

**REPORT TO THE TWENTY-NINTH LEGISLATURE
STATE OF HAWAII
2018**

**PURSUANT TO CHAPTER 342L HRS
THE SECOND ANNUAL FUEL TANK ADVISORY COMMITTEE MEETING
TO STUDY THE ISSUES RELATED TO LEAKS OF FIELD-CONSTRUCTED
UNDERGROUND STORAGE TANKS AT RED HILL BULK FUEL STORAGE FACILITY,
AS WELL AS, FOUR OTHER DOD FACILITIES**

**PREPARED BY:
STATE OF HAWAII
DEPARTMENT OF HEALTH
UNDERGROUND STORAGE TANK SECTION
AUGUST 2018**

This report summarizes the second annual tank advisory committee meeting as required under Section 62, Chapter 342L, Hawaii Revised Statutes, which was held on November 14, 2017 at the state Capitol. The discussion is a continuation of work from two previous task forces that were formed per Senate Concurrent Resolution (SCR) 57 (2015) and SCR 73 (2014). The purpose of these groups was to gauge the impact of a 27,000-gallon fuel leak at the Red Hill Storage Facility and to assess what efforts were being made to prevent future releases from that facility, and to evaluate 26 additional field-constructed tanks (FCTs) at four Department of Defense facilities. For additional details of advisory committee efforts please see the Department of Health Solid & Hazardous Waste Branch's (SHWB) website on Underground Storage Tanks (USTs) and namely the Red Hill Bulk Fuel Storage Facility link (<http://health.hawaii.gov/shwb/ust-red-hill-project-main/>).

Duties of the Fuel Tank Advisory Committee per HRS 342L-62

- a) The advisory committee shall study issues related to leaks of field-constructed underground storage tanks at:
 - 1) Red Hill
 - 2) Pacific Missile Range
 - 3) Hickam Pol Annex
 - 4) Schofield Barracks
- b) The advisory committee shall consider:
 - 1) The short- and long-term effects of leaks of the fuel tanks, including effects relating to the health of residents, safe drinking water, and the environment;
 - 2) Response strategies to mitigate the effects of leaks from fuel tanks;
 - 3) Methods to improve communication between the United States Navy, Air Force, and Army; the State; any local board of water supply; and the public in the event of a leak of any fuel tank;
 - 4) Groundwater test results in relation to the surrounding areas of fuel tank facilities, with a particular emphasis on the groundwater near the Red Hill Bulk Fuel Storage Facility;
 - 5) The implications of shutting down any fuel tank facility; and
 - 6) Updates on progress toward meeting goals of agreement between the State, the affected county, and the federal government.
- c) The advisory committee shall submit a report on its findings, including groundwater test results, and recommendations, including any proposed legislation, to the legislature.

Although these objectives were posted on the original agenda for the 2016 meeting, the Fuel Advisory Committee members decided to focus on the historic information about FCTs in Hawaii for the 2017 meeting. Also, after the first meeting in 2016 Schofield Barracks (as listed under a4), which was previously mislabeled as a FCT, and the Air Force and Army (under b3) were exempted from future participation since they no longer own and operate FCTs. Other than this change to membership, agendas for future meetings will be redirected back to the particular duties laid out above.

Field- Constructed Tanks (FCT) Detailed Update

In previous related task force meetings, the Navy had provided multiple summaries of their inventory of FCTs. It was often cited that much of the historical information was contained in environmental

remediation and progress reports that were stored at the Hazard Evaluation and Emergency Response (HEER) Office and other locations. The Navy agreed in the last task force meeting which was held on October 6, 2016, that although the records were available to the public and that the Air Force and the Army were the original owners and operators of these FCTs, the Navy would now be responsible to consolidate the information and present it to the committee members. A copy of the two Powerpoint presentations given by the Navy along with the transcript prepared by a court reporter are available on the SHWB website (<http://health.hawaii.gov/shwb/red-hill-task-force-meetings-2014/>).

Navy representatives presented a summary of active FCTs, FCTs that have been put into temporarily out of use (TOU) and those in permanently out of use (POU) status. In short, 31 FCTs are active at two locations, Red Hill and the Pacific Missile Range Facility in Kauai. Because the information had not changed in the year since the last update, a discussion ensued regarding the necessity of a permanent task force and frequency of future meetings. Below is a breakdown of this inventory.

Active FCTs (31)

Pacific Missile Range Fuel Farm Facility

- Nine - active and approximately 50,000-gallon each, single-walled epoxy lined tanks installed in 1942
- Date of last inspection for all tanks was 2011-2012 with the next inspection/repair cycle scheduled for 2024 and 2026. Tanks have cathodic protection from rust and corrosion.
- The leak detection system is certified and tank tightness testing is conducted annually
- Not located over a drinking water aquifer

Red Hill Bulk Fuel Storage Facility (Surge Tanks)

- Four - active 425,000-gallon concrete tanks lined with steel and installed in 1942
- Date of last inspection for all tanks was 2004-2006 with the next inspection/repair cycle scheduled for 2024 and 2026
- The leak detection system is certified and tank tightness testing is conducted annually
- Not located over a drinking water aquifer

Red Hill Bulk Fuel Storage Facility

- 18 - active 12.5M-gallon concrete tanks lined with steel and installed in 1940s
- Regulatory oversight through the Administrative Order on Consent (AOC) from 9/2015
- Located over a drinking water aquifer

Permanently Out of Use (13 tanks)

Kipapa Gulch Fuel Storage Annex (Formerly Hickam Air Force Base/Wheeler Air Force Base)

- Four - permanently closed 2.65M gallon FCTs operated from May 1943- June 1993
- Active remediation efforts were conducted to address evidence of historical releases
- February 3, 2012 DOH issued a Record of Decision which requires annual monitoring of their 17 groundwater monitoring wells, but no active remediation

Hickam POL Annex Waikakalaua (Formerly Hickam and Wheeler AF Base)

- Nine - permanently closed 1.8M gallons operated from May 1943- February 1993
- Taken out of service in June 1993 and cleaned in 2002

- October 19, 2009 DOH issued a Record of Decision specifying no further action

Temporarily Out of Use (10)

Kuahua Peninsula Submarine Base (Former Diesel Purification Plant)

- Eight total tanks, making up three 20,000-gallon and five 94,000-gallon tanks
- Installed in 1941 and last used in 1990
- Evidence of fuel release, free product was removed, monitoring indicates plume is stable
- In design stage to close tanks (emptying tanks, capping and securing)

Red Hill Bulk Fuel Storage Facility (Tanks No. 1 and 19)

- Installed in 1940-1943 and last used in 1997 and 1986 respectively
- Notified DOH that tanks were POU from 2007, but status may change depending on evaluation through the Administrative Order on Consent (AOC) with regards to tank upgrade alternatives, therefore the tanks are now considered TOU
- Located over a drinking water aquifer

Of the 41 tanks that are either active or TOU, only the 20 tanks of the Red Hill Facility are located over a drinking water aquifer resource.

Administrative Order on Consent (AOC) and Scope of Work (SOW) Update For Red Hill

After addressing all FCTs in Hawaii, the Navy commenced their second presentation which was an update of work and study at Red Hill as required under the AOC. The slides that were presented are available at <http://health.hawaii.gov/shwb/red-hill-task-force-meetings-2014/>.

Summary of the Navy's Red Hill presentation and the discussion which ensued are contained below.

1. AOC/SOW Section 1: Project Management & Public Outreach

Two public meetings and eight technical working group meetings were held, and seven press releases were given since the October 2016 meeting. Also, multiple presentations were given by the Navy at numerous neighborhood board meetings with additional public outreach opportunities anticipated for the future.

2. AOC/SOW Section 2: Tank Inspection, Repair, and Maintenance (TIRM)

Two key deliverables have been submitted: TIRM Report and TIRM Decision Document. These documents cover improved procedures for quality control and quality assurance, annual tank tightness, updating contract specifications on tank inspection and repair and improvements to construction management and tank cleaning specifications.

A re-inspection of Tank 5 was in progress with an anticipated return to service date of late 2018. The emphasis is that this particular inspection is, "above and beyond what was done under the warranty work." Inspection and repair schedule describes the timeline for remaining active tanks.

3. AOC/SOW Section 3: Tank Upgrade Alternatives (TUA)

The Statement of Work for the Tank Upgrade Alternative was approved by the regulators. The TUA Decision Document was also submitted and pending approval.

4. AOC/SOW Section 4: Release Detection/Tank Tightness Testing

All tanks passed annual tank tightness testing in February of 2017. Details of how the tanks were tested were given. Leak detection final report will be due in July 2018. Three vendors are currently being evaluated for updated release detection technology that may be chosen and implemented in the future. There was a discussion of the difference between an inventory control system and a release detection system and protocols for responses to alarms.

5. AOC/SOW Section 5: Corrosion and Metal Fatigue Practices

Destructive Testing Statement of Work was conditionally approved. Starting with destructive testing coupon selection with EPA and DOH, coupons will then be removed and tested and a report will be submitted in July 2019. The Navy stated that there may be an opportunity for stakeholders to examine the coupons collected.

6. AOC/SOW Section 6/7: Investigation and Remediation of Releases/Groundwater Protection & Evaluation

Four AOC deliverables, nine derivative deliverables, and four LTM reports have been submitted. A Groundwater Modeling Working Group has been established and meets frequently. Two monitoring wells have been installed in the last year, which takes the total to 12, with eight more wells proposed. Multiple technical studies are still being conducted and are pending completion. Investigation is underway to confirm whether or not a saprolite outcrop may or may not act as a barrier for any large future releases.

7. AOC/SOW Section 8: Quantitative Risk/Vulnerability Assessment (QRVA)

A Statement of Work for Phase I of the QRVA contract was awarded. This phase will focus on the internal events that may lead to a release (i.e. equipment failure or human error). Phase 2 will be an internal and external fire and flood analysis. Phase 3 would be a seismic analysis and then Phase 4 would be other or additional external events such as storm, chemical spills, or an airplane crash in or around the site.

8. TUA Decision Process

Although the first TUA selection is important, the AOC incorporates a re-evaluation that will be completed every five years after to add in any new technology that becomes available. After the TUA Decision Document is submitted, there will be an additional opportunity for public input during a public outreach meeting, estimated to be in around January 2019.

Committee Discussion

The Navy responded to questions regarding procurement sensitivity, a contractor's proprietary work product, and the methodology to which they procure future contracts. They made assurances that any deadline set by the AOC would continue to be strictly adhered to.

There was a clarification that the TUA Report due in December would not contain a recommendation and that it would not necessarily address life expectancy of each option, since the intent is that any option could be inspected/repared so that the tanks are kept operational in perpetuity.

Concern was expressed that any TUA selection may not be able to incorporate other data (i.e. results from destructive coupon testing) that are due at a later date. The Navy made assurances that the best scientific data would be collected and incorporated in any TUA determination, regardless of whether or not an initial selection had already been made and even if it comes to light before each required five year follow-up evaluation. The Navy confirmed to members that a range of cost for each TUA option would be made available to the public.

There was a request that prior to the public outreach meeting about the TUA Decision Document, the public has had time and opportunity to review the information that was used to make that decision. Also, requested was that when the House Armed Services Committee is briefed with the selected TUA, that this Fuel Advisory Committee can receive the same presentation.

Members also chimed in that the community generally gets a better understanding of the scale of the work and the seemingly long timeline, when they are able to go and tour the facility. There were repeated comments that the members appreciated and encouraged increased in transparency with the public.

Some questions that were posed and answers are pending from the Navy.

- 1) What are the TPH cleanup goals (at the Kipapa Gulch Annex facility from the 17 existing monitoring wells which continue to be sampled annually)?
- 2) When the Red Hill surge tanks underwent the API inspection, how many areas were found that needed to be repaired?

Groundwater Monitoring Results Summary

In the listed duties of this committee, it is specified that members shall consider “Groundwater test results in relation to the surrounding areas of fuel tank facilities, with a particular emphasis on the groundwater near the Red Hill Bulk Fuel Storage Facility.” Although this was not specifically addressed during the meeting. The following summary of groundwater results from the date of the last committee meeting to this one (October 2016 through November 2017) has been provided as part of this report.

There are 11 groundwater monitoring wells and two monitoring locations within the Red Hill monitoring network that are sampled regularly. One well (RHMW10) was only installed in April 2017. Only RHMW02, the monitoring well near Tank 5, had contaminant concentrations exceeding the DOH Environmental Action Level (EAL). The contaminants Total Petroleum Hydrocarbons in the diesel range (TPH-d), naphthalene, 1-Methylnaphthalene, and 2-Methylnaphthalene have concentrations that consistently exceeded the EAL. There was a slight decreasing trend in the contaminant concentrations at this well until the October 2017 sampling round where there was an increase in the TPH-d concentration from an average of about 1,000 parts per billion (ppb) to 1,600 ppb. The October 2017 TPH-d concentration increase is attributed to changed laboratory procedures to optimize TPH analysis. The EAL for TPH-d is 400 ppb, while the Site Specific Risk Based Limit is 4,500 ppb. The concentrations for Naphthalene, 1-Methylnaphthalene, and 2-Methylnaphthalene similar to previous recent sampling events.

Five other wells had no contaminant detections (RHMW04, RHMW05, RHMW07, RHMW09, Halawa Deep Monitoring Well [HDMW2253-03]) and the remainder of the wells had some contaminant detections but well below the EAL (RHMW01, RHMW03, RHMW06, RHMW08, RHMW10, OWDFMW01).

The Red Hill Shaft, the Navy's drinking water well, is also sampled at the infiltration gallery as part of the environmental monitoring program. There were only two very low concentration detections, one for TPH-d and one for Total Petroleum Hydrocarbons in the lubricate oil range (TPH-o). Separate drinking water compliance samples are also taken at point at a nearby location where water enters the distribution system (point of distribution). There were no contaminants detected at the point of distribution.

One new monitoring well (RHMW11) was also installed in December 2017, and will be included in the monitoring network sampling during the First Quarter 2018.

Next Committee Meeting

At this time, the committee recommended that they continue to meet but no specific legislation was proposed. DOH is tentatively scheduling the next Fuel Advisory Committee meeting for the end of 2018.

2017 Fuel Advisory Committee Documents Available on the SHWB UST Website

[\(http://health.hawaii.gov/shwb/ust-red-hill-project-main/\)](http://health.hawaii.gov/shwb/ust-red-hill-project-main/)

- Transcripts from the court reporter
- Copy of Act 244 SLH 2016
- Navy Presentation on all FCTs in Hawaii
- Navy Presentation on update on Red Hill AOC activities

Enclosure - Meeting Agenda, List of Members of the Fuel Advisory Committee & Attendees