLT, NAVSUP, COMFISCS, NOLSC-Petroleum, and FISC Pearl Harbor to evaluate the outcome of the Bearing Point Study of fuel placement in the Pacific Area of Responsibility (AOR). When a final determination has been made on fuel stock locations and amount of fuel to remain at DFSP Pearl Harbor a detailed tank inspection and repair plan will be developed. Until a final outcome of storage requirements has been determined, FISC Pearl Harbor will continue to aggressively inspect and repair the Red Hill tanks while maintaining operational storage requirements. Interim Target Completion Date is 28 February 2011.

**Recommendation 3:** Coordinate with Commander, NAVFAC Headquarters; Commander, Fleet and Industrial Supply Center; and Naval Operational Logistics Support Center to establish a POA&M for the research, development, and installation of a permanent precision leak detection system in the RH tanks.

**Management Response:** Concur. The NAVAUDSVC should reference studies on the concept of dynamic leak detection technology. Various studies have stated that precision leak detection technology is not currently realistic for these tanks. Given that current technology is not available, a POA&M for implementation is not feasible at this time. With DESC funding, FISC Pearl Harbor currently provides four methods of leak detection when the Federal and State minimum requirement is to provide one method of leak detection. Recommend changing Naval Audit recommendation to state: "Coordinate with Commander, NAVFAC Headquarters and Commander, Fleet and Industrial Supply Center, and NOLSC Petroleum to conduct annual reviews of new

technology for potential implementation into the RH Tanks." Interim Target Completion Date is 31 December 2010, with bi-annual status reports until actions are completed.

Recommendation 4: Coordinate with HDOH to update the GPP by identifying responsible officials and organizations and establishing clear deadlines for completion of specific response actions required by the GPP.

Management Response: Concur. The original Groundwater Protection Plan (GPP) was approved by the Hawaii Department of Health (HDOH) in August 2009. Updated GPP documentation was submitted to HDOH December 2009. NAVFAC Hawaii is conducting negotiations with the HDOH to further update the GPP. Recommend changing the Naval Audit Recommendation to state: "Coordinate with the HDOH to update the GPP by identifying responsible officials and organizations, and establishing clear internal Navy deadlines for completion of specific response actions required by the GPP." This will prevent the appearance of a commitment by Navy to the state of Hawaii to expend resources on a specific timeline. Interim Target Completion Date is 31 December 2010, with bi-annual status reports until actions are completed.

Recommendation 5: Coordinate with DESC Headquarters to ensure funding is available to comply with the GPP deadlines and provide oversight to ensure performance of all required response actions.

Management Response: Concur. The GPP is a CNRH responsibility, but funding for GPP is a DESC responsibility. FISC Pearl Harbor with support of the CNRH Environmental Team will coordinate with DESC Headquarters to ensure funding is available to comply with the GPP deadlines and provide oversight to ensure performance of all required response actions. Action is completed.

Recommendation 9:

[REDACTED]

FOIA (b)(2) high

Management Response:

[REDACTED]

FOIA (b)(2) high



[REDACTED]

FOIA (b)(2) high

[REDACTED]

FOIA (b)(2) high

[REDACTED]

FOIA (b)(2) high

[REDACTED]

FOIA (b)(2) high

Recommendation 10: Prioritize as "Critical," fund, and install an emergency voice/alarm communication system at RH in accordance with NAVFAC Pacific recommendations, and provide interim measures to ensure critical communication capabilities in the event of an emergency in the RH tunnels.

Management Response: Concur. CNIC is currently unable to immediately fund an emergency voice/alarm communication system. Although CNIC concurs that this project is important, it must compete for funding with other projects similar in nature in regards to criticality. NAVFAC Hawaii and FISC Pearl Harbor included an updated emergency voice/alarm communication system as part of the scope for the P-205 MILCON project. Project submitted by CNRH in April 2010 during the PR-13 MILCON cycle as an FY-13 project. If the MILCON is picked up for FY-13, anticipate a 2015 construction completion date. Interim Target Completion Date is 31 December 2010, with bi-annual status reports until actions are completed.

Recommendation 11:

[REDACTED]

FOIA (b)(2) high

Management Response:

[REDACTED]

FOIA (b)(2) high

Recommendation 12:

[REDACTED]

FOIA (b)(2) high

Management Response:

[REDACTED]

FOIA (b)(2) high

Recommendation 17: Establish controls and provide oversight procedures at Navy Region Hawaii and NAVSTA Pearl Harbor, and coordinate with NAVSUP and FISC Pearl Harbor to ensure that effective safety and physical security measures are in place to protect personnel, real property, and inventory at RH and UTF.

Management Response: Concur. CNIC/CNRH will review the recommendations from the Fire, Life Safety and Environmental Risk Assessment/Analysis in 1998 and the Fire Protection Engineering Surveys in 2004 and 2007 and conduct a holistic analysis of effective safety and physical security measures in place to protect personnel, real property, and inventory at Red Hill and the Upper Tank Farm. Interim Target Completion Date is 28 January 2011.

We recommend that NAVSTA Pearl Harbor:

Recommendation 18: Develop and implement a Tank Management Plan in accordance with OPNAVINST 5090.1C.

Management Response: Concur. JBPHH is developing and implementing a Tank Management Plan in accordance with OPNAVINST 5090.1C. Target Completion Date is 30 September 2010.



**Appendix 3:**

# **Management Responses from Commander, Naval Facilities Engineering Command**



DEPARTMENT OF THE NAVY  
NAVAL FACILITIES ENGINEERING COMMAND  
1322 PATTERSON AVENUE, SE SUITE 1000  
WASHINGTON NAVY YARD DC 20374-5065

7500  
Ser IG2/21  
16 Jun 10

From: Commander, Naval Facilities Engineering Command  
To: Naval Audit Service

Subj: RESPONSE TO NAVAL AUDIT SERVICE AUDIT REPORT DON RED HILL  
AND UPPER TANK FARM FUEL STORAGE FACILITIES N2009-NIA000-0032

Ref: Draft Audit Report N2009-NIA000-0032 of 13 May 2010

1. The response for recommendations contained in the subject Audit Report is as follows:

**Recommendation 6:** Provide effective oversight to ensure that the ground maintenance contractor performance complies with the terms of the contract and meets vegetation removal requirements.

**Management response:** Concur. Ground maintenance contractor performance complies with the terms of the contract and meets vegetation removal requirements. Funding to remove vegetation with a 30' inside clear zone and 20' outside clear zone has been provided and the modification to the Grounds Maintenance Contract for 3rd Qtr FY-10 is pending. Once the contract modification is executed, oversight will be ensured via increased contract surveillance by Public Works Department Performance Assessment Representatives (PARS) and by educating tenants on the terms of the contract and notification procedures for non-compliance. The new process of monitoring the fence line growth will require a joint effort by Base Security, PWD FEAD FSCM and PARS, and PWD facility manager. The process was communicated via e-mail to Government personnel followed by a site visit and to the Contractor at the partnering session on 15 June 2010. The estimated completion date for all actions is 30 September 2010.

**Recommendation 7:** Provide effective oversight to ensure that the Public Works Department Pearl harbor is notified and directed to remove fence line obstructions not covered under the ground maintenance contract.

**Management response:** Concur. Action is complete. The cited debris was removed immediately when identified in the audit. Any additional debris visually found after vegetation removal will also be removed by PWD maintenance shop personnel. Effective oversight of the grounds maintenance contractor has been implemented via increased contract surveillance by Public Works Dept Performance Assessment Representatives (PARS) and by educating tenants on the terms of the contract and notification procedures for non-compliance. The tenants (all who frequent the area such

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The management response letter does not contain information that should be held as exempt under the Freedom of Information Act; therefore, we have struck the "For Official Use Only" note from the letter.

as FISC, PWD facility managers, and Base Security) should all have an active role in not placing obstructions on the fence lines and to monitor if such obstructions are placed there by anyone else.

The process of monitoring the fence line for debris will require a joint effort by FISC operators, Base Security, PWD FEAD FSCM and PARS, and PWD facility managers. The process was communicated via e-mail to Government personnel followed by a site visit. New installation personnel will be notified via the NAVFAC HI PWO.

**Recommendation 14:** Immediately classify the RH tunnel as a structure to allow for the installation of appropriate basic safety infrastructure systems.

**Management response:** Concur. NAVFAC HI Real Property Officer has been working with Defense Energy Support Center (DESC) to divide the property record for S21 into four separate property records: (1) tunnel, (2) railroad tracks, (3) pump station and (4) pipelines, to support repair/renovation projects. Both NAVFAC HI and DESC discussed the plan of action and are in agreement on this approach. NAVFAC Hawaii has the lead on establishing 4 property records and will complete action by 30 June 2010.

2. The NAVFAC point of contact is [REDACTED] NAVFAC Command  
Evaluator at [REDACTED] or email: [REDACTED]

FOIA (b)(6)

[REDACTED]

FOIA (b)(6)

[REDACTED]

Inspector General





NAVAL SUPPLY SYSTEMS COMMAND COMMENTS ON  
NAVAL AUDIT SERVICE REVISED DRAFT AUDIT REPORT  
N2009-NIA000-0032 OF 13 MAY 2010 ON DEPARTMENT OF THE NAVY  
RED HILL AND UPPER TANK FARM FUEL STORAGE FACILITIES

**Finding 2: Physical Security**

The Office of the Chief of Naval Operations (OPNAV) and the Fleet and Industrial Supply Center (FISC), Pearl Harbor developed physical security criteria in an effort to prevent access of unauthorized persons to restricted areas by requiring controlled access and physical barriers to entry. Although the Navy has security measures in place, the audit revealed weaknesses in their effectiveness. For example, access control procedures that were in place did not restrict unauthorized access to the Automated Fuel Handling Equipment (AFHE) control room during normal business hours. However, once we informed them of the problem, management took immediate action to correct this access control weakness at the AFHE control room. Additionally, although the required barriers are in place at the Red Hill (RH) and Upper Tank Farm (UTF) bulk fuel storage facilities, we noted that the requirement to maintain a clear zone along the restricted area fences was not being met at RH due to overgrown vegetation and construction debris. This security weakness is attributed to non-performance of contract terms and insufficient oversight of the ground maintenance contract. If corrective actions are not taken to comply with minimum security measures, there is a potential for unauthorized access, damage to infrastructure, and loss of inventory at RH.

**FISC Pearl Harbor comment:** Concur with the portion of the finding that pertains to FISC Pearl Harbor.

**Recommendation 8.** We recommend that Fleet and Industrial Supply Center Pearl Harbor implement control mechanisms to ensure that the Automated Fuel Handling Equipment Control Room has 24-hour restricted access to authorized personnel only.

**FISC Pearl Harbor comment:** Concur. The FISC Pearl Harbor Fuel security administrator had immediately reinforced secure access control measures to resolve this issue for the Building 1757 Automated Fuel Handling Equipment Control Room in December 2008. The procedure encompassed re-programming of the Identipass access control software

**ENCLOSURE(1)**

through a network client in order to download a new time-zone parameter to the associated Building 1757 access control panel. The updated access control configuration now physically secures the FISC Automated Fuel Handling Control Room entrance at all times. The access into the FISC Automated Fuel Handling Control Room requires an authorized Radio Frequency Identification (RFID) credential presented to the reader to verify proper access level in the database and grant or deny access electronically to the locking hardware installed at the entrance. All access and attempts are logged into the Identipass server database, which is securely located in the Underground Pumphouse Control Center. Reports can be generated as necessary for investigation. Action is considered complete for reporting purposes.

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