

# Aloha

Red Hill Bulk Fuel Storage Facility Update  
PUBLIC INFRASTRUCTURE, TECHNOLOGY  
AND SUSTAINABILITY COMMITTEE



*October 23, 2019*



# Red Hill Bulk Fuel Storage Facility

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

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# Red Hill Bulk Fuel Storage Facility Update on AOC Actions

## Actions completed during the last year:

- Submittal of Quantitative Risk and Vulnerability Assessment Phase 1 (May 2019)
- DOH/EPA conditional approval of Quantitative Risk and Vulnerability Assessment Phase 1 (September 2019)
- Submittal of Destructive Testing Results Report (July 2019)
- Updated submittal of Groundwater Conceptual Site Model (July 2019)
- Installation of Red Hill Monitoring Well Nos. 14 and 15 (March & Aug 2019)
- Submittal of Tank Upgrade Alternatives (TUA) and Release Detection Decision Documents (September 2019)




# Red Hill Bulk Fuel Storage Facility Update on AOC Actions

2019 Annual

## Water Quality Report

Joint Base Pearl Harbor-Hickam Water System

(Hāialea, 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, 2018.

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 owns and operates the water system servicing your area. As the Navy water provider in the state, NAVFAC Hawaii primarily supplies water to military housing and installations.

### 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 1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, and 1-8 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 808-471-7200.

### Source of Water

Your drinking water comes from three ground water sources: Walawa, 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 2018:

- The Radford Terrace Eastern Housing area was supplemented with water from the Honolulu Board of Water Supply's (BWS) Kalaheo Wells and Puanani Wells.
- The Manana 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.

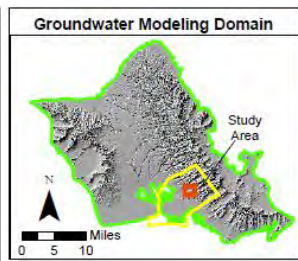
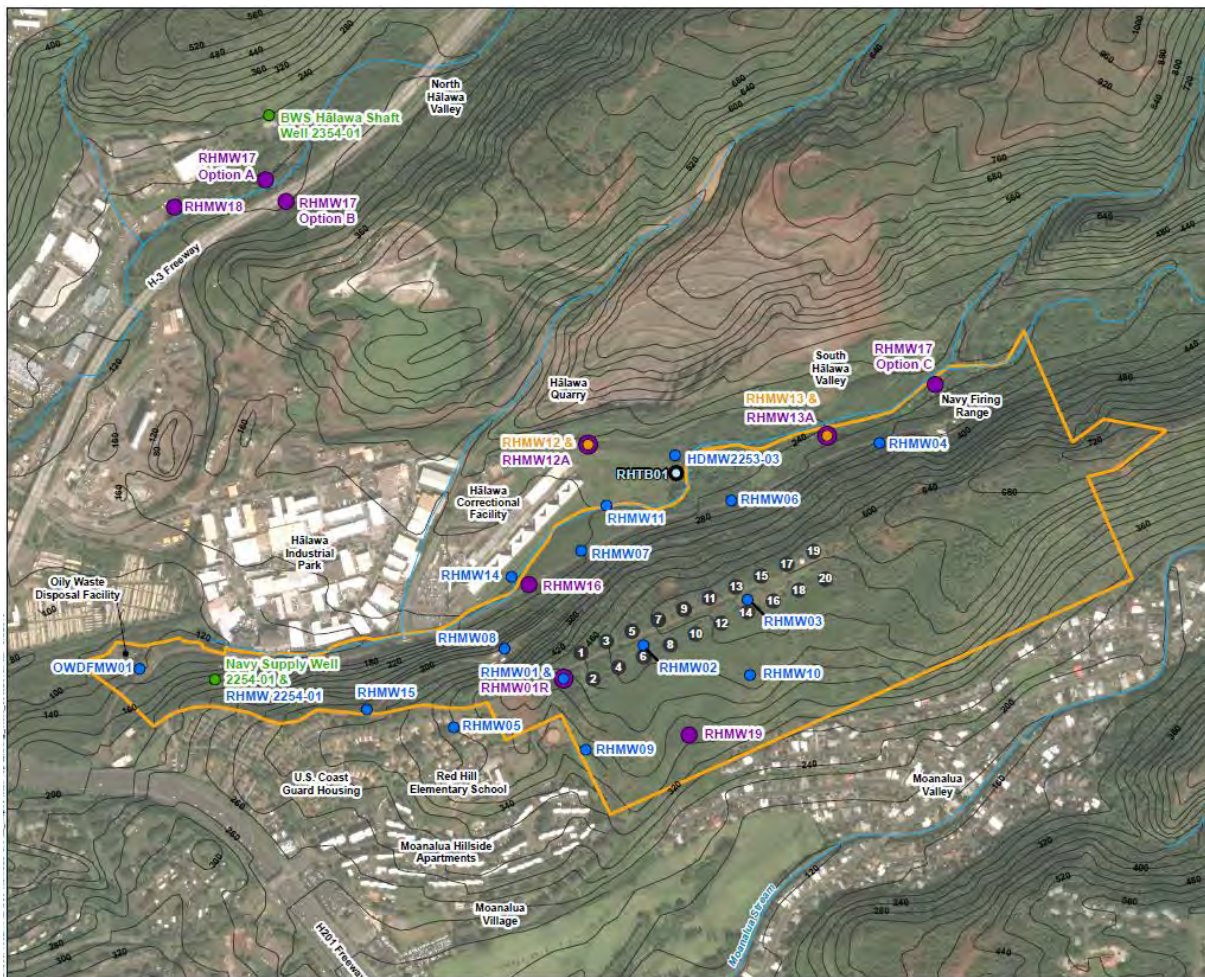
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## Ongoing work:

- Semi-annual Tank Tightness Testing
- Continued Updating of Groundwater Conceptual Site Model
- Installation of Red Hill Monitoring Well Nos. 12 and 13
- Ongoing Groundwater Modeling Working Group Collaboration with BWS, UH, USGS, DOH, and EPA
- Quarterly Groundwater Monitoring
- Monthly Soil Vapor Monitoring
- Annual Water Quality Reporting
- Monthly Water Interface Testing
- Annual Split Sampling
- Synoptic Water Level Study



# Red Hill Bulk Fuel Storage Facility Groundwater Monitoring Wells

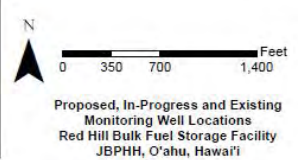


**Legend**

- Proposed Monitoring Well Location
- Existing Test Boring
- Existing Monitoring Well Location
- Proposed and Existing Monitoring Well Adjacent Location
- Proposed and In-Progress Monitoring Well Adjacent Location
- Existing Water Supply Well
- Red Hill Fuel Storage Tank
- Stream
- Topographic Contour (feet above mean sea level)
- Red Hill Installation Boundary
- Regional Model Boundary
- Local Model Boundary

**Notes**

1. Map projection: NAD 1983 UTM Zone 4N
2. Base Map: DigitalGlobe, Inc. (DG) and NRCS. Publication Date: 2016
3. Coordinates: NAD 1983 UTM Zone 4N





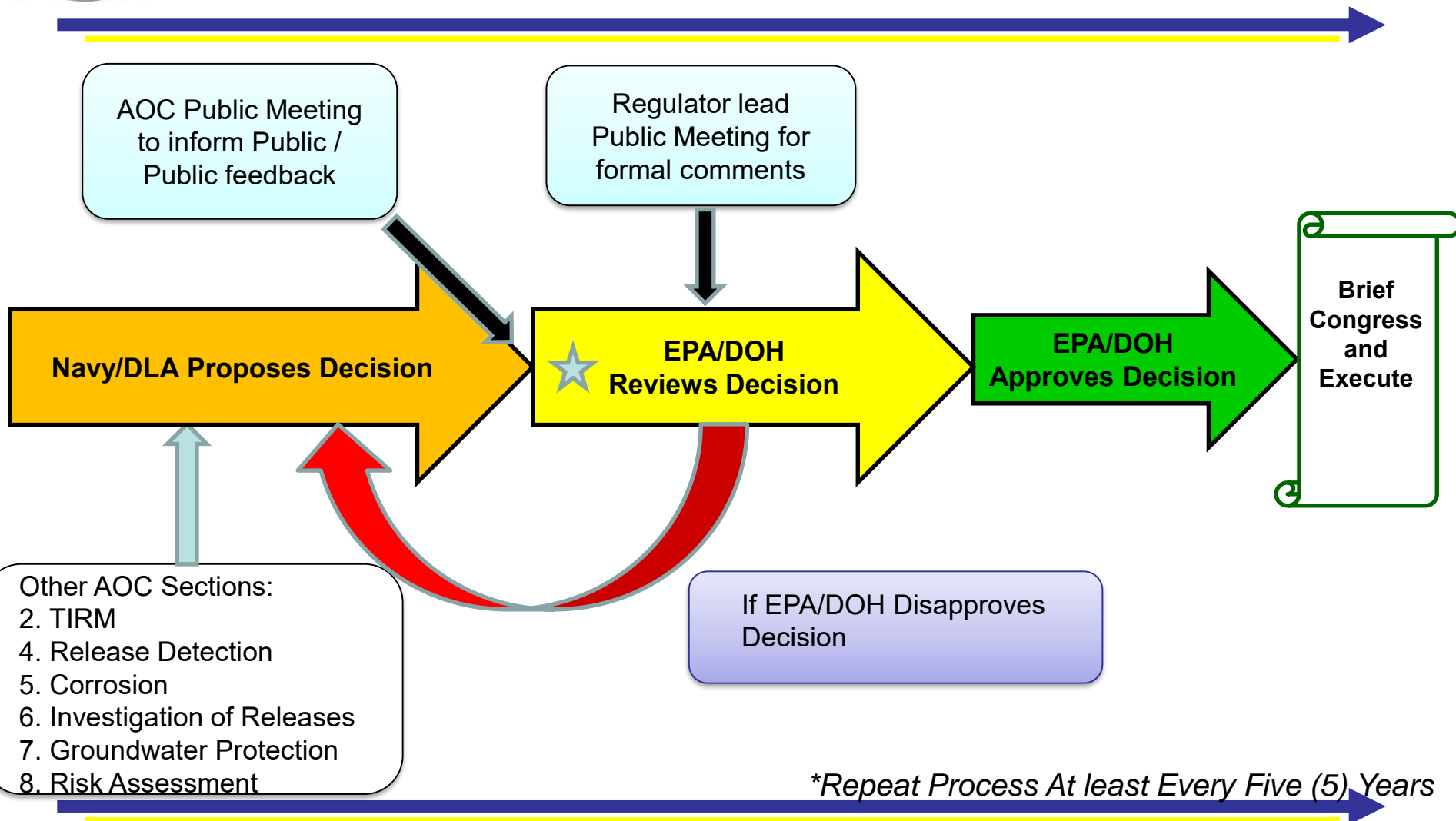
# Red Hill Bulk Fuel Storage Facility Update on AOC Actions

## Actions scheduled for completion over the next year:

- DoD Strategic Fuel Storage/Distribution Analysis Study
- TUA and Release Detection Decision Document Review and Comment from EPA/DOH
- Destructive Testing Results Report Acceptance
- Continued Execution of Long-term Quarterly Groundwater Monitoring and Monthly Soil Vapor Monitoring
- Groundwater Flow Model Report
- Investigation and Remediation of Releases Report
- Installation of additional Red Hill Monitoring Wells
- Semi-annual Tank Tightness Testing
- Water treatment plant planning



# TUA Decision Process





# ***TUA Decision 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

## **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 eight to 15 since 2014; add eight more by 2021

## **MITIGATION**

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





# Red Hill Bulk Fuel Storage Facility Industry and Academia Engagement

- Robotic crawler demonstration (14 MAR 2019)
- Sources sought notification (17 APR 2019)
- Industry day (19 JUN 2019)
- Drone demonstration (23 JUL 2019)

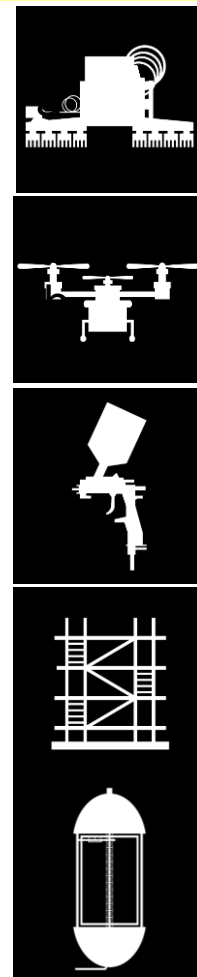
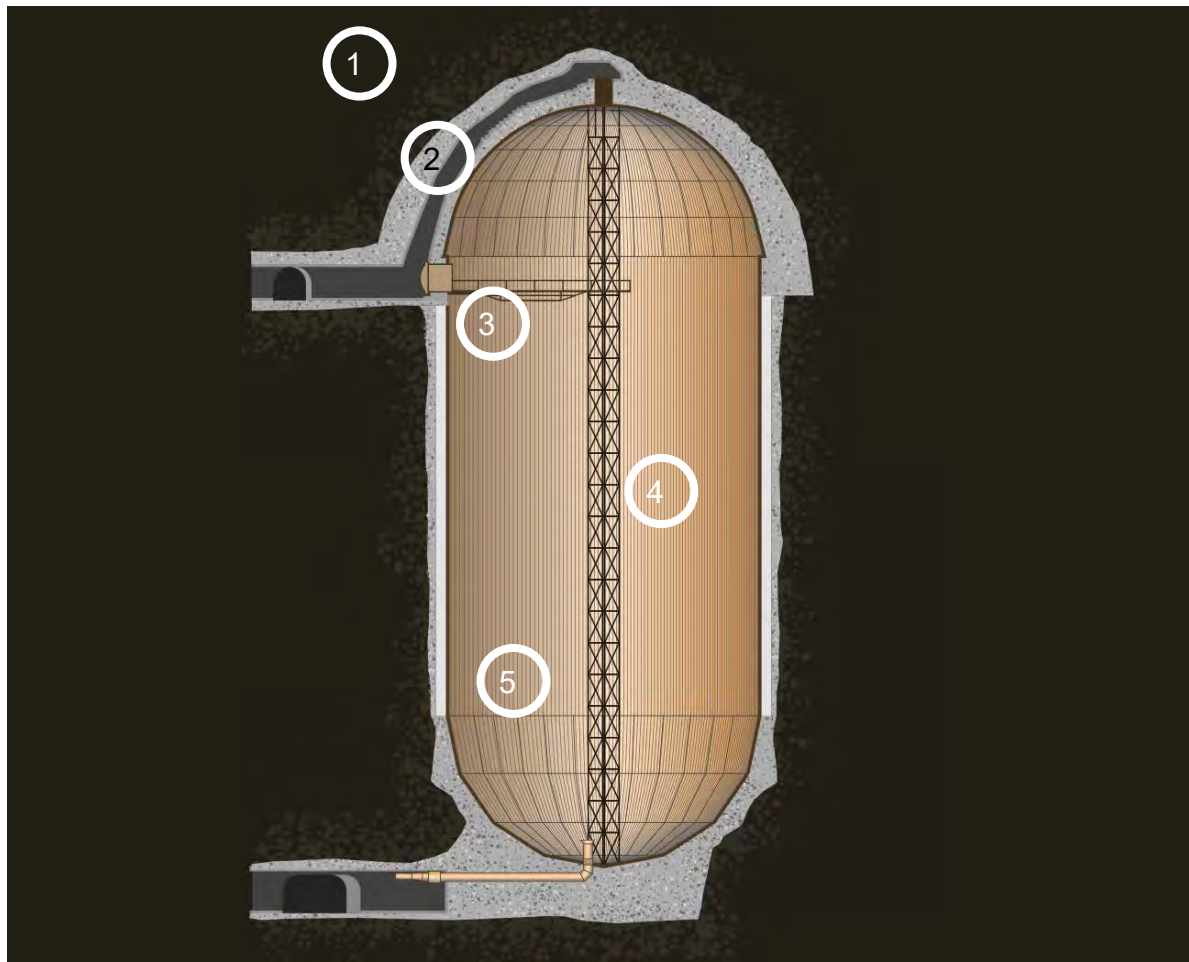




# Navy/Industry/Academia Collaboration

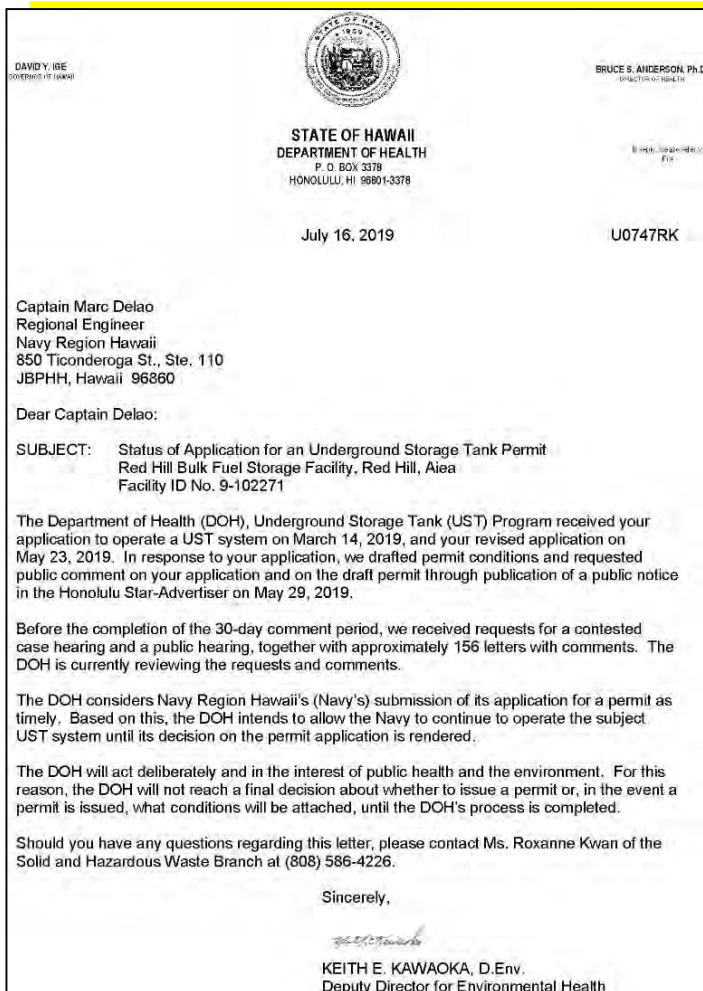


Basalt  
Concrete  
Steel  
Liner  
Tank Interior  
Secondary  
Containment





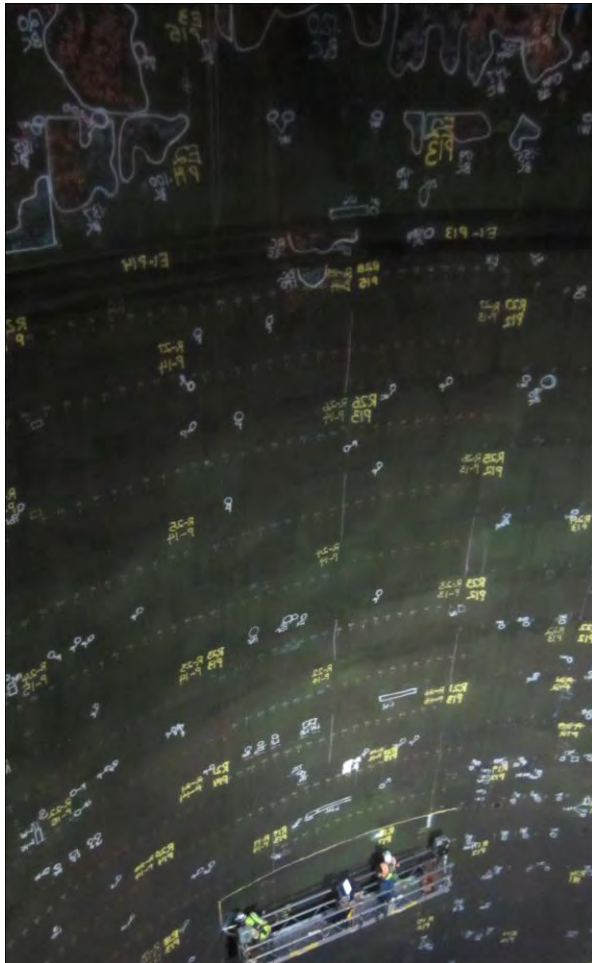
# Status of Operating Permit



- On time submission of permit application by Navy
- Application under review by DOH
- Authority to Operate letter issued by DOH 16 July 19 pending final review of operational permit



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



- Tanks 5, 13, and 17 currently undergoing CIR process
- Tank 5 scheduled to be returned to operation in 2020
- Tank 14 awaiting contract mod award before continuing construction
- Tank 4 currently next scheduled tank to undergo CIR process
- Revising CIR schedule to focus on Tank 18, rather than Tank 4



# Summary



- Water continues to be safe to drink
  - Routine water sampling/testing
- Tanks continue to pass semi-annual tank tightness tests
- TUA and Release Detection Decision Document submitted September 2019
- AOC is working
  - Navy/DLA is held accountable to EPA and the State of Hawaii
  - Navy/DLA has met/meeting all AOC deadlines



## And Finally.....

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### **We're committed to finding a secondary containment solution**

The technology doesn't exist today that would allow Red Hill tanks to be double-walled in a practicable manner. We are absolutely committed to finding a way to provide secondary containment or we will remove the fuel from Red Hill around 2045.

A decorative horizontal arrow pointing to the right, consisting of a thick blue line with a yellow line underneath it.

Mahalo

Questions?

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