



**Red Hill Bulk Fuel Storage Facility  
Briefing by the  
Board of Water Supply  
City and County of Honolulu**

Aiea-Pearl City Town Hall Meeting  
Pearl Ridge Elementary School  
April 16, 2015

# WATER FOR LIFE

Safe, dependable, and affordable water now and into the future



Board of Water Supply  
City and County of Honolulu



- Five BWS wells closest to Red Hill Facility site.
- Irreplaceable Moanalua and Waimalu aquifer systems.
- Five wells contribute 11.5% of the 140 MGD average daily production.
- Halawa Shaft and Moanalua Wells contribute over 25% of the water serving Metro Honolulu system (Moanalua to Hawaii Kai).

HONOLULU  
Board of Water Supply  
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DISCLAIMER: The location of the Red Hill Fuel Storage Facility is an estimate only based on best available information.



## BWS Well Testing

- Halawa Shaft, Moanalua Wells, Aiea Wells, Aiea Gulch Wells and Halawa Wells
- Quarterly testing since January 2014
- Testing parameters (> 240)
  - TPH (JP-5, JP-8, diesel, gasoline, motor oil)
  - Volatile and semi-volatile organic chemicals
  - Polyaromatic hydrocarbons
  - Petroleum degradates (TBA)
  - Metals (Pb, Cr, Cd, etc.) and naturally occurring chemicals (NO<sub>3</sub>, Cl, Br, SO<sub>4</sub>)



## Navy Study and Fuel Record Findings

- Navy commissioned studies
  - Petroleum hydrocarbons present in groundwater and soil beneath facility.
  - Warn of increasing facility age and potential for more releases both large and small.
- Fuel releases
  - Occurred in the past (1947 – 1999)
  - Detail varies.

## Underneath Red Hill Tanks

Red Hill Bulk Fuel Storage Facility, Initial Phase II Site Characterization Report  
Date: March 1999

Section: 4  
Page: 11 of 12

- Basalt core samples taken from under each tank show petroleum stains.
- 1998-2002 Investigations.



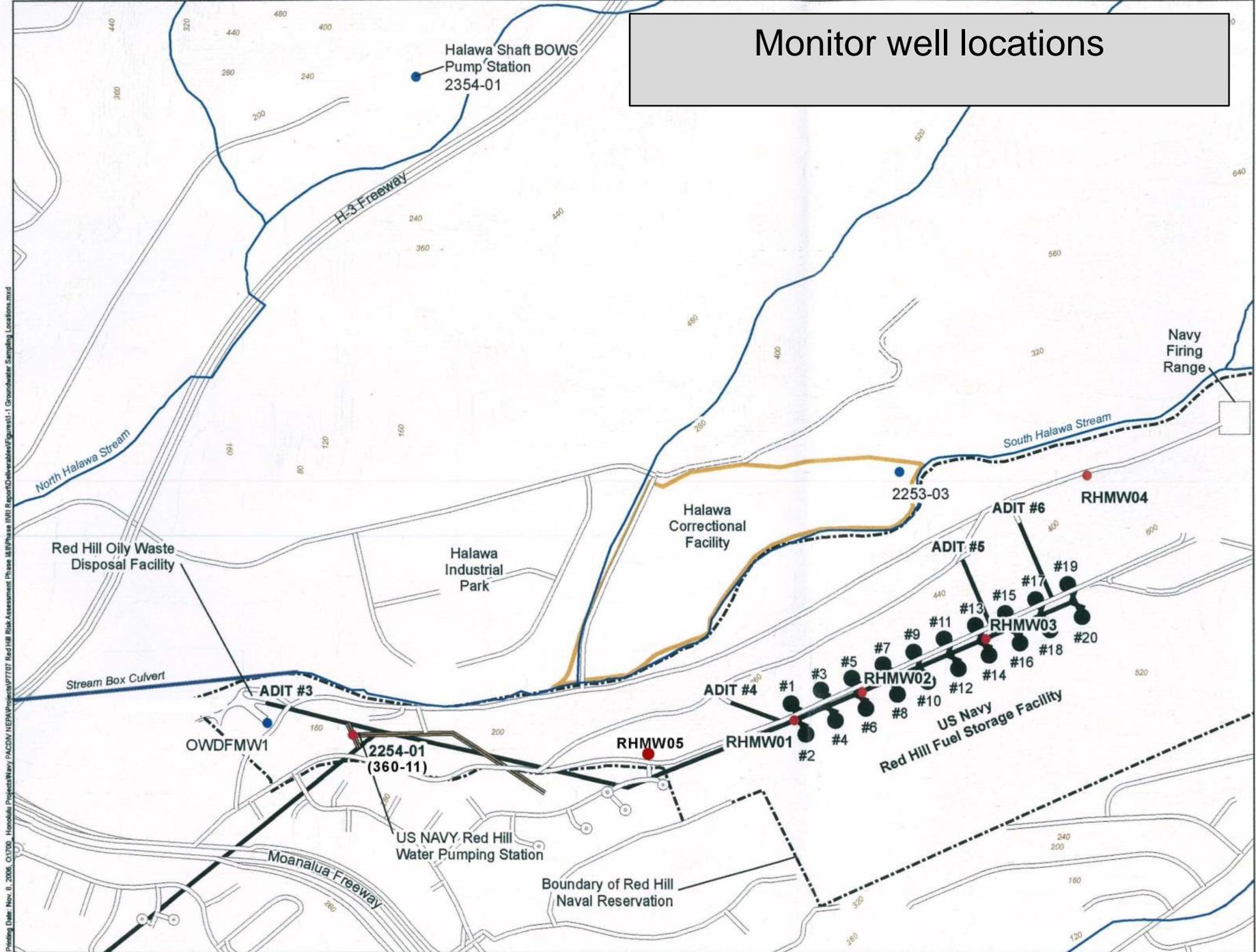
Figure 4-7 Petroleum Stained Core - B16C, 49' to 60'



Figure 4-8 Petroleum Stained Core - B16C, 60' to 69'

Ref: Navy Phase II Site Characterization Report, Section 4,  
page 11, March 1999. (Related to Release ID 990051)

# Monitor well locations



# TPH in GW Underneath Red Hill

Highest values recorded as of July 2014

**Red Hill Shaft**  
 58 ppb TPH diesel  
 19 ppb TPH gasoline  
 0.099 ppb **Naphthalene**  
 0.018 ppb 2-Methyl naphthalene  
 0.04 ppb 1-Methyl naphthalene

**RHMW02**  
 6,300 ppb TPH diesel  
 3,903 ppb TPH gasoline  
 0.86 ppb Acenaphthalene  
 0.39 ppb Fluorene  
 109 ppb 1-methylnaphthalene  
 35 ppb 2-methylnaphthalene  
 171 ppb **Naphthalene**  
 0.58 ppb Ethyl benzene  
 1.06 ppb Xylenes

**CWRM 2253-03**  
 600 ppb TPH diesel  
 28 ppb TPH gasoline  
 0.16 ppb **Naphthalene**  
 0.9 ppb Lead

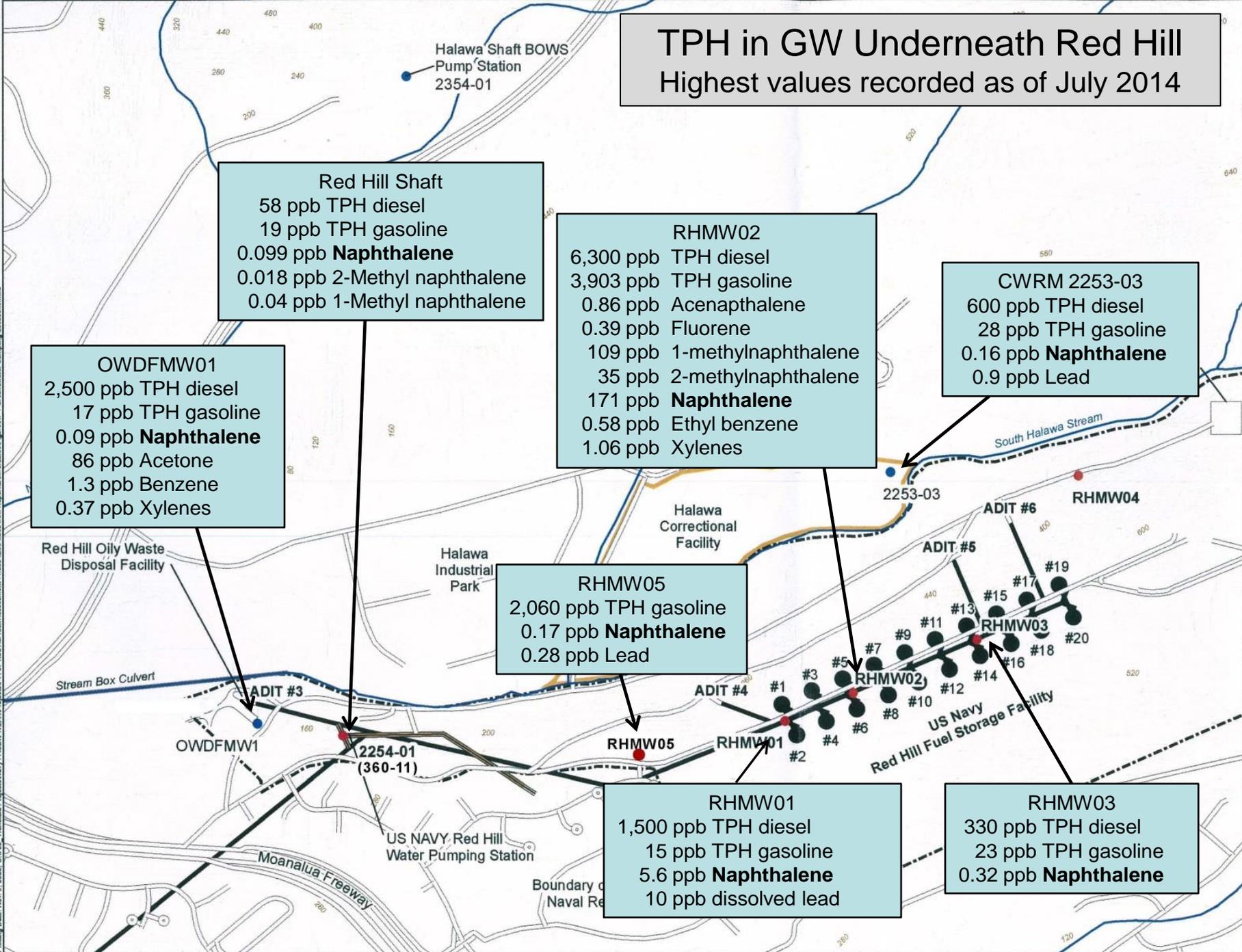
**OWDFMW01**  
 2,500 ppb TPH diesel  
 17 ppb TPH gasoline  
 0.09 ppb **Naphthalene**  
 86 ppb Acetone  
 1.3 ppb Benzene  
 0.37 ppb Xylenes

**RHMW05**  
 2,060 ppb TPH gasoline  
 0.17 ppb **Naphthalene**  
 0.28 ppb Lead

**RHMW01**  
 1,500 ppb TPH diesel  
 15 ppb TPH gasoline  
 5.6 ppb **Naphthalene**  
 10 ppb dissolved lead

**RHMW03**  
 330 ppb TPH diesel  
 23 ppb TPH gasoline  
 0.32 ppb **Naphthalene**

Drawing Date: Nov. 8, 2006. 0:3700. Homebldg Projects\Way\FA00V\NERA\Projects\Red Hill\Phase I\Risk Assessment Phase II\Phase I\Report\Drawings\Figures\Fig1-1\_Groundwater Sampling Locations.mxd







## **BWS Approach to Red Hill**

- Continue quarterly testing of BWS wells near Red Hill
- Examine the health significance of the low level petroleum chemicals in water
- Conduct groundwater studies – understand impacts to the GW aquifer
  - Site and install monitor wells – collect more data
  - USGS modeling study on GW flow direction continues
  - Assess long-term impacts to BWS wells



## **BWS Approach to Red Hill – cont.**

- Inform and keep community updated
- Support more resources and RH taskforce to continue study effects of fuel leak
- Support Navy clean-up of existing contamination
- Support regulations to cancel deferral of Red Hill tanks from the UST rules
- Advocate initiatives to fortify the tanks and reduce risks to GW quality and quantity  
Preventing contamination is less costly than reacting after it occurs



## Summary

- Tests continue to show petroleum hydrocarbon chemicals present in GW and soil at Red Hill.
- Mitigate petroleum hydrocarbons under Red Hill to protect Oahu's GW and environment.
- Potential future scenarios raise water capacity/quality and economic concerns
- Acting now protects the GW's future – prevention vs. reaction

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# Questions/ Discussion

