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**DEPARTMENT OF THE NAVY**
COMMANDER
NAVY REGION HAWAII
850 TICONDEROGA ST STE 110
JBPHH, HAWAII 96860-5101

5090
Ser N45/208
March 20, 2015

**CERTIFIED NO: 7014 1200 0000 9858 6704**

Mr. Steven Chang, P.E., Chief
Hawaii State Department of Health
Environmental Management Division
Solid and Hazardous Waste Branch
919 Ala Moana Boulevard, Room 212
Honolulu, HI 96814

Dear Mr. Chang,

SUBJECT: RED HILL TANK 5 RELEASE - NEW MONITORING WELL RESULTS
DEPARTMENT OF HEALTH (DOH) FACILITY ID NO. 9-102271,
DOH RELEASE ID NO. 140010

Enclosed is the summary table of analytical results for groundwater samples collected on January 22 and 23, 2015 at the recently installed sentinel wells, RHMW06 and RHMW07, at the Red Hill Bulk Fuel Storage Facility. These wells were installed to respond to the Red Hill Tank 5 fuel release of January 2014.

This summary table is being submitted in advance of Technical Memo currently being prepared to document this sample event. This Technical Memo is anticipated for submittal in April 2015 and will contain a description of the sampling methodology, detailed analytical laboratory data reports, and a brief interpretation of the results. We are also enclosing a map illustrating the well locations for your convenience.

If you have any questions regarding this matter, please contact me at (808) 471-1171, extension 226.

Sincerely,

AARON Y. POENTIS
Director
Regional Environmental Department
By direction of the
Commander

Enclosures: 1. Table 5, Analytical Results for Groundwater Sampling (January 2015)
2. Map - Monitoring Well Locations for RHMW06 and RHMW07

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Copy to: Steven Linder, EPA Region IX
CAPT Tufts, Navy Region Hawaii
CAPT Williamson, NAVFAC Pacific
CAPT Wheeler, NAVSUP FLC Pearl Harbor
CAPT Bower, DLA Energy Pacific

# TABLE 5

## Analytical Results for Groundwater Sampling (January 2015)

### Monitoring Well Installation Report Addendum
### Red Hill Bulk Fuel Storage Facility
### Joint Base Pearl Harbor-Hickam, Hawaii

| Method | Chemical | DOH EALs | | RHMW06-GW-02 (15A141-03/AZ10128) | | | | | RHMW07-GW-02 (15A141-01/AZ10126) | | | | | RHMW07-GW-02FD* (15A141-02/AZ10127) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Drinking Water Toxicity | Gross Contamination | Result | Qualifier | LOQ | LOD | DL | Result | Qualifier | LOQ | LOD | DL | Result | Qualifier | LOQ | LOD | DL |
| EPA 8015B | TPH as Gasoline Range Organics C6-C10 | 100 | 100 | N.D. | U | 50 | 20 | 10 | N.D. | U | 50 | 20 | 10 | N.D. | U | 50 | 20 | 10 |
| | TPH as Diesel Range Organics C10-C24 | 190 | 100 | N.D. | U | 100 | 76 | 51 | N.D. | U | 100 | 75 | 50 | N.D. | U | 110 | 81 | 54 |
| | TPH as Residual Range Organics C24-C36 | 4,400 | 100 | N.D. | U | 100 | 76 | 51 | N.D. | U | 100 | 75 | 50 | N.D. | U | 110 | 81 | 54 |
| EPA 8270C_SIM | 1-Methylnaphthalene | 4.7 | 10 | N.D. | U | 0.021 | 0.010 | 0.0052 | N.D. | U | 0.022 | 0.011 | 0.0055 | N.D. | U | 0.020 | 0.010 | 0.0050 |
| | 2-Methylnaphthalene | 24 | 10 | N.D. | U | 0.021 | 0.010 | 0.0052 | N.D. | U | 0.022 | 0.011 | 0.0055 | N.D. | U | 0.020 | 0.010 | 0.0050 |
| | Acenaphthene | 370 | 20 | N.D. | U | 0.021 | 0.010 | 0.0052 | N.D. | U | 0.022 | 0.011 | 0.0055 | N.D. | U | 0.020 | 0.010 | 0.0050 |
| | Acenaphthylene | 240 | 2,000 | N.D. | U | 0.021 | 0.010 | 0.0052 | N.D. | U | 0.022 | 0.011 | 0.0055 | N.D. | U | 0.020 | 0.010 | 0.0050 |
| | Anthracene | 1,800 | 22 | N.D. | U | 0.021 | 0.010 | 0.0052 | N.D. | U | 0.022 | 0.011 | 0.0055 | N.D. | U | 0.020 | 0.010 | 0.0050 |
| | Benzo[a]anthracene | 0.092 | 4.7 | N.D. | U | 0.021 | 0.010 | 0.0052 | N.D. | U | 0.022 | 0.011 | 0.0055 | N.D. | U | 0.020 | 0.010 | 0.0050 |
| | Benzo[a]pyrene | 0.2 | 0.81 | N.D. | U | 0.021 | 0.010 | 0.0052 | N.D. | U | 0.022 | 0.011 | 0.0055 | N.D. | U | 0.020 | 0.010 | 0.0050 |
| | Benzo[b]fluoranthene | 0.092 | 0.75 | N.D. | U | 0.021 | 0.010 | 0.0052 | N.D. | U | 0.022 | 0.011 | 0.0055 | N.D. | U | 0.020 | 0.010 | 0.0050 |
| | Benzo[g,h,i]perylene | 1,500 | 0.13 | N.D. | U | 0.021 | 0.010 | 0.0052 | N.D. | U | 0.022 | 0.011 | 0.0055 | N.D. | U | 0.020 | 0.010 | 0.0050 |
| | Benzo[k]fluoranthene | 0.92 | 0.4 | N.D. | U | 0.021 | 0.010 | 0.0052 | N.D. | U | 0.022 | 0.011 | 0.0055 | N.D. | U | 0.020 | 0.010 | 0.0050 |
| | Chrysene | 9.2 | 1 | N.D. | U | 0.021 | 0.010 | 0.0052 | N.D. | U | 0.022 | 0.011 | 0.0055 | N.D. | U | 0.020 | 0.010 | 0.0050 |
| | Dibenzo[a,h]anthracene[1] | 0.0092 | 0.52 | N.D. | U | 0.021 | 0.010 | 0.0052 | N.D. | U | 0.022 | 0.011 | 0.0055 | N.D. | U | 0.020 | 0.010 | 0.0050 |
| | Fluoranthene | 1,500 | 130 | N.D. | U | 0.021 | 0.010 | 0.0052 | N.D. | U | 0.022 | 0.011 | 0.0055 | N.D. | U | 0.020 | 0.010 | 0.0050 |
| | Fluorene | 240 | 950 | N.D. | U | 0.021 | 0.010 | 0.0052 | N.D. | U | 0.022 | 0.011 | 0.0055 | N.D. | U | 0.020 | 0.010 | 0.0050 |
| | Indeno[1,2,3-cd]pyrene | 0.092 | 0.095 | N.D. | U | 0.021 | 0.010 | 0.0052 | N.D. | U | 0.022 | 0.011 | 0.0055 | N.D. | U | 0.020 | 0.010 | 0.0050 |
| | Naphthalene | 17 | 21 | N.D. | U | 0.10 | 0.052 | 0.026 | N.D. | U | 0.11 | 0.055 | 0.028 | N.D. | U | 0.10 | 0.050 | 0.025 |
| | Phenanthrene | 240 | 410 | N.D. | U | 0.021 | 0.010 | 0.0052 | N.D. | U | 0.022 | 0.011 | 0.0055 | N.D. | U | 0.020 | 0.010 | 0.0050 |
| | Pyrene | 180 | 68 | N.D. | U | 0.021 | 0.010 | 0.0052 | N.D. | U | 0.022 | 0.011 | 0.0055 | N.D. | U | 0.020 | 0.010 | 0.0050 |
| EPA 8011 | 1,2-Dibromo-3-chloropropane | 0.04 | 10 | N.D. | U | 0.02 | 0.019 | 0.007 | N.D. | U | 0.02 | 0.019 | 0.007 | N.D. | U | 0.02 | 0.019 | 0.007 |
| | 1,2-Dibromoethane | 0.04 | 50,000 | N.D. | U | 0.02 | 0.020 | 0.010 | N.D. | U | 0.02 | 0.020 | 0.010 | N.D. | U | 0.02 | 0.020 | 0.010 |
| EPA 8260C | 1,1,1,2-Tetrachloroethane | 0.52 | 50,000 | N.D. | U | 1.0 | 0.30 | 0.13 | N.D. | U | 1.0 | 0.30 | 0.13 | N.D. | U | 1.0 | 0.30 | 0.13 |
| | 1,1,1-Trichloroethane | 200 | 970 | N.D. | U | 1.0 | 0.30 | 0.14 | N.D. | U | 1.0 | 0.30 | 0.14 | N.D. | U | 1.0 | 0.30 | 0.14 |
| | 1,1,2,2-Tetrachloroethane[1] | 0.07 | 500 | N.D. | U | 1.0 | 0.30 | 0.10 | N.D. | U | 1.0 | 0.30 | 0.10 | N.D. | U | 1.0 | 0.30 | 0.10 |
| | 1,1,2-Trichloroethane | 5 | 50,000 | N.D. | U | 1.0 | 0.50 | 0.20 | N.D. | U | 1.0 | 0.50 | 0.20 | N.D. | U | 1.0 | 0.50 | 0.20 |
| | 1,1-Dichloroethane | 2.42 | 50,000 | N.D. | U | 1.0 | 0.30 | 0.19 | N.D. | U | 1.0 | 0.30 | 0.19 | N.D. | U | 1.0 | 0.30 | 0.19 |
| | 1,1-Dichloroethylene | 7 | 1,500 | N.D. | U | 1.0 | 0.50 | 0.30 | N.D. | U | 1.0 | 0.50 | 0.30 | N.D. | U | 1.0 | 0.50 | 0.30 |
| | 1,2,3-Trichloropropane[1] | 0.6 | 50,000 | N.D. | U | 2.0 | 1.00 | 0.39 | N.D. | U | 2.0 | 1.00 | 0.39 | N.D. | U | 2.0 | 1.00 | 0.39 |
| | 1,2,4-Trichlorobenzene | 70 | 3,000 | N.D. | U | 1.0 | 0.50 | 0.21 | N.D. | U | 1.0 | 0.50 | 0.21 | N.D. | U | 1.0 | 0.50 | 0.21 |
| | 1,2-Dibromo-3-chloropropane[1] | 0.04 | 10 | N.D. | U | 2.0 | 1.00 | 0.76 | N.D. | U | 2.0 | 1.00 | 0.76 | N.D. | U | 2.0 | 1.00 | 0.76 |
| | 1,2-Dibromoethane[1] | 0.04 | 50,000 | N.D. | U | 1.0 | 0.50 | 0.20 | N.D. | U | 1.0 | 0.50 | 0.20 | N.D. | U | 1.0 | 0.50 | 0.20 |
| | 1,2-Dichlorobenzene | 600 | 10 | N.D. | U | 1.0 | 0.30 | 0.17 | N.D. | U | 1.0 | 0.30 | 0.17 | N.D. | U | 1.0 | 0.30 | 0.17 |
| | 1,2-Dichloroethane | 0.15 | 7,000 | N.D. | U | 0.10 | 0.100 | 0.030 | N.D. | U | 0.10 | 0.100 | 0.030 | N.D. | U | 0.10 | 0.100 | 0.030 |
| | 1,2-Dichloropropane | 5 | 10 | N.D. | U | 1.0 | 0.30 | 0.17 | N.D. | U | 1.0 | 0.30 | 0.17 | N.D. | U | 1.0 | 0.30 | 0.17 |
| | 1,3-Dichlorobenzene | 182.5 | 5 | N.D. | U | 1.0 | 0.30 | 0.11 | N.D. | U | 1.0 | 0.30 | 0.11 | N.D. | U | 1.0 | 0.30 | 0.11 |
| | 1,3-Dichloropropene (total) | 0.43 | 50,000 | N.D. | U | 1.0 | 0.30 | 0.18 | N.D. | U | 1.0 | 0.30 | 0.18 | N.D. | U | 1.0 | 0.30 | 0.18 |
| | 1,4-Dichlorobenzene | 75 | 5 | N.D. | U | 1.0 | 0.30 | 0.19 | N.D. | U | 1.0 | 0.30 | 0.19 | N.D. | U | 1.0 | 0.30 | 0.19 |
| | Acetone | 21,783 | 20,000 | N.D. | U | 10.0 | 2.00 | 0.95 | N.D. | U | 10.0 | 2.00 | 0.95 | N.D. | U | 10.0 | 2.00 | 0.95 |
| | Benzene | 5 | 170 | N.D. | U | 0.20 | 0.200 | 0.060 | N.D. | U | 0.20 | 0.200 | 0.060 | N.D. | U | 0.20 | 0.200 | 0.060 |



ENCLOSURE(1)

# TABLE 5

## Analytical Results for Groundwater Sampling (January 2015)

### Monitoring Well Installation Report Addendum
### Red Hill Bulk Fuel Storage Facility
### Joint Base Pearl Harbor-Hickam, Hawaii

| Method | Chemical | DOH EALs | | RHMW06-GW-02 (15A141-03/AZ10128) | | | | | RHMW07-GW-02 (15A141-01/AZ10126) | | | | | RHMW07-GW-02FD* (15A141-02/AZ10127) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Drinking Water Toxicity | Gross Contamination | Result | Qualifier | LOQ | LOD | DL | Result | Qualifier | LOQ | LOD | DL | Result | Qualifier | LOQ | LOD | DL |
| EPA 8260C (Continued) | Bromodichloromethane[1] | 0.12 | 50,000 | N.D. | U | 1.0 | 0.30 | 0.14 | N.D. | U | 1.0 | 0.30 | 0.14 | N.D. | U | 1.0 | 0.30 | 0.14 |
| | Bromoform | 80 | 510 | N.D. | U | 1.0 | 0.30 | 0.14 | N.D. | U | 1.0 | 0.30 | 0.14 | N.D. | U | 1.0 | 0.30 | 0.14 |
| | Bromomethane | 8.66 | 50,000 | N.D. | U | 2.0 | 0.50 | 0.24 | N.D. | U | 2.0 | 0.50 | 0.24 | N.D. | U | 2.0 | 0.50 | 0.24 |
| | Carbon tetrachloride | 5 | 520 | N.D. | U | 0.10 | 0.100 | 0.030 | N.D. | U | 0.10 | 0.100 | 0.030 | N.D. | U | 0.10 | 0.100 | 0.030 |
| | Chlorobenzene | 100 | 50 | N.D. | U | 1.0 | 0.50 | 0.21 | N.D. | U | 1.0 | 0.50 | 0.21 | N.D. | U | 1.0 | 0.50 | 0.21 |
| | Chloroethane | 20,857 | 16 | N.D. | U | 1.0 | 0.50 | 0.21 | N.D. | U | 1.0 | 0.50 | 0.21 | N.D. | U | 1.0 | 0.50 | 0.21 |
| | Chloroform | 70 | 2,400 | N.D. | U | 0.2 | 0.20 | 0.06 | N.D. | U | 0.2 | 0.20 | 0.06 | N.D. | U | 0.2 | 0.20 | 0.06 |
| | Chloromethane | 1.78 | 50,000 | N.D. | U | 1.0 | 0.50 | 0.31 | N.D. | U | 1.0 | 0.50 | 0.31 | N.D. | U | 1.0 | 0.50 | 0.31 |
| | cis-1,2-Dichloroethylene | 70 | 50,000 | N.D. | U | 1.0 | 0.30 | 0.16 | N.D. | U | 1.0 | 0.30 | 0.16 | N.D. | U | 1.0 | 0.30 | 0.16 |
| | Dibromochloromethane[1] | 0.16 | 50,000 | N.D. | U | 1.0 | 0.30 | 0.19 | N.D. | U | 1.0 | 0.30 | 0.19 | N.D. | U | 1.0 | 0.30 | 0.19 |
| | Ethylbenzene | 700 | 30 | N.D. | U | 1.0 | 0.50 | 0.23 | N.D. | U | 1.0 | 0.50 | 0.23 | N.D. | U | 1.0 | 0.50 | 0.23 |
| | Hexachlorobutadiene | 0.86 | 6 | N.D. | U | 1.0 | 0.30 | 0.19 | N.D. | U | 1.0 | 0.30 | 0.19 | N.D. | U | 1.0 | 0.30 | 0.19 |
| | Methyl ethyl ketone (2-butanone) | 7,065 | 8,400 | N.D. | U | 10.0 | 2.00 | 0.60 | N.D. | U | 10.0 | 2.00 | 0.60 | N.D. | U | 10.0 | 2.00 | 0.60 |
| | Methyl isobutyl ketone (4-methyl-2-pentanone) | 1,991 | 1,300 | N.D. | U | 10.0 | 5.00 | 1.90 | N.D. | U | 10.0 | 5.00 | 1.90 | N.D. | U | 10.0 | 5.00 | 1.90 |
| | Methyl tert butyl ether | 12 | 5 | N.D. | U | 1.0 | 0.52 | 0.26 | N.D. | U | 1.0 | 0.52 | 0.26 | N.D. | U | 1.0 | 0.52 | 0.26 |
| | Methylene chloride | 4.8 | 9,100 | N.D. | U | 5.0 | 1.00 | 0.35 | N.D. | U | 5.0 | 1.00 | 0.35 | N.D. | U | 5.0 | 1.00 | 0.35 |
| | Styrene | 100 | 10 | N.D. | U | 1.0 | 0.50 | 0.25 | N.D. | U | 1.0 | 0.50 | 0.25 | N.D. | U | 1.0 | 0.50 | 0.25 |
| | Tetrachloroethylene | 5 | 170 | N.D. | U | 0.3 | 0.30 | 0.08 | N.D. | U | 0.3 | 0.30 | 0.08 | N.D. | U | 0.3 | 0.30 | 0.08 |
| | Toluene | 1,000 | 40 | N.D. | U | 1.0 | 0.30 | 0.17 | N.D. | U | 1.0 | 0.30 | 0.17 | N.D. | U | 1.0 | 0.30 | 0.17 |
| | trans-1,2-dichloroethylene | 100 | 260 | N.D. | U | 1.0 | 0.30 | 0.19 | N.D. | U | 1.0 | 0.30 | 0.19 | N.D. | U | 1.0 | 0.30 | 0.19 |
| | Trichloroethylene | 5 | 310 | N.D. | U | 1.0 | 0.30 | 0.16 | N.D. | U | 1.0 | 0.30 | 0.16 | N.D. | U | 1.0 | 0.30 | 0.16 |
| | Vinyl chloride | 2 | 3,400 | N.D. | U | 0.10 | 0.10 | 0.03 | N.D. | U | 0.10 | 0.10 | 0.03 | N.D. | U | 0.10 | 0.10 | 0.03 |
| | Xylenes | 10,000 | 20 | N.D. | U | 2.0 | 0.30 | 0.19 | N.D. | U | 2.0 | 0.30 | 0.19 | N.D. | U | 2.0 | 0.30 | 0.19 |
| EPA RSK-175 | Methane | NA | NA | N.D. | U | 1.0 | 0.45 | 0.25 | N.D. | U | 1.0 | 0.45 | 0.25 | N.D. | U | 1.0 | 0.45 | 0.25 |
| EPA 6020A | Dissolved Lead | 15 | 50,000 | N.D. | U | 3.0 | 0.40 | 0.19 | N.D. | U | 3.0 | 0.40 | 0.19 | N.D. | U | 3.0 | 0.40 | 0.19 |
| EPA 9056 | Sulfate | NA | NA | **87,800** | | 5,000 | 990 | 450 | **58,200** | | 2,000 | 396 | 180 | **59,900** | | 2,000 | 396 | 180 |
| EPA 353.2 | Nitrate/Nitrite as N | NA | NA | **630** | | 100 | 100 | 28 | **290** | | 100 | 100 | 28 | **330** | | 100 | 100 | 28 |
| EPA A2320B | Alkalinity | NA | NA | **139,000** | | 2,000 | 1,700 | 850 | **132,000** | | 2,000 | 1,700 | 850 | **126,000** | | 2,000 | 1,700 | 850 |

**QA Notes:**

| | |
|---|---|
| DOH EALs | State of Hawaii Department of Health Hazard Evaluation and Emergency Response Office Environmental Action Levels for sites where groundwater is a current drinking water source and surface water is within 150 meters from the site (January 2012) |
| LOQ | Limit of Quantitation |
| LOD | Limit of Detection |
| DL | Detection Limit or Method Detection Limit (MDL) |
| 1 | The LOD for this analyte exceeds the DOH EAL |
| NA | DOH EAL Not Available |
| * | Field duplicate of sample on left |

**Data Qualifiers:**

The data are in micrograms per liter (µg/L).

| | |
|---|---|
| N.D. | Not detected |
| U | Analyte was not detected above the DL and is reported as less than the LOD |

**Detections are bolded.**

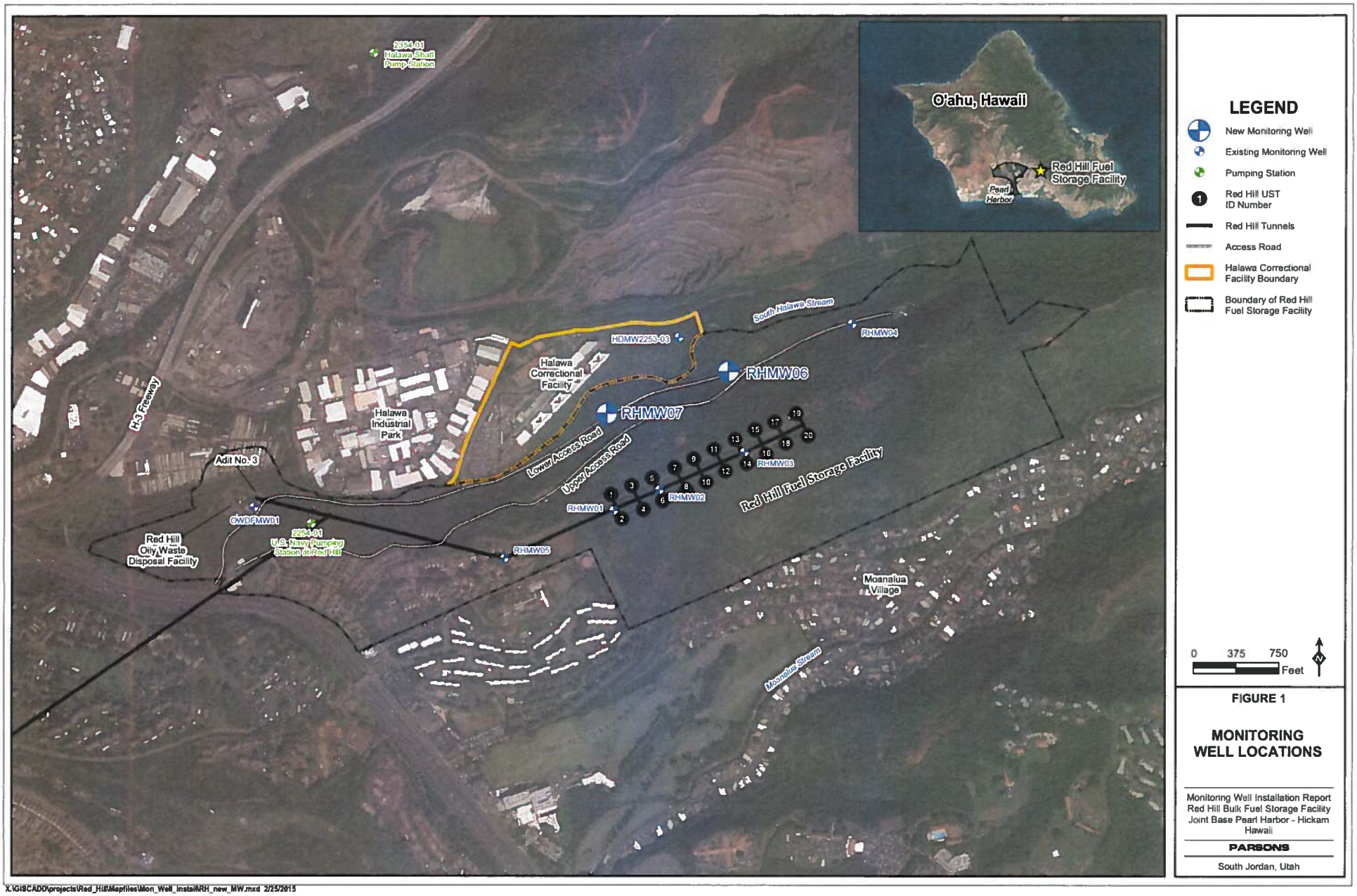


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**FIGURE 1**

**MONITORING WELL LOCATIONS**

Monitoring Well Installation Report
Red Hill Bulk Fuel Storage Facility
Joint Base Pearl Harbor - Hickam
Hawaii

**PARSONS**

South Jordan, Utah

ENCLOSURE(2)