

**STATE OF HAWAII**  
**DEPARTMENT OF HEALTH**  
P. O. BOX 3378  
HONOLULU, HI 96801-3378

In reply, please refer to:

January 22, 2021

The Honorable Ronald D. Kouchi,  
President and Members of the Senate  
Thirty-first State Legislature  
State Capitol, Room 409  
Honolulu, Hawaii 96813

The Honorable Scott K. Saiki, Speaker  
and Members of the House of  
Representatives  
Thirty-first State Legislature  
State Capitol, Room 431  
Honolulu, Hawaii 96813

Dear President Kouchi, Speaker Saiki, and Members of the Legislature:

For your information and consideration, I am transmitting a copy of the

"Advisory Committee Annual Report on the Issues Related to Leaks of Field  
Constructed Underground Storage Tanks at Red Hill Bulk Fuel Storage Facility and  
Four other Department of Defense Facility", pursuant to Section 342L-61 Hawaii  
Revised Statutes (HRS).

In accordance with Section 93-16, HRS, I am also informing you that the report may be  
viewed electronically at:

<https://health.hawaii.gov/opppd/departments-of-health-reports-to-2021-legislature/>

Sincerely,

A handwritten signature in black ink, appearing to read "Elizabeth A. Char", is written over a horizontal line.

Elizabeth A. Char, M.D.  
Director of Health

Enclosures

c: Legislative Reference Bureau  
Hawaii State Library (2)  
Hamilton Library

**REPORT TO THE THIRTY-FIRST LEGISLATURE  
STATE OF HAWAII  
2021**

**FUEL TANK ADVISORY COMMITTEE**

**PURSUANT TO SECTION 342L-61 HAWAII REVISED STATUTES,  
REQUIRING THE ADVISORY COMMITTEE TO PROVIDE AN ANNUAL  
REPORT ON THE ISSUES RELATED TO LEAKS OF FIELD  
CONSTRUCTED UNDERGROUND STORAGE TANKS AT  
RED HILL BULK FUEL STORAGE FACILITY,  
AND FOUR OTHER DEPARTMENT OF DEFENSE FACILITIES**

**PREPARED BY  
STATE OF HAWAII  
DEPARTMENT OF HEALTH  
UNDERGROUND STORAGE TANK SECTION  
DECEMBER 2020**

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## Introduction

On Friday, October 30, 2020 the Fuel Tank Advisory Committee (FTAC) commenced its fifth annual meeting. Because of restrictions for gatherings during the COVID-19 pandemic, it was the first virtual FTAC meeting. Also, it was the first time the services of a professional facilitator were utilized.

FTAC committee meetings are conducted in accordance with Hawaii Revised Statutes Section Chapter 342L and was created in response to the 2014 fuel release from the Red Hill Bulk Fuel Storage Facility (RHBFSF). For background information about the 2014 fuel release from the RHBFSF, the formation and details of the enforceable agreement called the Administrative Order on Consent (AOC) and the associated Statement of Work (SOW), and work completed thus far, please visit the following Environmental Protection Agency and Department of Health websites.

<https://www.epa.gov/red-hill>

<https://health.hawaii.gov/shwb/ust-red-hill-project-main/>

The entire video recording of the meeting, with detailed time stamps, is also available for review at <https://youtu.be/iXnuRpvVxY>.

## Summary of HRS 342L-61

In 2016, the Hawai'i State Legislature passed HRS 342L-61. This law was intended to assemble a group of leaders, experts and the public to study issues related to leaks from fuel-constructed underground fuel storage tanks at the Red Hill Bulk Fuel Storage Facility, Kuahua Peninsula, Pacific Missile Range Facility Barking Sands, Hickam Pol Annex, and Schofield Barracks Military Reservation. The statute also identified the six duties the advisory committee should 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 the 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 towards meeting goals of agreement between the State, the affected county, and the federal government.

## Members

The Fuel Tank Advisory Committee (FTAC) sought to mitigate future releases from these facilities and to ensure the protection of human health and the environment from potential contamination by addressing the operation, maintenance, infrastructure upgrades and closure activities, including monitoring. This year's membership of the group is described as follows:

<b><u>Act 244 Membership Requirements</u></b>	<b><u>Member Name and Title</u></b>	<b><u>Member Organization</u></b>
(1) The director of health, who shall serve as the committee's chair	Keith Kawaoka Deputy Director of Health	Department of Health
(2) Hawaii's congressional delegation, or their designees	Chuck Freedman*	US Senator Brian Schatz's Office
(3) Hawaii's congressional delegation, or their designees	Jacqueline Conant*	US Representative Ed Case's Office
(4) Hawaii's congressional delegation, or their designees	Carlos Santana Community Liaison	US Senator Mazie Hirono's Office
(5) Hawaii's congressional delegation, or their designees	Brandon Garay	US Representative Tulsi Gabbard's Office
(6) The president of the Hawaii senate, or a senator appointed by the president of the senate	Senator Mike Gabbard Agriculture and Environmental Committee Chair	State of Hawaii Senate
(7) The speaker of the Hawaii house of representatives, or a representative appointed by the speaker of the house	Representative Nicole Lowen Energy & Environmental Protection Committee Chair	State of Hawaii House of Representatives
(8) The chairperson of the board of land and natural resources, or the chairperson's designee	Suzanne Case Chairperson	Department of Land and Natural Resources, State of Hawaii
(9) The chairperson of the board of water supply of a county with a population of five hundred thousand or more, or the chairperson's designee	Ernest Lau Chief Engineer	Honolulu Board of Water Supply
(10) The chairperson of the commission on water resource management, or the chairperson's designee	M. Kaleo Manuel Deputy Director	Commission on Water Resource Management, State of Hawaii

<b><u>Act 244 Membership Requirements</u></b>	<b><u>Member Name and Title</u></b>	<b><u>Member Organization</u></b>
(11)The Commanding General of the United States Army, Pacific, or the Commanding General's designee	Excused**	
(12)The Commander of the Pacific Fleet of the United States Navy, or the Commander's designee	Captain Gordie Meyer Commander Navy Region Hawaii	US Navy Hawaii
(13)The Commander of the Pacific Air Forces, or the Commander's designee	Excused**	
(14)A representative of the United States Environmental Protection Agency, or the representative's designee	Steven Linder	US Environmental Protection Agency
(15)The governor shall appoint at least two public members from the community at large in accordance with section 26-34; provided that the advice and consent of the senate shall not be necessary	Melanie Lau Association Designee	Moanalua Valley Community Association
(16)The governor shall appoint at least two public members from the community at large in accordance with section 26-34; provided that the advice and consent of the senate shall not be necessary	Natanya Friedheim Neighborhood Board Designee	Salt Lake Neighborhood Board

\* These members have chosen to participate only as observers, to avoid any conflicts of interest with their respective offices and US Congressional committee participation.

\*\*Because the Army and the Air Force do not have field constructed tanks, they have been excused from the meetings.

## Summary of Meeting

Following the agenda presented in Appendix B, the meeting started with the FTAC Chair, Keith Kawaoka, Deputy Director of the Department of Health (DOH), introducing FTAC members and the facilitator, Peter Adler, and reviewing the duties required of the committee. Peter Adler identified the rules of engagement and introduced the federal and state regulators to briefly present the latest work efforts performed under the Red Hill Administrative Order on Consent (AOC), as well as the background, purpose, and workings of the AOC.

Steven Linder, Environmental Protection Agency (EPA) Region IX, spoke on the status of work under the Statement of Work (SOW) which is the accompanying document of the AOC. The status on each section included: recent regulatory response to Tank Upgrade Alternatives (TUA) and Release Detection Decision Document, planned Phase II Risk Assessment work, Navy submission of the Groundwater Flow Model Assessment and Investigation and Remediation of Releases reports, and planned additional work in response to the Destructive Testing Results Report.

Roxanne Kwan, DOH Underground Storage Tank (UST) Program supervisor, elaborated on the roles and responsibilities of the AOC parties—the DOH, the EPA, and the Navy and Defense Logistics Agency (DLA). Also discussed was the underground storage tank rules that the RHBFSF is subject to, specially Hawaii Administrative Rules (HAR) Chapter 11-280.1.

Next on the agenda was a brief presentation in response to carry-over questions pending from the 2019 FTAC meeting. First was the update on the decommissioning and remediation efforts at Hickam POL Annex, Kipapa. CAPT Gordie Meyer stated that there is no information on how much fuel was historically released but no releases were reported after 1988. Also, the methane that continues to be detected in the monitoring probes do not pose a threat to human health because they are over ten feet below the surface. After the meeting, the Hazard Evaluation and Emergency Response (HEER) office of the DOH, which provides regulatory oversight at the facility, was not able to confirm these conclusions regarding the methane detections due to the limited data available in the site. With regards to the decommissioning and remediation process at this site, CAPT Meyer assured that although bioventing was suspended in 2017, the Navy would reevaluate the need and benefit of reintroducing this process next year. The second issue from the 2019 FTAC meeting, was the current status on the Navy's UST permit application for the RHBFSF submitted on May 28, 2019. The permit application prompted the request for a contested case hearing, which is scheduled for February 2021. Third, the DOH revised HAR Chapter 11-280.1, removing language that automatically granted a UST permit to a complete permit application that has not been acted upon within 180 days.

To introduce the Navy's presentation on their facilities, RDML Robb Chadwick, Commander Navy Region Hawaii, provided opening remarks underscoring, "the partnership and collaboration" with the regulators and Subject Matter Experts to improve on the operations at the facility, while noting the Navy's priority of providing for the safety of the drinking water resource and national security. RDML Chadwick also emphasized that the Navy is "committed to the constant flow of information to the public," using various methods of outreach including FTAC meetings and audiocasts.

CAPT Meyer continued with the Navy presentation to address the RHBFSF and the other facilities identified in statute. The slides from the Navy presentation are attached to this report as Appendix D.

Highlighted information on RHBFSF included: tank tightness tests performed on active tanks since the last meeting have passed; the list of work completed since the last FTAC meeting including AOC deliverables submitted; the three additional monitoring wells installed; and the new procedures used in the Tank 5 recommissioning.

The Navy also introduced their new partnership with GTT, North America (GTT NA), a company with extensive experience in tanks that are even larger than the Red Hill tanks for the storage of liquified natural gas. Although currently only in Phase I “feasibility” portion of the project, the proposal outlined that after the successful completion of Phase I, Phase II would focus on “concept development”, and Phase III would result in a prototype of a double wall stainless steel tank in one of the existing Red Hill field constructed tank by 2024.

This announcement solicited additional questions about the details from the public, FTAC members and the regulators because this arrangement had not previously been shared before.

Another Navy slide detailed the partnership with the University of Hawaii’s Engineering Department to address 11 initiatives through Navy grants to improve operations at the facility. Some of the initiatives included improved sensors and reporting equipment and procedures, the study of microbial degradation at the facility, and the study on the feasibility of implementing a magnetized robot to scan the tank even through stored fuel.

The presentation wrapped up with a summary of work and studies that were planned to be completed within the next year. Developments all contributed to the “layers of protection” that would improve the prevention, detection, and reduction of volume of any release into the environment.

There was also a commitment on the completion of the 29-groundwater monitoring well network by the end of 2022. There are currently 16 monitoring wells, three of which were installed within the year.

The Navy also prioritized their efforts in responding to the Regulators’ letter titled, *Notice of Deficiency for the Tank Upgrade Alternatives Decision Document and New Release Detection Alternatives Decision Document, for Red Hill Administrative Order on Consent Statement of Work Sections 3.5 and 4.8*, dated October 26, 2020 (“Notice of Deficiencies”). The Regulatory Agencies’ letter was in response to the Navy’s submittal of the *Tank Upgrade Alternatives (“TUA”) and Release Detection Decision Document (“Decision Document”)* on September 9, 2019.

Next on the agenda was a discussion amongst the FTAC members, first being questions of clarification and then general comments. Some of the topics and questions that came up were related to the status of the US Indo-Pacific Command fuel needs study, the details about the design of the 2024 double wall stainless steel prototype, the construction of this prototype and its ability to comply with current regulatory deadlines, and the need and desire for better public outreach and communication. There was a discussion of whether the Phase II Risk Vulnerability Assessment would be quantitative like Phase I or would be more qualitative or a combination of both.

After two hours into the meeting time, the floor opened for the public to participate and ask questions and offer comments. Some of the public concerns that were expressed included the concern that the adjacent quarry activities or earthquake could lead to a release at the facility. The Navy’s Phase II Risk Assessment Study is intended to answer possible risks associated with earthquakes. There were several general comments questioning the effectiveness and value of the improvements that the Navy has



done. There was a Freedom of Information Act (FOIA) request for the contract details with GTT NA for the double wall stainless steel tank study.

The next agenda item was a member discussion on FTAC meeting frequency. After the meeting, DOH indicated to the FTAC that two FTAC meetings will be planned for 2021, with the understanding that the Navy will conduct their update meetings on alternate quarters.

Additional public comments were received before the meeting adjourned, including a request for an annual poster board workshop for more detailed and technical discussion with engineers and SMEs.

At the time that this meeting was announced, the DOH also accepted written public comments prior to the meeting. In total there were 22 comments that were received in advance of the meeting. These comments were summarized by Peter Adler during the FTAC meeting. These comments are provided in Appendix E of this report. Also consolidated in this appendix is the seven written comments that were received after the meeting, through November 25, 2020. The substance of these comments is almost identical to the over 400 comments the Regulatory Agencies received in response to the Navy's "Decision Document", referenced earlier. The Regulatory Agencies provided responses to summarized comments in the attachment, "Attachment B-Red Hill Upgrade Alternative and Release Detection Proposal, Response to Comments," of their "Notice of Deficiencies" letter.

This document is available at [https://www.epa.gov/sites/production/files/2020-10/documents/red-hill-tua\\_proposal\\_final\\_combined\\_response-2020-10-26.pdf](https://www.epa.gov/sites/production/files/2020-10/documents/red-hill-tua_proposal_final_combined_response-2020-10-26.pdf). The majority of the public comments were pleas to shut down the facility, criticism that the process and improvements were taking too long, and prioritizing the protection of the drinking water resource. A small number provided technical solutions that should be evaluated.

Again, the complete video of this meeting is available for review at <https://youtu.be/iXnuRpvVxY>. A timestamp breakdown is offered in Appendix C.

## Appendices

Appendix A: HRS 342L-61

**[PART IV.] FUEL TANK ADVISORY COMMITTEE****Note**

Transfer of rights, powers, etc. of the task force to study fuel tank leaks to the fuel tank advisory committee. L 2016, c 244, §3.

**[\$342L-61] Fuel tank advisory committee; established; composition.** (a) There is established in the department of health the fuel tank advisory committee, which shall consist of up to fourteen ex officio members and at least two public members.

(b) The ex officio members of the committee shall be:

- (1) The director of health, who shall serve as the committee's chair;
- (2) The four members of Hawaii's congressional delegation, or their designees;
- (3) The president of the Hawaii senate, or a senator appointed by the president of the senate;
- (4) The speaker of the Hawaii house of representatives, or a representative appointed by the speaker of the house;
- (5) The chairperson of the board of land and natural resources, or the chairperson's designee;
- (6) The chairperson of the board of water supply of a county with a population of five hundred thousand or more, or the chairperson's designee; and
- (7) The chairperson of the commission on water resource management, or the chairperson's designee.

(c) The following persons shall be invited to participate on the advisory committee as ex officio members:

- (1) The Commanding General of the United States Army, Pacific, or the Commanding General's designee;
- (2) The Commander of the Pacific Fleet of the United States Navy, or the Commander's designee;
- (3) The Commander of the Pacific Air Forces, or the Commander's designee; and
- (4) A representative from the United States Environmental Protection Agency, or the representative's designee.

(d) The governor shall appoint at least two public members from the community at large in accordance with section 26-34; provided that the advice and consent of the senate shall not be necessary.

(e) The public members of the advisory committee shall receive no salary, but shall be entitled to reimbursement for necessary expenses, including travel expenses. [L 2016, c 244, pt of §2]

**[§342L-62] Duties.** (a) The advisory committee shall study issues related to leaks of field-constructed underground fuel storage tanks at the Red Hill Bulk Fuel Storage Facility, Kuahua Peninsula, Pacific Missile Range Facility Barking Sands, Hickam Pol Annex, and Schofield Barracks Military Reservation. 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.

(b) No later than twenty days before the convening of each regular session, the advisory committee shall submit a report of its findings, including groundwater test results, and recommendations, including any proposed legislation, to the legislature. [L 2016, c 244, pt of §2]

## Appendix B: FTAC Agenda



**STATE OF HAWAII  
DEPARTMENT OF HEALTH**

In reply, please refer to:  
File:

**FUEL TANK ADVISORY COMMITTEE  
AGENDA FOR THE FIFTH ANNUAL MEETING**

Friday, October 30, 2020

1:00 p.m. to 4:00 p.m.

Via Zoom (access code below)

Members of the public may submit written comments by contacting Thu Perry at [thu.perry@doh.hawaii.gov](mailto:thu.perry@doh.hawaii.gov) no later than 12 Noon on October 29, 2020. Note: this meeting will start at 1:00 pm sharp. The Zoom will be opened at 12:45pm. The meeting may not run the entire afternoon and public comments will be taken at the end of the Advisory Committee member discussions.

**Meeting Objectives**

1. Ensure that all members of the committee, especially new ones, understand the purpose, function, and current efforts of both the AOC and FTAC.
2. Provide summary and recap of last meeting.
3. Provide updates from the Navy on:
  - a. What has transpired and changed since the last meeting
  - b. What is being worked on now
  - c. What lies ahead
4. Ensure both members of the FTAC and members of the public have adequate time to ask questions and offer comments and advice.

**Zoom Line Opens (12:45pm)**

**1:00 pm Startup– Keith Kawaoka, DOH**

**1:10 pm Review of Duties of the Committee – HRS 342L-62 (below)**

Committee to focus on field-constructed tanks (FCTs) at Red Hill Bulk Fuel Storage Facility, Kuahua Peninsula, Pacific Missile Range Facility Barking Sands, and Hickam Pol Annex

**1:15 pm Agenda and Format- Peter Adler, Facilitator**

**1:30 pm Recap -Role and Function of Red Hill AOC (Administrative Order on Consent)- Steven Linder, EPA & Roxanne Kwan, DOH**

**2:00 pm Carry Over Issues and Questions from 2019 Meeting- Thu Perry, DOH**

Fuel Tank Advisory Committee  
Agenda  
Page 2  
October 30, 2020

**2:15 pm Technical Updates- RDML Robb Chadwick, Commander, Navy Region Hawaii & CAPT Gordie Meyer, U.S. Navy**

**2:45 pm FTAC Discussion- Moderated by Facilitator**

**3:15 pm Public Questions and Comments- Moderated by Facilitator**

**3:55 pm Next Meeting- Thu Perry, DOH**

**4:00 pm Adjourn**

If you require an auxiliary aid or accommodation due to a disability, please contact (808) 586-4226 (voice/tty) or email Thu Perry at [thu.perry@doh.hawaii.gov](mailto:thu.perry@doh.hawaii.gov) by October 28, 2020. For more information, contact DCAB at (808) 586-8121.

### **Virtual Meeting Specifications**

Join Zoom Meeting

<https://us02web.zoom.us/j/81336947143?pwd=RWZyQ0tTKytHVVUyY1d2SUNjQ0RwUT09>

Meeting ID: 813 3694 7143

Passcode: 1111

One tap mobile

+16699006833,,81336947143#,,,,,0#,,1111# US (San Jose)

+12532158782,,81336947143#,,,,,0#,,1111# US (Tacoma)

Dial by your location

+1 669 900 6833 US (San Jose)

+1 253 215 8782 US (Tacoma)

+1 346 248 7799 US (Houston)

+1 646 876 9923 US (New York)

+1 301 715 8592 US (Germantown)

+1 312 626 6799 US (Chicago)

Meeting ID: 813 3694 7143

Passcode: 1111

Find your local number: <https://us02web.zoom.us/j/81336947143?pwd=RWZyQ0tTKytHVVUyY1d2SUNjQ0RwUT09>



**Connectivity Issues** The meeting will be recessed when audio communication cannot be maintained with a quorum of members and will be terminated when audio communication cannot be reestablished with a quorum of members.

**Public Comment** In order to reduce the chance of overloading the video conferencing system, members of the public will be asked to turn off their cameras and microphones upon entering the meeting.

**Written Testimony** Written testimony may be submitted to Thu Perry at [thu.perry@doh.hawaii.gov](mailto:thu.perry@doh.hawaii.gov) no later than 12 Noon on October 29, 2020. Comments may also be submitted in the “chat” during the zoom meeting during the public comment portion of the agenda. Each public comment will be limited to three (3) minutes each.

**Red Hill and AOC background** available at <https://www.epa.gov/red-hill> and <https://health.hawaii.gov/shwb/ust-red-hill-project-main/>

**Documents on previous FTAC meetings**  
<https://health.hawaii.gov/shwb/red-hill-task-force-meetings-2014/>

**HRS 342L-62** (a) The advisory committee shall study issues related to leaks of field-constructed underground fuel storage tanks at the Red Hill Bulk Fuel Storage Facility, Kuahua Peninsula, Pacific Missile Range Facility Barking Sands, Hickam Pol Annex, and Schofield Barracks Military Reservation. 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 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 country, and the federal government.

## Appendix C: Audio Recording Link and Associated Time Stamps

## **Fuel Tank Advisory Committee Meeting #5**

### **Zoom Teleconference**

**October 30, 2020, 9-11am**

Video recording of entire meeting available on YouTube: <https://youtu.be/iXnuRpvcVxY>

#### **TIMESTAMPS**

(0:25)	Introduction of FTAC members
(4:10)	Keith Kawaoka, Chair of FTAC and Deputy Director of Health - Review of FTAC Duties
(5:55)	Facilitator, Peter Adler and Co-host, Megan Brotherton - Rules of Engagement
(13:35)	Steven Linder, EPA Region IX – Administrative Order on Consent (AOC) Update
(21:45)	Roxanne Kwan, DOH-UST Program Supervisor – Roles & Responsibilities of the AOC Parties
(25:55)	Thu Perry, DOH-UST Program – Carry over issues from FTAC 2019
(27:10)	Capt. Gordie Meyer, Navy – Response to Hickam Annex Kipapa Question
(29:18)	Thu Perry, Carry over issues, continued (rule change, permit application and contested case)
(31:58)	RDML Rich Chadwick and Capt. Gordie Meyer, Navy - Navy Presentation (see Appendix D)
(1:05:33)	FTAC Member Discussion
(2:10:35)	Public Comments
(2:31:16)	Thu Perry, DOH - Next Meeting Considerations
(2:34:51)	Public Comments (continued)
(2:39:01)	Submittal of comments to DOH (through November 25, 2020)
(2:42:33)	Chair Kawaoka - Closing Remarks
(2:44:11)	Adjourn

## Appendix D: Navy Presentation Slides

# Aloha

2020 Update

Fuel Tank Advisory Committee (FTAC)

*October 30, 2020*





# Review of Sites

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## **Permanently out of use:**

- Hickam POL Annex (Kipapa)
- Hickam POL Annex (Waikakalaua)

## **Temporarily out of use (pending decommissioning):**

- Kuahua Peninsula (a.k.a. Diesel Purification Plant)

## **Currently in use:**

- Pacific Missile Range Facility
  - Red Hill Underground Storage
-



# Hickam Fuel Annexes



## Kipapa:

- Monitored natural attenuation enhanced with bioventing (currently shutdown)
- Annual groundwater monitoring annually

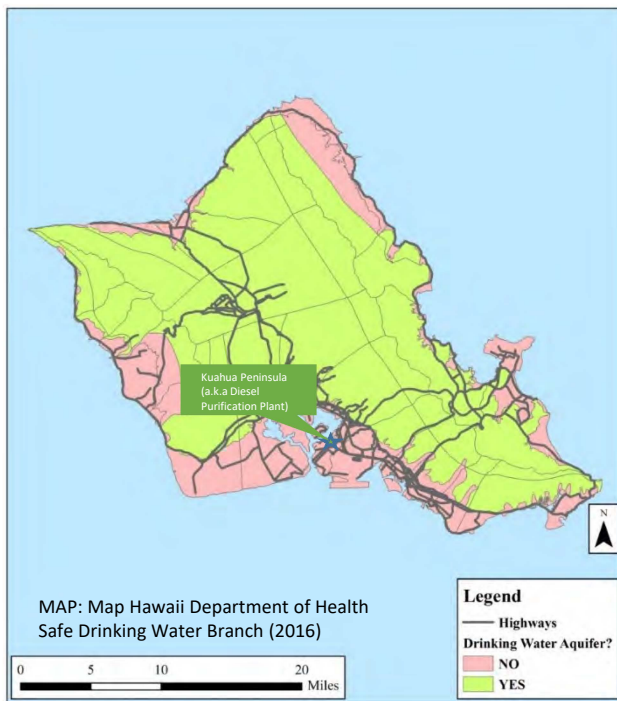
## Waikakalaua:

- A Record of Decision approved and signed by DOH on 19 Oct 2009 with a no further action decision





# Kuahua Peninsula (a.k.a Diesel Purification Plant)



## Kuahua:

- Contract in progress to empty, clean, cap, and secure eight USTs and associated piping
- Area development plan includes removing the USTs and tank system, no timeline yet for the demolition



# Pacific Missile Range Facility



## PMRF:

- All tanks at PMRF currently in use continue to successfully pass monthly release detection evaluation
- Currently removing 4 tanks from service due to reduced requirement for operational storage at this time





# Red Hill Bulk Fuel Storage Facility

## **Navy Update on the Administrative Order on Consent (AOC)**

- Completed items since the last FTAC
- On-going Actions
- Targeted items for completion before the next FTAC



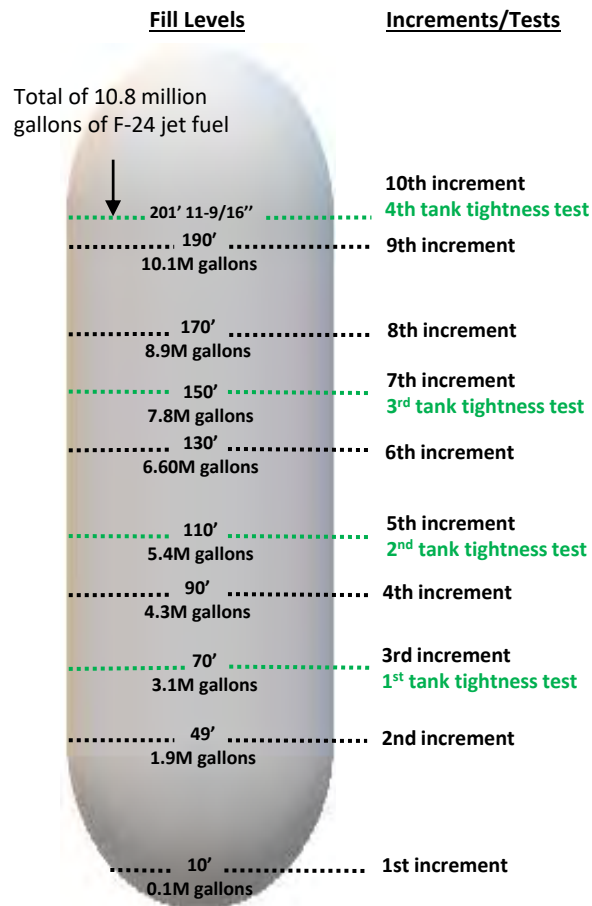
# Red Hill Bulk Fuel Storage Facility Update on AOC Actions

## **Actions completed since last meeting:**

- Investigation & Remediation of Releases and Groundwater Flow Model Reports submitted to DOH/EPA (March 2020)
- DOH/EPA approved Destructive Testing Results Report (July 2020)
- Installation of three additional Red Hill Monitoring Wells
- **Tank 5 returned to service (May 2020)**
- Tank 18 removed from service for CIR program
- **Conducting feasibility study for secondary containment at Red Hill**
- **Partnership established with the University of Hawaii**



# Improved Fill Plan



- Tank 5 completed a rigorous Clean, Inspect, Repair (CIR) process.
- Since the tank was last filled, the Navy has improved quality control, the response plan, fill procedures, and has added layers of protection.
- The tank was gradually filled in 10 increments, grouped into four phases. Tank tightness tests were conducted in each of those four phases, as indicated in **green**.
- The tests independently confirmed the integrity of the tank using approved EPA methodology.
- As the tank was slowly filled, the amount of fuel was automatically measured to an accuracy of 1/16th inch (thickness of a nickel) to better track fuel levels.
- To verify the automatic measurements, manual measurements were taken at least every eight hours using equipment certified by the National Institute of Standards and Technology.
- HI Dept. of Health inspected the filling of Tank 5. No issues identified.



# Tank 5 Tank Tightness Test Results

Fuel System	Designation	Height <sup>1</sup> (Feet)	Capacity <sup>2</sup> (Gallons)	Test Product Height (Feet)	Certified MDLR (gph)	Test Date	Result
Red Hill Fuel Storage Complex	BFCUST 5	250	12,700,000	70.20	0.5	4 March - 9 March 2020	Pass
				110.08	0.5	19 March - 24 March 2020	Pass
				150.15	0.5	1 April - 6 April 2020	Pass
				201.88	0.5	15 April - 20 April 2020	Pass
Table Notes: 1. Tank height is rounded to the nearest foot. 2. Tank volume is rounded to the nearest hundred thousand gallons.							



# Secondary Containment Feasibility Study

## STAGE 1: Initial Specification and Feasibility Assessment

- Deliverables: Concept validation and development, membrane feasibility report, small scale model
- Award: Validation and development funded and awarded

## STAGE 2: Concept Design Development

- Deliverables: Special Area Design, constructability assessment, HAZID analysis, small scale model of developed dual membrane concept
- Award: SOW developed based on Stage 1 results
- Can expand Stage 2 SOW if funding is adequate

## STAGE 3: Design/Construction, Prototype Red Hill Secondary Containment

- Deliverables: One tank upgraded with secondary containment and in-service
- Federal Acquisition Regulation-based contract with company licensed for GTTNA technology





# UH-USN Partnership Initiatives



## Eleven Initiatives funded by ONR (\$1.9M)

### Applied Research Laboratory Effort

1. **Flexible Environmental Sensing System**
2. **Cybersecurity for Red Hill Data-Collection**
3. Advanced Data Analysis for Operational Awareness
4. **Graphical User Interface Dashboard**
5. Red Hill Movie and Mobile Application

### College of Engineering Effort

1. Ultrasonic, Infrared and Electromagnetic Tank Inspection
2. Inspect and Repair Protocols for Red Hill Bulk Fuel Storage Tanks (RHBFSST)
3. Mapping of RHBFSST Corrosion by Advanced Microscopic Methods
4. Concrete Degradation, Inspection and Retrofit
5. **Permanent-Magnet, Wall-Crawling Mobile Robot for Remote Inspection of Backside Corrosion of RHBFSST While Fuel-submerged**
6. **Microbial Degradation of Fuel Hydrocarbons in Subsurface for Early Detection of RHBFSST Releases**

**Scheduled for completion by AUG 2021**

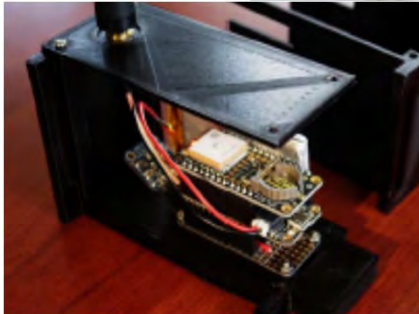




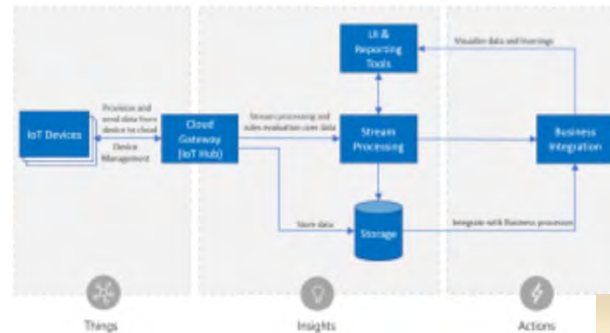
# UH-USN Partnership Initiatives



Flexible Environmental Sensing System

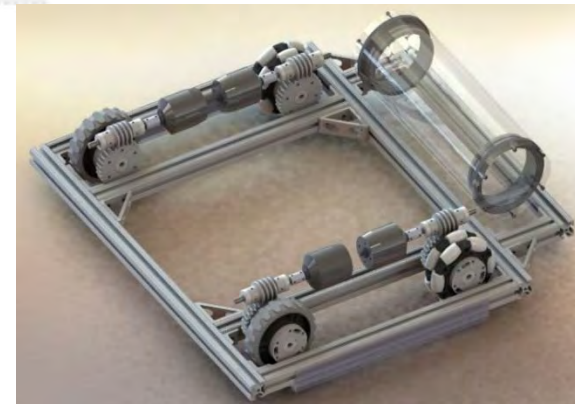
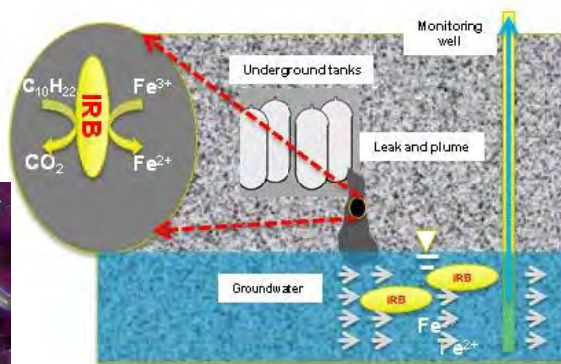


Cybersecurity CUI Enclave



Graphical User Interface Dashboard

Microbial Degradation of Fuel Hydrocarbons in Subsurface Soil



Wall-Crawling Robot for Remote Corrosion Inspection While Submerged



# Red Hill Bulk Fuel Storage Facility Update on AOC Actions

## Ongoing work:

- **Semi-annual Tank Tightness Testing**
- **Continuous Release Detection Equipment**
- Real Time Soil Vapor Monitoring Pilot Project
- Development of Need & Scope of Modified Corrosion & Metal Fatigue Practices
- **Installation of Red Hill Monitoring Well Nos. 01R, 16A and 17**
- Ongoing Groundwater Modeling Working Group Collaboration with BWS, UH, USGS, DOH, and EPA
- Quarterly Groundwater Monitoring
- Monthly Soil Vapor Monitoring
- Monthly Water Interface Testing
- **Annual Water Quality Reporting**
- Annual Split Sampling



# Drinking Water Remains Safe & Clean - Year after Year

"[W]e conducted tests for over 70 contaminants that have potential for being found in your drinking water.....In all cases, the levels measured met both EPA and State Requirements for **safe drinking water**."  
-Joint Base Pearl Harbor-Hickam Water June 2020 Water Quality Report

2020 Annual

## Water Quality Report Joint Base Pearl Harbor-Hickam Water System (Waiawa, Halawa & Red Hill Sources)



This report meets federal and state requirements for Consumer Confidence Reports. This report is updated annually and reflects monitoring data collected up to Dec. 31, 2019.

The Navy is pleased to provide you with this year's annual Water Quality Report for the Joint Base Pearl Harbor-Hickam Water System.

This pamphlet provides information about the water that has been delivered to you over the past year. It describes where your water comes from, what it contains, and how it compares to standards for safe drinking water.

Our goal is, and always has been, to provide you safe and dependable drinking water.

### Water Provider

The Naval Facilities Engineering Command (NAVFAC) Hawaii operates the water system servicing your area. As the Navy water provider in the state, we primarily supply water to military installations and housing.

### Drinking Water Standards

The Environmental Protection Agency (EPA) and State of Hawaii regulations require us to test your water for contaminants on a regular basis, making sure it is safe to drink, and to report our results accordingly.

To ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration does the same for bottled water.

In the latest compliance monitoring period, we conducted tests for over 70 contaminants that have potential for being found in your drinking water. Tables A-1, A-2, A-3, A-4, A-5, and A-6 show the levels of concentrations of regulated contaminants found in your water. In all cases, the levels measured met both EPA and State requirements for safe drinking water.

We are continually working to protect your drinking water from contaminants. The State of Hawaii's Department of Health completed the Source Water Assessment in 2004. This document identifies the susceptibility of your water supply to contamination. The source water assessment is available for review by contacting NAVFAC Hawaii Public Affairs, at 808-477-2000.

### Source of Water

Your drinking water comes from three ground water sources: Waiawa, Halawa, and Red Hill. Ground water is naturally filtered as it travels from the surface to the aquifer below ground. The water is pumped up from

the aquifer, disinfected, fluoridated, and piped into the distribution system.

For a limited time during 2019:

- The Radford Terrace Eastern Housing area was supplemented with water from the Honolulu Board of Water Supply's (BWS) Kalaheo Wells and Punalani Wells.
- The Nanana housing area was supplemented with water from the Honolulu Board of Water Supply's (BWS) Pearl City shaft and well 1.

### Possible Source of Contaminants

The sources of drinking water (both tap water and bottled water) include: rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals. It can also pick up other substances resulting from the presence of animals or human activity. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk.

More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 1-800-426-4791.

### Potential Contaminants

Contaminants that may be present in your source water include:

**Microbial contaminants** – such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

**Inorganic contaminants** – such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

**Pesticides and herbicides** – which may come from a variety of sources, such as agriculture, urban storm water runoff, and residential uses.

**Organic chemical contaminants** – including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.

**Radionuclide contaminants** – which can be naturally-occurring or be the result of oil and gas production and mining activities.

**Lead** – If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead

2020 ANNUAL

## WATER QUALITY REPORT

Federal and state law requires testing your drinking water for many different types of contaminants.

This report contains test results showing your water is **safe to drink** and meets all federal and state requirements. If a contaminant is **not listed**, it was **not detected**.



Board of Water Supply  
City and County of Honolulu  
4100 South Beretania Street  
Honolulu, Hawaii 96843  
www.boardofwatersupply.com

Federal and state law requires testing your drinking water for many different types of contaminants. Below is a complete list.

### Regulated Primary Contaminants

Acrylamide	2,4-D	fecal coliform	Selenium
Alachlor	Deltamethrin	fluoride	Semivolatile
Alpha emitters	Di (2-ethylhexyl)adipate	Glycol ether	Styrene
Atrazine	Dibromochloropropane (DBCP)	Halacetic Acids (HAA5)	Tetrachloroethylene (PCE)
Barium	p-Dichlorobenzene	Heptachlor	Thallium
Benzene	p-Dichlorobenzene	Heptachlor epoxide	Trihalomethanes (THMs)
Beryllium	1,2-Dichloroethane	Hexachlorobenzene	Total coliform
Bisphenol A	1,1-Dichloroethylene	Hexachlorocyclopentadiene	Total trihalomethanes (TTHMs)
Bromate	cis-1,2-Dichloroethylene	Lead	Toxaphene
Bromide	trans-1,2-Dichloroethylene	Mercury (total)	2,4,5-TP
Cadmium	Dichloromethane	Methylchloride	1,2,4-Trichlorobenzene
Carbon tetrachloride	1,2-Dichloropropane (DCP)	Nitrate (as N)	1,1,1-Trichloroethane
Chloride	Dieldrin	Nitrite (as N)	1,1,2-Trichloroethane
Chlorine	Di(2-ethylhexyl)phthalate	Organophosphates	Trichloroethylene (TCE)
Chlorobenzene	Disinfection byproducts	PCBs	Turbidity
Chromium (total)	Endrin	Pentachlorobenzene	Uranium
Copper	Endrin	Picloram	Vinyl chloride
Cyanide	Epichlorohydrin	Polycyclic aromatic hydrocarbons (PAHs)	Xylenes (total)
	Ethylene dibromide (EDB)	Benzene (total)	
		Radium 226 & 228	

### Unregulated Contaminants

Boron	Chloride	HAA5	Sodium
Bromochloromethane	Chlorodifluoromethane	HAAs	Strontium
1,1-Dichloroethane	Chloroform	Manganese	Vanadium
1,2-Dichloroethane	Chloroform	Methyl tert-butyl ether (MTBE)	

**Measurements** In this report, one part per million (ppm) is the same as one milligram of the substance in one liter of water (mg/L). To put this into perspective, one part per million is approximately one second in 31.7 days. One part per billion (ppb) is even smaller – about 1 second in 31.7 years.

"The water serving Halawa Shaft and Moanalua Wells has been tested and meets all Federal and State standards."

\* Board of Water Supply 2020 Water Quality Report



# Red Hill Bulk Fuel Storage Facility Update on AOC Actions

## **Actions scheduled for completion prior to next meeting:**

- Continue to execute Long-term Quarterly Groundwater Monitoring and Monthly Soil Vapor Monitoring
- Continue to conduct semi-annual Tank Tightness Testing
- Continue installation of additional Red Hill Monitoring Wells
- Receive, review and reply to EPA/DOH on:
  - Tank Upgrade Alternatives Decision Document
  - Release Detection Decision Document
  - Groundwater Flow Modeling Report
  - Investigation and Remediation of Releases Report
- Pursue Continuous Release Detection and Continuous Soil Vapor Monitoring
- Submit and obtain approval from EPA/DOH of:
  - SOW for Modified Corrosion and Metal Fatigue Practices
  - SOW for Phase 2 Risk and Vulnerability Assessment





# Layers of Protection

## PREVENTION

1. Improving Tank Inspection Repair and Maintenance Program continuously
2. Recoating tank interior steel liners to prevent corrosion as specified by coating specialist
3. Decommissioning nozzles (piping at bottom of tank) to reduce risk
4. Enhanced contractor qualification process to improve tank inspection and repairs
5. Updated processes and procedures for inspection, testing, quality control, quality assurance
6. Upgraded procedures for returning tanks to service
7. Revised and standardized operator training
8. Commitment to secondary containment

## DETECTION

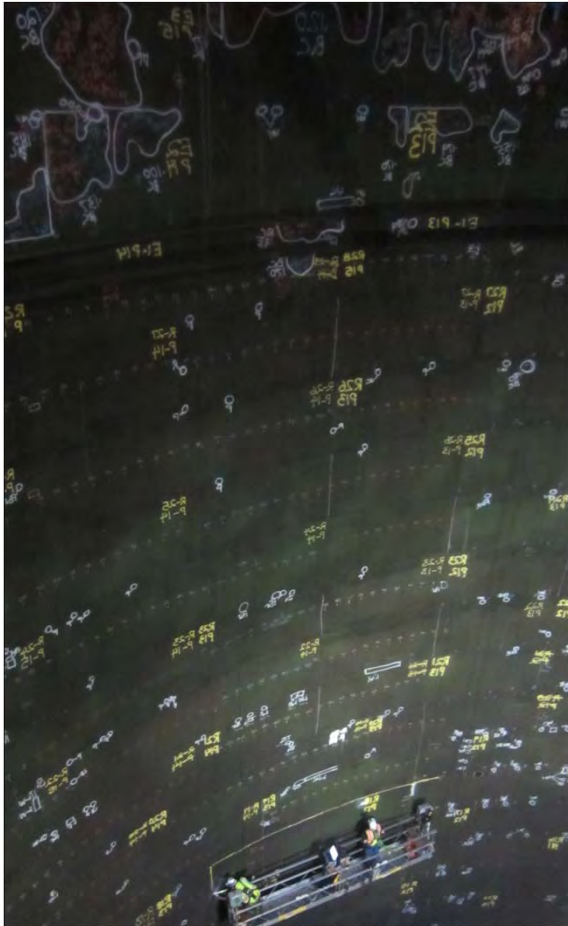
1. Conducting continuous (versus monthly) soil vapor monitoring
2. Conducting daily visual inspection of pipeline
3. Conducting manual fuel inventory trend analysis
4. Installing permanent enhanced release detection system in each tank
5. Increased tank tightness testing from annual to semi-annual, twice the state requirement
6. Improved fuel inventory monitoring using automated fuel handling equipment
7. Increased groundwater monitoring wells from seven to 16 since 2015; add 13 more by 2022 totaling 29 monitoring wells

## MITIGATION

1. Determining feasibility for potential construction of water treatment plant
2. Improving release response procedures continuously



# Red Hill Bulk Fuel Storage Facility Clean, Inspect and Repair Status



## The Regulatory Agencies approved the Tank Inspection Repair and Maintenance (TIRM) Process for Red Hill

- Detailed marking of a tank allows for a more precise/thorough inspection. This results in higher quality control and quality assurance.
- This state-of-the-art technology identifies the difference between:
  - Aesthetics – dents, etc. (non-actionable)
  - Defects – welds, pits, etc. (actionable)
  - Corrosion – depending on plate thickness (actionable/non-actionable)
  - Redundancy – redundant measures in place
- The filling sequence has been refined to better detect problems (i.e. 4 TTT rather than just one at the end)

LAYER OF PROTECTION - PREVENTION



# Release Detection

- Leak Detection Systems (LDS) are certified by the National Working Group for Leak Detection
- Currently tank tightness testing is achieved at Red Hill via a service contract.
- Since 2009 when tank tightness testing began, every tank in service has been tested and successfully passed tank tightness testing.
- In 2018, tank tightness testing increased frequency to semi-annual.
- Red Hill tank tightness testing is independent of the automated fuel handling equipment currently monitoring levels in each tank in service
- The Navy plans to permanently install LDS equipment which will allow tank tightness testing to occur on demand, should there be any indirect indications of a potential release



LAYER OF PROTECTION - DETECTION

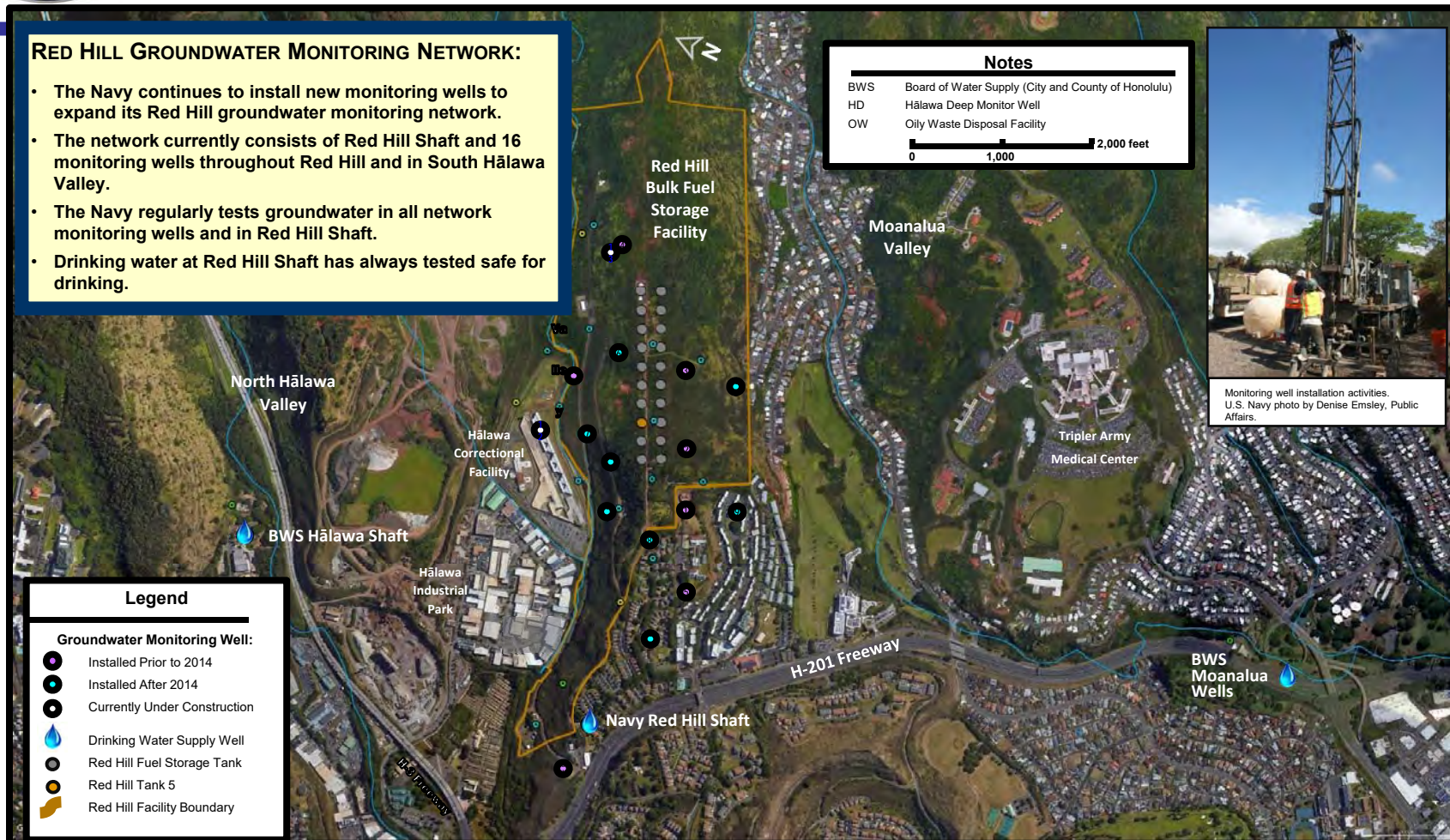




# Red Hill Groundwater Monitoring Network

## RED HILL GROUNDWATER MONITORING NETWORK:

- The Navy continues to install new monitoring wells to expand its Red Hill groundwater monitoring network.
- The network currently consists of Red Hill Shaft and 16 monitoring wells throughout Red Hill and in South Hālawā Valley.
- The Navy regularly tests groundwater in all network monitoring wells and in Red Hill Shaft.
- Drinking water at Red Hill Shaft has always tested safe for drinking.

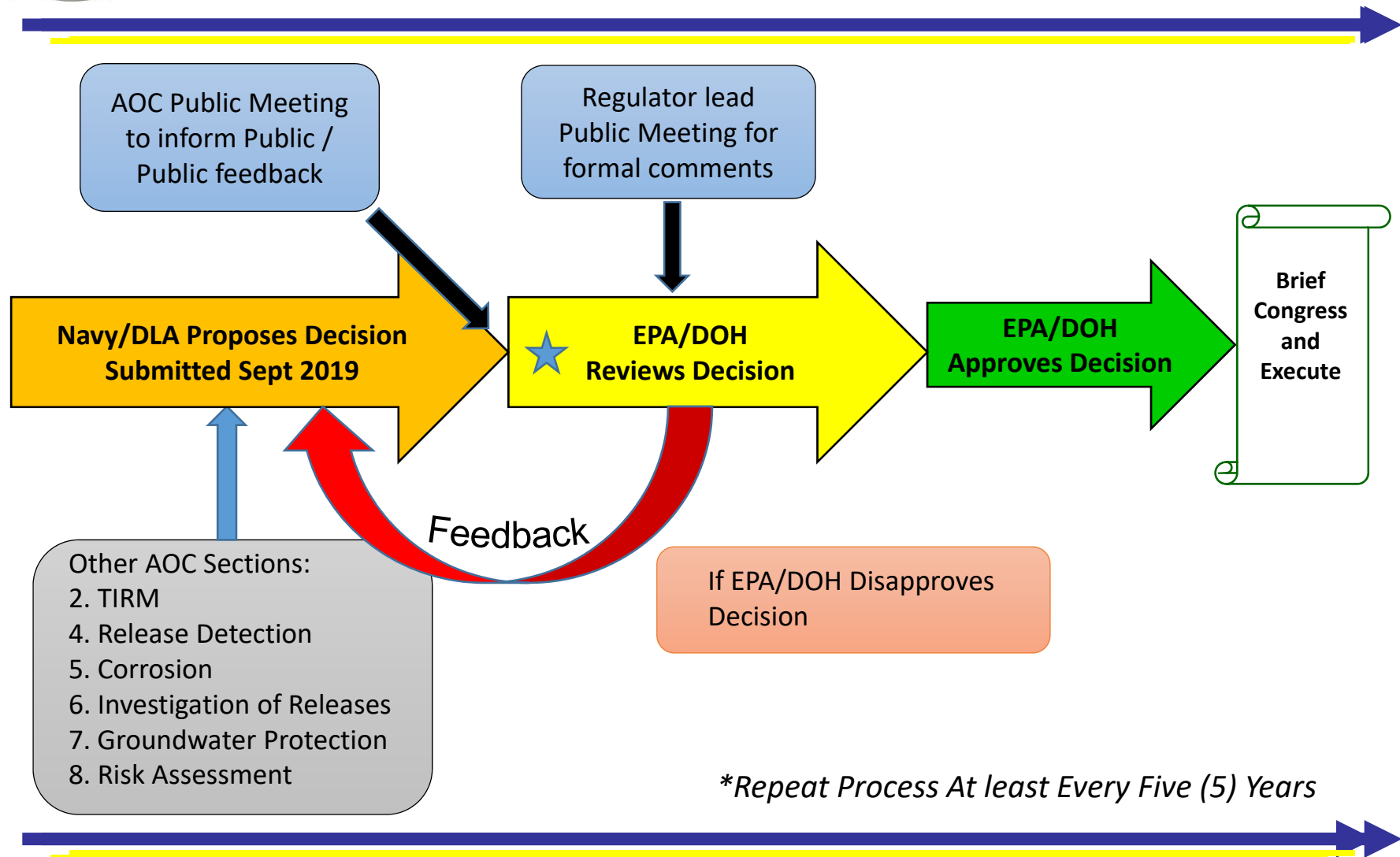


LAYER OF PROTECTION – DETECTION-MITIGATION





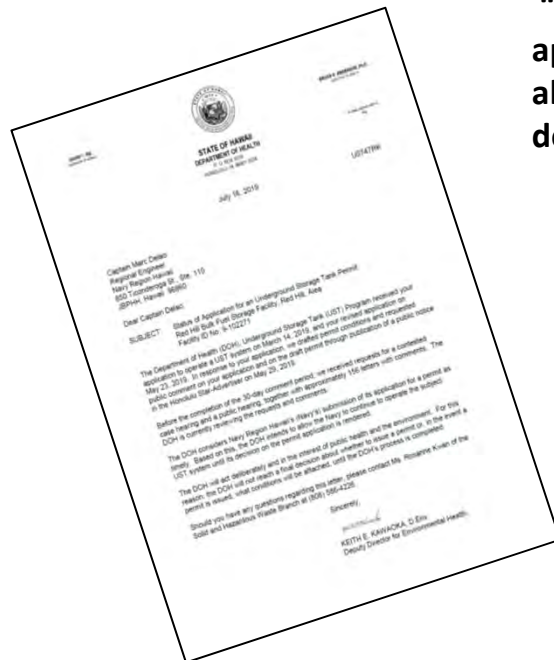
# Decision Process





# Permit Status

**“The DOH considers Navy Region Hawaii’s (Navy’s) submission of its application for a permit as timely. Based on this, the DOH intends to allow the Navy to continue to operate the subject UST system until its decision on the permit application is rendered.”**



**“Perform semi-annual tank tightness testing ...in accordance with the description provided under the heading “Tanks – Release Detection” ... of the permit application received by DOH on May 23, 2019 for any and all tanks storing product.”**

Tank ID No.	Description of permitted USTs	Capacity	Contents
P-1		12,000 gallons	Crude
P-2		12,000 gallons	Crude
P-3		12,000 gallons	Crude
P-4		12,000 gallons	Crude



# Summary



- Investments to protect drinking water
  - \$203M since AOC was signed
  - \$470M through FY25
- Navy moving forward with Secondary Containment
- Navy's partnership with University of Hawaii
- Water continues to be safe to drink
  - Routine water sampling/testing
- Tanks continue to pass semi-annual tank tightness tests
- AOC is working
  - Navy/DLA is accountable to EPA and the State of Hawaii
  - Navy/DLA meeting all AOC deadlines
- TUA and Release Detection Decision Document submitted September 2019
- Red Hill fuel is critical to National Security and the people of Hawaii



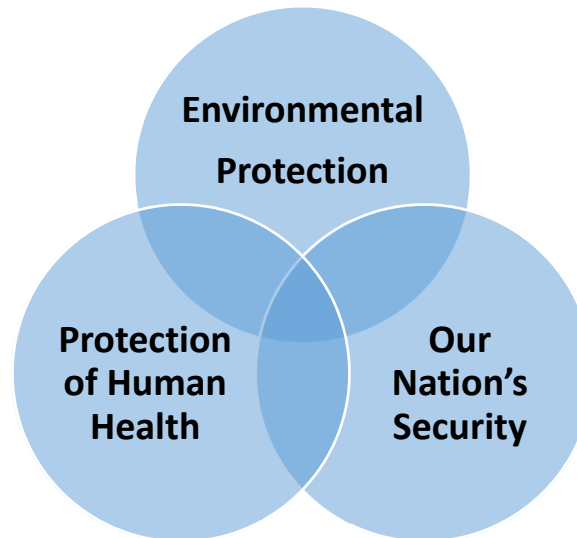


# Fuel Source During Blackout





# And Finally.....



The Navy is taking significant actions to protect our environment,  
our nation's security, and human health

***The final Tank Upgrade Alternative Decision accomplishes  
all three of these important goals***

A decorative horizontal arrow pointing to the right, composed of a thick blue line and a thinner yellow line below it.

**Mahalo**

**Questions?**

A decorative horizontal arrow pointing to the right, composed of a thick blue line and a thinner yellow line below it.

## Appendix E: Public Comments Received Before Meeting (22) and After Meeting (7)

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## Written Public Comments Submitted

Fuel Tank Advisory Committee Meeting  
October 30, 2020



## Perry, Thu

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**From:** Dave Kisor <panther\_dave@yahoo.com>  
**Sent:** Friday, October 23, 2020 8:42 AM  
**To:** Perry, Thu  
**Subject:** [EXTERNAL] Red Hill comments

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Aloha Thu

Since my system is too obsolete, I cannot log into Zoom, so I'll post my comments and questions in this missive. I am a Veteran of the World's Largest Nuclear Powered Janitorial Service, often referred to as the United States Navy, as an Aviation Electrician, active duty and reserve. During the 1975 deployment of CV-19 (USS Hancock) of which I was privileged to attend, the boat (Airwingers call them all boats) had been sold to Japan for scrap, but was pressed into service one more time and reduced to a point where the boat could no longer produce its own fresh water. We tanked with a converted oiler, but try as they might, we always got more than enough JP-5, especially when they turned off the stirring system at Taps (2200 hours). This caused cysts that woke me up at 0200 (2am) and in Sick Bay, I was known as The Cyst. This is the reason for my concern.

1. The above pretty much covers it.
2. They would first need a sensing system that would detect a change in chemistry of the ground around the tanks. A barrier, such a gigantic condom to fit around the tank would be one way to prevent leeching JP into the ground. It would be expensive, but worth it. When you consider the two glaciers calving off of the Antarctic that are predicted to raise global sea level eleven feet, the reason for the tanks may very well be moot, as the runways are approximately eight to ten feet above current sea level. The eleven foot rise is just the beginning. C'esspool la vie!
3. Communications between all branches? That'll be a good trick! The first thing to do would be set up a command with communications specialists from each branch to learn each others terminology and practices, because they all have their own. It would be a learning curve. Our squadron went to an AFB and we found they use different identifiers than the Navy. We called for a fuel truck and didn't know they used the last three numbers of the six digit bureau number; whereas, we use the three digit number on the nose. They are not the same. As for communication between the different levels of government, you could add a connection to FEMA. The only intergovernmental agreement is for firefighting, so one agency or level of government can cross jurisdictions and not get their butts in a sling. If you want intergovernmental / interagency, find out how they did that. I was USFS, but had nothing to do with that aspect.
4. See #2
5. As sea level rise is global, it will cause chaos, havoc and confusion everywhere. The calving glaciers are not a myth, as they are being watched. If the runways and seaport facilities are going to be flooded, that pretty much negates the need for these tanks, unless you can decommission those coastal facilities and move to higher ground. Nice work if you can get it! This will be largely ignored and written off as the rantings of a lunatic and when the runways are underwater at low tide, the question that will be raised, "who knew?" The only air facility that won't be directly affected on O'ahu will be Wheeler.

Rant complete,

Mahalo,  
Dave Kisor

|||||>^.^<|||||

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Cats & computers. Bring them into your home and your life is no longer your own.

Don't get upset when things don't work, but rather be amazed when they do!

If the Cat won't come to the mountain, then the mountain must perforce come to the Cat!

**Perry, Thu**

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**From:** Harvey Arkin <harveyarkin9@gmail.com>  
**Sent:** Monday, October 26, 2020 1:35 PM  
**To:** Perry, Thu  
**Subject:** [EXTERNAL] FUEL TANK ADVISORY COMMITTEE

---

Aloha Thu Perry,

There are 2 acceptable option removal of the Red Hill fuel tanks or make the fuel tanks double wall.

Thank you,  
Harvey Arkin  
Manoa, HI

**Perry, Thu**

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**From:** Patrick Reyes <patrick.reyes@gmail.com>  
**Sent:** Wednesday, October 28, 2020 12:18 AM  
**To:** Perry, Thu  
**Cc:** Senator Rosalyn H. Baker; contact@sierracluboahu.org; hawaii.chapter@sierraclub.org  
**Subject:** [EXTERNAL] Fwd: Senate Bill 2774

Thu,

I am submitting my written comment for the Fuel Tank Advisory Committee meeting this Friday. As a resident of this beautiful island, I strongly support the removal of these tanks as the only option to ensure our drinking water remains safe for generations to come. I do not have confidence in the US Navy to ensure these tanks never leak again. There is always a chance these tanks will leak. I support the tanks being emptied and removed over a period of time.

In fact, there was senate bill 2774 ([https://www.capitol.hawaii.gov/session2020/bills/SB2774\\_SD1\\_.HTM](https://www.capitol.hawaii.gov/session2020/bills/SB2774_SD1_.HTM)) that was to prohibit the operation of large capacity underground storage tanks that was killed by Senator Rosalyn Baker back in early 2020. I have yet to receive a response from her office with a reason why. If Senator Baker is attending this call, I would like to have a response for the record.

I hope to attend the meeting for public comment. However, with my children home from school during this pandemic it might not be possible.

Sincerely,  
Patrick Reyes

----- Forwarded message -----

**From:** Patrick Reyes <patrick.reyes@gmail.com>  
**Date:** Fri, Jul 17, 2020 at 12:54 PM  
**Subject:** Senate Bill 2774  
**To:** <senbaker@capitol.hawaii.gov>

Senator Baker,

Can you share why this Senate bill was removed from the agenda?

<https://www.civilbeat.org/2020/05/the-navy-replaced-its-leaky-fuel-tanks-in-california-why-not-oahu/>

I am a very concerned citizen about the safety of our drinking water and cannot believe these tanks are in the ground.

Please stay safe during this pandemic and I wish you and your family good health during these times.

Patrick Reyes

**Perry, Thu**

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**From:** arleen Velasco <velascoarleen@yahoo.com>  
**Sent:** Wednesday, October 28, 2020 10:48 AM  
**To:** Perry, Thu  
**Subject:** [EXTERNAL] Testimony on Red Hill Tanks

---

Dear Mr. Perry,

I would like to provide my input on the solution to the fuel tanks on Red Hill.

As you are aware the main aquifer for Honolulu is beneath the tanks. This is an extremely dangerous situation and must be addressed before another leak happens and threatens the water supply of this island. The citizens of this state deserve to have the safety of their water source a priority of the Navy and all elected and non elected officials with authority on this issue. The fuel should be removed immediately. Pump out the tanks and send the fuel to the mainland for recycling or disposal.

The destruction of the aquifer would cripple the economy of Hawaii and possibly make the island inhabitable. This is a very serious, dangerous situation and we must insist on the removal of the fuel as quickly as possible.

Sincerely,

Arleen Velasco  
3006 Pualei Circle, Apt 308  
Honolulu, HI 96815  
(808) 352-1616

**Perry, Thu**

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**From:** Jennifer Valentine <faboo1028@yahoo.com>

**Sent:** Wednesday, October 28, 2020 10:55 AM

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**To:** Perry, Thu

**Subject:** [EXTERNAL] Please relocate the Navy's fuel away from drinking water resources in Oahu as elsewhere

ty  
j valentine

**Perry, Thu**

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**From:** Kate Paine <kate@hula.net>  
**Sent:** Wednesday, October 28, 2020 12:09 PM  
**To:** Perry, Thu  
**Subject:** [EXTERNAL] Fuel Tank Advisory Committee Meet

---

Testimony / Question - IMHO tanks need to be relocated for the uncompromising good of the community.

How can that be accomplished since Navy has made it clear they don't want to foot that expense?

For the sake of gravity feed can they go further up the hill, in back of their current location?

Of course, another solution — that would find little support, but is the most practical solution— downsize military presence here, and lessen dependence on their footprint. Someone has to start the weening away from exorbitant national funds going to the military. Be ahead-of-the-curve if was our state taking steps towards facilitating cutbacks.

Kate here!

Kate Paine

Moiliili-McCully (we depend on that aquifer water)

**Perry, Thu**

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**From:** Valerie Weiss <valerieweiss31@gmail.com>  
**Sent:** Wednesday, October 28, 2020 1:25 PM  
**To:** Perry, Thu  
**Subject:** [EXTERNAL] RED HILL FUEL TANKS

Aloha

Please discard the US Navy's cut rate, *inadequate plans* to to rehab the tanks. These tanks are sitting directly over Honolulu's aquifer. Drinking water for the city can not be left to chance and experience another leak.

This is so important that even though I live on Kauai, I want you to do the right thing for the health of the water users in Honolulu. Human beings are drinking that water and need a guarantee that it will be clean and safe. A guarantee the US Navy is not willing to give.

Valerie Weiss  
Kapaa, Kauai



**Perry, Thu**

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**From:** Waikiki - Hawaii Condo <hawaiicondo@yahoo.com>  
**Sent:** Wednesday, October 28, 2020 4:13 PM  
**To:** Perry, Thu  
**Subject:** [EXTERNAL] Testimony for Annual Fuel Tank Advisory Committee Meeting 10/30/20

Dear Annual Fuel Tank Advisory Committee members:

Woulda, coulda, shoulda...

Coulda, shoulda, woulda...

Shoulda, woulda, coulda...

There will be too many ways to express excuses for not having relocated the old, rusting jet fuel tanks in Red Hill BEFORE the inevitable disaster that awaits O'ahu's primary sole-source aquifer.

Please don't let Oahu's residents, its tourists, our Nation, or the World ever hear those three words - in any order - in the same sentence as the words "Red Hill jet fuel tanks". The tanks need to be relocated urgently.

Thank you for your kind consideration,  
Kim Jorgensen  
Honolulu

**Perry, Thu**

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**From:** Boisvert-Jorgensen <infofordenise@yahoo.com>  
**Sent:** Wednesday, October 28, 2020 4:35 PM  
**To:** Perry, Thu  
**Subject:** [EXTERNAL] Testimony on Red Hill October 30, 2020  
**Attachments:** Testimony on Red Hill 2020-10-30 Boisvert.pdf

Dear Thu Perry,

Attached please find my testimony for Friday's Annual Fuel Tank Advisory Committee meeting. Please advise if you are unable to open the pdf and I will send it to you in an email.

Sincerely,  
Denise Boisvert

To Whom It May Concern:

Thank you for this opportunity to give public input.

Preventing a catastrophic crisis is a lot easier than eventually dealing with one.

**1989** – the **Exxon Valdez disaster in Alaska** devastated Prince William Sound and its shores

- Human error caused 11 million gallons of oil to contaminate 1,300 miles of coastline

**2010** – the **Deepwater Horizon disaster in Louisiana** devastated the Gulf of Mexico and its shores

- 5 key human errors, and 1 colossal mechanical error, caused 210 million gallons of oil to be discharged

**The last few years**, despite promises and reassurances, both the Keystone and Dakota Access Pipelines have leaked hundreds of thousands of gallons of oil onto agricultural land and in local waterways – more examples of human error.

**Red Hill, Hawaii** – which year will become equally famous when the almost 80-year old fuel tanks devastate O'ahu's primary sole-source aquifer?

- 2021? 2025? It could still even be 2020!

They say hindsight is 20/20

- It was human error to install the tanks on top of the aquifer in the 1940s
- And it will definitely be human error today to not decide to **relocate** the tanks

The tanks have served their purpose - - - and overstayed their welcome. They must now be emptied and retired before disaster strikes.

There are enough movies about environmental catastrophes, corporate greed, and unethical elected officials:

- "Erin Brockovich" – what PG&E did to Hinkley, CA
- "Dark Waters" – what Dupont did to Parkersburg, WV
- "Flint" & "Bigger Than Water" – what unethical city officials did to Flint, MI

**The Navy's proposed solution ripe with the opportunity for unlimited human errors only guarantees another disaster movie.** Please don't let that happen.

Sincerely,  
Denise Boisvert  
Waikiki

**Perry, Thu**

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**From:** davidsher@juno.com  
**Sent:** Wednesday, October 28, 2020 9:17 PM  
**To:** Perry, Thu  
**Subject:** [EXTERNAL] COMMENTS TO THE FUEL TANK ADVISORY COMMITTEE  
**Attachments:** Red Hill Fuel Tanks.pdf

Aloha

Attached are comments for the Fuel Tank Advisory Committee for this Friday's meeting.

Mahalo,

Sherry Pollack, 350Hawaii



Aloha

I am Co-Founder of the Hawaii chapter of 350.org, the largest international organization dedicated to fighting climate change. 350Hawaii appreciates the opportunity to submit comments to the Fuel Tank Advisory Committee.

It has been more than six years since the 27,000 gallon leak occurred from the red hill fuel tank and the community is still waiting for real action to protect the safety of Oahu's drinking water. Continuing to store fuel in these 70+ year old tanks located 100 feet above our water aquifer is unacceptable. Despite what the Navy might say, there is NO justification for this. It is pure negligence on the part of the Navy that this has dragged on for as long as it has.

Hawaii is already experiencing the effects of Climate Change and there are many climate-driven changes that are already putting our water resources at risk. This is all the more reason why we must make it a priority to protect the principal source of drinking water for more than 750,000 Oahu residents from fuel contamination.

We applaud the EPA and the Hawaii Department of Health (DOH) for rejecting the Navy's fully inadequate red hill fuel tank plan. The Navy's stall tactics and lack of operating in good faith to protect our health and safety year after year clearly demonstrates they are not 'good neighbors' and do not deserve the patience that has been afforded them. We urge the DOH to direct the Navy to relocate the fuel away from a primary drinking water resource without any further delay. Our water is precious. We must stop jeopardizing the safety of Oahu's drinking water and we must stop it NOW! No more excuses. No more delays.

Respectfully,

Sherry Pollack  
Co-founder, 350Hawaii.org

**Perry, Thu**

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**From:** Helen Nakano <hanafudahawaii@gmail.com>  
**Sent:** Wednesday, October 28, 2020 10:03 PM  
**To:** Perry, Thu  
**Cc:** Helen Nakano; Stanton Lum; Penelope Hazzard; Richard S. Morris; Harry Spiegelberg; Julia Ishado; Jennifer Sakuma; Jean Leong; Phyllisjean Toma; Thalya DeMott; Case For Hawaii  
**Subject:** [EXTERNAL] Red Hill Bulk Fuel Storage Facility--Testimony

Dear Mr. Perry,

I am very concerned about the imminent danger to 400,000 residents the Red Hill fuel farm represents. I have been watching and listening to testimony on this matter for years and am very discouraged by the delays and the lack of urgency it seems our government representatives feel about this health threat which I consider even greater than the present pandemic.

The fuel tanks need to be removed. Forget about fixes. They were built during WWII; never meant to last this long. They are being removed in Washington and San Diego, on the mainland. Why not Hawaii?

Please stand firm against the Navy's epoxy band-aid mitigation proposals. This is a preventable disaster, but only IF we don't delay further.

Sincerely,  
Helen Nakano  
3080 Puhala Rise  
Honolulu, HI 96822

**Perry, Thu**

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**From:** Penelope Hazzard <pennyhazz@yahoo.com>  
**Sent:** Wednesday, October 28, 2020 10:40 PM  
**To:** Perry, Thu  
**Subject:** [EXTERNAL] Red Hill tanks

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I am very concerned about the imminent danger to the fresh water of 400,000 residents that the Red Hill fuel farm represents. I am very discouraged by the delays and the lack of urgency that seems our government representatives present about this health threat which will affect Hawaii more than our present pandemic.

The fuel tanks need to be removed. Forget about fixes. They were built during WWII; never meant to last this long. They are being removed in Washington and San Diego, on the mainland. Why not Hawaii?

Please stand firm against the Navy's epoxy band-aid mitigation proposals.  
This is a preventable disaster, but only IF we don't delay further.

The Navy even admits that it doesn't know the extent of possible deterioration in some of the tanks.

Aloha,  
Penelope Hazzard  
1550 Rycroft Street, #522  
Honolulu, HI 96814  
(808) 779-9723

## Perry, Thu

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**From:** Julia Ishado <jtishado@gmail.com>  
**Sent:** Wednesday, October 28, 2020 11:05 PM  
**To:** Helen Nakano  
**Cc:** Perry, Thu; Stanton Lum; Penelope Hazzard; Richard S. Morris; Harry Spiegelberg; Jennifer Sakuma; Jean Leong; Phyllisjean Toma; Thalya DeMott; Case For Hawaii  
**Subject:** [EXTERNAL] Re: Red Hill Bulk Fuel Storage Facility--Testimony

Thanks for the update. So many things that need to be worked on. How about all of the neighborhood boards writing a resolution because it doesn't appear that the city or state will do anything. (Hanafuda concept of community and family -hiki- is greater than the gagi or natural disaster.) Start with Moanalua Neighborhood Board, Aiea, Salt Lake, etc. Manoa Heritage Center can fund the think tank people to strategize. Helen, who are the big wheels that can help or the powerfully social conscious folks. It's just one small island and we're all connected.

On Wed, Oct 28, 2020 at 10:02 PM Helen Nakano <[hanafudahawaii@gmail.com](mailto:hanafudahawaii@gmail.com)> wrote:

Dear Mr. Perry,

I am very concerned about the imminent danger to 400,000 residents the Red Hill fuel farm represents. I have been watching and listening to testimony on this matter for years and am very discouraged by the delays and the lack of urgency it seems our government representatives feel about this health threat which I consider even greater than the present pandemic.

The fuel tanks need to be removed. Forget about fixes. They were built during WWII; never meant to last this long. They are being removed in Washington and San Diego, on the mainland. Why not Hawaii?

Please stand firm against the Navy's epoxy band-aid mitigation proposals. This is a preventable disaster, but only IF we don't delay further.

Sincerely,  
Helen Nakano  
3080 Puhala Rise  
Honolulu, HI 96822



**Perry, Thu**

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**From:** ann Wright <annw1946@gmail.com>  
**Sent:** Thursday, October 29, 2020 1:43 AM  
**To:** Perry, Thu  
**Subject:** [EXTERNAL] Comments about Red Hill for the FUEL TANK ADVISORY COMMITTEE AGENDA FOR THE FIFTH ANNUAL MEETING

October 29, 2020

Comment for the FUEL TANK ADVISORY COMMITTEE  
AGENDA FOR THE FIFTH ANNUAL MEETING

Thu Perry  
[thu.perry@doh.hawaii.gov](mailto:thu.perry@doh.hawaii.gov)

State of Hawai'i  
Department of Health

Dear Mr. Perry

Please read my comment at the October 30, 2020 at the Fifth Annual Meeting of the Fuel Tank Advisory Committee.

I am retired U.S. Army Colonel Ann Wright. I live at 2333 Kapiolani Blvd, Honolulu, HI 96826.

I continue to be very concerned about the 225 million gallons of jet fuel at Red Hill that sit a mere 100 feet above Honolulu's water supply.

I do not have trust in 75+ year-old tanks that now are as thin as a dime with the pressure of 12.5 million gallons in each tank. As a 74 year old person, I know that anything that age leaks—and we have seen massive leaks in the tanks over the years.

According to ABS Consulting, a firm hired by the U.S. Navy, there is a 27.6% chance of a leak of up to 30,000 gallons of fuel during any given year which has been called a "conservative" estimate by an EPA specialist.

ABS also calculated a 34% chance of a release of over 120,000 gallons in the next 100 years. Chronic, undetected releases are expected to total 5,803 gallons per year, according to ABS.

In 2014, Fuel tank #5 leaked 24,000 gallons. That same fuel tank was put back into operation earlier this year.

In September 2019, the Navy released its preferred plan on how to upgrade the Red Hill tanks after studying six tank upgrade options. The Navy's preferred choice—**the least protective and least expensive option**—is to keep the original steel tank liner, coat it with epoxy, and explore installing a

water treatment plant to filter toxic chemicals from O'ahu's drinking water in the case of another major leak.

The plan also commits to some undefined, undetermined "double-wall equivalency" solution or relocation of the tanks "around 2045"—which proposes to extend the deadline to upgrade the tanks another 7 years using some unknown, future technology that is not actually a double-walled solution. The Navy proposed a deadline of 2045 to provide what it calls "double-wall equivalency secondary containment," or, in the alternative, removal of the fuel if that is not possible is too long.

The idea of putting off another 20 years until 2045 a decision on the future of the tanks is irresponsible. While Department of Defense will cite national security for the necessity of the tanks, as a resident of Oahu I cite my own human security and the human security of my fellow residents for our water supply.

Other Department of Defense fuel tanks locations have replaced their aging fuel tanks that too have had leaks. With the largest budget of U.S. history—over \$780 billion this year, DOD can certainly put into its budget the removal of the fuel tanks from Red Hill—and Congress would approve it as Congress approved the budget for the removal of the fuel tanks in San Diego and Kitsap Naval Base, California. The [\\$194 million overhaul of the Point Loma-San Diego](#) fuel tanks began in 2005 and was finished in 2013. 54 underground and above-ground fuel storage tanks were replaced with eight tanks, all above ground.

Additionally, we have learned that the Navy has contracted a firm through the University of Hawaii's classified Department of Defense University of Affiliated Research Center (UARC) to conduct an unknown project about Red Hill. We would appreciate the Department of Health finding out what this research is about and informing the public.

As the State of Hawai'i Department of Health, we residents rely on you to protect us from danger. Red Hill jet fuel tanks are the biggest danger the residents of Oahu have.

Following are among many documents that the public needs to be aware of concerning the dangers of Red Hill jet fuel tanks to our public safety:

[https://www.epa.gov/sites/production/files/2019-06/documents/red\\_hill\\_risk\\_assessment\\_report\\_redacted-2018-11-12.pdf](https://www.epa.gov/sites/production/files/2019-06/documents/red_hill_risk_assessment_report_redacted-2018-11-12.pdf)

[https://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2011/budget\\_justification/pdfs/04\\_Family\\_Housing/milconFamHSG.pdf](https://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2011/budget_justification/pdfs/04_Family_Housing/milconFamHSG.pdf)

<https://sierraclubhawaii.org/redhill>

<https://www.civilbeat.org/2020/05/the-navy-replaced-its-leaky-fuel-tanks-in-california-why-not-oahu/>

<https://www.staradvertiser.com/2020/03/11/breaking-news/red-hill-tank-that-leaked-fuel-being-brought-back-into-service/>

[https://www.epa.gov/sites/production/files/2019-09/documents/red\\_hill\\_aoc\\_tua\\_proposal\\_decision\\_document\\_20190919.pdf](https://www.epa.gov/sites/production/files/2019-09/documents/red_hill_aoc_tua_proposal_decision_document_20190919.pdf)



Thank you,

Ann Wright  
2333 Kapiolani Blvd #3217  
Honolulu, HI 96826

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808-741-1141

[Annw1946@gmail.com](mailto:Annw1946@gmail.com)

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Ann Wright  
Dissent: Voices of Conscience  
[www.voicesofconscience.com](http://www.voicesofconscience.com)

**Perry, Thu**

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**From:** Shannon Rudolph <shannonkona@gmail.com>  
**Sent:** Thursday, October 29, 2020 5:10 AM  
**Subject:** [EXTERNAL] Red Hill testimony

Aloha,

The SOLE purpose of the Dept. of Health is to protect our health.

What good is the Dept. of Health if it can't DO this one, simple thing; it's MAIN reason for existence?

ANY entity that jeopardizes the health of Hawai'i's water & public health is a grave threat to our security & MUST be held accountable.

As a long time Hawai'i & Federal taxpayer, I DEMAND that the Dept. of Health do their job & stand up & fight hard for our clean water - immediately!  
NO exceptions!

Insist on the removal of every derelict tank at Red Hill!  
Hawai'i residents, present & future, are DEPENDING ON YOU to do your job!

Mahalo,  
Shannon Rudolph

**Perry, Thu**

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**From:** ann Wright <annw1946@gmail.com>  
**Sent:** Thursday, October 29, 2020 5:23 AM  
**To:** Perry, Thu  
**Subject:** [EXTERNAL] Additional Comment for the FUEL TANK ADVISORY COMMITTEE AGENDA FOR THE FIFTH ANNUAL MEETING

October 29, 2020

Additional Comment for the FUEL TANK ADVISORY COMMITTEE  
AGENDA FOR THE FIFTH ANNUAL MEETING

Thu Perry  
[thu.perry@doh.hawaii.gov](mailto:thu.perry@doh.hawaii.gov)

State of Hawai'i  
Department of Health

Dear Mr. Perry

This is the second comment I have written today for the October 30, 2020, the Fifth Annual Meeting of the Fuel Tank Advisory Committee—as I just read in Civil Beat that on Monday, October 26, 2020, the Environment Protection Agency and the State of Hawai'i Department of Health rejected the U.S. Navy's plan for the Red Hill fuel tanks as "deficient."

I am retired U.S. Army Colonel Ann Wright. I live at 2333 Kapiolani Blvd, Honolulu, HI 96826.

I appreciate very much that the EPA and the DOH have identified that the US Navy proposal "lacks detail, clarity, rationale and justification to demonstrate that the actions described in the Decision Document are the best available practicable technology ("BAPT") for the tanks and operations at the Red Hill 1 facility."

I also appreciate holding the Navy's feet to the fire on what response actions there will be to minimize risk and impact to the drinking water resource and how the multiple systems will improve overall monitoring, accuracy, redundancy.

At the end of the day, or end of the decade(s), ultimately the ancient Red Hill jet fuel tanks must be emptied and shut down.

However, upon the closing of the tanks for jet fuel use, I think we should investigate opening the massive engineering project to the public as a major tourist attraction on Oahu, similar to the Hoover Dam and other incredible public works projects done around the World War II era.

Thanks again,

Ann Wright

—

Ann Wright  
Dissent: Voices of Conscience

**Perry, Thu**

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**From:** Patricia Blair <patriciablair@msn.com>  
**Sent:** Thursday, October 29, 2020 7:15 AM  
**To:** Perry, Thu  
**Subject:** [EXTERNAL] Fwd: Red Hill Fuel Tanks must be stopped 100;feet above Honolulu aquifer or be removed for the people's sake.

**Subject: Red Hill Fuel Tanks must be stopped 100;feet above Honolulu aquifer or be removed.**

Patricia Blair, Kailua

Sent from my iPad

**Perry, Thu**

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**From:** Ashley Nishihara <agenthemlock@icloud.com>  
**Sent:** Thursday, October 29, 2020 10:34 AM  
**To:** Perry, Thu  
**Subject:** [EXTERNAL] Written Testimonies For FTAC Meeting on Friday, October 30th, 2020.

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Aloha Mr. Perry,

I would like to submit two written testimonies, one from myself (Ashley Nishihara) and one from my mother (Lynda Nishihara) for the FTAC meeting being held on Friday, October 30th, 2020.

Mahalo,

-Ashley

Ashley Nishihara:

Nothing is more precious than our water. The simple fact is that the tanks are leaking, and it's only a matter of time before the contaminants enter our drinking water. We need to get it OUT and away from our aquifer as soon as possible, not years down the road.

Unlike Flint Michigan, we cannot switch to another water source; we are an island, and our water comes to us naturally filtered by the lava rock as a gift, but our resources are finite and must be used wisely. It can take up to twenty-five years for the rain to become the water we drink, but it only takes a human being three days without water to perish. The system we have is so unique and precious, and once it is polluted, there is no going back.

If the fuel is not relocated above ground, AWAY from our aquifer, it will only be a matter of time before Oahu will become uninhabitable and yet another sad casualty of humanity's delusion, arrogance, and greed. Many excuses have already been given as to why the tanks cannot be shut down/relocated above ground, but unfortunately it might take a catastrophe before people wake up and realize that we can't drink money or fuel.

Lynda Nishihara:

Once again I would like to express my desire to have the USTs removed.

If you were to poll the people of Oahu I am positive the vast majority would agree that risking contamination of our aquifer is NOT a good idea.

Prevention is always easier and less expensive than trying to FIX something gone awry. You can never go back once major contamination occurs.

My wish is for you to have an epiphany and realize our aquifer is our greatest treasure.

**Perry, Thu**

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**From:** Kels Choo <kookookchoo09@gmail.com>  
**Sent:** Thursday, October 29, 2020 11:05 AM  
**To:** Perry, Thu  
**Subject:** [EXTERNAL] Comments for Fuel Tank Advisory Committee Meeting 10/30

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Dear Thu Perry of the Department of Health,

I am writing to comment on the plans of the Red Hill fuel tanks for the upcoming Fuel Tank Advisory Committee Meeting taking place tomorrow October 30, 2020 at 1 pm.

As a former resident who grew up in Honolulu, (but now lives on the mainland mainly due to the expense of returning home and staying afloat there) and whose family still resides & has a long history on Oahu, the issue of the fuel tanks with past (and probably future) leakages is alarming. It's concerning that the quality of Oahu's drinking water is being put in jeopardy, and seemingly is not being made a higher priority. Obviously with the pandemic on, the Department of Health should be focused on that first, but even before COVID it seems that awareness of and action on this issue was fairly low.

It's my opinion that the tanks should be relocated to somewhere away from Oahu's aquifers. I understand that such an undertaking would probably be costly, but most of our tax dollars go to the military, so I feel like the military should be able (& willing) to handle paying for moving their facilities. Especially when contamination of our main source of drinking water is at stake and they are the cause. At the very least, if not relocated, they should be reconstructed to a double-walled build to better help contain future leaks, rather than simply being lined which obviously hasn't worked well enough in the past. These tanks should also be fixed well before the proposed year of 2038. 18 years is way too long, and shows that this is not being made a priority. Slapping a short-sighted band-aid on this issue will only end up costing more in the long run; built in the 1940s, these tanks are over 75 years old, and already have a history of leakage. How much will it cost to contain a bigger leak, or handle the issue of worse contamination of our water? A disastrous event like this would affect the health of everyone local, all of Oahu's tourists (and future visitors), and Hawaii's already fragile ecosystem.

Hawaii's state constitution says that the state has an obligation to protect Hawaii's water resources *for the benefit of its people*. Our city charter states that all city powers shall be used to promote stewardship of natural resources *for present and future generations*. Water is a necessity for all life, and poisoning our main source, as an already geologically isolated community, isn't logical and more importantly does not express care for our fellow humans or environment. Please do not enable the continued destruction and disrespect of Hawaii's people and land. As those who have the power to make a difference, I urge the committee to choose a path that will protect our water and be better for Oahu not only now, but in the future as well.

Thank you and hope you all stay well.

Sincerely,  
Kelsey Choo



**Perry, Thu**

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**From:** Melodie Aduja <legislativepriorities@gmail.com>  
**Sent:** Thursday, October 29, 2020 11:23 AM  
**To:** Perry, Thu  
**Subject:** [EXTERNAL] Comments on the Red Hill Bulk Storage Facility for the Fuel Tank Advisory Committee Meeting, Oct. 30, 2020, 1:00 p.m.  
**Attachments:** Fuel Tank Advisory Committee Comments^J 10-29-2020.pdf

Aloha Ms. Perry:

Kindly, please find attached, the comments of the Environmental Caucus of the Democratic Party of Hawai'i.

Mahalo nui loa,  
Melodie Aduja  
Vice-Chair, Environmental Caucus  
Democratic Party of Hawaii  
(808) 258-8889



## Environmental Caucus of The Democratic Party of Hawai'i

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*via email: [thu.perry@doh.hawaii.gov](mailto:thu.perry@doh.hawaii.gov)*

Thursday, October 29, 2020

Members of the Fuel Tank Advisory Committee  
Underground Storage Tank (UST) Section  
Department of Health  
1250 Punchbowl Street  
Honolulu, Hawaii 96813

Ms. Thu Perry  
Public Participation Coordinator  
Solid & Hazardous Waste Branch  
Department of Health  
919 Ala Moana Boulevard, #212  
Honolulu, Hawaii 96814

### **Re: Red Hill Bulk Fuel Storage Facility Tank Upgrade Alternatives**

Aloha, Members of the Fuel Tank Advisory Committee and Ms. Perry:

Thank you for the additional opportunity for the Environmental Caucus of the Democratic Party of Hawai'i (DPH) to provide comments relating to the mandate of the Fuel Tank Advisory Committee (FTAC) under HRS 342L-62 (a) relating to the Red Hill Bulk Fuel Storage Facility. Under consideration are: (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 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.

The Democratic Party of Hawai'i has an enrolled membership of over 116,000 active and associate members in the State of Hawai'i. The Environmental Caucus of the Democratic Party is a semi-autonomous organization that advocates and advances the Platform and Resolutions adopted by its members at the Democratic State Convention and the O'ahu County Democratic Convention.

Fundamentally, we concur in the rejection letter from the United States Environmental Protection Agency, Region IX, and the State of Hawaii Department of Health, dated October 26, 2020, in determining that the Tank Upgrade Alternative (TUA) Decision Document lacks detail, clarity, rationale and justification to demonstrate that the actions described in the Decision Document are the best available practicable technology (BAPT) for the tanks and operations at the Red Hill facility. Further, as noted in the October 29, 2020, EPA/DOH Letter, the TUA Decision Document failed to discuss an analysis of the relative environmental performance of the six upgrade options, expected life of upgrade and improvement options, demonstration that the selected option is protective of the drinking water resource, and optimization of release detection and release response measures to bound maximum volume of fuel released to the environment in the event of an emerging leak.

However, to the dismay of the DPH Environmental Caucus, the Navy's TUA Decision Document fails to require either removal or relocation of the Red Hill USTs before July 15, 2028, or the installation of secondary containments by that date.

We must emphasize the massive size and dangerous nature of the Red Hill USTs. They were built during World War II, some 80 years ago. There are 20 such tanks (one of which has recently been removed from service), each some 100 feet in diameter, and some 250 feet tall, holding 12.5 million gallons of fuel in each of the 19 remaining tanks. These tanks sit only one hundred feet above the primary drinking-water aquifer on the Island of O`ahu. The fuel tanks are composed of now-rusting, thinning steel, crumbling in places, encased in porous concrete, ever more susceptible to spontaneous leakage.

A major leak from even one of these tanks jeopardizes drinking-water for the majority of O`ahu's population of one million people. Such a leak cannot be "cleaned up." The water will simply be undrinkable for anyone – civilians or military.

**This is a disaster waiting to happen. It is essential that the Red Hill USTs be removed, or at least upgraded to secondary containment. However, it is clear that the owner of the USTs has no plan to undertake either plan for at least 15 years. This is unacceptable.**

The Hawaii Administrative Rules (HAR) § 11-280.1-21 require that all UST systems be upgraded to secondary containment by a firm fixed date, July 15, 2028, except for field-constructed tanks (e.g., Red Hill Field Tanks) and airport hydrant systems, which must be provided with secondary containment by July 15, 2038.

The DPH Environmental Caucus strongly opposes allowing the field-constructed tanks to have a fixed-date extension in HAR § 11-280.1-21 from July 15, 2028 to July 15, 2038 and a proposed

2<sup>nd</sup> extension to July 1, 2045. We urge the FTAC to require that the EPA and the Hawai'i Department of Health (HDOH) demand secondary containment for the Red Hill Bulk Fuel Storage Facility, or, in the event that secondary containment is determined to be infeasible, then the relocation of the fuel tanks away from the aquifer be no later than July 15, 2028.

In 2018, the O'ahu County Democrats, out of dire concern over the risk to the Moanalua-Waimalu Aquifer, our major drinking water source for Moanalua to Hawai'i Kai, affecting hundreds of thousands of residents, businesses and visitors of the Honolulu District, adopted the following resolution:

**OC 2018-11. Urging the United States Navy to retrofit its twenty jet fuel tanks or relocate them to a location away from the aquifer**

Whereas, A Navy analysis may underestimate the contamination potential of leaks from giant fuel tanks from Red Hill; and

Whereas, The Navy has 20 underground fuel storage tanks dating to World War II in Red Hill above Pearl Harbor; and

Whereas, The tanks sit on an aquifer that supplies a quarter of the water consumed in urban Honolulu; and

Whereas, More than 27,000 gallons of jet fuel leaked from one of the tanks in 2014; and

Whereas, The Navy's evaluation of the potential risks appears to be skewed toward concluding that millions of gallons of jet fuel could be released without damaging the groundwater; and

Whereas, The Navy cannot locate the leaked fuel or accurately assess the risk to our groundwater; and

Whereas, Instead, the Navy is providing models to produce its preferred outcomes; and

Whereas, The Navy and regulatory agencies are working on a 20-year-plan to reduce the risk of leaks and fuel contamination from the tanks; and

Whereas, The plan includes new tank designs and potentially storing the fuel someplace other than Red Hill; and therefore, be it



*Resolved*, That the O‘ahu County Democrats of the Democratic Party of Hawai‘i urge the United States Navy to install double-walled tanks at Red Hill within five years or move the tanks if the Navy is unable to retrofit the twenty tanks into double-walled tanks within the time prescribed; and be it further

*Resolved*, That the O‘ahu County Democrats of the Democratic Party of Hawai‘i urge the Hawai‘i State Legislature, and the U.S. Congress to mandate that the Navy retrofit the twenty Red Hill tanks to double-walled tanks within five years and or relocate the twenty tanks to a location where the risk of leakage into the aquifer and groundwater is greatly minimized; and be it

*Ordered*, That copies of this resolution be transmitted to the United States Navy, members of the Hawai‘i Congressional Delegation, the Governor of the State of Hawai‘i, the Lt. Governor of the State of Hawai‘i, Hawai‘i Legislators who are members of the Democratic Party; the Mayor of the City and County of Honolulu; and Members of the City Council of the County of Honolulu; and the 2018 convention resolutions committee of the Democratic Party of Hawai‘i.

[End quote]

For these reasons, the Environmental Caucus of the Democratic Party of Hawai‘i opposes the extension of the deadline to upgrade to secondary containment for Red Hill Field USTs from July 15, 2028 to July 15, 2038 and proposed July 1, 2045, and urges the FTAC to require the EPA and the HDOH to demand secondary containment for the Red Hill Field Tanks or, if secondary containment is determined to be infeasible, then the relocation of the fuel tanks away from the aquifer so that the people of the state of Hawai‘i, particularly those residing, working, and visiting the county of Honolulu, can feel safe and risk-free of petroleum contamination in its major drinking-water aquifer for generations to come.

In addition, we urge that HAR § 11-280.1-23 and HAR § 11-280.1-42 be made applicable to field-constructed tanks. These sections must require hazardous substance USTs to use interstitial monitoring and be secondarily contained with no exceptions. If the Red Hill Field Tanks are upgraded with secondary containment, then interstitial monitoring must be required. Interstitial monitoring will detect the presence of liquid in the interstitial space between the lining. Double-walled tanks must be designed for continuous electronic monitoring or visual inspection of interstitial space for signs of leak using sensors connected to an automatic tank gauge which triggers a visual or audible alarm whenever the sensors detect liquid.

Currently, the Red Hill steel lining is encased in cement that has been subjected to 80 years of deterioration. Cement is porous and offers no protection from the environment. 80 years of leaks have thus entered our environment and, as it stands, the Navy has found that there is a 34% chance of a major fuel leak at the facility in the next 100 years. If the aquifer is polluted by a major failure at one the Red Hill tanks or by a migration plume of leaked oil, it would be catastrophic, rendering O'ahu uninhabitable. An adequate supply of safe drinking water is critical for life and our economy.

Please note that the 2014 release of 27,000 gallons of fuel from Tank 5 was not the only release. A release from Tank 6 was reported by the Navy in 2002. Tanks 15 and 16 also had fuel releases after 1988, according to a Navy report in 2014. The Navy TRIM report in 2016 indicates that Tank 5, Tank 10, Tank 17, Tank 19, and Tank 20 underwent inspections after 1988 that identified through-wall corrosion and possible leaks below the detection limit. The groundwater data from 2005 to the present show petroleum chemical contaminants in groundwater samples. Petroleum staining was found in cores taken before 2014 beneath Tanks 19 and 20. (See AMEC Report, 2002.) Further, the Navy's Red Hill Facility Groundwater Protection Plan (GWPP) report documents leaks from various tanks from 1940s to the 1980s (Navy report, 2008.)

We also urge that HAR § 11-280.1-67 apply to require public notification in the event of a confirmed release from the Red Hill Field Tanks. We urge that HAR § 11-280.1-67 serve to require public notification in the event of a confirmed release immediately so that the public can prepare accordingly, and not only when a corrective action plan is in place, by then, it may be too late for the public to properly prepare for the onset of the drinking water contamination.

Given that (1) O'ahu's sole-source groundwater aquifer provides critical drinking water supplies which cannot be replaced, (2) an enormous amount of fuel (up to 250 million gallons of fuel) is stored 100 feet over this major drinking-water resource, (3) petroleum chemicals have been detected in groundwater and rocks underneath the tanks, and (4) the Navy's interim report wants to lull the public into the unsafe belief that a 700,000 gallon release would not cause any impacts to the Navy's Red Hill Shaft, we believe that it is better to err on the side of caution and afford the Red Hill Field Tanks the same protections required of non-field constructed tanks, i.e., secondary containment with interstitial monitoring by July 15, 2028, or in the alternative, to drain the 250 million gallons of jet fuel, marine diesel, and other petroleum constituents and relocate the fuel into "state of the art above ground tanks" or in underground secondary containment with interstitial monitoring in an area where they will not pose a risk of "clear and present danger" and "imminent harm" to human health and the environment from UST releases above a major drinking water aquifer.

Members of the Fuel Tank Advisory Committee

Ms Thu Perry

October 29, 2020

Page 6

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Mahalo for the opportunity to provide additional public comments on this critical matter,

/s/ Alan B. Burdick

Chair, Environmental Caucus of the Democratic Party of Hawai'i

Email: [burdick808@gmail.com](mailto:burdick808@gmail.com)

/s/ Melodie Aduja

Vice-Chair, Environmental Caucus of the Democratic Party of Hawai'i

Email: [legislativepriorities@gmail.com](mailto:legislativepriorities@gmail.com)

**Perry, Thu**

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**From:** david ford <davidfordinventions@gmail.com>  
**Sent:** Thursday, October 29, 2020 8:52 AM  
**To:** Perry, Thu  
**Subject:** [EXTERNAL] Regarding red hill fuel tanks

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Comments regarding repair or retirement after studying for a couple of years the situation with being raised on halwea stream as early 1966 I make these comment in suggestions the main problem with tank besides it's age is that it is exposed to a multiple of cracking and speaking forever as per early as 1949 158 page betal corperation what was left out of the report was why that so and what is so is a rock curry blasting operation which is still active today.

I am a retired operating engineers local 3 and the leadership as well as myself both agree if the blasting stopped so would the cracks and the leaks relative to such action.

Mk who installed these tanks at the time did so with great craftsmanship and engineering effort worthy of a national monument museum this would be the second chouse of the tank farm outcome. There is much more to be dicused weather or not to close the farm or find a chemical barrier solution and clean up and a new pumping and piping system that reflects the pearl harbor slogan (FIT TO FIGHT) it was a battle cry that won ww2 in the Pacific and still holds true today and defines who we are as Americans.thank you very much for entertaining my comments ps.i do have both the chemical formulas and engineering equipment and man power David ford local 3 operating engineers and friends



**Perry, Thu**

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**From:** lois berger <rberger2@hawaii.rr.com>  
**Sent:** Thursday, October 29, 2020 11:59 AM  
**To:** Perry, Thu  
**Subject:** [EXTERNAL] Testimony for 10/30/20 Fuel Tank Advisory Committee Meeting  
**Attachments:** Untitled.pdf

Please see attached PDF testimony for the above meeting.

Thank you  
Lois Berger

Thank you for the opportunity to submit testimony regarding the Navy's proposed Red Hill Fuel Tank mitigation.

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1. I strongly object to giving the Navy until 2038 to resolve the issue of the leaking fuel tanks and the potential of a catastrophic leak. The tanks are now 75+ years old. There must be an estimate on the end life of these tanks and a plan as to what the Navy's alternative would be. By 2038, the tanks will be 93 years old. It is irresponsible to believe the Navy expected the tanks to be functional for 93 years. It is also ridiculous to think the Navy has no alternative plan as it takes many years of planning/funding to replace their "important strategic" fuel storage.
2. I also would like to point out the repeated explanation that the tanks are safe with 4 feet of concrete and a thin steel lining is insulting to the public. We all know that concrete is porous and that water is linking thru the concrete and rusting the tanks. It is clearly obvious that this is how the tanks are rusting. Nothing can change that plain fact. So the tanks are rusting and the Navy keeps patching it. All the technology in the world is not going to improve the metal so it won't rust because water keeps coming thru the concrete. Additionally, it is rusting the rebar in the concrete and the concrete is failing.
3. There is significant evidence that the tanks have leaked even before 2014 and their own report from a contractor reviewing date concluded that the tanks are chronically leaking. The Navy can drill as many surveillance wells as it likes but it still cannot see all around each tank to see if any of it is leaking into the ground.
4. The only solution is to relocate the fuel tanks. Sites A and B have been evaluated and has caprock underneath it to protect against contamination into the aquifer and has the slope required to allow the Navy the regular gravity flow to their fueling areas. Currently it is not utilized by the Navy but on military land. However, there is word out that the Navy is planning to build housing/community structures on these areas. I object to allowing the Navy to do this as it then takes away appropriate alternative sites and forces the State of Hawaii to continue to allow the Navy to threaten our water source. Additionally, there is no viable reason to build more housing/community structures since the military is supposedly downsizing in Hawaii. The more crucial need is to protect our water source.
5. I am absolutely furious of the Navy's cavalier attitude that once they pollute our water, they will build a filtration plan to clean our water. WE have clean water now and I totally against waiting for the Navy to contaminate our water so badly that we need to have it filtered. An added cost to the State and to the population. If the military pays for it, it is still my taxes. It is obvious to me that the Navy knows they are contaminating our water as we speak.
6. Waiting for science/technology to evolve to the point they can solve this issue is totally ridiculous. If they can't solve it now, then the Navy needs to move these tanks. A true tank within a tank with monitoring in place to see any leaks is what the Board of

Water Supply recommends. I think if they're going to go thru all that, it is cheaper to just build proper tanks above ground and monitor. If they can do it at Manchester, Washington they can do it here in Hawaii. The water for Washington State was never threatened. Our water for the entire island of Oahu is at risk and would cripple this island. It is only 100 feet away from the aquifer. Our State Dept of Health and EPA needs to protect us from this present danger and not allow the Navy to do as it pleases.

**Perry, Thu**

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**From:** Alfred Torres Jr <atwre@icloud.com>  
**Sent:** Friday, October 30, 2020 9:11 AM  
**To:** Perry, Thu  
**Subject:** [EXTERNAL] Red Hill storage tanks

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Good morning,

We are deeply concerned about the situation with the leaking tanks on Redhill that have negatively affected our drinking is water. This is totally unacceptable and taking half measures to fix it Will not protect us from the potential consequences of a contaminated water source. The fact is we use water on a daily basis to survive and they should not be taken lightly by the Navy. Make absolutely sure the fix is adequate and permanent.

Mahalo  
Alfred Torres Jr  
Halawa Heights

Sent from my iPad

## **Perry, Thu**

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**From:** Sandy Jansen <naupaka@juno.com>  
**Sent:** Friday, October 30, 2020 4:01 PM  
**To:** Perry, Thu  
**Subject:** [EXTERNAL] Red Hill Fuel Tanks

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Aloha,

I went to the zoom meeting about the fuel tanks at Red Hill on 10/30/20 and I agree with many of the comments that were made. I mainly want to say/ask: Why is it taking so long to get the military to commit to and execute a safe solution to this huge threat to our drinking water here on O'ahu? And why are the agencies protecting our water not taking a firmer stance on this? I definitely think having a second layer in the tanks is better than just patching the holes. But, that should be a temporary solution until new tanks are built at some other safer location. As others have mentioned, I would also be interested in knowing why we need to store that much fuel here. Maybe if the citizens of Honolulu really understood why all that fuel is needed, then we could support having the tanks here. Instead, we see it as a liability, as a target on our island, as well as an environmental hazard. I really value the pure, clean drinking water we have here in Hawai'i, and have a hard time understanding how we can continue accepting this threat to our aquifer. I also think more frequent meetings is a good idea, and like being able to do it over Zoom.

Mahalo,  
Sandy Jansen

## Perry, Thu

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**From:** Dylan Armstrong <dylanparmstrong@gmail.com>  
**Sent:** Friday, October 30, 2020 6:34 PM  
**To:** Perry, Thu  
**Cc:** Helen Nakano; vanvanes  
**Subject:** [EXTERNAL] (INFO) Red Hill Fuel Tanks - Mānoa Neighborhood Board No. 7  
**Attachments:** MNB#7 Resolution Red Hill Fuel Tanks 4Dec2019.pdf

Aloha,

The Mānoa Neighborhood Board adopted this resolution in December 2019, pertaining to the Red Hill issue.

Dylan P. Armstrong, Chair  
Mānoa Neighborhood Board No. 7  
[dylan.p.armstrong@gmail.com](mailto:dylan.p.armstrong@gmail.com)  
(808) 451-7951



**MĀNOA NEIGHBORHOOD BOARD NO. 7**

c/o NEIGHBORHOOD COMMISSION ♦ 925 DILLINGHAM BLVD, STE 160 ♦ HONOLULU, HAWAII, 96817  
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**RESOLUTION TO PROTECT OAHU'S GROUNDWATER RESOURCES  
FROM THE RED HILL BULK FUEL STORAGE TANKS**

**WHEREAS** the Red Hill Bulk Fuel Tanks ("Tanks") presently store up to 187 million gallons of fuel per day, and have a total capacity of 250 million gallons, and are located only 100 feet over O'ahu's major aquifer supplying water to over 400,000 residents on O'ahu; the Facility is now over 75 years old; and

**WHEREAS** the U.S. Navy ("Navy"), which is responsible for maintenance of the Tanks, will need permission from our Hawai'i State Department of Health ("DOH") and our United States Environmental Protection Agency ("EPA") to continue operating and using these facilities; and

**WHEREAS** after a reported January 2014 leakage of 27,000 gallons of fuel, the Navy, required to take corrective action to prevent future leaks, has proposed retaining the present single-walled steel tank liner and further delaying relocation of the fuel tanks away from the aquifer through the year 2045; and

**WHEREAS** our Honolulu Board of Water Supply, which is responsible for the use and maintenance of all of O'ahu's aquifers and water distribution system, has rejected the Navy's response and recommends a secondary containment tank-within-a-tank, double wall system, or removal of the fuel; and

**WHEREAS** the Mānoa Neighborhood Board No. 7 ("Mānoa Neighborhood Board") considers the possibility of continued and greater rusting and leaking at the Tanks to be a major public health and safety disaster waiting to happen; and

**WHEREAS** while the water for Mānoa residents does not come from the affected aquifer, the Mānoa Neighborhood Board considers this an island-wide issue, because what affects our neighbors to the east, west and mauka of our Valley will ultimately affect all of us, as we are all 'ohana living on a small island; and

**WHEREAS** it would only be reasonable and expected for the Board of Water Supply to ration, conserve, divert waters to supply the affect areas and raise rates to pay for water treatment and clean up and any other mitigation they would be required to perform; and

**WHEREAS** the immediate as well as long term consequences of continued delayed maintenance of the Tanks will affect our tourist industry, the health and welfare of our present generation and, ultimately, our children and grandchildren; therefore,

**BE IT RESOLVED** that the Mānoa Neighborhood Board No. 7 urges the Hawai'i DOH and the EPA to reject the approval of a single-wall upgrade alternative option, now proposed by the Navy, and to relocate the fuel tanks from the aquifer as expeditiously as possible; and

**BE IT FURTHER RESOLVED** that copies of this resolution be transmitted to the members of Hawaii's Congressional delegation; the Secretary of the United States Navy; the Commander of US Indo-Pacific Command; the Commander of the US Pacific Fleet; the Director of the US Environmental Protection Agency - Region IX; the Governor of the State of Hawai'i; the Director of the Hawai'i State Department of Health; the Director of the Department of Land and Natural Resources; the Chair of the Commission on Water Resources Management of the Hawai'i State Department of Land and Natural Resources; the President of the Hawai'i Senate; the Speaker of the Hawai'i House of Representatives, the Mayor; the Honolulu City Council; the chairs of the Honolulu Neighborhood Boards; the Executive Director of the Sierra Club of Hawai'i; the Chair of the Office of Hawaiian Affairs; the Chairperson of the Board of Directors of the Honolulu Board of Water Supply, and the Manager and Chief Engineer of the Honolulu Board of Water Supply.

*The Mānoa Neighborhood Board No. 7 UNANIMOUSLY ADOPTED this resolution  
at its Wednesday, December 4, 2019 meeting,  
by a vote of 11 in favor, none opposed, and none abstaining.*

Submitted by: , Chair



**Perry, Thu**

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**From:** Dwight Yoshimura <dwrightyoshimura@oahuwaste.com>  
**Sent:** Sunday, November 15, 2020 10:41 AM  
**To:** Perry, Thu  
**Cc:** Blane Shy; Wynnona Yoshimura  
**Subject:** [EXTERNAL] FTAC comments

The military needs to relocate their fuel tanks to Pearl Harbor. It is an opportune time to do so with the funding increases to the Asian Pacific area due to the potential threat of North Korea and China. The current fuel tank location poses an enormous threat to this State that will be as devastating as a nuclear threat. This environmental implosion will kill this island like the bombing of the Kahoolawe island whose water aquifer was destroyed. We need to utilize all govt. leaders especially our congressional leaders to put pressure on the Pentagon to relocate this obsolete WW II fuel tanks elsewhere. The survival of this island is at stake. No technology will be able to fix this.

Sent from my iPhone

**Perry, Thu**

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**From:** Hannah Kawakami <kawakh1032@gmail.com>  
**Sent:** Monday, November 16, 2020 11:05 AM  
**To:** Perry, Thu  
**Cc:** Kwan, Roxanne S  
**Subject:** [EXTERNAL] Red Hill Bulk Fuel Storage Meeting

Hello! I did tune into the 10/30/2020 meeting on the above matter and was wondering if you have a summary of what happened and what the next step(s) would be. Appreciate your support in continuing to press the Navy into honoring their commitment to rectify the situation in the time frame agreed upon.

**Perry, Thu**

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**From:** icec002@hawaii.rr.com  
**Sent:** Tuesday, November 24, 2020 2:59 PM  
**To:** Perry, Thu  
**Subject:** [EXTERNAL] Red Hill comments from Dave Ford  
**Attachments:** Dave - Reclaiming the Effectiveness of the Red Hill Fueling Facility.docx

Aloha, Ms. Perry

Dave Ford, a master mechanic with a long history working with the Navy and working in heavy industry around the world as a trouble-shooter and problem-solver, believes he knows how to make the Red Hill facility both protect our aquifer and be suited to the Navy's purpose. He is clear that neither is being accomplished so far in what has been proposed. He would appreciate having the Advisory Committee review his comments. Your assistance is deeply appreciated.

-- me ke aloha pumehana, Charley

## Reclaiming the Effectiveness of the Red Hill Fueling Facility

David Ford

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The Red Hill Fueling Facility is aging, and looks out-of-date. Maintenance over the years, plus normal wear and tear, have led to numerous leaks over the years, the worst of which appears to have been in December-January 2013-14. The Navy has since spiffed thing up a bit, but to an old hand in the petroleum and heavy machinery industry, a master mechanic without academic credentials but a photographic and encyclopedic memory and a long resume of fixing major problems where others failed – underground, underwater, on H-3, in the Arctic, the Arabian Gulf, and South Texas – it is not fit to fight, is not protecting the aquifer, and does not show the promise of either in the Tank Upgrade Alternatives and Release Detection Decision. I'm not so hot with writing stuff down, and thank Charley Ice for helping me write this.

As a patriot who has put the flag ahead of himself innumerable times, I believe that my expertise, industry connections, problem-solving attitude and knack, and my circumspect view can make this facility top notch, up to snuff with industry standards. I have a background in all these activities, have been around the world a few times, and worked with the absolute best. At times I've had to keep my mouth shut because the military or the big corporation I helped didn't want the word out. What can I say? I'm an American, and we do what's needed.

The first priority is sealing off the aquifer from any new leaks, regardless of what happens to the tanks. The public needs to be reassured of safety, fitness, and recovery. If disaster strikes, the first thing the community will need is not defense but drinkable water. Once that is done, we can talk about flushing out and recapturing the gunk that leaked earlier and hit the ground water. Then let's talk turkey about fixing this facility to make the Navy as proud in deed as they are in talk.

The tools for laying a seal under the tanks to prevent material from reaching the ground water are there, if you know where to look and don't depend on defense contractors who are all about the other kind of weaponry. Directional drilling is a commonplace in the industry, and it requires expertise beyond putting the machine in place. Some of this stuff is dangerous, and I haven't survived 60 years of it without paying attention. I want to see Red Hill become first class. Side-scanning sonar is familiar even to some parts of the federal government, and can be very effective in determining exactly where to drill, and how to proceed once you get in there.

OK. Let's start from the beginning. Like Part 3 of the Notice of Deficiency says, the public demands a fail-safe facility. And we can do it. It will cost the Navy, but the military seems to know how to get money when it says it's needed.

1. We're going to seal off the lava above the ground water with an impervious material pumped in under pressure and catalyzed to make it solidify. It will be designed as a trough to capture any leaking fuels and collect them or flush them into disposal. It will be put in place through boreholes drilled by directional drills from the side of the ridge into the middle. There will be continuous monitoring and also intelligent switches if concentrations appear, setting off alarms.
2. The fuel tanks themselves will have such monitors, on continuous watch and with sensors to set alarms upon leak detection. These will be placed in three locations:
  - a. the concrete exterior of the tanks
  - b. the interior liners
  - c. the piping

These monitoring sensor functionality should be evaluated against the current vapor sensor tubes beneath the tanks.

3. The pumps that fill or drain the tanks are to be outfitted with these monitoring sensors, and on-off switches to immediately halt pumping in the event of a detected leak.
4. There needs to be backup piping in the event of a leak-prevention shutdown of active pumping, to switch functionality of the infrastructure to maintain fueling or draining. If combat readiness is to be assured, refueling and restocking cannot be totally aborted. There must be backup piping consisting of at least three systems (three layers deep).
5. The electrical power to operate everything in the facility needs to have redundancy, three systems deep. There needs to be alternative backup wiring available in the event of destruction, to repair these power systems. There needs to be override controls for correction of automatic control failure. Further, there needs to be a backup system offline and in a remote location to either jumpstart or to replace failed systems during a recovery period, and that system should also have a backup. These are measures that need to be more than an idea in someone's head – a thing we could do. It needs to be something in place, with transaction and operating rules already agreed, with clear chain of command.
6. Ultimately, the sensing feeds and switch controls should be in a highly secure site, accessed by top officials, so that in the event of a disaster or catastrophic failure, a failsafe recovery is still in place.
7. Fuel burns. In the event of attack or accident, there can be zero risk of full-fledged fire, as this would cause full melt-down of the facility and a serious mushroom cloud over the island. Fire suppression of the first order is required.
  - a. The first line of defense in a major facility of this kind is to evacuate oxygen from the site, snuffing any combustion. Presumably, personnel will be on site during regular functioning, but the site needs to be outfitted with the capability of rapid elimination of oxygen, replaced with carbon dioxide, nitrogen, or other inflammable or inert gas – to avoid creating a vacuum. This also calls for escape suits to be available on-site for any personnel trapped on site in an emergency. Such emergency fire suppression must be both triggered by sensors and provided by manual override.
  - b. A second line of defense is a brine solution stored where it can flood the facility, either automatically or by manual control.
  - c. And third, there must be dedicated air-deliverable fire retardant at the ready at all times.
8. Spare parts must be available on-site for emergency repairs by a repair crew.
9. There needs to be a dedicated rescue crew ready to respond to emergencies in the facility. They need introductory and maintenance training in readiness.
10. Even more important, there needs to be a special disaster group of responders to physical facility damage, trained in the sensing systems, the response systems, fully apprised of detailed plans of the site and all the piping, communications wiring and monitoring systems.
11. There needs to be a cleanup crew established to restore functioning, whether by reconstructing certain facilities, repairing, or switching to backup systems, to immediately return the facility to service.

The public wants compliance with safety, and protection of the drinking water supply. Redundant systems, controls, and decision-making all need to be part of the facility operation plan, and the plan is not finished until it is implemented. This will come in the form of a Ready Report that can be evaluated periodically to stay current with technology and with preparedness. It needs to be updated and corrected according to systems for problem solving, such as this public scrutiny by the Regulators. The overall effort should be evaluated through a cost-benefit analysis, with very high value placed on continued fighting fitness and ground water protection. The downside of failure can be astronomical. Red Hill should be a model of excellence, not a ticking time-bomb. The rewards for personal bests and general excellence should be well-known and carefully dispensed. Teams would prepare for competitive testing.

## Perry, Thu

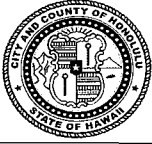
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**From:** Dylan Armstrong <dylanparmstrong@gmail.com>  
**Sent:** Friday, October 30, 2020 6:34 PM  
**To:** Perry, Thu  
**Cc:** Helen Nakano; vanvanes  
**Subject:** [EXTERNAL] (INFO) Red Hill Fuel Tanks - Mānoa Neighborhood Board No. 7  
**Attachments:** MNB#7 Resolution Red Hill Fuel Tanks 4Dec2019.pdf

Aloha,

The Mānoa Neighborhood Board adopted this resolution in December 2019, pertaining to the Red Hill issue.

Dylan P. Armstrong, Chair  
Mānoa Neighborhood Board No. 7  
[dylan.p.armstrong@gmail.com](mailto:dylan.p.armstrong@gmail.com)  
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**MĀNOA NEIGHBORHOOD BOARD NO. 7**

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**RESOLUTION TO PROTECT OAHU'S GROUNDWATER RESOURCES  
FROM THE RED HILL BULK FUEL STORAGE TANKS**

**WHEREAS** the Red Hill Bulk Fuel Tanks (“Tanks”) presently store up to 187 million gallons of fuel per day, and have a total capacity of 250 million gallons, and are located only 100 feet over O‘ahu’s major aquifer supplying water to over 400,0000 residents on O‘ahu; the Facility is now over 75 years old; and

**WHEREAS** the U.S. Navy (“Navy”), which is responsible for maintenance of the Tanks, will need permission from our Hawai‘i State Department of Health (“DOH”) and our United States Environmental Protection Agency (“EPA”) to continue operating and using these facilities; and

**WHEREAS** after a reported January 2014 leakage of 27,000 gallons of fuel, the Navy, required to take corrective action to prevent future leaks, has proposed retaining the present single-walled steel tank liner and further delaying relocation of the fuel tanks away from the aquifer through the year 2045; and

**WHEREAS** our Honolulu Board of Water Supply, which is responsible for the use and maintenance of all of O‘ahu’s aquifers and water distribution system, has rejected the Navy’s response and recommends a secondary containment tank-within-a-tank, double wall system, or removal of the fuel; and

**WHEREAS** the Mānoa Neighborhood Board No. 7 (“Mānoa Neighborhood Board”) considers the possibility of continued and greater rusting and leaking at the Tanks to be a major public health and safety disaster waiting to happen; and

**WHEREAS** while the water for Mānoa residents does not come from the affected aquifer, the Mānoa Neighborhood Board considers this an island-wide issue, because what affects our neighbors to the east, west and mauka of our Valley will ultimately affect all of us, as we are all ‘ohana living on a small island; and

**WHEREAS** it would only be reasonable and expected for the BOard of Water Supply to ration, conserve, divert waters to supply the affect areas and raise rates to pay for water treatment and clean up and any other mitigation they would be required to perform; and

**WHEREAS** the immediate as well as long term consequences of continued delayed maintenance of the Tanks will affect our tourist industry, the health and welfare of our present generation and, ultimately, our children and grandchildren; therefore,

**BE IT RESOLVED** that the Mānoa Neighborhood Board No. 7 urges the Hawai'i DOH and the EPA to reject the approval of a single-wall upgrade alternative option, now proposed by the Navy, and to relocate the fuel tanks from the aquifer as expeditiously as possible; and

**BE IT FURTHER RESOLVED** that copies of this resolution be transmitted to the members of Hawaii's Congressional delegation; the Secretary of the United States Navy; the Commander of US Indo-Pacific Command; the Commander of the US Pacific Fleet; the Director of the US Environmental Protection Agency - Region IX; the Governor of the State of Hawai'i; the Director of the Hawai'i State Department of Health; the Director of the Department of Land and Natural Resources; the Chair of the Commission on Water Resources Management of the Hawai'i State Department of Land and Natural Resources; the President of the Hawai'i Senate; the Speaker of the Hawai'i House of Representatives, the Mayor; the Honolulu City Council; the chairs of the Honolulu Neighborhood Boards; the Executive Director of the Sierra Club of Hawai'i; the Chair of the Office of Hawaiian Affairs; the Chairperson of the Board of Directors of the Honolulu Board of Water Supply, and the Manager and Chief Engineer of the Honolulu Board of Water Supply.

*The Mānoa Neighborhood Board No. 7 UNANIMOUSLY ADOPTED this resolution  
at its Wednesday, December 4, 2019 meeting,  
by a vote of 11 in favor, none opposed, and none abstaining.*

Submitted by: , Chair