



Red Hill Bulk Fuel Storage Facility Public Meeting

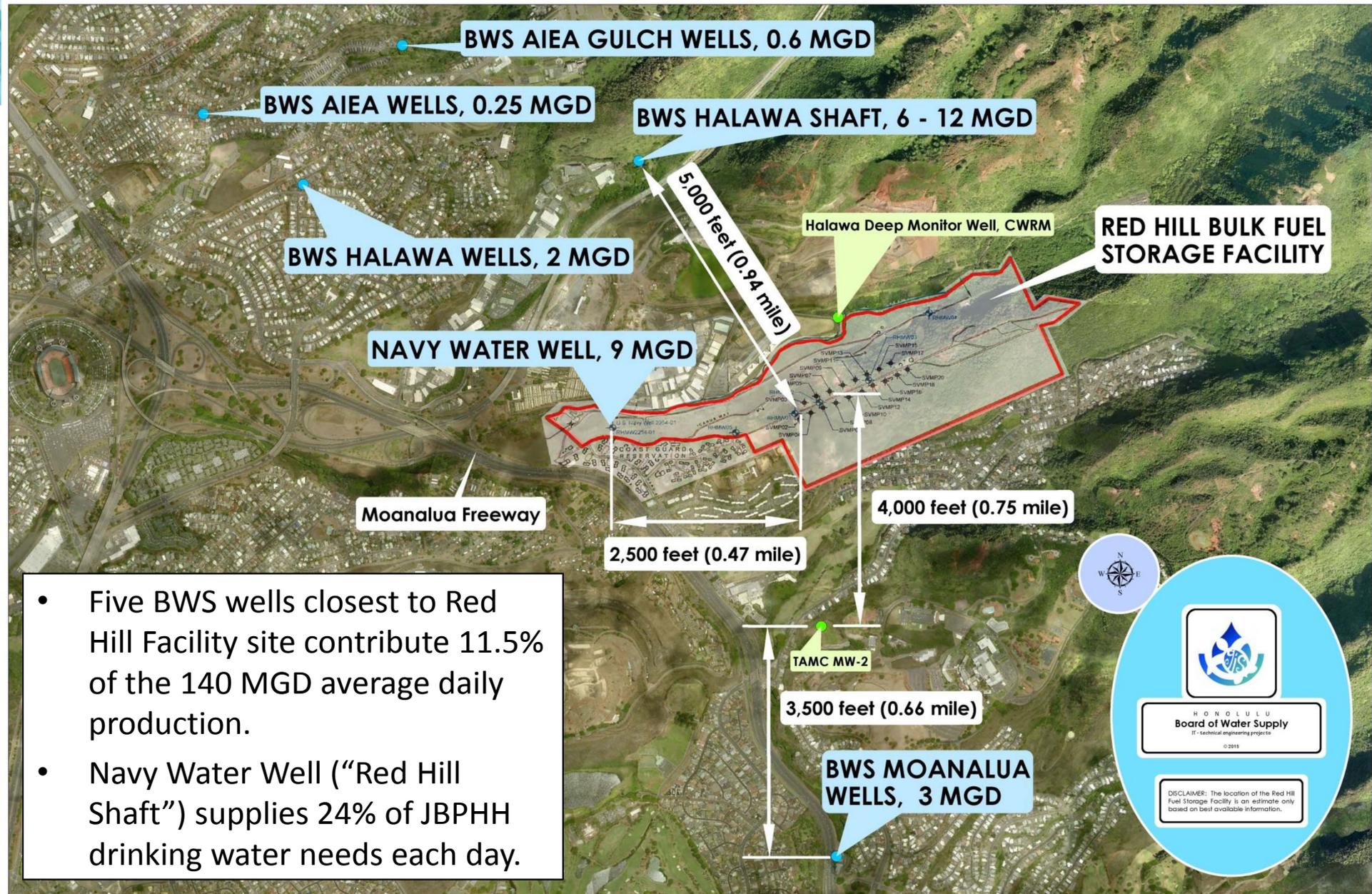
**Moanalua Middle School
August 15, 2016**

An overview by the
Honolulu Board of Water Supply



Today's Discussion

- Red Hill tanks located 100 ft. above groundwater aquifer used for drinking water
- Navy studies show petroleum chemicals in groundwater and rocks underneath facility
- Red Hill Administrative Order on Consent (AOC) process taking too long and lacks adequate public and stakeholder participation



BWS AIEA GULCH WELLS, 0.6 MGD

BWS AIEA WELLS, 0.25 MGD

BWS HALAWA SHAFT, 6 - 12 MGD

BWS HALAWA WELLS, 2 MGD

Halawa Deep Monitor Well, CWRM

RED HILL BULK FUEL STORAGE FACILITY

NAVY WATER WELL, 9 MGD

Moanalua Freeway

2,500 feet (0.47 mile)

4,000 feet (0.75 mile)

TAMC MW-2

3,500 feet (0.66 mile)

BWS MOANALUA WELLS, 3 MGD

- Five BWS wells closest to Red Hill Facility site contribute 11.5% of the 140 MGD average daily production.
- Navy Water Well (“Red Hill Shaft”) supplies 24% of JBPHH drinking water needs each day.

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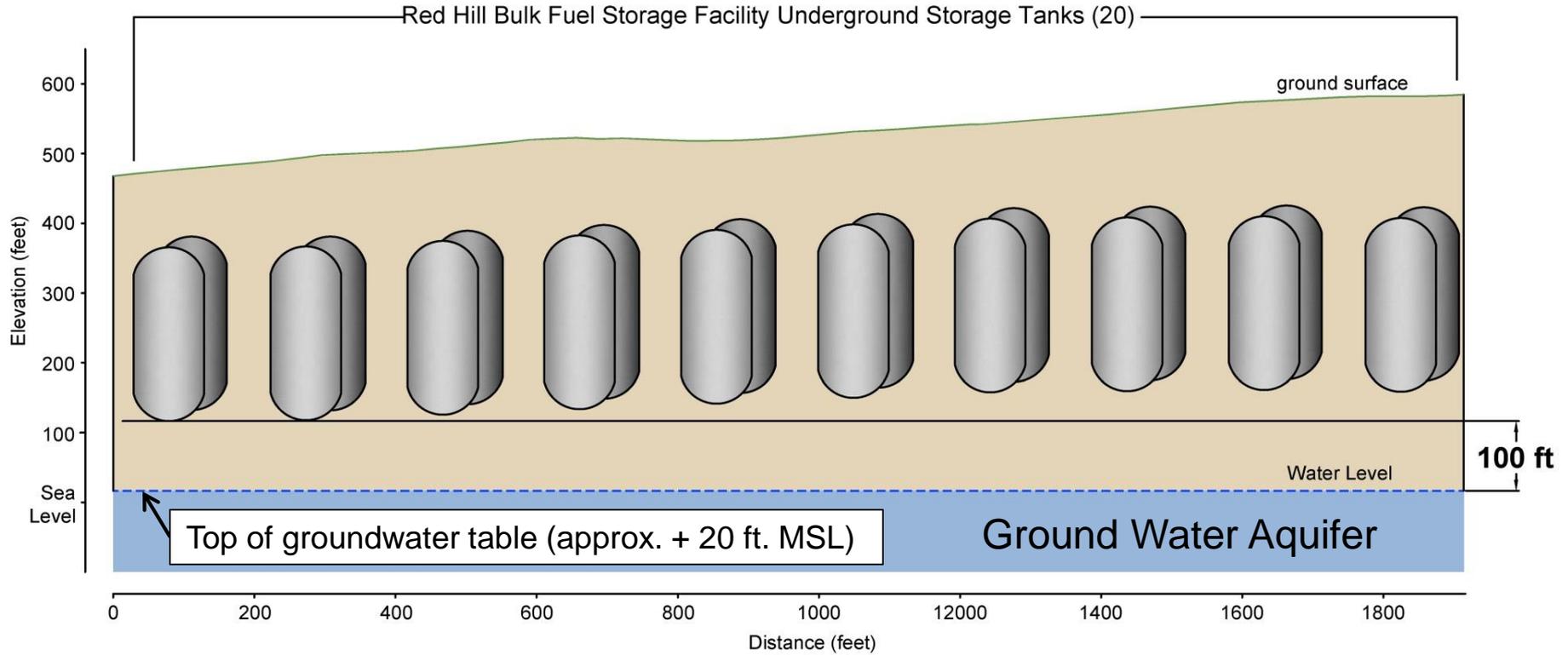
DISCLAIMER: The location of the Red Hill Fuel Storage Facility is an estimate only based on best available information.

WATER FOR LIFE

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



Board of Water Supply
City and County of Honolulu





Fuel Contamination Under Red Hill Tanks

- 1998-2002 Investigations.
- Basalt rock core samples taken from underneath **19 out of 20 tanks show petroleum stains.**

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

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



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



2010 Navy Audit

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Naval Audit Service



Audit Report



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

This report contains information exempt from release under the Freedom of Information Act. Exemptions (b)(2) high and (b)(6) apply.

~~Do not release outside of the Department of the Navy,
or post on non-Naval Audit Websites or in Navy Taskers,
without approval from the Auditor General of the Navy~~

N2010-0049
16 August 2010

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- Findings
 - Groundwater contamination resulting from irregular maintenance and insufficient inspection.
 - Delays in completion of the maintenance cycle due to operational and time constraints.
 - Inability of current leak detection methods in detecting slow, chronic fuel leaks.
 - Non-compliance with terms of the State DOH approved Navy Groundwater Protection Plan (GPP).

Contamination of Ground Water Aquifer

Navy drinking water well
 21 ppb TPH diesel
 <54 ppb TPH oil
 <0.005 ppb Naphthalene
 0.036 ppb dissolved lead

Monitor Well readings (RHMW02)
 6,500 ppb TPH diesel
 0.51 ppb Acenaphthalene
 0.28 ppb Fluorene
 48 ppb 1-methylnaphthalene
 7.9 ppb 2-methylnaphthalene
 120 ppb Naphthalene
 0.014 ppb Ethyl benzene
 0.21 ppb Xylenes

Navy tests finding petroleum contaminants in the groundwater underneath the tanks

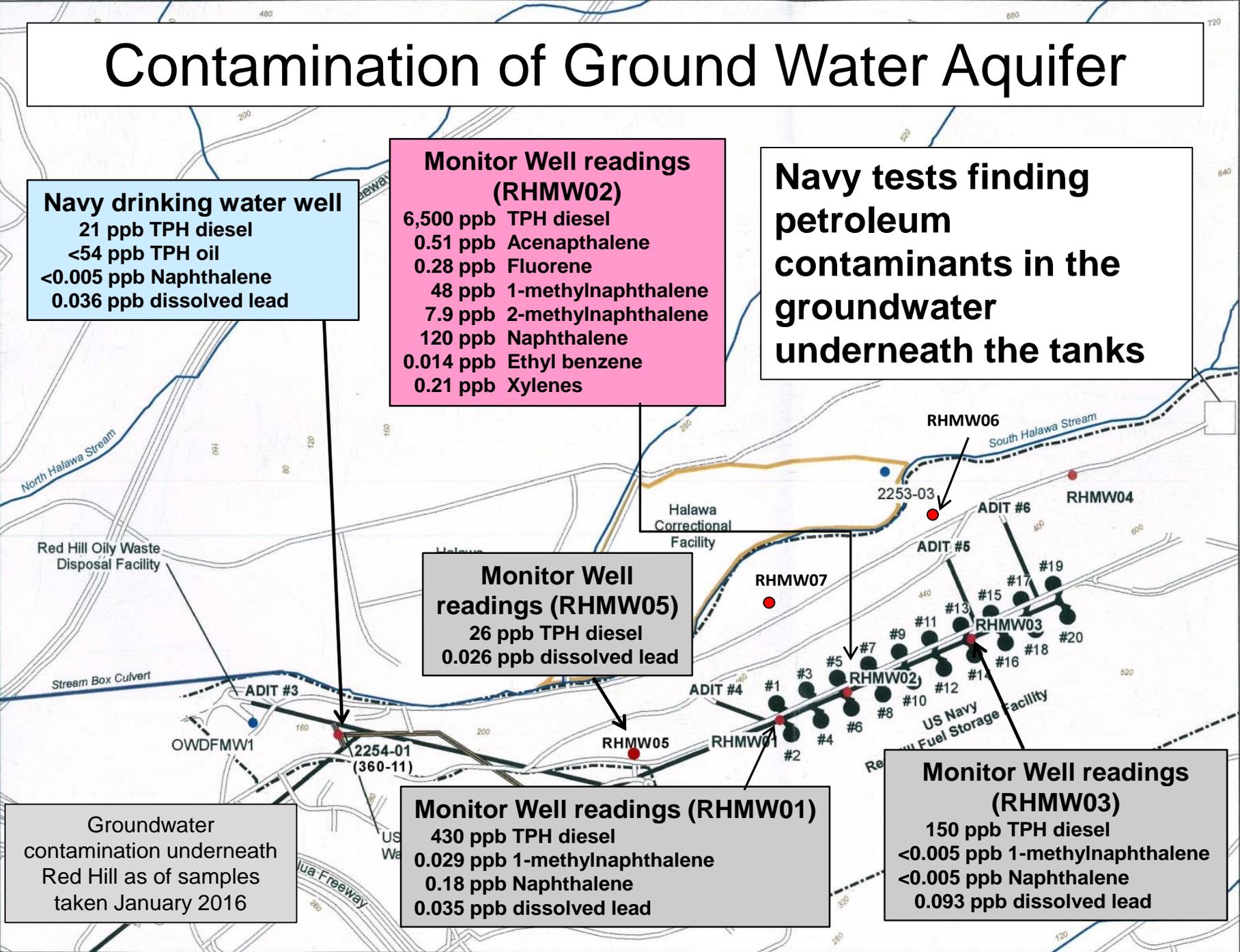
Monitor Well readings (RHMW05)
 26 ppb TPH diesel
 0.026 ppb dissolved lead

Monitor Well readings (RHMW01)
 430 ppb TPH diesel
 0.029 ppb 1-methylnaphthalene
 0.18 ppb Naphthalene
 0.035 ppb dissolved lead

Monitor Well readings (RHMW03)
 150 ppb TPH diesel
 <0.005 ppb 1-methylnaphthalene
 <0.005 ppb Naphthalene
 0.093 ppb dissolved lead

Groundwater contamination underneath Red Hill as of samples taken January 2016

Drawing Date: Nov. 8, 2006. C:\3700 - Honolulu Projects\Way PACOM NER\Projects\Phase III\Phase III Risk Assessment Phase III\Phase III Report\Deliverables\Figures\Fig1-1_Groundwater_Sampling_Locations.mxd



Contamination of Groundwater 500 ft. to 1,000 ft. from Red Hill Tanks

Monitoring Well readings (OWDFMW01)

320 ppb TPH diesel
 69 ppb TPH oil
 0.030 ppb 1-methylnaphthalene
 0.020 ppb 2-methylnaphthalene
 0.024 ppb Naphthalene
 34 ppb Acetone
 0.040 ppb dissolved lead

Monitor Well readings (CWRM 2253-03)

43 ppb TPH diesel
 63 ppb TPH oil
 <0.005 ppb Naphthalene
 0.273 ppb Lead

Monitor Well readings (RHMW06)

21 ppb TPH diesel
 <54 ppb TPH oil
 0.010 ppb dissolved lead

Monitor Well readings (RHMW04)

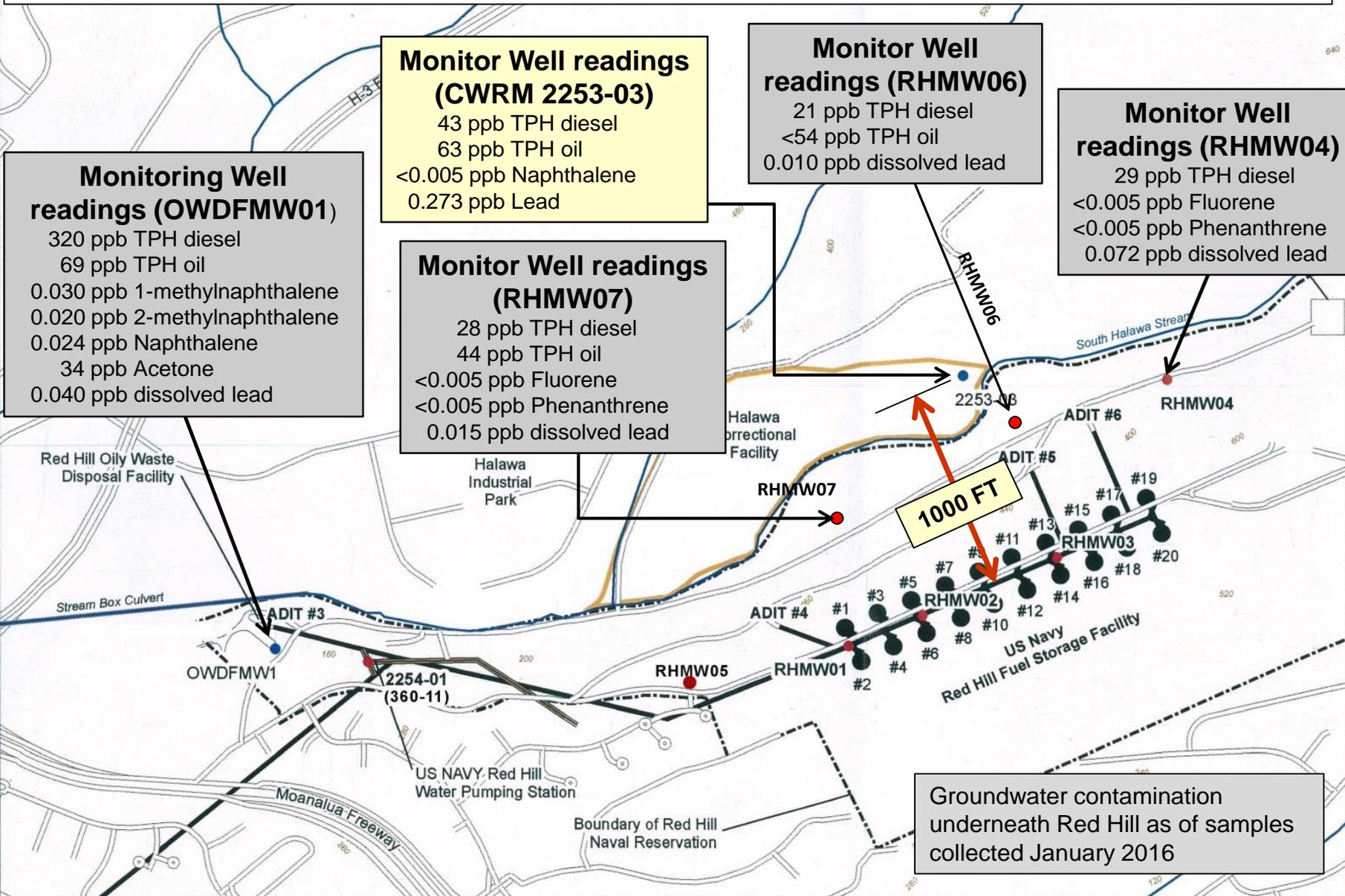
29 ppb TPH diesel
 <0.005 ppb Fluorene
 <0.005 ppb Phenanthrene
 0.072 ppb dissolved lead

Monitor Well readings (RHMW07)

28 ppb TPH diesel
 44 ppb TPH oil
 <0.005 ppb Fluorene
 <0.005 ppb Phenanthrene
 0.015 ppb dissolved lead

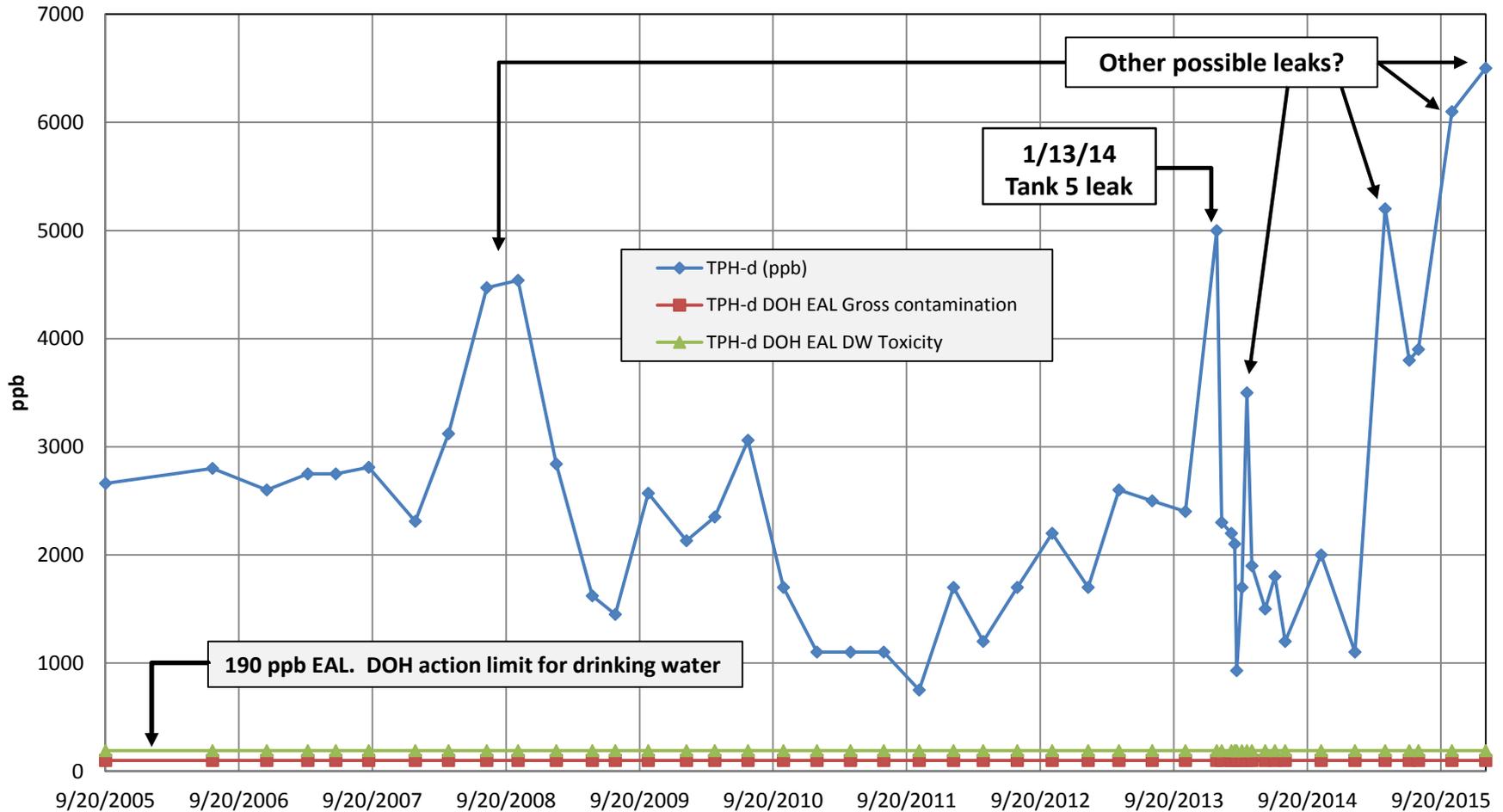
1000 FT

Groundwater contamination underneath Red Hill as of samples collected January 2016





Groundwater Contamination underneath Red Hill Tanks (RHMW02) as of January 2016





BWS Concerns with AOC

- Too long to install improvements (22 – 27 years) to a 73 year old facility.
- No specifics. Allows 2 years to do studies that already done in the past.
- Public transparency and participation opportunity is lacking. Public sees only synopsis of work.
- Will it eliminate the risk to our drinking water supply?

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Questions/ Discussion

