Final
Second Quarter 2013 - Quarterly Groundwater Monitoring Report Inside Tunnel Wells

Red Hill Bulk Fuel Storage Facility
Joint Base Pearl Harbor-Hickam, Oahu, Hawaii

DOH Facility ID: 9-102271
DOH Release ID: 990051, 010011, and 020028

July 2013

Department of the Navy
Naval Facilities Engineering Command, Hawaii
400 Marshall Road
JBPHH HI 96860-3139

Contract Number N62742-12-D-1853, CTO 0002

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Prepared for:

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400 Marshall Road
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Prepared under:

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FINAL
SECOND QUARTER 2013 - QUARTERLY GROUNDWATER MONITORING REPORT
INSIDE TUNNEL WELLS
RED HILL BULK FUEL STORAGE FACILITY

Long-Term Groundwater and Soil Vapor Monitoring
Red Hill Bulk Fuel Storage Facility
Joint-Base Pearl Harbor-Hickam, Oahu, Hawaii

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ACRONYMS AND ABBREVIATIONS

ACRONYMS/ ABBREVIATIONS	DEFINITION/MEANING
%	percent
bgs	below ground surface
COPC	Contaminant of Potential Concern
DLNR	State of Hawaii Department of Land and Natural Resources
DOH	State of Hawaii Department of Health
DON	Department of the Navy
EAL	Environmental Action Level
EPA	Environmental Protection Agency
ESI	Environmental Science International
F-76	Marine Diesel Fuel
ID	Identification
JBPHH	Joint Base Pearl Harbor-Hickam
JP-5	Jet Fuel Propellant-5
JP-8	Jet Fuel Propellant-8
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection
LOQ	Limit of Quantitation
µg/L	micrograms per liter
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NAVFAC	Naval Facilities Engineering Command
NAVSUP FLC	Naval Supply Systems Command Fleet Logistics Center
PAH	Polycyclic Aromatic Hydrocarbons
PARCCS	Precision, Accuracy, Representativeness, Completeness, Comparability, and Sensitivity
pH	hydrogen activity
RHSF	Red Hill Bulk Fuel Storage Facility
RPD	Relative Percent Difference
SAP	Sampling and Analysis Plan
TEC	The Environmental Company, Inc.
TPH	Total Petroleum Hydrocarbons
TPH-d	Total Petroleum Hydrocarbons as diesel
TPH-g	Total Petroleum Hydrocarbons as gasoline
U.S.	United States of America
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WP	Work Plan

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EXECUTIVE SUMMARY

This quarterly groundwater monitoring report presents the results of the second quarter 2013 groundwater sampling conducted on April 22 and 23, 2013, at the Red Hill Bulk Fuel Storage Facility [RHSF], Joint Base Pearl Harbor-Hickam [JBPHH], Hawaii. The RHSF is located in Halawa Heights on the Island of Oahu. There are 18 active and 2 inactive Underground Storage Tanks [USTs] located at the RHSF. The State of Hawaii Department of Health [DOH] Facility Identification [ID] number is 9-102271. The DOH Release ID numbers are 990051, 010011, and 020028.

The groundwater sampling was conducted as part of the long-term groundwater and soil vapor monitoring at the RHSF, under Naval Facilities Engineering Command [NAVFAC] Contract Number N62742-12-D-1853. The sampling was conducted in accordance with the approved Work Plan [WP]/Sampling and Analysis Plan [SAP] prepared by Environmental Science International [ESI].

On April 22 and 23, 2013, ESI personnel collected groundwater samples from five monitoring wells at the RHSF (wells RHMW01, RHMW02, RHMW03, RHMW05, and RHMW2254-01). A summary of the analytical results is provided below.

- **RHMW01** – Total Petroleum Hydrocarbons as diesel [TPH-d] (340 micrograms per liter [µg/L]) and dissolved lead (0.641 µg/L) were detected. TPH-d was detected at a concentration above the DOH Environmental Action Levels [EALs] for both drinking water toxicity and gross contamination.

- **RHMW02** – TPH-d (2,600 µg/L), Total Petroleum Hydrocarbons as gasoline [TPH-g] (54 µg/L), acenaphthene (0.58 µg/L), fluorene (0.24 µg/L), 1-methylnaphthalene (16 µg/L), 2-methylnaphthalene (13 µg/L), naphthalene (53 µg/L), ethylbenzene (0.21 µg/L), and xylenes (0.58 µg/L) were detected. TPH-d, 1-methylnaphthalene, and naphthalene were detected at concentrations above the DOH EALs for both drinking water toxicity and gross contamination. 2-Methylnaphthalene was detected at a concentration above the DOH EAL only for gross contamination.

- **RHMW03** – TPH-d (69 µg/L) was detected. None of the chemical constituents analyzed for were detected at concentrations above the DOH EALs.

- **RHMW05** – TPH-d (27 µg/L), TPH-g (15 µg/L), and naphthalene (0.033 µg/L) were detected. None of the chemical constituents analyzed for were detected at concentrations above the DOH EALs.

- **RHMW2254-01** – Total lead (0.828 µg/L) was detected. None of the chemical constituents analyzed for were detected at concentrations above the DOH EALs.

Since the wells were last sampled (January 2013), groundwater contaminant concentrations in four wells (RHMW01, RHMW03, RHMW05, and RHMW2254-01) remained at low concentrations and did not change significantly, or were not detected. Only the groundwater samples from RHMW01 and RHMW02 showed concentrations of COPCs exceeding the DOH EALs.

TPH-d concentrations detected in the sample collected from well RHMW01 have increased above the DOH EALs for both drinking water toxicity and gross contamination for the first time since February 2012.

TPH-d concentrations detected in the sample collected from well RHMW02 are consistent with previous analytical data, but increased in concentration relative to the last quarterly groundwater sampling event. This is consistent with an increase in concentration in well RHMW01 during this event. TPH-g, 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene concentrations have decreased since the last sampling event; however, elevated concentrations have been detected in groundwater samples collected during past sampling events.

With the exception of TPH-g, concentrations of COPCs in well RHMW02 have not changed significantly. TPH-d, 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene concentrations have been decreasing since groundwater monitoring was initiated in 2005. This is the first sampling event that 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene concentrations decreased since April 2012.

Based on the results of the groundwater monitoring, ESI recommends continuing the groundwater monitoring program at the RHSF. If TPH-d concentrations in well RHMW02 continue to increase, we recommend increasing monitoring frequency to monthly in accordance with the RHSF Groundwater Protection Plan.

SECTION 1 – INTRODUCTION

This quarterly groundwater monitoring report presents the results of the second quarter 2013 groundwater sampling conducted on April 22 and 23, 2013, at the RHSF, JBPHH. The RHSF is located in Halawa Heights on the Island of Oahu. The purpose of the sampling is to (1) assess the condition of groundwater beneath the RHSF with respect to chemical constituents associated with jet fuel propellant and marine diesel fuel, and (2) to ensure the Navy remains in compliance with DOH UST release response requirements as described in Hawaii Administrative Rules 11-281 Subchapter 7, Release Response Action. The DOH Facility ID number for the RHSF is 9-102271. The DOH Release ID numbers are 990051, 010011, and 020028.

The groundwater sampling was conducted as part of the long-term groundwater and soil vapor monitoring at the RHSF, under NAVFAC Contract Number N62742-12-D-1853. The sampling was conducted in accordance with the approved WP/SAP prepared by ESI (ESI, 2012).

1.1 SITE DESCRIPTION

The RHSF is located on federal government land (zoned F1- Military and Federal), located in Halawa Heights, approximately 2.5 miles northeast of Pearl Harbor (Figure 1). It is located on a low ridge on the western edge of the Koolau Mountain Range that divides Halawa Valley from Moanalua Valley. The RHSF is bordered on the north by Halawa Correctional Facility and private businesses, on the west by the United States of America [U.S.] Coast Guard reservation, on the south by residential neighborhoods, and on the east by Moanalua Valley. A quarry is located less than a quarter mile away to the northwest. The RHSF occupies 144 acres of land and the majority of the site is at an elevation of approximately 200 to 500 feet above mean sea level.

The RHSF contains 18 active and 2 inactive USTs that are operated by Naval Supply Systems Command Fleet Logistics Center [NAVSUP FLC] Pearl Harbor (formerly Fleet and Industrial Supply Center). Each UST has a capacity of approximately 12.5 million gallons. The RHSF is located approximately 100 feet above the basal aquifer. The USTs contain Jet Fuel Propellant-5 [JP-5], Jet Fuel Propellant-8 [JP-8], and Marine Diesel Fuel [F-76]. The current status of the USTs are summarized in Table 1.1.

Five groundwater monitoring wells (wells RHMW01, RHMW02, RHMW03, RHMW05, and RHMW2254-01) are located within the RHSF lower access tunnel (Figure 2). Two groundwater monitoring wells (wells HDMW2253-03 and OWDFMW01) are located outside of the RHSF tunnel system. Monitoring data for the two wells located outside the tunnel are included in a separate report.

Monitoring wells RHMW01, RHMW02, RHMW03, and RHMW05 are located inside the underground tunnels. Monitoring well RHMW2254-01 is located inside the infiltration gallery of the Department of the Navy [DON] Well 2254-01. The DON Well 2254-01 is located

approximately 2,400 feet downgradient of the USTs and provides approximately 24 percent [%] of the potable water to the Pearl Harbor System, which serves approximately 52,200 military customers. NAVFAC Public Works Department operates the infiltration gallery and DON Well 2254-01.

TABLE 1.1
Current Status of the USTs
Red Hill Bulk Fuel Storage Facility
April 2013 Quarterly Monitoring Report

Tank Identification	Fuel Type	Status	Capacity
F-1	None	Inactive	12.5 million gallons
F-2	JP-8	Active	12.5 million gallons
F-3	JP-8	Active	12.5 million gallons
F-4	JP-8	Active	12.5 million gallons
F-5	JP-8	Active	12.5 million gallons
F-6	JP-8	Active	12.5 million gallons
F-7	JP-5	Active	12.5 million gallons
F-8	JP-5	Active	12.5 million gallons
F-9	JP-5	Active	12.5 million gallons
F-10	JP-5	Active	12.5 million gallons
F-11	JP-5	Active	12.5 million gallons
F-12	JP-5	Active	12.5 million gallons
F-13	F-76	Active	12.5 million gallons
F-14	F-76	Active	12.5 million gallons
F-15	F-76	Active	12.5 million gallons
F-16	F-76	Active	12.5 million gallons
F-17	JP-5	Active	12.5 million gallons
F-18	JP-5	Active	12.5 million gallons
F-19	None	Inactive	12.5 million gallons
F-20	JP-5	Active	12.5 million gallons

F-76 Marine Diesel Fuel
JP-5 Jet Fuel Propellant-5
JP-8 Jet Fuel Propellant-8

1.2 PHYSICAL SETTING

Climatological conditions in the area of the RHSF consist of warm to moderate temperatures and low to moderate rainfall. The RHSF is leeward of the prevailing northeasterly trade winds. The average annual precipitation is approximately 40 inches, which occurs mainly between November and April (State of Hawaii Department of Land and Natural Resources [DLNR], 1986). Annual pan evaporation is approximately 75 inches (DLNR, 1985). Average temperatures range from the low 60's to high 80's (degrees Fahrenheit) (Atlas of Hawaii, 1983).

Oahu consists of the eroded remnants of two shield volcanoes, Waianae and Koolau. The RHSF is located on the southwest flank of the Koolau volcanic shield. Lavas erupted during the shield-building phase of the volcano belong to the *Koolau Volcanic Series* (Stearns and Vaksvik, 1935). Following formation of the Koolau shield, a long period of volcanic quiescence occurred, during which the shield was deeply eroded. Following this erosional period, eruptive activity resumed. Lavas and pyroclastic material erupted during this period belong to the *Honolulu*

Volcanic Series (Stearns and Vaksvik, 1935).

In the immediate area of the RHSF, Koolau Volcanic Series lavas dominate, although there are consolidated and unconsolidated non-calcareous deposits in the vicinity that consist of alluvium generated during erosion of the Koolau volcanic shield. South-southwest of the RHSF, and in isolated exposures to the west, are pyroclastic deposits formed during eruptions from three Honolulu Volcanic Series vents, Salt Lake, Aliamanu, and Makalapa (Stearns and Vaksvik, 1935). Based on established geology and records of the drilled wells (Stearns and Vaksvik, 1938), the RHSF is underlain by Koolau Volcanic Series basalts. The area of the RHSF is classified as *Rock Land*, where 25-90% of the land surface is covered by exposed rock and there are only shallow soils (Foote, et al., 1972).

Groundwater in Hawaii exists in two principal types of aquifers. The first and most important type, in terms of drinking water resources, is the basal aquifer. The basal aquifer exists as a lens of fresh water floating on and displacing seawater within the pore spaces, fractures, and voids of the basalt that forms the underlying mass of each Hawaiian island. In parts of Oahu, groundwater in the basal aquifer is confined by the overlying caprock and is under pressure. Waters that flow freely to the surface from wells that tap the basal aquifer are referred to as *artesian*.

The second type of aquifer is the caprock aquifer, which consists of various kinds of unconfined and semi-confined groundwater. Commonly, the caprock consists of a thick sequence of nearly impermeable clays, coral, and basalt, which separates the caprock aquifer from the basal aquifer. The impermeable nature of these materials and the artesian nature of the basal aquifer severely restrict the downward migration of groundwater from the upper caprock aquifer. In the area of the RHSF, there is no discernible caprock.

Groundwater in the area of the RHSF is part of the *Waimalu Aquifer System* of the *Pearl Harbor Aquifer Sector.* The aquifer is classified as a basal, unconfined, flank-type; and is currently used as a drinking water source. The aquifer is considered fresh with less than 250 milligrams per liter of chloride and is considered an irreplaceable resource with a high vulnerability to contamination (Mink and Lau, 1990).

The nearest drinking water supply well is DON Well 2254-01, located in the infiltration gallery within the RHSF. The DON Well 2254-01 is located approximately 2,400 feet downgradient of the USTs (Figure 2).

1.3 BACKGROUND

The RHSF was constructed by the U.S. Government in the early 1940s. Twenty USTs and a series of tunnels were constructed. The USTs were constructed of steel and they currently contain JP-5, JP-8, and F-76. Several tanks in the past have stored DON special fuel oil, DON distillate, aviation gasoline, and motor gasoline (Environet, 2010). The fueling system is a self-contained underground unit that was installed into native rock comprised primarily of basalt with

some interbedded tuffs and breccias (Environet, 2010). Each UST measures approximately 245 feet in height and 100 feet in diameter. The upper domes of the tanks lie at a depth varying between 100 feet and 200 feet below ground surface [bgs].

In 1998, Earth Tech conducted a Phase II remedial investigation/feasibility study for the Oily Waste Disposal Facility located within the RHSF. The study involved installing well OWDFMW01 (which was originally MW08) (Earth Tech, 1999).

In February 2001, the DON installed groundwater monitoring well RHMW01 to monitor for contamination in the basal aquifer beneath the RHSF. Well RHMW01 was installed approximately 100 feet below grade within the lower access tunnel. The depth to water was measured at 86 feet below grade at the time of the well completion. In February 2001, a groundwater sample was collected from the well. Total Petroleum Hydrocarbons [TPH] and lead were detected in the samples. Lead was detected at a concentration above the DOH EAL (The Environmental Company, Inc. [TEC], 2009; DOH, 2000).

In 2005, the RHSF groundwater monitoring program was initiated. It involved routine groundwater sampling of wells RHMW01 and RHMW2254-01. Samples were collected in February, June, September, and December of 2005. Lead was detected at concentrations above the DOH EAL in samples collected in February and June. The samples collected in February and June were not filtered prior to analysis, whereas the samples collected in September and December were filtered prior to analysis. Since the samples collected in February and June were not filtered prior to analysis, the lead results were not considered appropriate for a risk assessment (TEC, 2008).

Between June and September 2005, TEC installed three groundwater monitoring wells (wells RHMW02, RHMW03, and RHMW04) within the RHSF (TEC, 2008). Well RHMW04 was installed upgradient of the USTs to provide background geochemistry information for water moving through the basal aquifer beneath the RHSF. Wells RHMW02 and RHMW03 were installed approximately 125 feet below grade within the RHSF lower tunnel and well RHMW04 was installed to a depth of approximately 300 feet bgs outside of the RHSF tunnels. In September 2005, groundwater samples were collected from the three newly installed groundwater monitoring wells (wells RHMW02, RHMW03, and RHMW04) along with the two existing wells (wells RHMW01 and RHMW2254-01). The COPCs with concentrations exceeding DOH EALs are summarized below.

- **RHMW01** – TPH-d was detected at concentrations above the DOH EAL.
- **RHMW02** – TPH-g, TPH-d, naphthalene, trichloroethylene, 1-methylnaphthalene, and 2-methylnaphthalene were detected at concentrations above the DOH EALs.
- **RHMW03** – TPH-d was detected at concentrations above the DOH EAL.

In 2006, TEC installed dedicated sampling pumps in the five wells (wells RHWM01, RHWM02, RHMW03, RHWM04,and RHMW2254-01). In July and December of 2006, groundwater

samples were collected from the five wells. The COPCs with concentrations exceeding DOH EALs are summarized below.

- **RHMW01** – TPH-d and naphthalene were detected at concentrations above the DOH EALs.
- **RHMW02** – TPH-g, TPH-d, and naphthalene were detected at concentrations above the DOH EALs.
- **RHMW03** – TPH-d was detected at concentrations above the DOH EAL.

In 2007, groundwater samples were collected from the four wells RHWM01, RHWM02, RHMW03, and RHMW2254-01. Samples were collected in March, June, and September of 2007. The COPCs with concentrations exceeding DOH EALs are summarized below.

- **RHMW01** – TPH-d was detected at concentrations above the DOH EAL.
- **RHMW02** – TPH-g, TPH-d, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene were detected at concentrations above the DOH EALs.
- **RHMW03** – TPH-d was detected at concentrations above the DOH EAL.

In 2008, groundwater samples were collected from wells RHWM01, RHWM02, RHMW03, and RHMW2254-01. Samples were collected in January, April, July, and October of 2008. The COPCs with concentrations exceeding DOH EALs are summarized below. In addition, a groundwater protection plan (TEC, 2008) was prepared.

- **RHMW01** – TPH-d was detected at concentrations above the DOH EAL.
- **RHMW02** – TPH-d, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene were detected at concentrations above the DOH EALs.
- **RHMW03** – TPH-d was detected at concentrations above the DOH EAL.

In April 2009, groundwater monitoring well RHMW05 was installed downgradient of the USTs, within the lower access tunnel between RHMW01 and RHMW2254-01. It was installed to identify the extent of contamination downgradient of the USTs. Well RHMW05 was added to the quarterly groundwater sampling program. In 2009, quarterly groundwater samples were collect from wells RHMW01, RHMW02, RHMW03, RHMW05, and RHMW2254-01. Samples were collected in February, May, July, and October of 2009. The COPCs with concentrations exceeding DOH EALs are summarized below.

- **RHMW01** – TPH-d and 1-methylnaphthalene were detected at concentrations above the DOH EAL.
- **RHMW02** – TPH-d, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene were detected at concentrations above the DOH EALs.
- **RHMW03** – TPH-d was detected at a concentration above the DOH EAL.
- **RHMW05** – TPH-d was detected at a concentration above the DOH EAL.

In 2010, groundwater samples were collected from wells RHMW01, RHMW02, RHMW03, RHMW05, and RHMW2254-01. Samples were collected in January, April, July, and October. The COPCs with concentrations exceeding DOH EALs are summarized below.

- **RHMW01** – TPH-d was detected at concentrations above the DOH EAL.
- **RHMW02** – TPH-g, TPH-d, naphthalene, and 1-methylnaphthalene were detected at concentrations above the DOH EALs.
- **RHMW03** – TPH-d was detected at a concentration above the DOH EAL.
- **RHMW05** – TPH-d was detected at a concentration above the DOH EAL.

In 2011, quarterly groundwater samples were collected from wells RHMW01, RHMW02, RHMW03, RHMW05, and RHMW2254-01. Samples were collected in January, April, July, and October. The COPCs with concentrations exceeding DOH EALs are summarized below.

- **RHMW01** – TPH-d was detected at concentrations above the DOH EAL.
- **RHMW02** – TPH-d, naphthalene, ideno[1,2,3-cd]pyrene, and 1-methylnaphthalene were detected at concentrations above the DOH EALs.

In 2012, quarterly groundwater samples were collected from wells RHMW01, RHMW02, RHMW03, RHMW05, and RHMW2254-01. Samples were collected in February, April, July, and November. The COPCs with concentrations exceeding DOH EALs are summarized below.

- **RHMW01** – TPH-d was detected at concentrations above the DOH EAL.
- **RHMW02** – TPH-d, TPH-g, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene were detected at concentrations above the DOH EALs.

In January 2013, quarterly groundwater samples were collected from wells RHMW01, RHMW02, RHMW03, RHMW05, and RHMW2254-01. The COPCs with concentrations exceeding DOH EALs are summarized below.

- **RHMW02** – TPH-d, TPH-g, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene were detected at concentrations above the DOH EALs.

1.3.1 Previous Reports

The following groundwater monitoring reports were previously submitted to the DOH:

1. Groundwater Sampling Report, First Quarter 2005 (submitted April 2005).

2. Groundwater Sampling Report, Second Quarter 2005 (submitted August 2005).

3. Groundwater Sampling Report, Third Quarter 2005 (submitted November 2005).

4. Groundwater Sampling Report, Fourth Quarter 2005 (submitted February 2006).

5. Groundwater Monitoring Results, July 2006 (submitted September 2006).
6. Groundwater Monitoring Results, December 2006 (submitted January 2007).
7. Groundwater Monitoring Results, March 2007 (submitted May 2007).
8. Groundwater Monitoring Results, June 2007 (submitted August 2007).
9. Groundwater Monitoring Results, September 2007 (submitted October 2007).
10. Groundwater Monitoring Report, January 2008 (submitted March 2008).
11. Groundwater Monitoring Report, April 2008 (submitted May 2008).
12. Groundwater Monitoring Report, July 2008 (submitted October 2008).
13. Groundwater Monitoring Report, October and December 2008 (submitted February 2009).
14. Groundwater Monitoring Report, February 2009 (submitted May 2009).
15. Groundwater Monitoring Report, May 2009 (submitted July 2009).
16. Groundwater Monitoring Report, July 2009 (submitted September 2009).
17. Groundwater Monitoring Report, October 2009 (submitted December 2009).
18. Groundwater Monitoring Report, January, February, and March 2010 (submitted April 2010).
19. Groundwater Monitoring Report, April 2010 (submitted May 2010).
20. Groundwater Monitoring Report, July 2010 (submitted August 2010).
21. Groundwater Monitoring Report, October 2010 (submitted December 2010).
22. Groundwater Monitoring Report, January 2011 (submitted March 2011).
23. Groundwater Monitoring Report, April 2011 (submitted June 2011).
24. Groundwater Monitoring Report, July 2011 (submitted September 2011).
25. Groundwater Monitoring Report, October 2011 (submitted December 2011).
26. Groundwater Monitoring Report, January-February 2012 (submitted March 2012).
27. Groundwater Monitoring Report, April 2012 (Submitted July 2012).
28. Groundwater Monitoring Report, October 2012 (Submitted in January 2013).

29. Groundwater Monitoring Report, January 2013 (Submitted in April 2013).

SECTION 2 – GROUNDWATER SAMPLING

On April 22 and 23, 2013, ESI personnel collected groundwater samples from five monitoring wells at the RHSF (wells RHMW01, RHMW02, RHMW03, RHMW05, and RHMW2254-01). The samples were collected in accordance with DOH UST release response requirements (DOH, 2000) and the RHSF Groundwater Protection Plan (TEC, 2008). Prior to purging and sampling, the depth to groundwater and the depth to the bottoms of the wells were measured using a Geotech oil/water interface probe. No measurable product, sheen, or petroleum hydrocarbon odor was detected in any of the wells.

2.1 GROUNDWATER SAMPLING

Prior to collecting groundwater samples, the monitoring wells were purged of water in the well casings. Each well contains a dedicated bladder pump which was used to purge the well and to collect samples. To operate the pump, a portable air compressor with an in-line filter was connected to a QED MP50 MicroPurge Basics Controller box, which was then connected to the pump. The compressor was turned on to power the pump and the controller was used to adjust the pumping rate to less than one liter of water per minute.

Water quality parameters were monitored on a periodic basis during well purging. The water quality parameters that were measured included hydrogen activity [pH], temperature, conductivity, dissolved oxygen, and oxidation reduction potential. The water quality parameters were evaluated to assess whether the natural characteristics of the aquifer formation water were present within the monitoring wells before collecting the samples. At least four readings were collected during the purging process. Purging was considered complete when at least three consecutive water quality measurements stabilized within approximately 10%. The readings were recorded on groundwater monitoring logs. The groundwater monitoring logs are included in Appendix A. In addition, field notes were taken to document the sampling event. The field notes are included in Appendix B.

When the water quality parameters stabilized, groundwater samples were collected from the wells using the bladder pumps. The groundwater samples were collected no more than two hours after purging was completed to decrease groundwater interaction with the monitoring well casing and atmosphere. Prior to collecting the sample, the water level in the monitoring wells was measured and recorded to ensure that water was not drawn down. The groundwater samples were collected at flow rates of approximately 0.14 to 0.42 liters per minute. Samples collected for dissolved lead analysis were filtered in the field using 0.45 micron filters.

2.2 ANALYTICAL RESULTS

The samples were analyzed for TPH-d using U.S. Environmental Protection Agency [EPA] Method 8015M, TPH-g and Volatile Organic Compounds [VOCs] using EPA Method 8260B, Polycyclic Aromatic Hydrocarbons [PAHs] using EPA Method 8270C SIM, dissolved lead using EPA Method 6020, and total lead using EPA Method 200.8. The sample collected from well

RHMW2254-01 was analyzed for total lead (unfiltered) as DON Well 2254-01 is a drinking water supply well. The analytical results are summarized below and in Table 2.1. A copy of the laboratory report is included in Appendix C.

- **RHMW01** – TPH-d (340 µg/L) and dissolved lead (0.641 µg/L) were detected. TPH-d was detected at a concentration above the DOH EALs for both drinking water toxicity and gross contamination.

- **RHMW02** – TPH-d (2,600 µg/L), TPH-g (54 µg/L), acenaphthene (0.58 µg/L), fluorene (0.24 µg/L), 1-methylnaphthalene (16 µg/L), 2-methylnaphthalene (13 µg/L), naphthalene (53 µg/L), ethylbenzene (0.21 µg/L), and xylenes (0.58 µg/L) were detected. TPH-d, 1-methylnaphthalene, and naphthalene were detected at concentrations above the DOH EALs for both drinking water toxicity and gross contamination. 2-methylnaphthalene was detected at a concentration above the DOH EAL only for gross contamination.

- **RHMW03** – TPH-d (69 µg/L) was detected. None of the chemical constituents analyzed for were detected at concentrations above the DOH EALs.

- **RHMW05** – TPH-d (27 µg/L), TPH-g (15 µg/L), and naphthalene (0.033 µg/L) were detected. None of the chemical constituents analyzed for were detected at concentrations above the DOH EALs.

- **RHMW2254-01** – Total lead (0.828 µg/L) was detected. None of the chemical constituents analyzed for were detected at concentrations above the DOH EALs.

2.3 GROUNDWATER CONTAMINANT TRENDS

Historical groundwater contaminant concentration trends of COPCs that exceeded the DOH EALs are presented in Appendix D. A summary of groundwater contaminant trends is provided below.

- **RHMW01** – COPCs detected during this round of quarterly sampling were consistent with historical data. TPH-d has historically been detected at concentrations above the DOH EAL for both drinking water toxicity and gross contamination. TPH-d concentrations showed a decreasing trend from 1,500 µg/L in February 2005 to 79 µg/L in February 2013. The TPH-d concentration increased from 79 µg/L in February 2013 to 340 µg/L during this sampling event. This is the first time TPH-d has been detected at a concentration above the DOH EALs for both drinking water toxicity and gross contamination since February 2012.

- **RHMW02** – TPH-d, TPH-g, 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene have historically been detected at concentrations above the DOH EALs. TPH-d concentrations during the last several rounds of sampling have shown an increasing trend, but concentrations have been lower than the high of 5,420 µg/L in October 2008. 1-Methylnaphthalene, 2-methylnaphthalene, and naphthalene concentrations decreased

since the last event in January 2013. The concentration of 2-methylnaphthalene fell below the drinking water EAL. The TPH-g concentration has decreased from 655 µg/L in January 2013 to below the gross contamination EAL again with 54 µg/L detected during this sampling event.

- **RHMW03** – COPCs detected during this round of quarterly sampling were consistent with historical data. TPH-d has historically been detected at concentrations above the DOH EAL for both drinking water toxicity and gross contamination; however, it has not been detected at concentrations above the DOH EALs since October 2010.

- **RHMW05** – COPCs detected during this round of quarterly sampling were consistent with historical data. TPH-d has historically been detected at concentrations above the DOH EAL for both drinking water toxicity and gross contamination; however, it has not been detected at concentrations above the DOH EALs since January 2010.

- **RHMW2254-01** – COPCs detected during this round of quarterly sampling were consistent with historical data. TPH-d was detected at a concentration above the DOH EAL for gross contamination in January 2008; however, it has not been detected at concentrations above the DOH EALs since then.

Historical groundwater contaminants concentrations above the DOH EALs for both drinking water toxicity and gross contamination are presented in Appendix D.

2.4 WASTE DISPOSAL

The purged groundwater and decontamination water generated during sampling of the inside tunnel wells was stored in a 55-gallon drum along with the purged water and decontamination water from the outside tunnel wells. The water was disposed of following receipt of the analytical results for the outside tunnel wells. The drum was stored onsite at Adit 3. On June 5, 2013, the drum of water was picked up by Pacific Commercial Services, LLC, and disposed of at Unitek Solvent Services, Inc. The waste disposal manifest is included in Appendix E.

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TABLE 2.1
Analytical Results for Groundwater Sampling (April 22 and 23, 2013)
Red Hill Bulk Fuel Storage Facility
April 2013 Quarterly Monitoring Report

Method	Chemical	DOH EALs		RHMW2254-01 (ES023)					RHWM01 (ES019)					RHMW02 (ES020)					RHWM03 (ES022)					RHMW05 (ES024)				
		Drinking Water Toxicity	Gross Contamination	Results	Q	LOQ	LOD	DL	Results	Q	LOQ	LOD	DL	Results	Q	LOQ	LOD	DL	Results	Q	LOQ	LOD	DL	Results	Q	LOQ	LOD	DL
EPA 8015B	TPH-d	190	100	N.D.	U	50	20	15	**340**	HD	50	20	15	**2,600**	HD	50	20	15	69	HD	50	20	15	27	J	50	20	15
EPA 8260B	TPH-g	100	100	N.D.	U	50	30	13	N.D.	U	50	30	13	54		50	30	13	N.D.	U	50	30	13	15	J	50	30	13
EPA 8270C	Acenaphthene	370	20	N.D.	U	0.2	0.051	0.021	N.D.	U	0.21	0.052	0.021	0.58		0.2	0.051	0.021	N.D.	U	0.21	0.053	0.019	N.D.	U	0.19	0.048	0.020
	Acenaphthylene	240	2,000	N.D.	U	0.2	0.051	0.018	N.D.	U	0.21	0.052	0.018	N.D.	U	0.2	0.051	0.018	N.D.	U	0.21	0.053	0.019	N.D.	U	0.19	0.048	0.017
	Anthracene	1,800	22	N.D.	U	0.2	0.051	0.035	N.D.	U	0.21	0.052	0.035	N.D.	U	0.2	0.051	0.035	N.D.	U	0.21	0.053	0.036	N.D.	U	0.19	0.048	0.033
	Benzo[a]anthracene	0.092	4.7	N.D.	U	0.2	0.051	0.024	N.D.	U	0.21	0.052	0.024	N.D.	U	0.2	0.051	0.024	N.D.	U	0.21	0.053	0.025	N.D.	U	0.19	0.048	0.023
	Benzo[g,h,i]perylene	1,500	0.13	N.D.	U	0.2	0.051	0.022	N.D.	U	0.21	0.052	0.022	N.D.	U	0.2	0.051	0.022	N.D.	U	0.21	0.053	0.023	N.D.	U	0.19	0.048	0.021
	Benzo[a]pyrene	0.2	0.81	N.D.	U	0.2	0.051	0.037	N.D.	U	0.21	0.052	0.037	N.D.	U	0.2	0.051	0.037	N.D.	U	0.21	0.053	0.038	N.D.	U	0.19	0.048	0.035
	Benzo[b]fluoranthene	0.092	0.75	N.D.	U	0.2	0.051	0.025	N.D.	U	0.21	0.052	0.026	N.D.	U	0.2	0.051	0.025	N.D.	U	0.21	0.053	0.026	N.D.	U	0.19	0.048	0.024
	Benzo[k]fluoranthene	0.92	0.4	N.D.	U	0.2	0.051	0.024	N.D.	U	0.21	0.052	0.024	N.D.	U	0.2	0.051	0.024	N.D.	U	0.21	0.053	0.025	N.D.	U	0.19	0.048	0.023
	Chrysene	9.2	1	N.D.	U	0.2	0.051	0.019	N.D.	U	0.21	0.052	0.020	N.D.	U	0.2	0.051	0.019	N.D.	U	0.21	0.053	0.020	N.D.	U	0.19	0.048	0.018
	Dibenzo[a,h]anthracene	0.0092	0.52	N.D.	U	0.2	0.051	0.027	N.D.	U	0.21	0.052	0.028	N.D.	U	0.2	0.051	0.027	N.D.	U	0.21	0.053	0.028	N.D.	U	0.19	0.048	0.026
	Fluoranthene	1,500	130	N.D.	U	0.2	0.051	0.028	N.D.	U	0.21	0.052	0.028	N.D.	U	0.2	0.051	0.028	N.D.	U	0.21	0.053	0.029	N.D.	U	0.19	0.048	0.026
	Fluorene	240	950	N.D.	U	0.2	0.051	0.025	N.D.	U	0.21	0.052	0.025	0.24		0.2	0.051	0.025	N.D.	U	0.21	0.053	0.026	N.D.	U	0.19	0.048	0.024
	Indeno[1,2,3-cd]pyrene	0.092	0.095	N.D.	U	0.2	0.051	0.022	N.D.	U	0.21	0.052	0.023	N.D.	U	0.2	0.051	0.022	N.D.	U	0.21	0.053	0.023	N.D.	U	0.19	0.048	0.021
	1-Methylnaphthalene	4.7	10	N.D.	U	0.2	0.051	0.029	N.D.	U	0.21	0.052	0.029	**16**		2	0.51	0.29	N.D.	U	0.21	0.053	0.030	N.D.	U	0.19	0.048	0.027
	2-Methylnaphthalene	24	10	N.D.	U	0.2	0.051	0.027	N.D.	U	0.21	0.052	0.027	**13**		2	0.51	0.27	N.D.	U	0.21	0.053	0.028	N.D.	U	0.19	0.048	0.026
	Naphthalene	17	21	N.D.	U	0.2	0.051	0.023	N.D.	U	0.21	0.052	0.024	**53**		2	0.51	0.23	N.D.	U	0.21	0.053	0.024	0.033	J	0.19	0.048	0.022
	Phenanthrene	240	410	N.D.	U	0.2	0.051	0.031	N.D.	U	0.21	0.052	0.031	N.D.	U	0.2	0.051	0.031	N.D.	U	0.21	0.053	0.032	N.D.	U	0.19	0.048	0.030
	Pyrene	180	68	N.D.	U	0.2	0.051	0.025	N.D.	U	0.21	0.052	0.026	N.D.	U	0.2	0.051	0.025	N.D.	U	0.21	0.053	0.026	N.D.	U	0.19	0.048	0.024
EPA 8260B	1,1,1-Trichloroethane	200	970	N.D.	U	5.0	0.5	0.3	N.D.	U	5.0	0.5	0.3	N.D.	U	5.0	0.5	0.3	N.D.	U	5.0	0.5	0.3	N.D.	U	5.0	0.5	0.3
	1,1,2-Trichloroethane	5	50,000	N.D.	U	1.0	0.5	0.38	N.D.	U	1.0	0.5	0.38	N.D.	U	1.0	0.5	0.38	N.D.	U	1.0	0.5	0.38	N.D.	U	1.0	0.5	0.38
	1,1-Dichloroethane	2.4	50,000	N.D.	U	5.0	0.5	0.28	N.D.	U	5.0	0.5	0.28	N.D.	U	5.0	0.5	0.28	N.D.	U	5.0	0.5	0.28	N.D.	U	5.0	0.5	0.28
	1,1-Dichloroethylene	7	1,500	N.D.	U	1.0	0.5	0.43	N.D.	U	1.0	0.5	0.43	N.D.	U	1.0	0.5	0.43	N.D.	U	1.0	0.5	0.43	N.D.	U	1.0	0.5	0.43
	1,2,3-Trichloropropane	0.6	50,000	N.D.	U	5.0	1.0	0.64	N.D.	U	5.0	1.0	0.64	N.D.	U	5.0	1.0	0.64	N.D.	U	5.0	1.0	0.64	N.D.	U	5.0	1.0	0.64
	1,2,4-Trichlorobenzene	70	3,000	N.D.	U	5.0	1.0	0.5	N.D.	U	5.0	1.0	0.5	N.D.	U	5.0	1.0	0.5	N.D.	U	5.0	1.0	0.5	N.D.	U	5.0	1.0	0.5
	1,2-Dibromo-3- chloropropane	0.04	10	N.D.	U	10	2.0	1.2	N.D.	U	10	2.0	1.2	N.D.	U	10	2.0	1.2	N.D.	U	10	2.0	1.2	N.D.	U	10	2.0	1.2
	1,2-Dibromoethane	0.04	50,000	N.D.	U	1.0	0.5	0.36	N.D.	U	1.0	0.5	0.36	N.D.	U	1.0	0.5	0.36	N.D.	U	1.0	0.5	0.36	N.D.	U	1.0	0.5	0.36
	1,2-Dichlorobenzene	600	10	N.D.	U	1.0	0.5	0.46	N.D.	U	1.0	0.5	0.46	N.D.	U	1.0	0.5	0.46	N.D.	U	1.0	0.5	0.46	N.D.	U	1.0	0.5	0.46
	1,2-Dichloroethane	0.15	7,000	N.D.	U	1.0	0.5	0.24	N.D.	U	1.0	0.5	0.24	N.D.	U	1.0	0.5	0.24	N.D.	U	1.0	0.5	0.24	N.D.	U	1.0	0.5	0.24
	1,2-Dichloropropane	5	10	N.D.	U	5.0	0.5	0.42	N.D.	U	5.0	0.5	0.42	N.D.	U	5.0	0.5	0.42	N.D.	U	5.0	0.5	0.42	N.D.	U	5.0	0.5	0.42
	1,3-Dichlorobenzene	180	5	N.D.	U	1.0	0.5	0.4	N.D.	U	1.0	0.5	0.4	N.D.	U	1.0	0.5	0.4	N.D.	U	1.0	0.5	0.4	N.D.	U	1.0	0.5	0.4
	1,3-Dichloropropene (total of cis/trans)	0.43	50,000	N.D.	U	2.0	1.0	0.25	N.D.	U	2.0	1.0	0.25	N.D.	U	2.0	1.0	0.25	N.D.	U	2.0	1.0	0.25	N.D.	U	2.0	1.0	0.25
	1,4-Dichlorobenzene	75	5	N.D.	U	1.0	0.5	0.43	N.D.	U	1.0	0.5	0.43	N.D.	U	1.0	0.5	0.43	N.D.	U	1.0	0.5	0.43	N.D.	U	1.0	0.5	0.43
	Acetone	22,000	20,000	N.D.	U	20	10	6	N.D.	U	20	10	6	N.D.	U	20	10	6	N.D.	U	20	10	6	N.D.	U	20	10	6
	Benzene	5	170	N.D.	U	1.0	0.5	0.14	N.D.	U	1.0	0.5	0.14	N.D.	U	1.0	0.5	0.14	N.D.	U	1.0	0.5	0.14	N.D.	U	1.0	0.5	0.14
	Bromodichloromethane	0.12	50,000	N.D.	U	5.0	0.5	0.21	N.D.	U	5.0	0.5	0.21	N.D.	U	5.0	0.5	0.21	N.D.	U	5.0	0.5	0.21	N.D.	U	5.0	0.5	0.21
	Bromoform	80	510	N.D.	U	10	1.0	0.5	N.D.	U	10	1.0	0.5	N.D.	U	10	1.0	0.5	N.D.	U	10	1.0	0.5	N.D.	U	10	1.0	0.5
	Bromomethane	8.7	50,000	N.D.	ICJ, U	20	5.0	3.9	N.D.	ICJ, U	20	5.0	3.9	N.D.	ICJ, U	20	5.0	3.9	N.D.	ICJ, U	20	5.0	3.9	N.D.	ICJ, U	20	5.0	3.9
	Carbon Tetrachloride	5	520	N.D.	U	1.0	0.5	0.23	N.D.	U	1.0	0.5	0.23	N.D.	U	1.0	0.5	0.23	N.D.	U	1.0	0.5	0.23	N.D.	U	1.0	0.5	0.23
	Chlorobenzene	100	50	N.D.	U	5.0	0.5	0.17	N.D.	U	5.0	0.5	0.17	N.D.	U	5.0	0.5	0.17	N.D.	U	5.0	0.5	0.17	N.D.	U	5.0	0.5	0.17
	Chloroethane	21,000	16	N.D.	U	10	5.0	2.3	N.D.	U	10	5.0	2.3	N.D.	U	10	5.0	2.3	N.D.	U	10	5.0	2.3	N.D.	U	10	5.0	2.3
	Chloroform	70	2,400	N.D.	U	5.0	0.5	0.46	N.D.	U	5.0	0.5	0.46	N.D.	U	5.0	0.5	0.46	N.D.	U	5.0	0.5	0.46	N.D.	U	5.0	0.5	0.46
	Chloromethane	1.8	50,000	N.D.	ICJ, U	10	2.0	1.8	N.D.	ICJ, U	10	2.0	1.8	N.D.	ICJ, U	10	2.0	1.8	N.D.	ICJ, U	10	2.0	1.8	N.D.	ICJ, U	10	2.0	1.8
	cis-1,2-Dichloroethylene	70	50,000	N.D.	U	1.0	0.5	0.48	N.D.	U	1.0	0.5	0.48	N.D.	U	1.0	0.5	0.48	N.D.	U	1.0	0.5	0.48	N.D.	U	1.0	0.5	0.48
	Dibromochloromethane	0.16	50,000	N.D.	U	1.0	0.5	0.25	N.D.	U	1.0	0.5	0.25	N.D.	U	1.0	0.5	0.25	N.D.	U	1.0	0.5	0.25	N.D.	U	1.0	0.5	0.25
	Ethylbenzene	700	30	N.D.	U	1.0	0.5	0.14	N.D.	U	1.0	0.5	0.14	0.21	J	1.0	0.5	0.14	N.D.	U	1.0	0.5	0.14	N.D.	U	1.0	0.5	0.14
	Hexachlorobutadiene	0.86	6	N.D.	U	1.0	0.5	0.32	N.D.	U	1.0	0.5	0.32	N.D.	U	1.0	0.5	0.32	N.D.	U	1.0	0.5	0.32	N.D.	U	1.0	0.5	0.32
	Methyl ethyl ketone (2-Butanone)	7,100	8,400	N.D.	U	10	5.0	2.2	N.D.	U	10	5.0	2.2	N.D.	U	10	5.0	2.2	N.D.	U	10	5.0	2.2	N.D.	U	10	5.0	2.2
	Methyl isobutyl ketone (4-Methyl-2-Pentanone)	2,000	1300	N.D.	U	10	5.0	4.4	N.D.	U	10	5.0	4.4	N.D.	U	10	5.0	4.4	N.D.	U	10	5.0	4.4	N.D.	U	10	5.0	4.4
	Methyl tert-butyl Ether	12	5	N.D.	U	1.0	0.5	0.31	N.D.	U	1.0	0.5	0.31	N.D.	U	1.0	0.5	0.31	N.D.	U	1.0	0.5	0.31	N.D.	U	1.0	0.5	0.31
	Methylene chloride	4.8	9,100	N.D.	U	5.0	1.0	0.64	N.D.	U	5.0	1.0	0.64	N.D.	U	5.0	1.0	0.64	N.D.	U	5.0	1.0	0.64	N.D.	U	5.0	1.0	0.64
	Styrene	100	10	N.D.	U	1.0	0.5	0.17	N.D.	U	1.0	0.5	0.17	N.D.	U	1.0	0.5	0.17	N.D.	U	1.0	0.5	0.17	N.D.	U	1.0	0.5	0.17
	Tetrachloroethane, 1,1,1,2-	0.52	50,000	N.D.	U	1.0	0.5	0.4	N.D.	U	1.0	0.5	0.4	N.D.	U	1.0	0.5	0.4	N.D.	U	1.0	0.5	0.4	N.D.	U	1.0	0.5	0.4
	Tetrachloroethane, 1,1,2,2-	0.067	500	N.D.	U	1.0	0.5	0.41	N.D.	U	1.0	0.5	0.41	N.D.	U	1.0	0.5	0.41	N.D.	U	1.0	0.5	0.41	N.D.	U	1.0	0.5	0.41
	Tetrachloroethylene	5	170	N.D.	U	5.0	0.5	0.39	N.D.	U	5.0	0.5	0.39	N.D.	U	5.0	0.5	0.39	N.D.	U	5.0	0.5	0.39	N.D.	U	5.0	0.5	0.39
	Toluene	1,000	40	N.D.	U	1.0	0.5	0.24	N.D.	U	1.0	0.5	0.24	N.D.	U	1.0	0.5	0.24	N.D.	U	1.0	0.5	0.24	N.D.	U	1.0	0.5	0.24
	trans-1,2- Dichloroethylene	100	260	N.D.	U	1.0	0.5	0.37	N.D.	U	1.0	0.5	0.37	N.D.	U	1.0	0.5	0.37	N.D.	U	1.0	0.5	0.37	N.D.	U	1.0	0.5	0.37
	Trichloroethylene	5	310	N.D.	U	1.0	0.5	0.37	N.D.	U	1.0	0.5	0.37	N.D.	U	1.0	0.5	0.37	N.D.	U	1.0	0.5	0.37	N.D.	U	1.0	0.5	0.37
	Vinyl chloride	2	3,400	N.D.	U	1.0	0.5	0.3	N.D.	U	1.0	0.5	0.3	N.D.	U	1.0	0.5	0.3	N.D.	U	1.0	0.5	0.3	N.D.	U	1.0	0.5	0.3
	Xylenes	10,000	20	N.D.	U	11	1.5	0.23	N.D.	U	11	1.5	0.23	0.58	J	11	1.5	0.23	N.D.	U	11	1.5	0.23	N.D.	U	11	1.5	0.23
EPA 6020	Dissolved Lead	15	50,000	-	-	-	-	-	0.641	J	1	0.2	0.0898	N.D.	U	1	0.2	0.0898	N.D.	U	1	0.2	0.0898	N.D.	U	1	0.2	0.0898
EPA 200.8	Total Lead	15	50,000	0.828	J	1.0	-*	0.0898	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

The data are in micrograms per liter (µg/L). Shaded values exceeded the DOH EALs.

- Not Analyzed
DL Detection Limit or Method Detection Limit (MDL)
DOH EALs DOH Tier 1 Environmental Action Levels for groundwater where groundwater is a current drinking water source and surface water is greater than 150 meters from the site (DOH, Fall 2011).
EPA Environmental Protection Agency
HD The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
ICJ Initial calibration verification recovery above method control limit for this analyte.
IH Calibration verification recovery below method control limit for this analyte.
IJ Calibration verification recovery above method control limit for this analyte.
* This sample was analyzed by EPA Method 200.8 and therefore does not have an LOD
J Analyte was detected at a concentration below the LOQ and above the DL. Reported value is estimated.
LOD Limit of Detection
LOQ Limit of Quantitation
N.D. Not Detected
Q Qualifiers
TPH-d Total Petroleum Hydrocarbons as diesel
TPH-g Total Petroleum Hydrocarbons as gasoline
U Undetected at DL and is reported as less than the LOD.

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SECTION 3 – DATA QUALITY ASSESSMENT

A data quality assessment, which consists of a review of the overall groundwater sample collection and analysis process, was performed in order to determine whether the analytical data generated meets the quality objectives for the project. The data quality assessment was performed in accordance with the approved WP/SAP prepared by ESI (ESI, 2012). The field quality control program consisted of standardized sample collection and management procedures, and the collection of field duplicate samples, matrix spike samples, and trip blank samples. The laboratory quality assurance program consisted of the use of standard analytical methods and the preparation and analyses of Matrix Spike [MS]/Matrix Spike Duplicate [MSD] samples, surrogate spikes, blanks, and Laboratory Control Samples [LCSs].

3.1 Data Validation and Assessment

The objective of data validation is to provide data of known quality for project decisions. Data quality is judged in terms of Precision, Accuracy, Representativeness, Completeness, Comparability, and Sensitivity [PARCCS]. A number of factors may affect the quality of data, including: sample collection methods, sample analysis methods, and adherence to established procedures for sample collection, preservation, management, shipment, and analysis.

Precision

Precision is defined as the reproducibility of replicate measurements. Precision is evaluated by Relative Percentage Difference [RPD] of field duplicates and laboratory LCS/Laboratory Control Sample Duplicates [LCSDs] or MS/MSD results. Field duplicate and MS/MSD samples were collected at a rate of approximately 10% of primary samples. Field duplicates were sent to the laboratory along with the primary samples.

RPDs of MS/MSD results for acetone and 1,1-dichloroethylene were above the acceptable maximum of 20%. As neither COPC was detected in any groundwater sample, and the EALs are significantly higher than Limits of Detection [LODs] for each chemical, this is considered acceptable. All other RPDs for MS/MSD and LCS/LCSD pairs were within the acceptance range.

The RPDs of primary and field duplicate samples are provided in Table 3.1. All duplicate RPDs are less than 20% (below 50% as recommended in the NAVFAC Project Procedures Manual [DON 2007]), and therefore, the data precision is considered acceptable.

Accuracy

Accuracy is defined as the degree of conformity of a measurement to a standard or true value. Accuracy is evaluated through measurement of the percent recovery of an analyte in a reference standard or spiked sample. Accuracy limits for surrogates, laboratory control spike, MS, and MSD samples are established by the individual laboratory.

Between July 2006 and July 2010, naphthalene was analyzed for by both EPA Methods 8260B and 8270C, and both results were reported. In September 2005 and in all data beginning in October 2010, only results using EPA Method 8270C were reported. Naphthalene has historically only been detected at concentrations above the DOH EALs in well RHMW02. In this well, concentrations of naphthalene detected in each sample by EPA Method 8260B were generally two to three times higher than those detected by EPA Method 8270C. We assume this is due to the better preservation of VOCs associated with the use of EPA Method 8260B. This suggests that the naphthalene results provided by EPA Method 8270C may be biased low. Since October 2012, naphthalene concentrations in RHMW02 have exceeded DOH EALs for both gross contamination and drinking water toxicity. The naphthalene concentration detected in July 2012 (17 µg/L) was equal to the DOH EAL for drinking water (17 µg/L) but below the DOH EAL for gross contamination (21 µg/L); it is possible that accounting for the low bias, the actual naphthalene concentration detected during this event exceeded both EALs. Naphthalene concentrations between April 2011 and April 2012 were all an order of magnitude below both EALs, and it is unlikely that decisions based on these data are significantly affected by the low bias

Results for TPH-d in samples ES019, ES020, ES021, and ES022 were flagged “HD.” The laboratory indicated a mismatch between the calibration standard and the TPH-d chromatographic profile. Mismatches of this type are not uncommon. The chromatograms are not part of the standard laboratory package and were not reviewed by ESI.

For this monitoring event, the initial calibration for bromomethane and chloromethane were outside the method control limits. Therefore, the data for these analytes may be biased low. Neither COPC was detected in the groundwater samples. The DOH EAL for drinking water exceeds the Limit of Quantitation [LOQ] for bromomethane and is near the LOD; however, no other HVOCs were detected in any of the groundwater samples, so it is unlikely that bromomethane is present at concentrations that warrant concern in any of the groundwater samples.

All surrogate spike recoveries for analyzed constituents were within acceptable percent recovery limits. The percent recovery of acetone in the LCS exceeded recovery limits, indicating a possible high bias. Acetone was not detected in any of the samples; therefore, the high bias does not compromise the usability of the data set. All other LCS recoveries were within recovery limits. Naphthalene, 2-methylnaphthalene and 1-methylnaphthalene concentrations for ES020, the primary sample on which the MS/MSD were performed, were significantly higher than the added spike concentration, which prevented an accurate evaluation of the MS/MSD recovery for these analytes. MS recoveries for acetone and 1,1-dichloroethylene were below the acceptable minimum percentage, suggesting matrix interference may cause a low bias. As neither COPC was detected in any groundwater sample, and the EALs are significantly higher than LODs for each chemical, this is considered acceptable.

All other MS and MSD recoveries were within acceptable recovery limits, therefore, the data accuracy for this monitoring event is considered acceptable.

Representativeness

Representativeness is the degree that data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness was achieved by conducting sampling in compliance with the sample collection procedures described in the WP/SAP (ESI, 2012).

Representativeness is also evaluated via compliance with established sample holding time and sample preservation, and through the analysis of blank samples, including method blank and trip blank samples. The sample holding time and sample preservation were in compliance with EPA guidance. For this sampling event, one trip blank was collected. TPH-g (21 µg/L) and trichloroethene (0.68 µg/L) were detected in the trip blank. TPH-g was detected in the trip blank at a concentration below the LOD. Trichloroethene was not detected in any of the groundwater samples. TPH-g was detected in samples ES020, ES021, and ES024. In ES020 and ES021, the TPH-g is likely associated with the gasoline-range organics associated with the high concentrations of TPH-d. In ES024, the concentration detected (15 µg/L) is very close to the concentration detected in the blank. Therefore, it is likely that the concentration detected in ES024 is an artifact of blank contamination. However, concentrations of TPH-g detected in the samples were no more than approximately half of the EAL, and it is unlikely the contamination in the trip blank significantly affects data usability. Therefore, the groundwater sample data are considered representative of the groundwater quality on site. The quality control results are provided in Table 3.2.

Completeness

Completeness is defined as the overall percentage of valid analytical results (including estimated results) compared to the total number of analytical results reported by the analytical laboratory. No data were rejected for this project, and therefore the completeness goal for this project (90%), was successfully met.

Comparability

Comparability expresses the confidence with which one data set can be compared to another data set. Comparability can be related to accuracy and precision because these quantities are measures of data reliability. Data, with acceptable precision and accuracy, are considered comparable if collection techniques, analytical procedures, methods and reporting are equivalent.

Between July 2006 and July 2010, naphthalene was analyzed for by both EPA Methods 8260B and 8270C, and both results were reported. In September 2005 and in all data beginning in October 2010, only results using EPA Method 8270C were reported. In general, EPA Method 8260B resulted in higher, and as discussed above likely more accurate, results than EPA Method 8270C. However, for the sake of comparability with results from recent events, EPA Method 8270C was used for naphthalene analysis in this event. Consequently, the low bias associated with Method 8270C should be considered when making project decisions.

All TPH-g data through July 2010 were analyzed by EPA Method 8015; beginning in October 2010, EPA Method 8260B was used. There was no event where both methods were used; consequently, there is no way to directly compare the results obtained by method and to assess potential bias. However, there is no reason to believe that using either method should bias the data, and the TPH-g data for all events should be comparable.

Other than the naphthalene bias discussed above, no issues with comparability were identified. The results are considered comparable within this data set and with the data collected from previous sampling events.

Sensitivity

The limits of quantitation [LOQs] are established by the laboratory based on the LODs or instrument detection limits, historical data, and EPA limits established for the methods. The LOQs for samples may require adjustment due to matrix interference or if high levels of target analytes necessitate dilution before analysis. Matrix interference and sample dilutions have the effect of increasing the LOQs. Laboratory LODs and LOQs for several analytes differed from the LODs and LOQs in the WP/SAP because the laboratory updates them quarterly and in some cases, dilution was necessary due to the presence of high concentrations of analytes.

LODs and LOQs for several analytes were greater than the DOH EALs (as stated in the WP/SAP) and therefore it is not possible to determine whether the analytes are present at concentrations greater than or equal to the DOH EALs. As suggested by the DOH Technical Guidance Manual, when the LOQ exceeds the DOH EAL, the project action level will be the LOQ for these analytes. The affected analytes for this monitoring event are 1,1-dichloroethane, 1,2,3-trichloropropane, 1,2-dibromo-3-chloropropane, 1,2-dibromoethane, 1,2-dichloroethane, 1,3-dichloropropene, bromodichloromethane, bromomethane, chloromethane, dibromochloro-methane, methylene chloride, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, benzo[a]anthracene, benzo[g,h,i]perylene, benzo[b]fluoranthene, benzo[k]fluoranthene, dibenzo[a,h]anthracene, and ideno[1,2,3-cd]pyrene.

3.2 Data Assessment and Usability Conclusions

The PARCCS criteria were evaluated, and with a few exceptions, all criteria were met. TPH-g contamination in the trip blank shows that there may be a slight high bias in the TPH-g groundwater sample results; however, it is unlikely that this affects the usability of the data for making project decisions. Other analytes that had issues causing concentrations to be biased high or low were either not detected in groundwater samples, or were detected at concentrations well below project action levels. The data assessment concludes that all data generated during this event are usable for the intended purpose.

TABLE 3.1
Quality Control Results for Groundwater Sampling (April 22, 2013)
Red Hill Bulk Fuel Storage Facility
April 2013 Quarterly Monitoring Report

Method	Chemical Constituent	DOH EALs		RHMW02 (ES020)					RHMW02 (ES021) (DUP)					RPD Duplicate (%)	ES Trip				
		Drinking Water Toxicity	Gross Contamination	Result	Q	LOQ	LOD	DL	Result	Q	LOQ	LOD	DL		Result	Q	LOQ	LOD	DL
EPA 8015B	TPH-d	190	100	**2,600**	HD	50	20	15	**3,300**	HD	50	20	15	24	-	-	-	-	-
EPA 8260B	TPH-g	100	100	54		50	30	13	56		50	30	13	4	21	J	50	30	13
EPA 8270C	Acenaphthene	370	20	0.58		0.2	0.051	0.021	0.65		0.19	0.048	0.020	11	-	-	-	-	-
	Acenaphthylene	240	2,000	N.D.	U	0.2	0.051	0.018	N.D.	U	0.19	0.048	0.017	NA	-	-	-	-	-
	Anthracene	1,800	22	N.D.	U	0.2	0.051	0.035	N.D.	U	0.19	0.048	0.032	NA	-	-	-	-	-
	Benzo[a]anthracene	0.092	4.7	N.D.	U	0.2	0.051	0.024	N.D.	U	0.19	0.048	0.023	NA	-	-	-	-	-
	Benzo[g,h,i]perylene	1,500	0.13	N.D.	U	0.2	0.051	0.022	N.D.	U	0.19	0.048	0.021	NA	-	-	-	-	-
	Benzo[a]pyrene	0.2	0.81	N.D.	U	0.2	0.051	0.037	N.D.	U	0.19	0.048	0.035	NA	-	-	-	-	-
	Benzo[b]fluoranthene	0.092	0.75	N.D.	U	0.2	0.051	0.025	N.D.	U	0.19	0.048	0.024	NA	-	-	-	-	-
	Benzo[k]fluoranthene	0.92	0.4	N.D.	U	0.2	0.051	0.024	N.D.	U	0.19	0.048	0.022	NA	-	-	-	-	-
	Chrysene	9.2	1	N.D.	U	0.2	0.051	0.019	N.D.	U	0.19	0.048	0.018	NA	-	-	-	-	-
	Dibenzo[a,h]anthracene	0.0092	0.52	N.D.	U	0.2	0.051	0.027	N.D.	U	0.19	0.048	0.025	NA	-	-	-	-	-
	Fluoranthene	1,500	130	N.D.	U	0.2	0.051	0.028	N.D.	U	0.19	0.048	0.026	NA	-	-	-	-	-
	Fluorene	240	950	0.24		0.2	0.051	0.025	0.28		0.19	0.048	0.028	15	-	-	-	-	-
	Indeno[1,2,3-cd]pyrene	0.092	0.095	N.D.	U	0.2	0.051	0.022	N.D.	U	0.19	0.048	0.021	NA	-	-	-	-	-
	1-Methylnaphthalene	4.7	10	**16**		2.0	0.51	0.29	**20**		3.8	0.95	0.54	22	-	-	-	-	-
	2-Methylnaphthalene	24	10	**13**		2.0	0.51	0.27	**16**		3.8	0.95	0.50	6	-	-	-	-	-
	Naphthalene	17	21	**53**		2.0	0.51	0.23	**61**		3.8	0.95	0.44	14	-	-	-	-	-
	Phenanthrene	240	410	N.D.	U	0.2	0.051	0.031	N.D.	U	0.19	0.048	0.029	NA	-	-	-	-	-
	Pyrene	180	68	N.D.	U	0.2	0.051	0.025	N.D.	U	0.19	0.048	0.024	NA	-	-	-	-	-
EPA 8260B	1,1,1-Trichloroethane	200	970	N.D.	U	5.0	0.5	0.30	N.D.	U	5.0	0.5	0.30	NA	N.D.	U	5.0	0.5	0.30
	1,1,2-Trichloroethane	5	50,000	N.D.	U	1.0	0.5	0.38	N.D.	U	1.0	0.5	0.38	NA	N.D.	U	1.0	0.5	0.38
	1,1-Dichloroethane	2.4	50,000	N.D.	U	5.0	0.5	0.28	N.D.	U	5.0	0.5	0.28	NA	N.D.	U	5.0	0.5	0.28
	1,1-Dichloroethylene	7	1,500	N.D.	U	1.0	0.5	0.43	N.D.	U	1.0	0.5	0.43	NA	N.D.	U	1.0	0.5	0.43
	1,2,3-Trichloropropane	0.6	50,000	N.D.	U	5.0	1.0	0.64	N.D.	U	5.0	1.0	0.64	NA	N.D.	U	5.0	1.0	0.64
	1,2,4-Trichlorobenzene	70	3,000	N.D.	U	5.0	1.0	0.50	N.D.	U	5.0	1.0	0.50	NA	N.D.	U	5.0	1.0	0.50
	1,2-Dibromo-3- chloropropane	0.04	10	N.D.	U	10	2.0	1.2	N.D.	U	10	2.0	1.2	NA	N.D.	U	10	2.0	1.2
	1,2-Dibromoethane	0.04	50,000	N.D.	U	1.0	0.5	0.36	N.D.	U	1.0	0.5	0.36	NA	N.D.	U	1.0	0.5	0.36
	1,2-Dichlorobenzene	600	10	N.D.	U	1.0	0.5	0.46	N.D.	U	1.0	0.5	0.46	NA	N.D.	U	1.0	0.5	0.46
	1,2-Dichloroethane	0.15	7,000	N.D.	U	1.0	0.5	0.24	N.D.	U	1.0	0.5	0.24	NA	N.D.	U	1.0	0.5	0.24
	1,2-Dichloropropane	5	10	N.D.	U	5.0	0.5	0.42	N.D.	U	5.0	0.5	0.42	NA	N.D.	U	5.0	0.5	0.42
	1,3-Dichlorobenzene	180	5	N.D.	U	1.0	0.5	0.40	N.D.	U	1.0	0.5	0.40	NA	N.D.	U	1.0	0.5	0.40
	1,3-Dichloropropene (total of cis/trans)	0.43	50,000	N.D.	U	2.0	1.0	0.25	N.D.	U	2.0	1.0	0.25	NA	N.D.	U	2.0	1.0	0.25
	1,4-Dichlorobenzene	75	5	N.D.	U	1.0	0.5	0.43	N.D.	U	1.0	0.5	0.43	NA	N.D.	U	1.0	0.5	0.43
	Acetone	22,000	20,000	N.D.	U	20	10	6.0	N.D.	U	20	10	6.0	NA	N.D.	U	20	10	6.0
	Benzene	5	170	N.D.	U	1.0	0.5	0.14	N.D.	U	1.0	0.5	0.14	NA	N.D.	U	1.0	0.5	0.14
	Bromodichloromethane	0.12	50,000	N.D.	U	5.0	0.5	0.21	N.D.	U	5.0	0.5	0.21	NA	N.D.	U	5.0	0.5	0.21
	Bromoform	80	510	N.D.	U	10	1.0	0.5	N.D.	U	10	1.0	0.5	NA	N.D.	U	10	1.0	0.5
	Bromomethane	8.7	50,000	N.D.	ICJ, U	20	5.0	3.9	N.D.	ICJ, U	20	5.0	3.9	NA	N.D.	ICJ, U	20	5.0	3.9
	Carbon Tetrachloride	5	520	N.D.	U	1.0	0.5	0.23	N.D.	U	1.0	0.5	0.23	NA	N.D.	U	1.0	0.5	0.23
	Chlorobenzene	100	50	N.D.	U	5.0	0.5	0.17	N.D.	U	5.0	0.5	0.17	NA	N.D.	U	5.0	0.5	0.17
	Chloroethane	21,000	16	N.D.	U	10	5.0	2.3	N.D.	U	10	5.0	2.3	NA	N.D.	U	10	5.0	2.3
	Chloroform	70	2,400	N.D.	U	5.0	0.5	0.46	N.D.	U	5.0	0.5	0.46	NA	N.D.	U	5.0	0.5	0.46
	Chloromethane	1.8	50,000	N.D.	ICJ, U	10	2.0	1.8	N.D.	ICJ, U	10	2.0	1.8	NA	N.D.	ICJ, U	10	2.0	1.8
	cis-1,2-Dichloroethylene	70	50,000	N.D.	U	1.0	0.5	0.48	N.D.	U	1.0	0.5	0.48	NA	N.D.	U	1.0	0.5	0.48
	Dibromochloromethane	0.16	50,000	N.D.	U	1.0	0.5	0.25	N.D.	U	1.0	0.5	0.25	NA	N.D.	U	1.0	0.5	0.25
	Ethylbenzene	700	30	0.21	J	1.0	0.5	0.14	0.21	J	1.0	0.5	0.14	0	N.D.	U	1.0	0.5	0.14
	Hexachlorobutadiene	0.86	6	N.D.	U	1.0	0.5	0.32	N.D.	U	1.0	0.5	0.32	NA	N.D.	U	1.0	0.5	0.32
	Methyl ethyl ketone (2-Butanone)	7,100	8,400	N.D.	U	10	5.0	2.2	N.D.	U	10	5.0	2.2	NA	N.D.	U	10	5.0	2.2
	Methyl isobutyl ketone (4-Methyl-2-Pentanone)	2,000	1300	N.D.	U	10	5.0	4.4	N.D.	U	10	5.0	4.4	NA	N.D.	U	10	5.0	4.4
	Methyl tert-butyl Ether	12	5	N.D.	U	1.0	0.5	0.31	N.D.	U	1.0	0.5	0.31	NA	N.D.	U	1.0	0.5	0.31
	Methylene chloride	4.8	9,100	N.D.	U	5.0	1.0	0.64	N.D.	U	5.0	1.0	0.64	NA	N.D.	U	5.0	1.0	0.64
	Styrene	100	10	N.D.	U	1.0	0.5	0.17	N.D.	U	1.0	0.5	0.17	NA	N.D.	U	1.0	0.5	0.17
	Tetrachloroethane, 1,1,1,2-	0.52	50,000	N.D.	U	1.0	0.5	0.40	N.D.	U	1.0	0.5	0.40	NA	N.D.	U	1.0	0.5	0.40
	Tetrachloroethane, 1,1,2,2-	0.067	500	N.D.	U	1.0	0.5	0.41	N.D.	U	1.0	0.5	0.41	NA	N.D.	U	1.0	0.5	0.41
	Tetrachloroethylene	5	170	N.D.	U	5.0	0.5	0.39	N.D.	U	5.0	0.5	0.39	NA	N.D.	U	5.0	0.5	0.39
	Toluene	1,000	40	N.D.	U	1.0	0.5	0.24	N.D.	U	1.0	0.5	0.24	NA	N.D.	U	1.0	0.5	0.24
	trans-1,2- Dichloroethylene	100	260	N.D.	U	1.0	0.5	0.37	N.D.	U	1.0	0.5	0.37	NA	N.D.	U	1.0	0.5	0.37
	Trichloroethylene	5	310	N.D.	U	1.0	0.5	0.37	N.D.	U	1.0	0.5	0.37	NA	0.68	U	1.0	0.5	0.37
	Vinyl chloride	2	3,400	N.D.	U	1.0	0.5	0.30	N.D.	U	1.0	0.5	0.30	NA	N.D.	U	1.0	0.5	0.30
	Xylenes	10,000	20	0.58	J	11	1.5	0.23	0.58	J	11	1.5	0.23	0	N.D.	U	11	1.5	0.23
EPA 6020	Lead	15	50,000	N.D.	U	1.0	0.2	0.0898	N.D.	U	1.0	0.2	0.0898	NA	-	-	-	-	-

The data are in micrograms per liter (µg/L). Shaded values exceeded the DOH EALs.

- Not Analyzed
DOH EALs DOH Tier 1 Environmental Action Levels for groundwater where groundwater is a current drinking water source and surface water is greater than 150 meters from the site (DOH, Fall 2011).
DL Detection Limit or Method Detection Limit (MDL)
EPA Environmental Protection Agency
ICJ Initial calibration verification recovery above method control limit for this analyte.
IJ Calibration verification recovery above method control limit for this analyte.
J Analyte was detected at a concentration below the LOQ and above the DL. Reported value is estimated.
LOD Limit of Detection
LOQ Limit of Quantitation
NA Both results for duplicate pair were non-detect, no RPD calculations
N.D. Not Detected
Q Qualifiers
TPH-g Total Petroleum Hydrocarbons as gasoline
TPH-d Total Petroleum Hydrocarbons as diesel
U Undetected at DL and is reported as less than the LOD.

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SECTION 4 – SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

On April 22 and 23, 2013, ESI personnel collected groundwater samples from five monitoring wells at the RHSF (wells RHMW01, RHMW02, RHMW03, RHMW05, and RHMW2254-01).

The groundwater sampling was conducted as part of the long-term groundwater and soil vapor monitoring at the RHSF, under NAVFAC Contract Number N62742-12-D-1853. The sampling was conducted in accordance with the approved WP/SAP prepared by ESI. A summary of the analytical results is provided below.

- **RHMW01** – TPH-d (340 µg/L) and dissolved lead (0.641 µg/L) were detected. TPH-d was detected at a concentration above the DOH EALs for both drinking water toxicity and gross contamination.

- **RHMW02** – TPH-d (2,600 µg/L), TPH-g (54 µg/L), acenaphthene (0.58 µg/L), fluorene (0.24 µg/L), 1-methylnaphthalene (16 µg/L), 2-methylnaphthalene (13 µg/L), naphthalene (53 µg/L), ethylbenzene (0.21 µg/L), and xylenes (0.58 µg/L) were detected. TPH-d, 1-methylnaphthalene, and naphthalene were detected at concentrations above the DOH EALs for both drinking water toxicity and gross contamination. 2-methylnaphthalene was detected at a concentration above the DOH EAL only for gross contamination.

- **RHMW03** – TPH-d (69 µg/L) was detected. None of the chemical constituents analyzed for were detected at concentrations above the DOH EALs.

- **RHMW05** – TPH-d (27 µg/L), TPH-g (15 µg/L), and naphthalene (0.033 µg/L) were detected. None of the chemical constituents analyzed for were detected at concentrations above the DOH EALs.

- **RHMW2254-01** – Total lead (0.828 µg/L) was detected. None of the chemical constituents analyzed for were detected at concentrations above the DOH EALs.

Groundwater Contaminant Trends

- **RHMW01** – COPCs detected during this round of quarterly sampling were consistent with historical data. TPH-d has historically been detected at concentrations above the DOH EAL for both drinking water toxicity and gross contamination. TPH-d concentrations showed a decreasing trend from 1,500 µg/L in February 2005 to 79 µg/L in February 2013. The TPH-d concentration increased from 79 µg/L in February 2013 to 340 µg/L during this sampling event. This is the first time TPH-d has been detected at a concentration above the DOH EALs for both drinking water toxicity and gross contamination since February 2012.

- **RHMW02** – TPH-d, TPH-g, 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene have historically been detected at concentrations above the DOH EALs. TPH-d concentrations during the last several rounds of sampling have shown an increasing trend,

but concentrations have been lower than the high of 5,420 µg/L in October 2008. 1-Methylnaphthalene, 2-methylnaphthalene, and naphthalene concentrations decreased since the last event in January 2013. The concentration of 2-methylnaphthalene fell below the drinking water EAL. The TPH-g concentration has decreased from 655 µg/L in January 2013 to below the gross contamination EAL again with 54 µg/L detected during this sampling event.

- **RHMW03** – COPCs detected during this round of quarterly sampling were consistent with historical data. TPH-d has historically been detected at concentrations above the DOH EAL for both drinking water toxicity and gross contamination; however, it has not been detected at concentrations above the DOH EALs since October 2010.

- **RHMW05** – COPCs detected during this round of quarterly sampling were consistent with historical data. TPH-d has historically been detected at concentrations above the DOH EAL for both drinking water toxicity and gross contamination; however, it has not been detected at concentrations above the DOH EALs since January 2010.

- **RHMW2254-01** – COPCs detected during this round of quarterly sampling were consistent with historical data. TPH-d was detected at a concentration above the DOH EAL for gross contamination in January 2008; however, it has not been detected at concentrations above the DOH EALs since then.

Conclusions and Recommendations

Since the wells were last sampled (January 2013), groundwater contaminant concentrations in four wells (RHMW01, RHMW03, RHMW05, and RHMW2254-01) remained at low concentrations and did not change significantly, or were not detected. Only the groundwater samples from RHMW01 and RHMW02 showed concentrations of COPCs exceeding the DOH EALs.

TPH-d concentrations detected in the sample collected from well RHMW01 have increased above the DOH EALs for both drinking water toxicity and gross contamination for the first time since February 2012.

TPH-d concentrations detected in the sample collected from well RHMW02 are consistent with previous analytical data, but increased in concentration relative to the last quarterly groundwater sampling event. This is consistent with an increase in concentration in well RHMW01 during this event. TPH-g, 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene concentrations have decreased since the last sampling event; however, elevated concentrations have been detected in groundwater samples collected during past sampling events.

With the exception of TPH-g, concentrations of COPCs in well RHMW02 have not changed significantly. TPH-d, 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene concentrations have been decreasing since groundwater monitoring was initiated in 2005. This is the

first sampling event that 1-methylnaphthalene, 2-methylnaphthalene, and naphthalene concentrations decreased since April 2012.

Based on the results of the groundwater monitoring, ESI recommends continuing the groundwater monitoring program at the RHSF. If TPH-d concentrations in well RHMW02 continue to increase, we recommend increasing monitoring frequency to monthly in accordance with the RHSF Groundwater Protection Plan.

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SECTION 5 – FUTURE WORK

GROUNDWATER SAMPLING

Future work includes the third quarter 2013 groundwater monitoring which is scheduled for July 2013. It is anticipated that the quarterly groundwater monitoring status report will be submitted in August 2013.

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SECTION 6 – REFERENCES

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FIGURES

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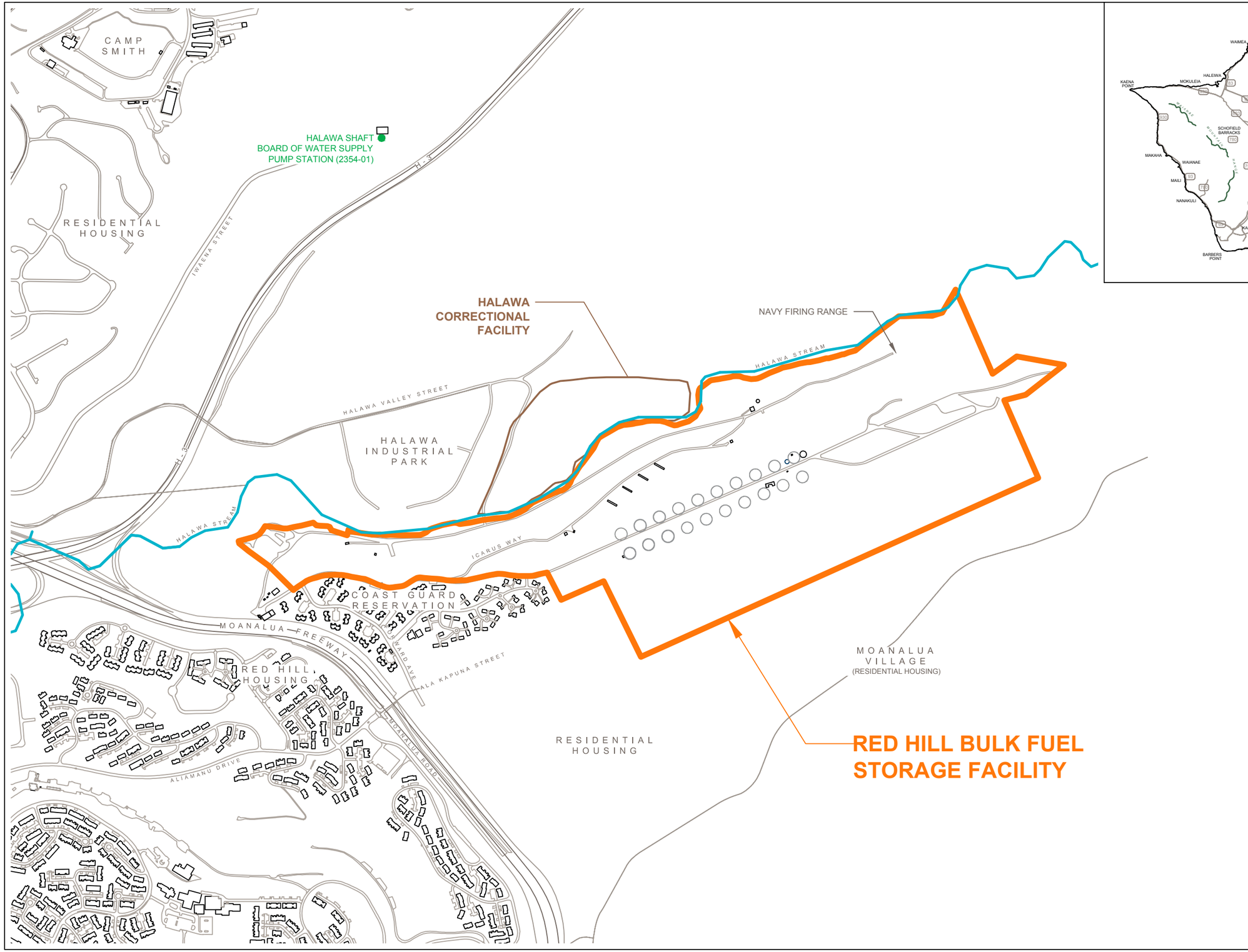

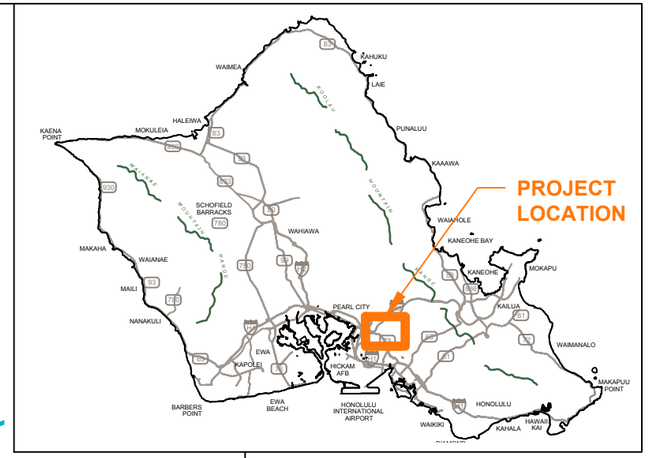

NOTES

The accuracy of this document is limited to the quality and scale of the source information. This document is not a legal representation of an engineered survey.

SOURCES

Pearl Harbor Base Map

Navy GIS files

NORTH

GRAPHIC SCALE

900 0 900

Scale in Feet

FIGURE 1

SITE LOCATION

GROUNDWATER MONITORING
RED HILL BULK FUEL STORAGE FACILITY
NAVAL SUPPLY SYSTEM COMMAND (NAVSUP)
FLEET LOGISTICS CENTER
JBPHH, OAHU, HAWAII

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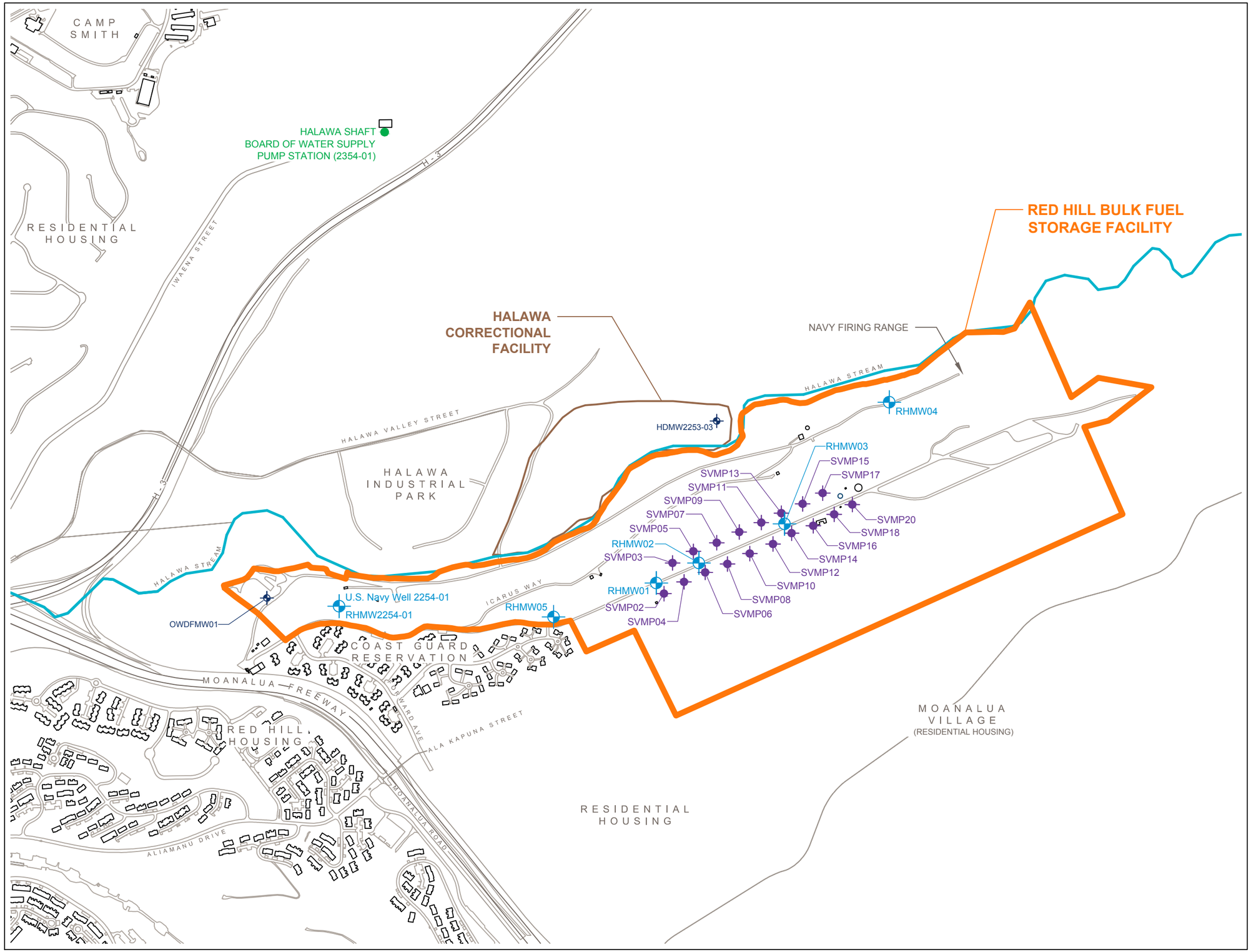

LEGEND

- RED HILL BULK FUEL STORAGE FACILITY
- HALAWA CORRECTIONAL FACILITY
- HALAWA STREAM
- BUILDING
- ROAD
- ABOVEGROUND STORAGE TANK
- WATER TANK
- SOIL VAPOR MONITORING POINT
- GROUNDWATER MONITORING WELL LOCATED INSIDE TUNNEL
- GROUNDWATER MONITORING WELL LOCATED OUTSIDE TUNNEL
- BOARD OF WATER SUPPLY PUMP STATION

NOTES

The accuracy of this document is limited to the quality and scale of the source information. This document is not a legal representation of an engineered survey.

SOURCES

Pearl Harbor Base Map

Navy GIS files

NORTH

GRAPHIC SCALE

1,200 0 1,200

Scale in Feet

FIGURE 2

SITE LAYOUT

GROUNDWATER MONITORING
RED HILL BULK FUEL STORAGE FACILITY
NAVAL SUPPLY SYSTEM COMMAND (NAVSUP)
FLEET LOGISTICS CENTER
JBPHH, OAHU, HAWAII

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APPENDIX A

Groundwater Sampling Logs

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Groundwater Sampling Log

Well ID: RHMW01 Location: Red Hill Bulk Fuel Storage Facility Project No.: 112066

Initial Water Level: 84.84 ft Date: 4/22/2013 Time: 817

Total Depth of Well: 97.40 ft Personnel Involved: Justin Lam, Branden Ibara

Length of Saturated Zone: - Weather Conditions: -

Volume of Water to be Removed: - Method of Removal: Bladder Pump

Water Level After Purging: 83.84 ft Pumping Rate: 0.14 L/min

Well Purge Data:

Time	Volume Removed	pH	Conductivity (mS/cm)	DO (mg/l)	Temperature	Salinity	Redox (ORP) (mV)
850	0.0 L	7.70	0.363	4.10	25.64	0.17	110.6
854	1.0 L	7.65	0.365	3.38	25.64	0.17	94.1
859	2.0 L	7.41	0.367	2.61	25.24	0.17	86.1
908	3.0 L	7.10	0.366	1.77	25.20	0.17	87.5
915	4.0 L	7.09	0.365	1.63	25.18	0.17	86.5
925	5.0 L	7.09	0.364	1.61	25.17	0.17	85.7

Sample Withdrawal Method: Bladder Pump

Appearance of Sample:

Color: Clear

Turbidity: Low

Sediment: None

Other: None

Laboratory Analysis Parameters and Preservatives: TPH-d - 8015; TPH-g, VOCs - 8260; PAHs - 8270c sim; lead - 6020

Number and Types of Sample Containers: 6 - 40ml VOAs, 2 - 1L amber jar, 1 - 500ml amber jar, 1 - 250ml HDPE

Sample Identification Numbers: ES019 [0915]

Decontamination Procedures: Triple Rinsed

Notes: None

Sampled by: Justin Lam, Branden Ibara

Sampled Delivered to: Calscience Environmental Lab Transporters: FedEx

Date: 4/23/2013 Time: 1200

Capacity of Casing (Gallons/Linear Feet)

2"-0.16• 4"-0.65 • 8"-2.61 • 10"-4.08 • 12"-5.87

Groundwater Sampling Log

Well ID: RHMW02 Location: Red Hill Bulk Fuel Storage Facility Project No.: 112066

Initial Water Level: 86.50 ft Date: 4/22/2013 Time: 1020

Total Depth of Well: 94.35 ft Personnel Involved: Justin Lam, Branden Ibara

Length of Saturated Zone: - Weather Conditions: -

Volume of Water to be Removed: 5.0 L Method of Removal: Bladder Pump

Water Level After Purging: 86.50 ft Pumping Rate: 0.35 L/min

Well Purge Data:

Time	Volume Removed	pH	Conductivity (mS/cm)	DO (mg/l)	Temperature	Salinity	Redox (ORP) (mV)
1030	0.0 L	8.01	0.600	5.60	25.00	0.29	33.9
1033	1.0 L	7.41	0.624	1.80	24.27	0.31	-31.9
1035	2.0 L	7.30	0.621	0.96	24.19	0.31	-35.0
1038	3.0 L	7.26	0.620	0.91	24.17	0.31	-38.0
1041	4.0 L	7.27	0.620	0.89	24.15	0.31	-39.1
1044	5.0 L	7.25	0.618	0.87	24.13	0.31	-40.3

Sample Withdrawal Method: Bladder Pump

Appearance of Sample:

Color: Clear

Turbidity: Low

Sediment: None

Other: None

Laboratory Analysis Parameters and Preservatives: TPH-d - 8015; TPH-g, VOCs - 8260; PAHs - 8270c sim; lead - 6020

Number and Types of Sample Containers: 16 - 40ml VOAs, 6 - 1L amber jar, 4 - 500ml amber jar,4 - 500ml HDPE

Sample Identification Numbers: ES020 [1100], ES020 MS/MSD [1100], ES021 (Dup) [1215]

Decontamination Procedures: Triple Rinsed

Notes: None

Sampled by: Justin Lam, Branden Ibara

Sampled Delivered to: Calscience Environmental Lab Transporters: FedEx

Date: 4/23/2013 Time: 1200

Capacity of Casing (Gallons/Linear Feet)

2"-0.16• 4"-0.65 • 8"-2.61 • 10"-4.08 • 12"-5.87

Groundwater Sampling Log

Well ID: RHMW03 Location: Red Hill Bulk Fuel Storage Facility Project No.: 112066

Initial Water Level: 102.78 ft Date: 4/22/2013 Time: 1135

Total Depth of Well: 110.12 ft Personnel Involved: Justin Lam, Branden Ibara

Length of Saturated Zone: - Weather Conditions: -

Volume of Water to be Removed: 6.0 L Method of Removal: Bladder Pump

Water Level After Purging: 102.78 ft Pumping Rate: 0.33 L/min

Well Purge Data:

Time	Volume Removed	pH	Conductivity (mS/cm)	DO (mg/l)	Temperature	Salinity	Redox (ORP) (mV)
1140	0.0 L	7.99	0.868	6.90	28.08	0.39	68.8
1143	1.0 L	7.55	0.867	5.51	27.34	0.39	81.1
1146	2.0 L	7.27	0.861	2.22	26.44	0.40	84.0
1149	3.0 L	7.09	0.852	2.24	26.40	0.40	86.3
1152	4.0 L	7.06	0.845	1.96	26.31	0.40	87.3
1155	5.0 L	7.02	0.845	1.86	26.28	0.40	87.6
1158	6.0 L	7.01	0.844	1.84	26.26	0.40	87.8

Sample Withdrawal Method: Bladder Pump

Appearance of Sample:

Color: Clear

Turbidity: Low

Sediment: None

Other: None

Laboratory Analysis Parameters and Preservatives: TPH-d - 8015; TPH-g, VOCs - 8260; PAHs - 8270c sim; lead - 6020

Number and Types of Sample Containers: 6 - 40ml VOAs, 2 - 1L amber jar, 1 - 500ml amber jar, 1 - 250ml HDPE

Sample Identification Numbers: ES022 [1230]

Decontamination Procedures: Triple Rinsed

Notes: None

Sampled by: Justin Lam, Branden Ibara

Sampled Delivered to: Calscience Environmental Lab Transporters: FedEx

Date: 4/23/2013 Time: 1200

Capacity of Casing (Gallons/Linear Feet)

2"-0.16• 4"-0.65 • 8"-2.61 • 10"-4.08 • 12"-5.87

Groundwater Sampling Log

Well ID: RHMW05 Location: Red Hill Bulk Fuel Storage Facility Project No.: 112066

Initial Water Level: 83.41 ft Date: 4/23/2013 Time: 1005

Total Depth of Well: - Personnel Involved: Justin Lam, Branden Ibara

Length of Saturated Zone: - Weather Conditions: -

Volume of Water to be Removed: - Method of Removal: Bladder Pump

Water Level After Purging: 83.41 ft Pumping Rate: 0.42 L/min

Well Purge Data:

Time	Volume Removed	pH	Conductivity (mS/cm)	DO (mg/l)	Temperature	Salinity	Redox (ORP) (mV)
1009	0.0 L	8.41	1.030	7.52	22.60	0.53	203.1
1012	1.0 L	8.03	1.011	7.21	22.32	0.53	215.5
1015	2.0 L	7.86	1.009	7.13	22.28	0.53	217.1
1017	3.0 L	7.78	1.007	7.09	22.26	0.53	217.2
1019	4.0 L	7.69	1.005	6.99	22.23	0.53	215.7
1021	5.0 L	7.68	1.005	6.96	22.21	0.53	214.3

Sample Withdrawal Method: Bladder Pump

Appearance of Sample:

Color: Clear

Turbidity: Clear

Sediment: None

Other: None

Laboratory Analysis Parameters and Preservatives: TPH-d - 8015; TPH-g, VOCs - 8260; PAHs - 8270c sim; lead - 6020

Number and Types of Sample Containers: 6 - 40ml VOAs, 2 - 1L amber jar, 1 - 500ml amber jar, 1 - 250ml HDPE

Sample Identification Numbers: ES024 [1030]

Decontamination Procedures: Triple Rinsed

Notes: None

Sampled by: Justin Lam, Branden Ibara

Sampled Delivered to: Calscience Environmental Lab Transporters: FedEx

Date: 4/23/2013 Time: 1200

Capacity of Casing (Gallons/Linear Feet)

2"-0.16• 4"-0.65 • 8"-2.61 • 10"-4.08 • 12"-5.87

Groundwater Sampling Log

Well ID: RHMW2254-01 Location: Red Hill Bulk Fuel Storage Facility Project No.: 112066

Initial Water Level: 82.61 ft Date: 4/23/2013 Time: 850

Total Depth of Well: - Personnel Involved: Justin Lam, Branden Ibara

Length of Saturated Zone: - Weather Conditions: -

Volume of Water to be Removed: - Method of Removal: Bladder Pump

Water Level After Purging: - Pumping Rate: 0.25 L/min

Well Purge Data:

Time	Volume Removed	pH	Conductivity (mS/cm)	DO (mg/l)	Temperature	Salinity	Redox (ORP) (mV)
854	0.0 L	7.32	0.694	6.50	24.91	0.33	232.9
858	1.0 L	7.50	0.607	6.99	24.83	0.29	221.1
902	2.0 L	7.60	0.602	6.89	24.63	0.29	215.1
906	3.0 L	7.58	0.595	7.04	24.63	0.29	216.9

Sample Withdrawal Method: Bladder Pump

Appearance of Sample:

Color: Clear

Turbidity: Clear

Sediment: None

Other: None

Laboratory Analysis Parameters and Preservatives: TPH-d - 8015; TPH-g, VOCs - 8260; PAHs - 8270c sim; lead - 200.8

Number and Types of Sample Containers: 6 - 40ml VOAs, 2 - 1L amber jar, 1 - 500ml amber jar, 1 - 250ml HDPE

Sample Identification Numbers: ES023, ES023 UF [0925]

Decontamination Procedures: Triple Rinsed

Notes: None

Sampled by: Justin Lam, Branden Ibara

Sampled Delivered to: Calscience Environmental Lab Transporters: FedEx

Date: 4/23/2013 Time: 1200

Capacity of Casing (Gallons/Linear Feet)

2"-0.16• 4"-0.65 • 8"-2.61 • 10"-4.08 • 12"-5.87

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APPENDIX B

Field Notes

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Location Red Hill Bulk Fuel SF Date 4/22/13

Project / Client NAVFAC 112066

purpose: gw monitoring.
personnel: JL, RJ

745: arrive at adit 5
safety meeting.
prep equipment and supplies.
800: enter RHSF tunnels.
817: RHMW01
DTW: 83.84
DTB: 97.40
PID: 0 ppb
825: begin purging well.
915: begin collecting sample ES019 at RHMW01.
1015: finish at RHMW01, go to RHMW02
1020: gauge RHMW02
DTW: 86.50 PID: 0 ppb.
DTB: 94.35
1025: begin purging well.
1040: sample collection time 1100 for RHMW02.

Location RHBFSF Date 4/22/13

Project / Client NAVFAE 112066

1130: finish at RHMW02
move to RHMW03.
1135: gauge RHMW03
DTW: 102.78
DTB: 110.12
PID: 0 ppb
1140: begin purging RHMW03.
1200: collect RHMW03, sample time was written as 1230.
1220: leave RHSF
drop off drum at adit 3.
1250: leave RHSF

4/22/13

Location RHBFSF Date 4/23/13

Project / Client NAVFAC 112066

purpose: gw monitoring
personnel: JL, BI.
745: ESI ~~get~~ to Adit 5.
~~800: JL, BI~~ JL 4/23/13
safety meeting
prep equipment
800: JL, BI enter RHSF.
815: JL, BI get to the pump station, wait for pump house personnel to open door.
835: pump house personnel open door.
840: gauge RHMW-2254-01.
DTW: ~~810~~ 82.61 4/23/13
No DTB, IP start.
No PID
850: begin purging well.
910: begin sampling well. (ES023)
sample time 925.
950: leave pump house go to RHMW05.
1005: RHMW05
DTW: 83.41
DTB: —
PID: 0ppm

Location RHBSF Date 4/23/13

Project / Client NAVFAC 112066

1008: begin purging well
1025: begin collecting sample at RHMW03 (ES024)
sample time 1030
1035: finish w/inside wells begin to exit tunnels.
1050: ESI exit tunnels.
put equipment away.
1105: dispose of water at adit 3
1120: leave RHSF.

JN 4/23/13

APPENDIX C

Laboratory Reports

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Calscience Environmental Laboratories, Inc.

CALSCIENCE

WORK ORDER NUMBER: 13-04-1789

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AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Environmental Science International, Inc.

Client Project Name: Red Hill LTM 112066

Attention: Robert Chong
354 Uluniu Street, Suite 304
Kailua, HI 96734-2500

Approved for release on 05/1/2013 by:
Richard Villafania
Project Manager

ResultLink

Email your PM

Calscience Environmental Laboratories, Inc.

Contents

Client Project Name: Red Hill LTM 112066
Work Order Number: 13-04-1789

Calscience Environmental Laboratories, Inc.

Work Order Narrative

Condition Upon Receipt:

Samples were received under Chain of Custody (COC) on 04/25/2013. They were assigned to Work Order 13-04-1789.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with an immediate holding time (HT </= 15 minutes --40CFR-136.3 Table II footnote 4), is considered a "field" test and reported samples results are not flagged unless the analysis is performed beyond 24 hours of the time of collection.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Additional Comments:

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Subcontract Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

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Calscience Environmental Laboratories, Inc.

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ACCREDITED IN ACCORDANCE WITH nelac

Client:	Environmental Science International, Inc. 354 Uluniu Street, Suite 304 Kailua, HI 96734-2500	Work Order:	13-04-1789
		Project Name:	Red Hill LTM 112066
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

13-04-1789-2 Client ID: ES 019 Matrix: Aqueous Units: ug/L Sampled: 04/22/13 09:15

EPA 6020 ICP/MS Metals Extraction: EPA 3020A Total

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
Lead	0.641	J	0.0898	0.200	1.00	1	04/26/13 00:00	04/26/13 20:50	130426L03D

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

13-04-1789-3 Client ID: ES 020 Matrix: Aqueous Units: ug/L Sampled: 04/22/13 11:00

EPA 6020 ICP/MS Metals Extraction: EPA 3020A Total

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
Lead	<0.200	U	0.0898	0.200	1.00	1	04/26/13 00:00	04/26/13 20:47	130426L03D

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

13-04-1789-4 Client ID: ES 021 Matrix: Aqueous Units: ug/L Sampled: 04/22/13 12:15

EPA 6020 ICP/MS Metals Extraction: EPA 3020A Total

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
Lead	<0.200	U	0.0898	0.200	1.00	1	04/26/13 00:00	04/26/13 20:58	130426L03D

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

13-04-1789-5 Client ID: ES 022 Matrix: Aqueous Units: ug/L Sampled: 04/22/13 12:30

EPA 6020 ICP/MS Metals Extraction: EPA 3020A Total

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
Lead	<0.200	U	0.0898	0.200	1.00	1	04/26/13 00:00	04/26/13 21:01	130426L03D

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

13-04-1789-7 Client ID: ES 024 Matrix: Aqueous Units: ug/L Sampled: 04/23/13 10:30

EPA 6020 ICP/MS Metals Extraction: EPA 3020A Total

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
Lead	<0.200	U	0.0898	0.200	1.00	1	04/26/13 00:00	04/26/13 21:04	130426L03D

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

099-14-497-26 Client ID: Method Blank Matrix: Aqueous Units: ug/L Sampled: 04/29/13 13:14

EPA 6020 ICP/MS Metals Extraction: EPA 3020A Total

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
Lead	<0.200	U	0.0898	0.200	1.00	1	04/26/13 00:00	04/26/13 20:23	130426L03D

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

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Calscience Environmental Laboratories, Inc.

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Client:	Environmental Science International, Inc. 354 Uluniu Street, Suite 304 Kailua, HI 96734-2500	Work Order:	13-04-1789
		Project Name:	Red Hill LTM 112066
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

13-04-1789-2 Client ID: ES 019 Matrix: Aqueous Units: ug/L Sampled: 04/22/13 09:15

EPA 8015B (M) TPH Diesel Extraction: EPA 3510C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
TPH as Diesel	340	HD	15	20	50	1	04/26/13 00:00	04/29/13 13:50	130426B02
Surr: n-Octacosane (51-141%)	*92%*						*04/26/13 00:00*	*04/29/13 13:50*	*130426B02*

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.
-TPH as Diesel is quantified in the carbon range C10-C28.

13-04-1789-3 Client ID: ES 020 Matrix: Aqueous Units: ug/L Sampled: 04/22/13 11:00

EPA 8015B (M) TPH Diesel Extraction: EPA 3510C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
TPH as Diesel	2600	HD	15	20	50	1	04/26/13 00:00	04/29/13 14:06	130426B02
Surr: n-Octacosane (51-141%)	*97%*						*04/26/13 00:00*	*04/29/13 14:06*	*130426B02*

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.
-TPH as Diesel is quantified in the carbon range C10-C28.

13-04-1789-4 Client ID: ES 021 Matrix: Aqueous Units: ug/L Sampled: 04/22/13 12:15

EPA 8015B (M) TPH Diesel Extraction: EPA 3510C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
TPH as Diesel	3300	HD	15	20	50	1	04/26/13 00:00	04/29/13 14:23	130426B02
Surr: n-Octacosane (51-141%)	*102%*						*04/26/13 00:00*	*04/29/13 14:23*	*130426B02*

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.
-TPH as Diesel is quantified in the carbon range C10-C28.

13-04-1789-5 Client ID: ES 022 Matrix: Aqueous Units: ug/L Sampled: 04/22/13 12:30

EPA 8015B (M) TPH Diesel Extraction: EPA 3510C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
TPH as Diesel	69	HD	15	20	50	1	04/26/13 00:00	04/29/13 14:38	130426B02
Surr: n-Octacosane (51-141%)	*86%*						*04/26/13 00:00*	*04/29/13 14:38*	*130426B02*

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.
-TPH as Diesel is quantified in the carbon range C10-C28.

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Client:	Environmental Science International, Inc. 354 Uluniu Street, Suite 304 Kailua, HI 96734-2500	Work Order:	13-04-1789
		Project Name:	Red Hill LTM 112066
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

13-04-1789-6 Client ID: ES 023 Matrix: Aqueous Units: ug/L Sampled: 04/23/13 09:25

EPA 8015B (M) TPH Diesel Extraction: EPA 3510C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
TPH as Diesel	<20	U	15	20	50	1	04/26/13 00:00	04/29/13 14:55	130426B02
Surr: n-Octacosane (51-141%)	*87%*						*04/26/13 00:00*	*04/29/13 14:55*	*130426B02*

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.
-TPH as Diesel is quantified in the carbon range C10-C28.

13-04-1789-7 Client ID: ES 024 Matrix: Aqueous Units: ug/L Sampled: 04/23/13 10:30

EPA 8015B (M) TPH Diesel Extraction: EPA 3510C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
TPH as Diesel	27	J	15	20	50	1	04/26/13 00:00	04/29/13 15:12	130426B02
Surr: n-Octacosane (51-141%)	*90%*						*04/26/13 00:00*	*04/29/13 15:12*	*130426B02*

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.
-TPH as Diesel is quantified in the carbon range C10-C28.

099-15-516-39 Client ID: Method Blank Matrix: Aqueous Units: ug/L Sampled: 04/30/13 14:17

EPA 8015B (M) TPH Diesel Extraction: EPA 3510C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
TPH as Diesel	<20	U	15	20	50	1	04/26/13 00:00	04/30/13 10:47	130426B02
Surr: n-Octacosane (51-141%)	*134%*						*04/26/13 00:00*	*04/30/13 10:47*	*130426B02*

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

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Client:	Environmental Science International, Inc. 354 Uluniu Street, Suite 304 Kailua, HI 96734-2500	Work Order: Project Name:	13-04-1789 Red Hill LTM 112066
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

13-04-1789-2 Client ID: ES 019 Matrix: Aqueous Units: ug/L Sampled: 04/22/13 09:15

EPA 8270C SIM PAHs Extraction: EPA 3510C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
Naphthalene	<0.052	U	0.024	0.052	0.21	1.03	04/26/13 00:00	04/29/13 11:59	130426L02
2-Methylnaphthalene	<0.052	U	0.027	0.052	0.21	1.03	04/26/13 00:00	04/29/13 11:59	130426L02
1-Methylnaphthalene	<0.052	U	0.029	0.052	0.21	1.03	04/26/13 00:00	04/29/13 11:59	130426L02
Acenaphthylene	<0.052	U	0.018	0.052	0.21	1.03	04/26/13 00:00	04/29/13 11:59	130426L02
Acenaphthene	<0.052	U	0.021	0.052	0.21	1.03	04/26/13 00:00	04/29/13 11:59	130426L02
Fluorene	<0.052	U	0.025	0.052	0.21	1.03	04/26/13 00:00	04/29/13 11:59	130426L02
Phenanthrene	<0.052	U	0.031	0.052	0.21	1.03	04/26/13 00:00	04/29/13 11:59	130426L02
Anthracene	<0.052	U	0.035	0.052	0.21	1.03	04/26/13 00:00	04/29/13 11:59	130426L02
Fluoranthene	<0.052	U	0.028	0.052	0.21	1.03	04/26/13 00:00	04/29/13 11:59	130426L02
Pyrene	<0.052	U	0.026	0.052	0.21	1.03	04/26/13 00:00	04/29/13 11:59	130426L02
Benzo (a) Anthracene	<0.052	U	0.024	0.052	0.21	1.03	04/26/13 00:00	04/29/13 11:59	130426L02
Chrysene	<0.052	U	0.020	0.052	0.21	1.03	04/26/13 00:00	04/29/13 11:59	130426L02
Benzo (k) Fluoranthene	<0.052	U	0.024	0.052	0.21	1.03	04/26/13 00:00	04/29/13 11:59	130426L02
Benzo (b) Fluoranthene	<0.052	U	0.026	0.052	0.21	1.03	04/26/13 00:00	04/29/13 11:59	130426L02
Benzo (a) Pyrene	<0.052	U	0.037	0.052	0.21	1.03	04/26/13 00:00	04/29/13 11:59	130426L02
Indeno (1,2,3-c,d) Pyrene	<0.052	U	0.023	0.052	0.21	1.03	04/26/13 00:00	04/29/13 11:59	130426L02
Dibenz (a,h) Anthracene	<0.052	U	0.028	0.052	0.21	1.03	04/26/13 00:00	04/29/13 11:59	130426L02
Benzo (g,h,i) Perylene	<0.052	U	0.022	0.052	0.21	1.03	04/26/13 00:00	04/29/13 11:59	130426L02

Surr: Nitrobenzene-d5 (28-139%)	*103%*						*04/26/13 00:00*	*04/29/13 11:59*	*130426L02*
Surr: 2-Fluorobiphenyl (33-144%)	*113%*						*04/26/13 00:00*	*04/29/13 11:59*	*130426L02*
Surr: p-Terphenyl-d14 (23-160%)	*119%*						*04/26/13 00:00*	*04/29/13 11:59*	*130426L02*

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

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Client:	Environmental Science International, Inc. 354 Uluniu Street, Suite 304 Kailua, HI 96734-2500	Work Order: Project Name:	13-04-1789 Red Hill LTM 112066
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

13-04-1789-3 Client ID: ES 020 Matrix: Aqueous Units: ug/L Sampled: 04/22/13 11:00

EPA 8270C SIM PAHs Extraction: EPA 3510C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
Naphthalene	53		0.23	0.51	2.0	10.2	04/26/13 00:00	04/29/13 15:34	130426L02
2-Methylnaphthalene	13		0.27	0.51	2.0	10.2	04/26/13 00:00	04/29/13 15:34	130426L02
1-Methylnaphthalene	16		0.29	0.51	2.0	10.2	04/26/13 00:00	04/29/13 15:34	130426L02
Acenaphthylene	<0.051	U	0.018	0.051	0.20	1.02	04/26/13 00:00	04/29/13 12:26	130426L02
Acenaphthene	0.58		0.021	0.051	0.20	1.02	04/26/13 00:00	04/29/13 12:26	130426L02
Fluorene	0.24		0.025	0.051	0.20	1.02	04/26/13 00:00	04/29/13 12:26	130426L02
Phenanthrene	<0.051	U	0.031	0.051	0.20	1.02	04/26/13 00:00	04/29/13 12:26	130426L02
Anthracene	<0.051	U	0.035	0.051	0.20	1.02	04/26/13 00:00	04/29/13 12:26	130426L02
Fluoranthene	<0.051	U	0.028	0.051	0.20	1.02	04/26/13 00:00	04/29/13 12:26	130426L02
Pyrene	<0.051	U	0.025	0.051	0.20	1.02	04/26/13 00:00	04/29/13 12:26	130426L02
Benzo (a) Anthracene	<0.051	U	0.024	0.051	0.20	1.02	04/26/13 00:00	04/29/13 12:26	130426L02
Chrysene	<0.051	U	0.019	0.051	0.20	1.02	04/26/13 00:00	04/29/13 12:26	130426L02
Benzo (k) Fluoranthene	<0.051	U	0.024	0.051	0.20	1.02	04/26/13 00:00	04/29/13 12:26	130426L02
Benzo (b) Fluoranthene	<0.051	U	0.025	0.051	0.20	1.02	04/26/13 00:00	04/29/13 12:26	130426L02
Benzo (a) Pyrene	<0.051	U	0.037	0.051	0.20	1.02	04/26/13 00:00	04/29/13 12:26	130426L02
Indeno (1,2,3-c,d) Pyrene	<0.051	U	0.022	0.051	0.20	1.02	04/26/13 00:00	04/29/13 12:26	130426L02
Dibenz (a,h) Anthracene	<0.051	U	0.027	0.051	0.20	1.02	04/26/13 00:00	04/29/13 12:26	130426L02
Benzo (g,h,i) Perylene	<0.051	U	0.022	0.051	0.20	1.02	04/26/13 00:00	04/29/13 12:26	130426L02

Surr: Nitrobenzene-d5 (28-139%)	*92%*	*04/26/13 00:00*	*04/29/13 12:26*	*130426L02*
Surr: 2-Fluorobiphenyl (33-144%)	*98%*	*04/26/13 00:00*	*04/29/13 12:26*	*130426L02*
Surr: p-Terphenyl-d14 (23-160%)	*102%*	*04/26/13 00:00*	*04/29/13 12:26*	*130426L02*

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

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Client:	Environmental Science International, Inc.	Work Order:	13-04-1789
	354 Uluniu Street, Suite 304	Project Name:	Red Hill LTM 112066
	Kailua, HI 96734-2500		
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

13-04-1789-4 Client ID: ES 021 Matrix: Aqueous Units: ug/L Sampled: 04/22/13 12:15

EPA 8270C SIM PAHs Extraction: EPA 3510C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
Naphthalene	61		0.44	0.95	3.8	19.1	04/26/13 00:00	04/29/13 16:01	130426L02
2-Methylnaphthalene	16		0.50	0.95	3.8	19.1	04/26/13 00:00	04/29/13 16:01	130426L02
1-Methylnaphthalene	20		0.54	0.95	3.8	19.1	04/26/13 00:00	04/29/13 16:01	130426L02
Acenaphthylene	<0.048	U	0.017	0.048	0.19	0.95	04/26/13 00:00	04/29/13 12:53	130426L02
Acenaphthene	0.65		0.020	0.048	0.19	0.95	04/26/13 00:00	04/29/13 12:53	130426L02
Fluorene	0.28		0.023	0.048	0.19	0.95	04/26/13 00:00	04/29/13 12:53	130426L02
Phenanthrene	<0.048	U	0.029	0.048	0.19	0.95	04/26/13 00:00	04/29/13 12:53	130426L02
Anthracene	<0.048	U	0.032	0.048	0.19	0.95	04/26/13 00:00	04/29/13 12:53	130426L02
Fluoranthene	<0.048	U	0.026	0.048	0.19	0.95	04/26/13 00:00	04/29/13 12:53	130426L02
Pyrene	<0.048	U	0.024	0.048	0.19	0.95	04/26/13 00:00	04/29/13 12:53	130426L02
Benzo (a) Anthracene	<0.048	U	0.023	0.048	0.19	0.95	04/26/13 00:00	04/29/13 12:53	130426L02
Chrysene	<0.048	U	0.018	0.048	0.19	0.95	04/26/13 00:00	04/29/13 12:53	130426L02
Benzo (k) Fluoranthene	<0.048	U	0.022	0.048	0.19	0.95	04/26/13 00:00	04/29/13 12:53	130426L02
Benzo (b) Fluoranthene	<0.048	U	0.024	0.048	0.19	0.95	04/26/13 00:00	04/29/13 12:53	130426L02
Benzo (a) Pyrene	<0.048	U	0.035	0.048	0.19	0.95	04/26/13 00:00	04/29/13 12:53	130426L02
Indeno (1,2,3-c,d) Pyrene	<0.048	U	0.021	0.048	0.19	0.95	04/26/13 00:00	04/29/13 12:53	130426L02
Dibenz (a,h) Anthracene	<0.048	U	0.025	0.048	0.19	0.95	04/26/13 00:00	04/29/13 12:53	130426L02
Benzo (g,h,i) Perylene	<0.048	U	0.021	0.048	0.19	0.95	04/26/13 00:00	04/29/13 12:53	130426L02

Surr: Nitrobenzene-d5 (28-139%)	*105%*						*04/26/13 00:00*	*04/29/13 12:53*	*130426L02*
Surr: 2-Fluorobiphenyl (33-144%)	*115%*						*04/26/13 00:00*	*04/29/13 12:53*	*130426L02*
Surr: p-Terphenyl-d14 (23-160%)	*120%*						*04/26/13 00:00*	*04/29/13 12:53*	*130426L02*

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

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Client:	Environmental Science International, Inc.	Work Order:	13-04-1789
	354 Uluniu Street, Suite 304	Project Name:	Red Hill LTM 112066
	Kailua, HI 96734-2500		
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

13-04-1789-5 Client ID: ES 022 Matrix: Aqueous Units: ug/L Sampled: 04/22/13 12:30

EPA 8270C SIM PAHs Extraction: EPA 3510C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
Naphthalene	<0.053	U	0.024	0.053	0.21	1.055	04/26/13 00:00	04/29/13 13:20	130426L02
2-Methylnaphthalene	<0.053	U	0.028	0.053	0.21	1.055	04/26/13 00:00	04/29/13 13:20	130426L02
1-Methylnaphthalene	<0.053	U	0.030	0.053	0.21	1.055	04/26/13 00:00	04/29/13 13:20	130426L02
Acenaphthylene	<0.053	U	0.019	0.053	0.21	1.055	04/26/13 00:00	04/29/13 13:20	130426L02
Acenaphthene	<0.053	U	0.022	0.053	0.21	1.055	04/26/13 00:00	04/29/13 13:20	130426L02
Fluorene	<0.053	U	0.026	0.053	0.21	1.055	04/26/13 00:00	04/29/13 13:20	130426L02
Phenanthrene	<0.053	U	0.032	0.053	0.21	1.055	04/26/13 00:00	04/29/13 13:20	130426L02
Anthracene	<0.053	U	0.036	0.053	0.21	1.055	04/26/13 00:00	04/29/13 13:20	130426L02
Fluoranthene	<0.053	U	0.029	0.053	0.21	1.055	04/26/13 00:00	04/29/13 13:20	130426L02
Pyrene	<0.053	U	0.026	0.053	0.21	1.055	04/26/13 00:00	04/29/13 13:20	130426L02
Benzo (a) Anthracene	<0.053	U	0.025	0.053	0.21	1.055	04/26/13 00:00	04/29/13 13:20	130426L02
Chrysene	<0.053	U	0.020	0.053	0.21	1.055	04/26/13 00:00	04/29/13 13:20	130426L02
Benzo (k) Fluoranthene	<0.053	U	0.025	0.053	0.21	1.055	04/26/13 00:00	04/29/13 13:20	130426L02
Benzo (b) Fluoranthene	<0.053	U	0.026	0.053	0.21	1.055	04/26/13 00:00	04/29/13 13:20	130426L02
Benzo (a) Pyrene	<0.053	U	0.038	0.053	0.21	1.055	04/26/13 00:00	04/29/13 13:20	130426L02
Indeno (1,2,3-c,d) Pyrene	<0.053	U	0.023	0.053	0.21	1.055	04/26/13 00:00	04/29/13 13:20	130426L02
Dibenz (a,h) Anthracene	<0.053	U	0.028	0.053	0.21	1.055	04/26/13 00:00	04/29/13 13:20	130426L02
Benzo (g,h,i) Perylene	<0.053	U	0.023	0.053	0.21	1.055	04/26/13 00:00	04/29/13 13:20	130426L02

Surr: Nitrobenzene-d5 (28-139%)	*114%*						*04/26/13 00:00*	*04/29/13 13:20*	*130426L02*
Surr: 2-Fluorobiphenyl (33-144%)	*113%*						*04/26/13 00:00*	*04/29/13 13:20*	*130426L02*
Surr: p-Terphenyl-d14 (23-160%)	*129%*						*04/26/13 00:00*	*04/29/13 13:20*	*130426L02*

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

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Client:	Environmental Science International, Inc. 354 Uluniu Street, Suite 304 Kailua, HI 96734-2500	Work Order: Project Name:	13-04-1789 Red Hill LTM 112066
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

13-04-1789-6 Client ID: ES 023 Matrix: Aqueous Units: ug/L Sampled: 04/23/13 09:25

EPA 8270C SIM PAHs Extraction: EPA 3510C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
Naphthalene	<0.051	U	0.023	0.051	0.20	1.02	04/26/13 00:00	04/29/13 13:47	130426L02
2-Methylnaphthalene	<0.051	U	0.027	0.051	0.20	1.02	04/26/13 00:00	04/29/13 13:47	130426L02
1-Methylnaphthalene	<0.051	U	0.029	0.051	0.20	1.02	04/26/13 00:00	04/29/13 13:47	130426L02
Acenaphthylene	<0.051	U	0.018	0.051	0.20	1.02	04/26/13 00:00	04/29/13 13:47	130426L02
Acenaphthene	<0.051	U	0.021	0.051	0.20	1.02	04/26/13 00:00	04/29/13 13:47	130426L02
Fluorene	<0.051	U	0.025	0.051	0.20	1.02	04/26/13 00:00	04/29/13 13:47	130426L02
Phenanthrene	<0.051	U	0.031	0.051	0.20	1.02	04/26/13 00:00	04/29/13 13:47	130426L02
Anthracene	<0.051	U	0.035	0.051	0.20	1.02	04/26/13 00:00	04/29/13 13:47	130426L02
Fluoranthene	<0.051	U	0.028	0.051	0.20	1.02	04/26/13 00:00	04/29/13 13:47	130426L02
Pyrene	<0.051	U	0.025	0.051	0.20	1.02	04/26/13 00:00	04/29/13 13:47	130426L02
Benzo (a) Anthracene	<0.051	U	0.024	0.051	0.20	1.02	04/26/13 00:00	04/29/13 13:47	130426L02
Chrysene	<0.051	U	0.019	0.051	0.20	1.02	04/26/13 00:00	04/29/13 13:47	130426L02
Benzo (k) Fluoranthene	<0.051	U	0.024	0.051	0.20	1.02	04/26/13 00:00	04/29/13 13:47	130426L02
Benzo (b) Fluoranthene	<0.051	U	0.025	0.051	0.20	1.02	04/26/13 00:00	04/29/13 13:47	130426L02
Benzo (a) Pyrene	<0.051	U	0.037	0.051	0.20	1.02	04/26/13 00:00	04/29/13 13:47	130426L02
Indeno (1,2,3-c,d) Pyrene	<0.051	U	0.022	0.051	0.20	1.02	04/26/13 00:00	04/29/13 13:47	130426L02
Dibenz (a,h) Anthracene	<0.051	U	0.027	0.051	0.20	1.02	04/26/13 00:00	04/29/13 13:47	130426L02
Benzo (g,h,i) Perylene	<0.051	U	0.022	0.051	0.20	1.02	04/26/13 00:00	04/29/13 13:47	130426L02

Surr: Nitrobenzene-d5 (28-139%)	*105%*	*04/26/13 00:00*	*04/29/13 13:47*	*130426L02*
Surr: 2-Fluorobiphenyl (33-144%)	*103%*	*04/26/13 00:00*	*04/29/13 13:47*	*130426L02*
Surr: p-Terphenyl-d14 (23-160%)	*113%*	*04/26/13 00:00*	*04/29/13 13:47*	*130426L02*

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

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ACCREDITED IN ACCORDANCE WITH nelac

Client:	Environmental Science International, Inc.	Work Order:	13-04-1789
	354 Uluniu Street, Suite 304	Project Name:	Red Hill LTM 112066
	Kailua, HI 96734-2500		
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

13-04-1789-7 Client ID: ES 024 Matrix: Aqueous Units: ug/L Sampled: 04/23/13 10:30

EPA 8270C SIM PAHs Extraction: EPA 3510C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
Naphthalene	0.033	J	0.022	0.048	0.19	0.97	04/26/13 00:00	04/29/13 14:13	130426L02
2-Methylnaphthalene	<0.048	U	0.026	0.048	0.19	0.97	04/26/13 00:00	04/29/13 14:13	130426L02
1-Methylnaphthalene	<0.048	U	0.027	0.048	0.19	0.97	04/26/13 00:00	04/29/13 14:13	130426L02
Acenaphthylene	<0.048	U	0.017	0.048	0.19	0.97	04/26/13 00:00	04/29/13 14:13	130426L02
Acenaphthene	<0.048	U	0.020	0.048	0.19	0.97	04/26/13 00:00	04/29/13 14:13	130426L02
Fluorene	<0.048	U	0.024	0.048	0.19	0.97	04/26/13 00:00	04/29/13 14:13	130426L02
Phenanthrene	<0.048	U	0.030	0.048	0.19	0.97	04/26/13 00:00	04/29/13 14:13	130426L02
Anthracene	<0.048	U	0.033	0.048	0.19	0.97	04/26/13 00:00	04/29/13 14:13	130426L02
Fluoranthene	<0.048	U	0.026	0.048	0.19	0.97	04/26/13 00:00	04/29/13 14:13	130426L02
Pyrene	<0.048	U	0.024	0.048	0.19	0.97	04/26/13 00:00	04/29/13 14:13	130426L02
Benzo (a) Anthracene	<0.048	U	0.023	0.048	0.19	0.97	04/26/13 00:00	04/29/13 14:13	130426L02
Chrysene	<0.048	U	0.018	0.048	0.19	0.97	04/26/13 00:00	04/29/13 14:13	130426L02
Benzo (k) Fluoranthene	<0.048	U	0.023	0.048	0.19	0.97	04/26/13 00:00	04/29/13 14:13	130426L02
Benzo (b) Fluoranthene	<0.048	U	0.024	0.048	0.19	0.97	04/26/13 00:00	04/29/13 14:13	130426L02
Benzo (a) Pyrene	<0.048	U	0.035	0.048	0.19	0.97	04/26/13 00:00	04/29/13 14:13	130426L02
Indeno (1,2,3-c,d) Pyrene	<0.048	U	0.021	0.048	0.19	0.97	04/26/13 00:00	04/29/13 14:13	130426L02
Dibenz (a,h) Anthracene	<0.048	U	0.026	0.048	0.19	0.97	04/26/13 00:00	04/29/13 14:13	130426L02
Benzo (g,h,i) Perylene	<0.048	U	0.021	0.048	0.19	0.97	04/26/13 00:00	04/29/13 14:13	130426L02

Surr: Nitrobenzene-d5 (28-139%)	*108%*	*04/26/13 00:00*	*04/29/13 14:13*	*130426L02*
Surr: 2-Fluorobiphenyl (33-144%)	*108%*	*04/26/13 00:00*	*04/29/13 14:13*	*130426L02*
Surr: p-Terphenyl-d14 (23-160%)	*124%*	*04/26/13 00:00*	*04/29/13 14:13*	*130426L02*

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

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Client:	Environmental Science International, Inc.	Work Order:	099-15-148
	354 Uluniu Street, Suite 304	Project Name:	Red Hill LTM 112066
	Kailua, HI 96734-2500		
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

099-15-148-12 Client ID: Method Blank Matrix: Aqueous Units: ug/L Sampled: 04/29/13 11:30

EPA 8270C SIM PAHs Extraction: EPA 3510C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
Naphthalene	<0.050	U	0.023	0.050	0.20	1	04/26/13 00:00	04/29/13 11:05	130426L02
2-Methylnaphthalene	<0.050	U	0.026	0.050	0.20	1	04/26/13 00:00	04/29/13 11:05	130426L02
1-Methylnaphthalene	<0.050	U	0.028	0.050	0.20	1	04/26/13 00:00	04/29/13 11:05	130426L02
Acenaphthylene	<0.050	U	0.018	0.050	0.20	1	04/26/13 00:00	04/29/13 11:05	130426L02
Acenaphthene	<0.050	U	0.021	0.050	0.20	1	04/26/13 00:00	04/29/13 11:05	130426L02
Fluorene	<0.050	U	0.024	0.050	0.20	1	04/26/13 00:00	04/29/13 11:05	130426L02
Phenanthrene	<0.050	U	0.031	0.050	0.20	1	04/26/13 00:00	04/29/13 11:05	130426L02
Anthracene	<0.050	U	0.034	0.050	0.20	1	04/26/13 00:00	04/29/13 11:05	130426L02
Fluoranthene	<0.050	U	0.027	0.050	0.20	1	04/26/13 00:00	04/29/13 11:05	130426L02
Pyrene	<0.050	U	0.025	0.050	0.20	1	04/26/13 00:00	04/29/13 11:05	130426L02
Benzo (a) Anthracene	<0.050	U	0.024	0.050	0.20	1	04/26/13 00:00	04/29/13 11:05	130426L02
Chrysene	<0.050	U	0.019	0.050	0.20	1	04/26/13 00:00	04/29/13 11:05	130426L02
Benzo (k) Fluoranthene	<0.050	U	0.023	0.050	0.20	1	04/26/13 00:00	04/29/13 11:05	130426L02
Benzo (b) Fluoranthene	<0.050	U	0.025	0.050	0.20	1	04/26/13 00:00	04/29/13 11:05	130426L02
Benzo (a) Pyrene	<0.050	U	0.036	0.050	0.20	1	04/26/13 00:00	04/29/13 11:05	130426L02
Indeno (1,2,3-c,d) Pyrene	<0.050	U	0.022	0.050	0.20	1	04/26/13 00:00	04/29/13 11:05	130426L02
Dibenz (a,h) Anthracene	<0.050	U	0.027	0.050	0.20	1	04/26/13 00:00	04/29/13 11:05	130426L02
Benzo (g,h,i) Perylene	<0.050	U	0.022	0.050	0.20	1	04/26/13 00:00	04/29/13 11:05	130426L02

Surr: Nitrobenzene-d5 (28-139%)	*113%*	*04/26/13 00:00*	*04/29/13 11:05*	*130426L02*
Surr: 2-Fluorobiphenyl (33-144%)	*116%*	*04/26/13 00:00*	*04/29/13 11:05*	*130426L02*
Surr: p-Terphenyl-d14 (23-160%)	*125%*	*04/26/13 00:00*	*04/29/13 11:05*	*130426L02*

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

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Client:	Environmental Science International, Inc.	Work Order:	13-04-1789
	354 Uluniu Street, Suite 304	Project Name:	Red Hill LTM 112066
	Kailua, HI 96734-2500		
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

13-04-1789-1 Client ID: ES Trip Matrix: Aqueous Units: ug/L Sampled: 04/22/13 07:00

GC/MS GRO/EPA 8260B Volatile Organics Extraction: EPA 5030C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
Acetone	<10	U	6.0	10	20	1	04/26/13 00:00	04/26/13 19:03	130426L01
Benzene	<0.50	U	0.14	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
Bromodichloromethane	<0.50	U	0.21	0.50	5.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
Bromoform	<1.0	U	0.50	1.0	10	1	04/26/13 00:00	04/26/13 19:03	130426L01
Bromomethane	<5.0	ICJ,U	3.9	5.0	20	1	04/26/13 00:00	04/26/13 19:03	130426L01
2-Butanone	<5.0	U	2.2	5.0	10	1	04/26/13 00:00	04/26/13 19:03	130426L01
Carbon Tetrachloride	<0.50	U	0.23	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
Chlorobenzene	<0.50	U	0.17	0.50	5.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
Chloroethane	<5.0	U	2.3	5.0	10	1	04/26/13 00:00	04/26/13 19:03	130426L01
Chloroform	<0.50	U	0.46	0.50	5.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
Chloromethane	<2.0	ICJ,U	1.8	2.0	10	1	04/26/13 00:00	04/26/13 19:03	130426L01
Dibromochloromethane	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
1,2-Dibromo-3-Chloropropane	<2.0	U	1.2	2.0	10	1	04/26/13 00:00	04/26/13 19:03	130426L01
1,2-Dibromoethane	<0.50	U	0.36	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
1,2-Dichlorobenzene	<0.50	U	0.46	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
1,3-Dichlorobenzene	<0.50	U	0.40	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
1,4-Dichlorobenzene	<0.50	U	0.43	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
1,1-Dichloroethane	<0.50	U	0.28	0.50	5.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
1,2-Dichloroethane	<0.50	U	0.24	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
1,1-Dichloroethene	<0.50	U	0.43	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
c-1,2-Dichloroethene	<0.50	U	0.48	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
t-1,2-Dichloroethene	<0.50	U	0.37	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
1,2-Dichloropropane	<0.50	U	0.42	0.50	5.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
c-1,3-Dichloropropene	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
t-1,3-Dichloropropene	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
Ethylbenzene	<0.50	U	0.14	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
Methylene Chloride	<1.0	U	0.64	1.0	5.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
4-Methyl-2-Pentanone	<5.0	U	4.4	5.0	10	1	04/26/13 00:00	04/26/13 19:03	130426L01
Styrene	<0.50	U	0.17	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
1,1,1,2-Tetrachloroethane	<0.50	U	0.40	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
1,1,2,2-Tetrachloroethane	<0.50	U	0.41	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
Tetrachloroethene	<0.50	U	0.39	0.50	5.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
Toluene	<0.50	U	0.24	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
1,2,4-Trichlorobenzene	<1.0	U	0.50	1.0	5.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
1,1,1-Trichloroethane	<0.50	U	0.30	0.50	5.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
Hexachloro-1,3-Butadiene	<0.50	U	0.32	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
1,1,2-Trichloroethane	<0.50	U	0.38	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
Trichloroethene	0.68	J	0.37	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01

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Client:	Environmental Science International, Inc.	Work Order:	13-04-1789
	354 Uluniu Street, Suite 304	Project Name:	Red Hill LTM 112066
	Kailua, HI 96734-2500		
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

13-04-1789-1 Client ID: ES Trip Matrix: Aqueous Units: ug/L Sampled: 04/22/13 07:00

GC/MS GRO/EPA 8260B Volatile Organics Extraction: EPA 5030C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
1,2,3-Trichloropropane	<1.0	U	0.64	1.0	5.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
Vinyl Chloride	<0.50	U	0.30	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
p/m-Xylene	<1.0	U	0.30	1.0	10	1	04/26/13 00:00	04/26/13 19:03	130426L01
o-Xylene	<0.50	U	0.23	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
Methyl-t-Butyl Ether (MTBE)	<0.50	U	0.31	0.50	1.0	1	04/26/13 00:00	04/26/13 19:03	130426L01
Gasoline Range Organics	21	J	13	30	50	1	04/26/13 00:00	04/26/13 19:03	130426L01

Surr: Dibromofluoromethane (80-126%)	*89%*						*04/26/13 00:00*	*04/26/13 19:03*	*130426L01*
Surr: 1,2-Dichloroethane-d4 (80-134%)	*104%*						*04/26/13 00:00*	*04/26/13 19:03*	*130426L01*
Surr: Toluene-d8 (80-120%)	*100%*						*04/26/13 00:00*	*04/26/13 19:03*	*130426L01*
Surr: Toluene-d8-TPPH (88-112%)	*98%*						*04/26/13 00:00*	*04/26/13 19:03*	*130426L01*
Surr: 1,4-Bromofluorobenzene (80-120%)	*95%*						*04/26/13 00:00*	*04/26/13 19:03*	*130426L01*

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

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ACCREDITED IN ACCORDANCE WITH nelac

Client:	Environmental Science International, Inc.	Work Order:	13-04-1789
	354 Uluniu Street, Suite 304	Project Name:	Red Hill LTM 112066
	Kailua, HI 96734-2500		
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

13-04-1789-2 Client ID: ES 019 Matrix: Aqueous Units: ug/L Sampled: 04/22/13 09:15

GC/MS GRO/EPA 8260B Volatile Organics Extraction: EPA 5030C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
Acetone	<10	U	6.0	10	20	1	04/26/13 00:00	04/26/13 19:31	130426L01
Benzene	<0.50	U	0.14	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
Bromodichloromethane	<0.50	U	0.21	0.50	5.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
Bromoform	<1.0	U	0.50	1.0	10	1	04/26/13 00:00	04/26/13 19:31	130426L01
Bromomethane	<5.0	ICJ,U	3.9	5.0	20	1	04/26/13 00:00	04/26/13 19:31	130426L01
2-Butanone	<5.0	U	2.2	5.0	10	1	04/26/13 00:00	04/26/13 19:31	130426L01
Carbon Tetrachloride	<0.50	U	0.23	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
Chlorobenzene	<0.50	U	0.17	0.50	5.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
Chloroethane	<5.0	U	2.3	5.0	10	1	04/26/13 00:00	04/26/13 19:31	130426L01
Chloroform	<0.50	U	0.46	0.50	5.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
Chloromethane	<2.0	ICJ,U	1.8	2.0	10	1	04/26/13 00:00	04/26/13 19:31	130426L01
Dibromochloromethane	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
1,2-Dibromo-3-Chloropropane	<2.0	U	1.2	2.0	10	1	04/26/13 00:00	04/26/13 19:31	130426L01
1,2-Dibromoethane	<0.50	U	0.36	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
1,2-Dichlorobenzene	<0.50	U	0.46	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
1,3-Dichlorobenzene	<0.50	U	0.40	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
1,4-Dichlorobenzene	<0.50	U	0.43	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
1,1-Dichloroethane	<0.50	U	0.28	0.50	5.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
1,2-Dichloroethane	<0.50	U	0.24	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
1,1-Dichloroethene	<0.50	U	0.43	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
c-1,2-Dichloroethene	<0.50	U	0.48	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
t-1,2-Dichloroethene	<0.50	U	0.37	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
1,2-Dichloropropane	<0.50	U	0.42	0.50	5.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
c-1,3-Dichloropropene	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
t-1,3-Dichloropropene	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
Ethylbenzene	<0.50	U	0.14	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
Methylene Chloride	<1.0	U	0.64	1.0	5.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
4-Methyl-2-Pentanone	<5.0	U	4.4	5.0	10	1	04/26/13 00:00	04/26/13 19:31	130426L01
Styrene	<0.50	U	0.17	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
1,1,1,2-Tetrachloroethane	<0.50	U	0.40	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
1,1,2,2-Tetrachloroethane	<0.50	U	0.41	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
Tetrachloroethene	<0.50	U	0.39	0.50	5.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
Toluene	<0.50	U	0.24	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
1,2,4-Trichlorobenzene	<1.0	U	0.50	1.0	5.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
1,1,1-Trichloroethane	<0.50	U	0.30	0.50	5.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
Hexachloro-1,3-Butadiene	<0.50	U	0.32	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
1,1,2-Trichloroethane	<0.50	U	0.38	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
Trichloroethene	<0.50	U	0.37	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01

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Client:	Environmental Science International, Inc.	Work Order:	13-04-1789
	354 Uluniu Street, Suite 304	Project Name:	Red Hill LTM 112066
	Kailua, HI 96734-2500		
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

13-04-1789-2 Client ID: ES 019 Matrix: Aqueous Units: ug/L Sampled: 04/22/13 09:15

GC/MS GRO/EPA 8260B Volatile Organics Extraction: EPA 5030C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
1,2,3-Trichloropropane	<1.0	U	0.64	1.0	5.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
Vinyl Chloride	<0.50	U	0.30	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
p/m-Xylene	<1.0	U	0.30	1.0	10	1	04/26/13 00:00	04/26/13 19:31	130426L01
o-Xylene	<0.50	U	0.23	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
Methyl-t-Butyl Ether (MTBE)	<0.50	U	0.31	0.50	1.0	1	04/26/13 00:00	04/26/13 19:31	130426L01
Gasoline Range Organics	<30	U	13	30	50	1	04/26/13 00:00	04/26/13 19:31	130426L01

Surr: Dibromofluoromethane (80-126%)	*88%*	*04/26/13 00:00*	*04/26/13 19:31*	*130426L01*
Surr: 1,2-Dichloroethane-d4 (80-134%)	*107%*	*04/26/13 00:00*	*04/26/13 19:31*	*130426L01*
Surr: Toluene-d8 (80-120%)	*100%*	*04/26/13 00:00*	*04/26/13 19:31*	*130426L01*
Surr: Toluene-d8-TPPH (88-112%)	*99%*	*04/26/13 00:00*	*04/26/13 19:31*	*130426L01*
Surr: 1,4-Bromofluorobenzene (80-120%)	*95%*	*04/26/13 00:00*	*04/26/13 19:31*	*130426L01*

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

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Client:	Environmental Science International, Inc.	Work Order:	13-04-1789
	354 Uluniu Street, Suite 304	Project Name:	Red Hill LTM 112066
	Kailua, HI 96734-2500		
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

13-04-1789-3 Client ID: ES 020 Matrix: Aqueous Units: ug/L Sampled: 04/22/13 11:00

GC/MS GRO/EPA 8260B Volatile Organics Extraction: EPA 5030C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
Acetone	<10	U	6.0	10	20	1	04/26/13 00:00	04/26/13 20:00	130426L01
Benzene	<0.50	U	0.14	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
Bromodichloromethane	<0.50	U	0.21	0.50	5.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
Bromoform	<1.0	U	0.50	1.0	10	1	04/26/13 00:00	04/26/13 20:00	130426L01
Bromomethane	<5.0	ICJ,U	3.9	5.0	20	1	04/26/13 00:00	04/26/13 20:00	130426L01
2-Butanone	<5.0	U	2.2	5.0	10	1	04/26/13 00:00	04/26/13 20:00	130426L01
Carbon Tetrachloride	<0.50	U	0.23	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
Chlorobenzene	<0.50	U	0.17	0.50	5.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
Chloroethane	<5.0	U	2.3	5.0	10	1	04/26/13 00:00	04/26/13 20:00	130426L01
Chloroform	<0.50	U	0.46	0.50	5.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
Chloromethane	<2.0	ICJ,U	1.8	2.0	10	1	04/26/13 00:00	04/26/13 20:00	130426L01
Dibromochloromethane	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
1,2-Dibromo-3-Chloropropane	<2.0	U	1.2	2.0	10	1	04/26/13 00:00	04/26/13 20:00	130426L01
1,2-Dibromoethane	<0.50	U	0.36	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
1,2-Dichlorobenzene	<0.50	U	0.46	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
1,3-Dichlorobenzene	<0.50	U	0.40	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
1,4-Dichlorobenzene	<0.50	U	0.43	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
1,1-Dichloroethane	<0.50	U	0.28	0.50	5.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
1,2-Dichloroethane	<0.50	U	0.24	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
1,1-Dichloroethene	<0.50	U	0.43	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
c-1,2-Dichloroethene	<0.50	U	0.48	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
t-1,2-Dichloroethene	<0.50	U	0.37	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
1,2-Dichloropropane	<0.50	U	0.42	0.50	5.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
c-1,3-Dichloropropene	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
t-1,3-Dichloropropene	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
Ethylbenzene	0.21	J	0.14	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
Methylene Chloride	<1.0	U	0.64	1.0	5.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
4-Methyl-2-Pentanone	<5.0	U	4.4	5.0	10	1	04/26/13 00:00	04/26/13 20:00	130426L01
Styrene	<0.50	U	0.17	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
1,1,1,2-Tetrachloroethane	<0.50	U	0.40	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
1,1,2,2-Tetrachloroethane	<0.50	U	0.41	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
Tetrachloroethene	<0.50	U	0.39	0.50	5.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
Toluene	<0.50	U	0.24	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
1,2,4-Trichlorobenzene	<1.0	U	0.50	1.0	5.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
1,1,1-Trichloroethane	<0.50	U	0.30	0.50	5.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
Hexachloro-1,3-Butadiene	<0.50	U	0.32	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
1,1,2-Trichloroethane	<0.50	U	0.38	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
Trichloroethene	<0.50	U	0.37	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01

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Client:	Environmental Science International, Inc.	Work Order:	13-04-1789
	354 Uluniu Street, Suite 304	Project Name:	Red Hill LTM 112066
	Kailua, HI 96734-2500		
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

13-04-1789-3 Client ID: ES 020 Matrix: Aqueous Units: ug/L Sampled: 04/22/13 11:00

GC/MS GRO/EPA 8260B Volatile Organics Extraction: EPA 5030C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
1,2,3-Trichloropropane	<1.0	U	0.64	1.0	5.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
Vinyl Chloride	<0.50	U	0.30	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
p/m-Xylene	<1.0	U	0.30	1.0	10	1	04/26/13 00:00	04/26/13 20:00	130426L01
o-Xylene	0.58	J	0.23	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
Methyl-t-Butyl Ether (MTBE)	<0.50	U	0.31	0.50	1.0	1	04/26/13 00:00	04/26/13 20:00	130426L01
Gasoline Range Organics	54		13	30	50	1	04/26/13 00:00	04/26/13 20:00	130426L01

Surr: Dibromofluoromethane (80-126%)	*87%*	*04/26/13 00:00*	*04/26/13 20:00*	*130426L01*
Surr: 1,2-Dichloroethane-d4 (80-134%)	*107%*	*04/26/13 00:00*	*04/26/13 20:00*	*130426L01*
Surr: Toluene-d8 (80-120%)	*101%*	*04/26/13 00:00*	*04/26/13 20:00*	*130426L01*
Surr: Toluene-d8-TPPH (88-112%)	*99%*	*04/26/13 00:00*	*04/26/13 20:00*	*130426L01*
Surr: 1,4-Bromofluorobenzene (80-120%)	*99%*	*04/26/13 00:00*	*04/26/13 20:00*	*130426L01*

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

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Client:	Environmental Science International, Inc.	Work Order:	13-04-1789
	354 Uluniu Street, Suite 304	Project Name:	Red Hill LTM 112066
	Kailua, HI 96734-2500		
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

13-04-1789-4 Client ID: ES 021 Matrix: Aqueous Units: ug/L Sampled: 04/22/13 12:15

GC/MS GRO/EPA 8260B Volatile Organics Extraction: EPA 5030C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
Acetone	<10	U	6.0	10	20	1	04/26/13 00:00	04/26/13 20:28	130426L01
Benzene	<0.50	U	0.14	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
Bromodichloromethane	<0.50	U	0.21	0.50	5.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
Bromoform	<1.0	U	0.50	1.0	10	1	04/26/13 00:00	04/26/13 20:28	130426L01
Bromomethane	<5.0	ICJ,U	3.9	5.0	20	1	04/26/13 00:00	04/26/13 20:28	130426L01
2-Butanone	<5.0	U	2.2	5.0	10	1	04/26/13 00:00	04/26/13 20:28	130426L01
Carbon Tetrachloride	<0.50	U	0.23	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
Chlorobenzene	<0.50	U	0.17	0.50	5.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
Chloroethane	<5.0	U	2.3	5.0	10	1	04/26/13 00:00	04/26/13 20:28	130426L01
Chloroform	<0.50	U	0.46	0.50	5.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
Chloromethane	<2.0	ICJ,U	1.8	2.0	10	1	04/26/13 00:00	04/26/13 20:28	130426L01
Dibromochloromethane	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
1,2-Dibromo-3-Chloropropane	<2.0	U	1.2	2.0	10	1	04/26/13 00:00	04/26/13 20:28	130426L01
1,2-Dibromoethane	<0.50	U	0.36	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
1,2-Dichlorobenzene	<0.50	U	0.46	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
1,3-Dichlorobenzene	<0.50	U	0.40	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
1,4-Dichlorobenzene	<0.50	U	0.43	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
1,1-Dichloroethane	<0.50	U	0.28	0.50	5.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
1,2-Dichloroethane	<0.50	U	0.24	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
1,1-Dichloroethene	<0.50	U	0.43	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
c-1,2-Dichloroethene	<0.50	U	0.48	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
t-1,2-Dichloroethene	<0.50	U	0.37	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
1,2-Dichloropropane	<0.50	U	0.42	0.50	5.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
c-1,3-Dichloropropene	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
t-1,3-Dichloropropene	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
Ethylbenzene	0.21	J	0.14	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
Methylene Chloride	<1.0	U	0.64	1.0	5.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
4-Methyl-2-Pentanone	<5.0	U	4.4	5.0	10	1	04/26/13 00:00	04/26/13 20:28	130426L01
Styrene	<0.50	U	0.17	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
1,1,1,2-Tetrachloroethane	<0.50	U	0.40	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
1,1,2,2-Tetrachloroethane	<0.50	U	0.41	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
Tetrachloroethene	<0.50	U	0.39	0.50	5.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
Toluene	<0.50	U	0.24	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
1,2,4-Trichlorobenzene	<1.0	U	0.50	1.0	5.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
1,1,1-Trichloroethane	<0.50	U	0.30	0.50	5.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
Hexachloro-1,3-Butadiene	<0.50	U	0.32	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
1,1,2-Trichloroethane	<0.50	U	0.38	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
Trichloroethene	<0.50	U	0.37	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01

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Client:	Environmental Science International, Inc.	Work Order:	13-04-1789
	354 Uluniu Street, Suite 304	Project Name:	Red Hill LTM 112066
	Kailua, HI 96734-2500		
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

13-04-1789-4 Client ID: ES 021 Matrix: Aqueous Units: ug/L Sampled: 04/22/13 12:15

GC/MS GRO/EPA 8260B Volatile Organics Extraction: EPA 5030C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
1,2,3-Trichloropropane	<1.0	U	0.64	1.0	5.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
Vinyl Chloride	<0.50	U	0.30	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
p/m-Xylene	<1.0	U	0.30	1.0	10	1	04/26/13 00:00	04/26/13 20:28	130426L01
o-Xylene	0.58	J	0.23	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
Methyl-t-Butyl Ether (MTBE)	<0.50	U	0.31	0.50	1.0	1	04/26/13 00:00	04/26/13 20:28	130426L01
Gasoline Range Organics	56		13	30	50	1	04/26/13 00:00	04/26/13 20:28	130426L01
Surr: Dibromofluoromethane (80-126%)	*84%*						*04/26/13 00:00*	*04/26/13 20:28*	*130426L01*
Surr: 1,2-Dichloroethane-d4 (80-134%)	*99%*						*04/26/13 00:00*	*04/26/13 20:28*	*130426L01*
Surr: Toluene-d8 (80-120%)	*99%*						*04/26/13 00:00*	*04/26/13 20:28*	*130426L01*
Surr: Toluene-d8-TPPH (88-112%)	*97%*						*04/26/13 00:00*	*04/26/13 20:28*	*130426L01*
Surr: 1,4-Bromofluorobenzene (80-120%)	*95%*						*04/26/13 00:00*	*04/26/13 20:28*	*130426L01*

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

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Client:	Environmental Science International, Inc.	Work Order:	13-04-1789
	354 Uluniu Street, Suite 304	Project Name:	Red Hill LTM 112066
	Kailua, HI 96734-2500		
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

13-04-1789-5 Client ID: ES 022 Matrix: Aqueous Units: ug/L Sampled: 04/22/13 12:30

GC/MS GRO/EPA 8260B Volatile Organics Extraction: EPA 5030C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
Acetone	<10	U	6.0	10	20	1	04/26/13 00:00	04/26/13 20:57	130426L01
Benzene	<0.50	U	0.14	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
Bromodichloromethane	<0.50	U	0.21	0.50	5.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
Bromoform	<1.0	U	0.50	1.0	10	1	04/26/13 00:00	04/26/13 20:57	130426L01
Bromomethane	<5.0	ICJ,U	3.9	5.0	20	1	04/26/13 00:00	04/26/13 20:57	130426L01
2-Butanone	<5.0	U	2.2	5.0	10	1	04/26/13 00:00	04/26/13 20:57	130426L01
Carbon Tetrachloride	<0.50	U	0.23	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
Chlorobenzene	<0.50	U	0.17	0.50	5.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
Chloroethane	<5.0	U	2.3	5.0	10	1	04/26/13 00:00	04/26/13 20:57	130426L01
Chloroform	<0.50	U	0.46	0.50	5.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
Chloromethane	<2.0	ICJ,U	1.8	2.0	10	1	04/26/13 00:00	04/26/13 20:57	130426L01
Dibromochloromethane	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
1,2-Dibromo-3-Chloropropane	<2.0	U	1.2	2.0	10	1	04/26/13 00:00	04/26/13 20:57	130426L01
1,2-Dibromoethane	<0.50	U	0.36	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
1,2-Dichlorobenzene	<0.50	U	0.46	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
1,3-Dichlorobenzene	<0.50	U	0.40	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
1,4-Dichlorobenzene	<0.50	U	0.43	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
1,1-Dichloroethane	<0.50	U	0.28	0.50	5.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
1,2-Dichloroethane	<0.50	U	0.24	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
1,1-Dichloroethene	<0.50	U	0.43	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
c-1,2-Dichloroethene	<0.50	U	0.48	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
t-1,2-Dichloroethene	<0.50	U	0.37	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
1,2-Dichloropropane	<0.50	U	0.42	0.50	5.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
c-1,3-Dichloropropene	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
t-1,3-Dichloropropene	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
Ethylbenzene	<0.50	U	0.14	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
Methylene Chloride	<1.0	U	0.64	1.0	5.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
4-Methyl-2-Pentanone	<5.0	U	4.4	5.0	10	1	04/26/13 00:00	04/26/13 20:57	130426L01
Styrene	<0.50	U	0.17	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
1,1,1,2-Tetrachloroethane	<0.50	U	0.40	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
1,1,2,2-Tetrachloroethane	<0.50	U	0.41	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
Tetrachloroethene	<0.50	U	0.39	0.50	5.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
Toluene	<0.50	U	0.24	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
1,2,4-Trichlorobenzene	<1.0	U	0.50	1.0	5.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
1,1,1-Trichloroethane	<0.50	U	0.30	0.50	5.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
Hexachloro-1,3-Butadiene	<0.50	U	0.32	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
1,1,2-Trichloroethane	<0.50	U	0.38	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
Trichloroethene	<0.50	U	0.37	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01

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Client:	Environmental Science International, Inc.	Work Order:	13-04-1789
	354 Uluniu Street, Suite 304	Project Name:	Red Hill LTM 112066
	Kailua, HI 96734-2500		
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

13-04-1789-5 Client ID: ES 022 Matrix: Aqueous Units: ug/L Sampled: 04/22/13 12:30

GC/MS GRO/EPA 8260B Volatile Organics Extraction: EPA 5030C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
1,2,3-Trichloropropane	<1.0	U	0.64	1.0	5.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
Vinyl Chloride	<0.50	U	0.30	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
p/m-Xylene	<1.0	U	0.30	1.0	10	1	04/26/13 00:00	04/26/13 20:57	130426L01
o-Xylene	<0.50	U	0.23	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
Methyl-t-Butyl Ether (MTBE)	<0.50	U	0.31	0.50	1.0	1	04/26/13 00:00	04/26/13 20:57	130426L01
Gasoline Range Organics	<30	U	13	30	50	1	04/26/13 00:00	04/26/13 20:57	130426L01

Surr: Dibromofluoromethane (80-126%)	*84%*	*04/26/13 00:00*	*04/26/13 20:57*	*130426L01*
Surr: 1,2-Dichloroethane-d4 (80-134%)	*97%*	*04/26/13 00:00*	*04/26/13 20:57*	*130426L01*
Surr: Toluene-d8 (80-120%)	*100%*	*04/26/13 00:00*	*04/26/13 20:57*	*130426L01*
Surr: Toluene-d8-TPPH (88-112%)	*98%*	*04/26/13 00:00*	*04/26/13 20:57*	*130426L01*
Surr: 1,4-Bromofluorobenzene (80-120%)	*100%*	*04/26/13 00:00*	*04/26/13 20:57*	*130426L01*

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

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Client:	Environmental Science International, Inc.	Work Order:	13-04-1789
	354 Uluniu Street, Suite 304	Project Name:	Red Hill LTM 112066
	Kailua, HI 96734-2500		
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

13-04-1789-6 Client ID: ES 023 Matrix: Aqueous Units: ug/L Sampled: 04/23/13 09:25

GC/MS GRO/EPA 8260B Volatile Organics Extraction: EPA 5030C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
Acetone	<10	U	6.0	10	20	1	04/26/13 00:00	04/26/13 21:26	130426L01
Benzene	<0.50	U	0.14	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
Bromodichloromethane	<0.50	U	0.21	0.50	5.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
Bromoform	<1.0	U	0.50	1.0	10	1	04/26/13 00:00	04/26/13 21:26	130426L01
Bromomethane	<5.0	ICJ,U	3.9	5.0	20	1	04/26/13 00:00	04/26/13 21:26	130426L01
2-Butanone	<5.0	U	2.2	5.0	10	1	04/26/13 00:00	04/26/13 21:26	130426L01
Carbon Tetrachloride	<0.50	U	0.23	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
Chlorobenzene	<0.50	U	0.17	0.50	5.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
Chloroethane	<5.0	U	2.3	5.0	10	1	04/26/13 00:00	04/26/13 21:26	130426L01
Chloroform	<0.50	U	0.46	0.50	5.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
Chloromethane	<2.0	ICJ,U	1.8	2.0	10	1	04/26/13 00:00	04/26/13 21:26	130426L01
Dibromochloromethane	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
1,2-Dibromo-3-Chloropropane	<2.0	U	1.2	2.0	10	1	04/26/13 00:00	04/26/13 21:26	130426L01
1,2-Dibromoethane	<0.50	U	0.36	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
1,2-Dichlorobenzene	<0.50	U	0.46	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
1,3-Dichlorobenzene	<0.50	U	0.40	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
1,4-Dichlorobenzene	<0.50	U	0.43	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
1,1-Dichloroethane	<0.50	U	0.28	0.50	5.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
1,2-Dichloroethane	<0.50	U	0.24	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
1,1-Dichloroethene	<0.50	U	0.43	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
c-1,2-Dichloroethene	<0.50	U	0.48	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
t-1,2-Dichloroethene	<0.50	U	0.37	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
1,2-Dichloropropane	<0.50	U	0.42	0.50	5.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
c-1,3-Dichloropropene	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
t-1,3-Dichloropropene	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
Ethylbenzene	<0.50	U	0.14	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
Methylene Chloride	<1.0	U	0.64	1.0	5.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
4-Methyl-2-Pentanone	<5.0	U	4.4	5.0	10	1	04/26/13 00:00	04/26/13 21:26	130426L01
Styrene	<0.50	U	0.17	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
1,1,1,2-Tetrachloroethane	<0.50	U	0.40	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
1,1,2,2-Tetrachloroethane	<0.50	U	0.41	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
Tetrachloroethene	<0.50	U	0.39	0.50	5.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
Toluene	<0.50	U	0.24	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
1,2,4-Trichlorobenzene	<1.0	U	0.50	1.0	5.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
1,1,1-Trichloroethane	<0.50	U	0.30	0.50	5.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
Hexachloro-1,3-Butadiene	<0.50	U	0.32	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
1,1,2-Trichloroethane	<0.50	U	0.38	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
Trichloroethene	<0.50	U	0.37	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01

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Client:	Environmental Science International, Inc.	Work Order:	13-04-1789
	354 Uluniu Street, Suite 304	Project Name:	Red Hill LTM 112066
	Kailua, HI 96734-2500		
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

13-04-1789-6 Client ID: ES 023 Matrix: Aqueous Units: ug/L Sampled: 04/23/13 09:25

GC/MS GRO/EPA 8260B Volatile Organics Extraction: EPA 5030C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
1,2,3-Trichloropropane	<1.0	U	0.64	1.0	5.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
Vinyl Chloride	<0.50	U	0.30	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
p/m-Xylene	<1.0	U	0.30	1.0	10	1	04/26/13 00:00	04/26/13 21:26	130426L01
o-Xylene	<0.50	U	0.23	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
Methyl-t-Butyl Ether (MTBE)	<0.50	U	0.31	0.50	1.0	1	04/26/13 00:00	04/26/13 21:26	130426L01
Gasoline Range Organics	<30	U	13	30	50	1	04/26/13 00:00	04/26/13 21:26	130426L01

Surr: Dibromofluoromethane (80-126%)	*86%*	*04/26/13 00:00*	*04/26/13 21:26*	*130426L01*	
Surr: 1,2-Dichloroethane-d4 (80-134%)	*95%*	*04/26/13 00:00*	*04/26/13 21:26*	*130426L01*	
Surr: Toluene-d8 (80-120%)	*100%*	*04/26/13 00:00*	*04/26/13 21:26*	*130426L01*	
Surr: Toluene-d8-TPPH (88-112%)	*99%*	*04/26/13 00:00*	*04/26/13 21:26*	*130426L01*	
Surr: 1,4-Bromofluorobenzene (80-120%)	*98%*	*04/26/13 00:00*	*04/26/13 21:26*	*130426L01*	

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

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Client:	Environmental Science International, Inc.	Work Order:	13-04-1789
	354 Uluniu Street, Suite 304	Project Name:	Red Hill LTM 112066
	Kailua, HI 96734-2500		
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

13-04-1789-7 Client ID: ES 024 Matrix: Aqueous Units: ug/L Sampled: 04/23/13 10:30

GC/MS GRO/EPA 8260B Volatile Organics Extraction: EPA 5030C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
Acetone	<10	U	6.0	10	20	1	04/26/13 00:00	04/26/13 21:54	130426L01
Benzene	<0.50	U	0.14	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
Bromodichloromethane	<0.50	U	0.21	0.50	5.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
Bromoform	<1.0	U	0.50	1.0	10	1	04/26/13 00:00	04/26/13 21:54	130426L01
Bromomethane	<5.0	ICJ,U	3.9	5.0	20	1	04/26/13 00:00	04/26/13 21:54	130426L01
2-Butanone	<5.0	U	2.2	5.0	10	1	04/26/13 00:00	04/26/13 21:54	130426L01
Carbon Tetrachloride	<0.50	U	0.23	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
Chlorobenzene	<0.50	U	0.17	0.50	5.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
Chloroethane	<5.0	U	2.3	5.0	10	1	04/26/13 00:00	04/26/13 21:54	130426L01
Chloroform	<0.50	U	0.46	0.50	5.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
Chloromethane	<2.0	ICJ,U	1.8	2.0	10	1	04/26/13 00:00	04/26/13 21:54	130426L01
Dibromochloromethane	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
1,2-Dibromo-3-Chloropropane	<2.0	U	1.2	2.0	10	1	04/26/13 00:00	04/26/13 21:54	130426L01
1,2-Dibromoethane	<0.50	U	0.36	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
1,2-Dichlorobenzene	<0.50	U	0.46	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
1,3-Dichlorobenzene	<0.50	U	0.40	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
1,4-Dichlorobenzene	<0.50	U	0.43	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
1,1-Dichloroethane	<0.50	U	0.28	0.50	5.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
1,2-Dichloroethane	<0.50	U	0.24	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
1,1-Dichloroethene	<0.50	U	0.43	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
c-1,2-Dichloroethene	<0.50	U	0.48	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
t-1,2-Dichloroethene	<0.50	U	0.37	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
1,2-Dichloropropane	<0.50	U	0.42	0.50	5.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
c-1,3-Dichloropropene	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
t-1,3-Dichloropropene	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
Ethylbenzene	<0.50	U	0.14	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
Methylene Chloride	<1.0	U	0.64	1.0	5.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
4-Methyl-2-Pentanone	<5.0	U	4.4	5.0	10	1	04/26/13 00:00	04/26/13 21:54	130426L01
Styrene	<0.50	U	0.17	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
1,1,1,2-Tetrachloroethane	<0.50	U	0.40	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
1,1,2,2-Tetrachloroethane	<0.50	U	0.41	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
Tetrachloroethene	<0.50	U	0.39	0.50	5.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
Toluene	<0.50	U	0.24	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
1,2,4-Trichlorobenzene	<1.0	U	0.50	1.0	5.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
1,1,1-Trichloroethane	<0.50	U	0.30	0.50	5.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
Hexachloro-1,3-Butadiene	<0.50	U	0.32	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
1,1,2-Trichloroethane	<0.50	U	0.38	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
Trichloroethene	<0.50	U	0.37	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01

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Calscience Environmental Laboratories, Inc.

The difference is service

ACCREDITED IN ACCORDANCE WITH nelac

Client:	Environmental Science International, Inc.	Work Order:	13-04-1789
	354 Uluniu Street, Suite 304	Project Name:	Red Hill LTM 112066
	Kailua, HI 96734-2500		
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

13-04-1789-7 Client ID: ES 024 Matrix: Aqueous Units: ug/L Sampled: 04/23/13 10:30

GC/MS GRO/EPA 8260B Volatile Organics Extraction: EPA 5030C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
1,2,3-Trichloropropane	<1.0	U	0.64	1.0	5.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
Vinyl Chloride	<0.50	U	0.30	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
p/m-Xylene	<1.0	U	0.30	1.0	10	1	04/26/13 00:00	04/26/13 21:54	130426L01
o-Xylene	<0.50	U	0.23	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
Methyl-t-Butyl Ether (MTBE)	<0.50	U	0.31	0.50	1.0	1	04/26/13 00:00	04/26/13 21:54	130426L01
Gasoline Range Organics	15	J	13	30	50	1	04/26/13 00:00	04/26/13 21:54	130426L01

Surr: Dibromofluoromethane (80-126%)	*89%*						*04/26/13 00:00*	*04/26/13 21:54*	*130426L01*
Surr: 1,2-Dichloroethane-d4 (80-134%)	*99%*						*04/26/13 00:00*	*04/26/13 21:54*	*130426L01*
Surr: Toluene-d8 (80-120%)	*99%*						*04/26/13 00:00*	*04/26/13 21:54*	*130426L01*
Surr: Toluene-d8-TPPH (88-112%)	*98%*						*04/26/13 00:00*	*04/26/13 21:54*	*130426L01*
Surr: 1,4-Bromofluorobenzene (80-120%)	*94%*						*04/26/13 00:00*	*04/26/13 21:54*	*130426L01*

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

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Calscience Environmental Laboratories, Inc.

The difference is service

ACCREDITED IN ACCORDANCE WITH nelac

Client:	Environmental Science International, Inc.	Work Order:	099-13-057
	354 Uluniu Street, Suite 304	Project Name:	Red Hill LTM 112066
	Kailua, HI 96734-2500		
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

099-13-057-24 Client ID: Method Blank Matrix: Aqueous Units: ug/L Sampled: 04/26/13 12:55

GC/MS GRO/EPA 8260B Volatile Organics Extraction: EPA 5030C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
Acetone	<10	U	6.0	10	20	1	04/26/13 00:00	04/26/13 18:34	130426L01
Benzene	<0.50	U	0.14	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
Bromodichloromethane	<0.50	U	0.21	0.50	5.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
Bromoform	<1.0	U	0.50	1.0	10	1	04/26/13 00:00	04/26/13 18:34	130426L01
Bromomethane	<5.0	U	3.9	5.0	20	1	04/26/13 00:00	04/26/13 18:34	130426L01
2-Butanone	<5.0	U	2.2	5.0	10	1	04/26/13 00:00	04/26/13 18:34	130426L01
Carbon Tetrachloride	<0.50	U	0.23	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
Chlorobenzene	<0.50	U	0.17	0.50	5.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
Chloroethane	<5.0	U	2.3	5.0	10	1	04/26/13 00:00	04/26/13 18:34	130426L01
Chloroform	<0.50	U	0.46	0.50	5.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
Chloromethane	<2.0	U	1.8	2.0	10	1	04/26/13 00:00	04/26/13 18:34	130426L01
Dibromochloromethane	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
1,2-Dibromo-3-Chloropropane	<2.0	U	1.2	2.0	10	1	04/26/13 00:00	04/26/13 18:34	130426L01
1,2-Dibromoethane	<0.50	U	0.36	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
1,2-Dichlorobenzene	<0.50	U	0.46	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
1,3-Dichlorobenzene	<0.50	U	0.40	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
1,4-Dichlorobenzene	<0.50	U	0.43	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
1,1-Dichloroethane	<0.50	U	0.28	0.50	5.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
1,2-Dichloroethane	<0.50	U	0.24	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
1,1-Dichloroethene	<0.50	U	0.43	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
c-1,2-Dichloroethene	<0.50	U	0.48	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
t-1,2-Dichloroethene	<0.50	U	0.37	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
1,2-Dichloropropane	<0.50	U	0.42	0.50	5.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
c-1,3-Dichloropropene	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
t-1,3-Dichloropropene	<0.50	U	0.25	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
Ethylbenzene	<0.50	U	0.14	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
Methylene Chloride	<1.0	U	0.64	1.0	5.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
4-Methyl-2-Pentanone	<5.0	U	4.4	5.0	10	1	04/26/13 00:00	04/26/13 18:34	130426L01
Styrene	<0.50	U	0.17	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
1,1,1,2-Tetrachloroethane	<0.50	U	0.40	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
1,1,2,2-Tetrachloroethane	<0.50	U	0.41	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
Tetrachloroethene	<0.50	U	0.39	0.50	5.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
Toluene	<0.50	U	0.24	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
1,2,4-Trichlorobenzene	<1.0	U	0.50	1.0	5.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
1,1,1-Trichloroethane	<0.50	U	0.30	0.50	5.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
Hexachloro-1,3-Butadiene	<0.50	U	0.32	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
1,1,2-Trichloroethane	<0.50	U	0.38	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
Trichloroethene	<0.50	U	0.37	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01

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Calscience Environmental Laboratories, Inc.

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Client:	Environmental Science International, Inc.	Work Order:	099-13-057
	354 Uluniu Street, Suite 304	Project Name:	Red Hill LTM 112066
	Kailua, HI 96734-2500		
Attn:	Robert Chong	Received:	04/25/13 10:30

ANALYTICAL REPORT

099-13-057-24 Client ID: Method Blank Matrix: Aqueous Units: ug/L Sampled: 04/26/13 12:55

GC/MS GRO/EPA 8260B Volatile Organics Extraction: EPA 5030C

Analyte	Result	Qual.	DL	LOD	LOQ	Dilution Factor	Preparation Date/Time	Analysis Date/Time	Batch
1,2,3-Trichloropropane	<1.0	U	0.64	1.0	5.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
Vinyl Chloride	<0.50	U	0.30	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
p/m-Xylene	<1.0	U	0.30	1.0	10	1	04/26/13 00:00	04/26/13 18:34	130426L01
o-Xylene	<0.50	U	0.23	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
Methyl-t-Butyl Ether (MTBE)	<0.50	U	0.31	0.50	1.0	1	04/26/13 00:00	04/26/13 18:34	130426L01
Gasoline Range Organics	<30	U	13	30	50	1	04/26/13 00:00	04/26/13 18:34	130426L01

Surr: Dibromofluoromethane (80-126%)	*88%*	*04/26/13 00:00*	*04/26/13 18:34*	*130426L01*	
Surr: 1,2-Dichloroethane-d4 (80-134%)	*94%*	*04/26/13 00:00*	*04/26/13 18:34*	*130426L01*	
Surr: Toluene-d8 (80-120%)	*98%*	*04/26/13 00:00*	*04/26/13 18:34*	*130426L01*	
Surr: Toluene-d8-TPPH (88-112%)	*96%*	*04/26/13 00:00*	*04/26/13 18:34*	*130426L01*	
Surr: 1,4-Bromofluorobenzene (80-120%)	*98%*	*04/26/13 00:00*	*04/26/13 18:34*	*130426L01*	

-Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

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Analytical Report

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Environmental Science International, Inc.		Date Received:	04/25/13
354 Uluniu Street, Suite 304		Work Order No:	13-04-1789
Kailua, HI 96734-2500		Preparation:	N/A
		Method:	EPA 200.8

Project: Red Hill LTM 112066

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
ES 023 UF	**13-04-1789-8-A**	**04/23/13 09:25**	**Aqueous**	**ICP/MS 03**	**04/26/13**	**04/26/13 21:07**	**130426L02**

Comment(s): -Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units
Lead	0.000828	0.00100	0.0000898	1	J	mg/L

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**099-10-008-2,289**	**N/A**	**Aqueous**	**ICP/MS 03**	**04/26/13**	**04/26/13 14:50**	**130426L02**

Comment(s): -Results were evaluated to the MDL (DL), concentrations >= to the MDL (DL) but < RL (LOQ), if found, are qualified with a "J" flag.

Parameter	Result	RL	MDL	DF	Qual	Units
Lead	<0.0000898	0.00100	0.0000898	1	U	mg/L

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RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

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Environmental Science International, Inc.		Date Received:	04/25/13
354 Uluniu Street, Suite 304		Work Order No:	13-04-1789
Kailua, HI 96734-2500		Preparation:	Filtered
		Method:	EPA 200.8

Project Red Hill LTM 112066

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
13-04-1849-3	**Aqueous**	**ICP/MS 03**	**04/26/13**	**04/29/13**	**130426S02A**

Parameter	SAMPLE CONC	SPIKE ADDED	MS CONC	MS %REC	MSD CONC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Lead	ND	0.1000	0.1028	103	0.1033	103	80-120	0	0-20	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Laboratory Control Sample

Environmental Science International, Inc.		Date Received:	N/A
354 Uluniu Street, Suite 304		Work Order No:	13-04-1789
Kailua, HI 96734-2500		Preparation:	N/A
		Method:	EPA 200.8

Project: Red Hill LTM 112066

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	Lab File ID	LCS Batch Number
099-10-008-2,289	**Aqueous**	**ICP/MS 03**	**04/26/13**	**130426-L-02__034.icp**	**130426L02**

Parameter	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	Qualifiers
Lead	0.1000	0.09732	97	80-120	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

Environmental Science International, Inc.
354 Uluniu Street, Suite 304
Kailua, HI 96734-2500

Date Received: 04/25/13
Work Order No: 13-04-1789
Preparation: EPA 3020A Total
Method: EPA 6020

Project Red Hill LTM 112066

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
ES 020	**Aqueous**	**ICP/MS 03**	**04/26/13**	**04/26/13**	**130426S03**

Parameter	SAMPLE CONC	SPIKE ADDED	MS CONC	MS %REC	MSD CONC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Lead	ND	100.0	104.1	104	106.9	107	80-120	3	0-20	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - PDS / PDSD

Environmental Science International, Inc.	Date Received	04/25/13
354 Uluniu Street, Suite 304	Work Order No:	13-04-1789
Kailua, HI 96734-2500	Preparation:	EPA 3020A Total
	Method:	EPA 6020

Project Red Hill LTM 112066

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	PDS/PDSD Batch Number
ES 020	**Aqueous**	**ICP/MS 03**	**04/26/13**	**04/26/13**	**130426S03**

Parameter	SAMPLE_CONC	SPIKE_ADDED	PDS_CONC	PDS %REC	%REC CL	Qualifiers
Lead	ND	100.0	102.6	103	75-125	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Environmental Science International, Inc.
354 Uluniu Street, Suite 304
Kailua, HI 96734-2500

Date Received: 04/25/13
Work Order No: 13-04-1789
Preparation: EPA 3510C
Method: EPA 8015B (M)

Project Red Hill LTM 112066

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
ES 020	**Aqueous**	**GC 46**	**04/26/13**	**04/29/13**	**130426S02**

Parameter	SAMPLE CONC	SPIKE ADDED	MS CONC	MS %REC	MSD CONC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TPH as Diesel	2555	4000	7574	125	7827	132	55-133	3	0-30	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Environmental Science International, Inc.
354 Uluniu Street, Suite 304
Kailua, HI 96734-2500

Date Received: 04/25/13
Work Order No: 13-04-1789
Preparation: EPA 3510C
Method: EPA 8270C SIM PAHs

Project Red Hill LTM 112066

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
ES 020	**Aqueous**	**GC/MS AAA**	**04/26/13**	**04/29/13**	**130426S02**

Parameter	SAMPLE CONC	SPIKE ADDED	MS CONC	MS %REC	MSD CONC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Naphthalene	53.41	2.000	36.71	0	37.10	0	21-133	1	0-25	3
2-Methylnaphthalene	12.89	2.000	10.10	0	10.22	0	21-140	1	0-25	3
1-Methylnaphthalene	16.24	2.000	12.82	0	12.94	0	20-140	1	0-25	3
Acenaphthylene	ND	2.000	2.030	102	2.053	103	33-145	1	0-25	
Acenaphthene	0.5828	2.000	2.533	98	2.540	98	49-121	0	0-25	
Fluorene	0.2362	2.000	2.189	98	2.202	98	59-121	1	0-25	
Phenanthrene	ND	2.000	2.063	103	2.081	104	54-120	1	0-25	
Anthracene	ND	2.000	1.746	87	1.837	92	27-133	5	0-25	
Fluoranthene	ND	2.000	2.211	111	2.248	112	26-137	2	0-25	
Pyrene	ND	2.000	2.002	100	2.016	101	18-168	1	0-25	
Benzo (a) Anthracene	ND	2.000	2.315	116	2.340	117	33-143	1	0-25	
Chrysene	ND	2.000	2.053	103	2.070	103	17-168	1	0-25	
Benzo (k) Fluoranthene	ND	2.000	2.140	107	2.152	108	24-159	1	0-25	
Benzo (b) Fluoranthene	ND	2.000	2.208	110	2.269	113	24-159	3	0-25	
Benzo (a) Pyrene	ND	2.000	2.060	103	2.074	104	17-163	1	0-25	
Indeno (1,2,3-c,d) Pyrene	ND	2.000	2.281	114	2.317	116	10-171	2	0-25	
Dibenz (a,h) Anthracene	ND	2.000	1.897	95	1.925	96	10-219	1	0-25	
Benzo (g,h,i) Perylene	ND	2.000	1.829	91	1.864	93	10-227	2	0-25	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Environmental Science International, Inc.
354 Uluniu Street, Suite 304
Kailua, HI 96734-2500

Date Received: 04/25/13
Work Order No: 13-04-1789
Preparation: EPA 5030C
Method: GC/MS / EPA 8260B

Project Red Hill LTM 112066

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
ES 020	**Aqueous**	**GC/MS LL**	**04/26/13**	**04/26/13**	**130426S01**

Parameter	SAMPLE CONC	SPIKE ADDED	MS CONC	MS %REC	MSD CONC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Acetone	ND	50.00	23.17	46	60.63	121	40-140	89	0-20	4
Benzene	ND	50.00	51.09	102	50.14	100	80-120	2	0-20	
Bromodichloromethane	ND	50.00	51.28	103	51.46	103	75-120	0	0-20	
Bromoform	ND	50.00	51.81	104	55.05	110	70-130	6	0-20	
Bromomethane	ND	50.00	66.84	134	57.08	114	30-145	16	0-20	
2-Butanone	ND	50.00	42.09	84	49.26	99	30-150	16	0-20	
Carbon Tetrachloride	ND	50.00	52.47	105	52.26	105	65-140	0	0-20	
Chlorobenzene	ND	50.00	53.78	108	53.07	106	80-120	1	0-20	
Chloroethane	ND	50.00	50.90	102	48.11	96	60-135	6	0-20	
Chloroform	ND	50.00	54.21	108	51.32	103	65-135	5	0-20	
Chloromethane	ND	50.00	42.26	85	39.78	80	40-125	6	0-20	
Dibromochloromethane	ND	50.00	52.67	105	52.76	106	60-135	0	0-20	
1,2-Dibromo-3-Chloropropane	ND	50.00	50.29	101	53.62	107	50-130	6	0-20	
1,2-Dibromoethane	ND	50.00	52.57	105	52.14	104	80-120	1	0-20	
1,2-Dichlorobenzene	ND	50.00	52.38	105	53.26	107	70-120	2	0-20	
1,3-Dichlorobenzene	ND	50.00	51.53	103	51.59	103	75-125	0	0-20	
1,4-Dichlorobenzene	ND	50.00	48.90	98	49.53	99	75-125	1	0-20	
1,1-Dichloroethane	ND	50.00	44.80	90	44.45	89	70-135	1	0-20	
1,2-Dichloroethane	ND	50.00	50.82	102	50.53	101	70-130	1	0-20	
1,1-Dichloroethene	ND	50.00	28.07	56	45.88	92	70-130	48	0-20	3,4
c-1,2-Dichloroethene	ND	50.00	40.93	82	45.78	92	70-125	11	0-20	
t-1,2-Dichloroethene	ND	50.00	49.45	99	48.99	98	60-140	1	0-20	
1,2-Dichloropropane	ND	50.00	51.54	103	50.80	102	75-125	1	0-20	
c-1,3-Dichloropropene	ND	50.00	53.99	108	53.54	107	70-130	1	0-20	
t-1,3-Dichloropropene	ND	50.00	53.01	106	52.71	105	55-140	1	0-20	
Ethylbenzene	ND	50.00	52.58	105	51.95	104	75-125	1	0-20	
Methylene Chloride	ND	50.00	47.05	94	46.69	93	55-140	1	0-20	
4-Methyl-2-Pentanone	ND	50.00	52.42	105	53.82	108	60-135	3	0-20	
Styrene	ND	50.00	53.08	106	52.16	104	65-135	2	0-20	
1,1,1,2-Tetrachloroethane	ND	50.00	53.58	107	53.44	107	80-130	0	0-20	
1,1,2,2-Tetrachloroethane	ND	50.00	51.44	103	52.49	105	65-130	2	0-20	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - Spike/Spike Duplicate

Environmental Science International, Inc.
354 Uluniu Street, Suite 304
Kailua, HI 96734-2500

Date Received: 04/25/13
Work Order No: 13-04-1789
Preparation: EPA 5030C
Method: GC/MS / EPA 8260B

Project Red Hill LTM 112066

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
ES 020	**Aqueous**	**GC/MS LL**	**04/26/13**	**04/26/13**	**130426S01**

Parameter	SAMPLE CONC	SPIKE ADDED	MS CONC	MS %REC	MSD CONC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Tetrachloroethene	ND	50.00	58.55	117	57.76	116	45-150	1	0-20	
Toluene	ND	50.00	52.32	105	51.89	104	75-120	1	0-20	
1,2,4-Trichlorobenzene	ND	50.00	53.64	107	54.01	108	65-135	1	0-20	
1,1,1-Trichloroethane	ND	50.00	51.69	103	51.28	103	65-130	1	0-20	
Hexachloro-1,3-Butadiene	ND	50.00	53.44	107	53.20	106	50-140	0	0-20	
1,1,2-Trichloroethane	ND	50.00	52.65	105	51.32	103	75-125	3	0-20	
Trichloroethene	ND	50.00	53.15	106	53.02	106	70-125	0	0-20	
1,2,3-Trichloropropane	ND	50.00	54.53	109	54.05	108	75-125	1	0-20	
Vinyl Chloride	ND	50.00	50.29	101	47.60	95	50-145	5	0-20	
p/m-Xylene	ND	100.0	105.2	105	102.5	102	75-130	3	0-20	
o-Xylene	ND	50.00	55.81	112	54.61	109	80-120	2	0-20	
Methyl-t-Butyl Ether (MTBE)	ND	50.00	47.73	95	46.88	94	65-125	2	0-20	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Laboratory Control Sample

Environmental Science International, Inc.		Date Received:	N/A
354 Uluniu Street, Suite 304		Work Order No:	13-04-1789
Kailua, HI 96734-2500		Preparation:	EPA 3020A Total
		Method:	EPA 6020

Project: Red Hill LTM 112066

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	Lab File ID	LCS Batch Number
099-14-497-26	**Aqueous**	**ICP/MS 03**	**04/26/13**	**130426-L-03__079.icp**	**130426L03D**

Parameter	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	Qualifiers
Lead	100.0	96.07	96	80-120	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

Environmental Science International, Inc.		Date Received:	N/A
354 Uluniu Street, Suite 304		Work Order No:	13-04-1789
Kailua, HI 96734-2500		Preparation:	EPA 3510C
		Method:	EPA 8015B (M)

Project: Red Hill LTM 112066

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-15-516-39	**Aqueous**	**GC 46**	**04/26/13**	**04/29/13**	**130426B02**

Parameter	SPIKE ADDED	LCS CONC	LCS %REC	LCSD CONC	LCSD %REC	%REC CL	RPD	RPD CL	Qualifiers
TPH as Diesel	4000	4092	102	3827	96	60-132	7	0-11	

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - Laboratory Control Sample

ACCREDITED IN ACCORDANCE WITH nelac

Environmental Science International, Inc.		Date Received:	N/A
354 Uluniu Street, Suite 304		Work Order No:	13-04-1789
Kailua, HI 96734-2500		Preparation:	EPA 3510C
		Method:	EPA 8270C SIM PAHs

Project: Red Hill LTM 112066

Quality Control Sample ID	Matrix	Instrument	Date Analyzed	Lab File ID	LCS Batch Number
099-15-148-12	**Aqueous**	**GC/MS AAA**	**04/29/13**	**29APR004.rr**	**130426L02**

Parameter	Conc Added	Conc Recovered	LCS %Rec	%Rec CL	ME_CL	Qualifiers
Naphthalene	2.000	2.141	107	21-133	2-152	
2-Methylnaphthalene	2.000	1.977	99	21-140	1-160	
1-Methylnaphthalene	2.000	2.110	105	20-140	0-160	
Acenaphthylene	2.000	2.166	108	33-145	14-164	
Acenaphthene	2.000	2.229	111	55-121	44-132	
Fluorene	2.000	2.263	113	59-121	49-131	
Phenanthrene	2.000	2.376	119	54-120	43-131	
Anthracene	2.000	2.320	116	27-133	9-151	
Fluoranthene	2.000	2.456	123	26-137	8-156	
Pyrene	2.000	2.468	123	45-129	31-143	
Benzo (a) Anthracene	2.000	2.641	132	33-143	15-161	
Chrysene	2.000	2.422	121	17-168	0-193	
Benzo (k) Fluoranthene	2.000	2.459	123	24-159	2-182	
Benzo (b) Fluoranthene	2.000	2.499	125	24-159	2-182	
Benzo (a) Pyrene	2.000	2.300	115	17-163	0-187	
Indeno (1,2,3-c,d) Pyrene	2.000	2.569	128	25-175	0-200	
Dibenz (a,h) Anthracene	2.000	2.110	106	25-175	0-200	
Benzo (g,h,i) Perylene	2.000	2.064	103	25-157	3-179	

Total number of LCS compounds : 18
Total number of ME compounds: 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

Environmental Science International, Inc.
354 Uluniu Street, Suite 304
Kailua, HI 96734-2500

Date Received: N/A
Work Order No: 13-04-1789
Preparation: EPA 5030C
Method: GC/MS / EPA 8260B

Project: Red Hill LTM 112066

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-13-057-24	Aqueous	GC/MS LL	04/26/13	04/26/13	130426L01

Parameter	SPIKE ADDED	LCS CONC	LCS %REC	LCSD CONC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Acetone	50.00	80.50	161	77.46	155	40-140	23-157	4	0-20	X
Benzene	50.00	46.16	92	48.05	96	80-120	73-127	4	0-20	
Bromodichloromethane	50.00	49.36	99	50.62	101	75-120	68-128	3	0-20	
Bromoform	50.00	57.61	115	57.50	115	70-130	60-140	0	0-20	
Bromomethane	50.00	43.19	86	40.47	81	30-145	11-164	7	0-20	
2-Butanone	50.00	55.37	111	57.29	115	30-150	10-170	3	0-20	
Carbon Tetrachloride	50.00	53.49	107	51.94	104	65-140	52-152	3	0-20	
Chlorobenzene	50.00	50.76	102	51.88	104	80-120	73-127	2	0-20	
Chloroethane	50.00	51.55	103	49.19	98	60-135	48-148	5	0-20	
Chloroform	50.00	49.74	99	48.36	97	65-135	53-147	3	0-20	
Chloromethane	50.00	39.97	80	39.32	79	40-125	26-139	2	0-20	
Dibromochloromethane	50.00	52.46	105	53.87	108	60-135	48-148	3	0-20	
1,2-Dibromo-3-Chloropropane	50.00	49.59	99	51.21	102	50-130	37-143	3	0-20	
1,2-Dibromoethane	50.00	49.55	99	50.55	101	80-120	73-127	2	0-20	
1,2-Dichlorobenzene	50.00	51.04	102	52.16	104	70-120	62-128	2	0-20	
1,3-Dichlorobenzene	50.00	50.31	101	51.13	102	75-125	67-133	2	0-20	
1,4-Dichlorobenzene	50.00	47.69	95	48.85	98	75-125	67-133	2	0-20	
1,1-Dichloroethane	50.00	48.20	96	46.23	92	70-135	59-146	4	0-20	
1,2-Dichloroethane	50.00	46.05	92	48.54	97	70-130	60-140	5	0-20	
1,1-Dichloroethene	50.00	48.68	97	45.42	91	70-130	60-140	7	0-20	
c-1,2-Dichloroethene	50.00	47.98	96	49.70	99	70-125	61-134	4	0-20	
t-1,2-Dichloroethene	50.00	51.65	103	48.02	96	60-140	47-153	7	0-20	
1,2-Dichloropropane	50.00	47.79	96	49.08	98	75-125	67-133	3	0-20	
c-1,3-Dichloropropene	50.00	52.95	106	54.53	109	70-130	60-140	3	0-20	
t-1,3-Dichloropropene	50.00	53.29	107	54.14	108	55-140	41-154	2	0-20	
Ethylbenzene	50.00	49.21	98	50.05	100	75-125	67-133	2	0-20	
Methylene Chloride	50.00	49.28	99	46.21	92	55-140	41-154	6	0-20	
4-Methyl-2-Pentanone	50.00	50.67	101	52.17	104	60-135	48-148	3	0-20	
Styrene	50.00	49.80	100	50.91	102	65-135	53-147	2	0-20	
1,1,1,2-Tetrachloroethane	50.00	52.52	105	53.33	107	80-130	72-138	2	0-20	
1,1,2,2-Tetrachloroethane	50.00	50.22	100	51.49	103	65-130	54-141	2	0-20	
Tetrachloroethene	50.00	49.49	99	50.67	101	45-150	28-168	2	0-20	

RPD - Relative Percent Difference , CL - Control Limit

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Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

ACCREDITED IN ACCORDANCE WITH nelac

Environmental Science International, Inc.		Date Received:	N/A
354 Uluniu Street, Suite 304		Work Order No:	13-04-1789
Kailua, HI 96734-2500		Preparation:	EPA 5030C
		Method:	GC/MS / EPA 8260B

Project: Red Hill LTM 112066

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
099-13-057-24	**Aqueous**	**GC/MS LL**	**04/26/13**	**04/26/13**	**130426L01**

Parameter	SPIKE ADDED	LCS CONC	LCS %REC	LCSD CONC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Toluene	50.00	48.86	98	50.04	100	75-120	68-128	2	0-20	
1,2,4-Trichlorobenzene	50.00	50.19	100	51.41	103	65-135	53-147	2	0-20	
1,1,1-Trichloroethane	50.00	50.24	100	49.78	100	65-130	54-141	1	0-20	
Hexachloro-1,3-Butadiene	50.00	51.22	102	52.21	104	50-140	35-155	2	0-20	
1,1,2-Trichloroethane	50.00	49.72	99	50.04	100	75-125	67-133	1	0-20	
Trichloroethene	50.00	49.09	98	50.18	100	70-125	61-134	2	0-20	
1,2,3-Trichloropropane	50.00	50.33	101	51.54	103	75-125	67-133	2	0-20	
Vinyl Chloride	50.00	50.93	102	48.50	97	50-145	34-161	5	0-20	
p/m-Xylene	100.0	98.76	99	100.4	100	75-130	66-139	2	0-20	
o-Xylene	50.00	51.31	103	52.24	104	80-120	73-127	2	0-20	
Methyl-t-Butyl Ether (MTBE)	50.00	49.88	100	47.38	95	65-125	55-135	5	0-20	
Gasoline Range Organics	1000	942.3	94	967.7	97	80-120	73-127	3	0-20	

Total number of LCS compounds : 44
Total number of ME compounds : 1
Total number of ME compounds allowed : 2
LCS ME CL validation result : Pass

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RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Sample Analysis Summary Report

ACCREDITED IN ACCORDANCE WITH nelac

WORK ORDER #: 13-04-1789

Lab Sample Number	Client Sample ID	Method	Extraction	Date/Time Analyzed	Chemist ID	Instrument	Analytical Location
1-A	ES Trip	GC/MS / EPA 8260	EPA 5030C	04/26/2013 19:03	670	GC/MS LL	2
2-G	ES 019	EPA 6020	EPA 3020A T	04/26/2013 20:50	598	ICP/MS 03	1
2-I	ES 019	EPA 8270C SIM PA	EPA 3510C	04/29/2013 11:59	449	GC/MS AA	1
2-H	ES 019	EPA 8015B (M)	EPA 3510C	04/29/2013 13:50	847	GC 46	1
2-A	ES 019	GC/MS / EPA 8260	EPA 5030C	04/26/2013 19:31	670	GC/MS LL	2
3-G	ES 020	EPA 6020	EPA 3020A T	04/26/2013 20:47	598	ICP/MS 03	1
3-I	ES 020	EPA 8270C SIM PA	EPA 3510C	04/29/2013 12:26	449	GC/MS AA	1
3-I	ES 020	EPA 8270C SIM PA	EPA 3510C	04/29/2013 15:34	449	GC/MS AA	1
3-H	ES 020	EPA 8015B (M)	EPA 3510C	04/29/2013 14:06	847	GC 46	1
3-A	ES 020	GC/MS / EPA 8260	EPA 5030C	04/26/2013 20:00	670	GC/MS LL	2
4-G	ES 021	EPA 6020	EPA 3020A T	04/26/2013 20:58	598	ICP/MS 03	1
4-I	ES 021	EPA 8270C SIM PA	EPA 3510C	04/29/2013 12:53	449	GC/MS AA	1
4-I	ES 021	EPA 8270C SIM PA	EPA 3510C	04/29/2013 16:01	449	GC/MS AA	1
4-H	ES 021	EPA 8015B (M)	EPA 3510C	04/29/2013 14:23	847	GC 46	1
4-A	ES 021	GC/MS / EPA 8260	EPA 5030C	04/26/2013 20:28	670	GC/MS LL	2
5-G	ES 022	EPA 6020	EPA 3020A T	04/26/2013 21:01	598	ICP/MS 03	1
5-I	ES 022	EPA 8270C SIM PA	EPA 3510C	04/29/2013 13:20	449	GC/MS AA	1
5-H	ES 022	EPA 8015B (M)	EPA 3510C	04/29/2013 14:38	847	GC 46	1
5-A	ES 022	GC/MS / EPA 8260	EPA 5030C	04/26/2013 20:57	670	GC/MS LL	2
6-I	ES 023	EPA 8270C SIM PA	EPA 3510C	04/29/2013 13:47	449	GC/MS AA	1
6-H	ES 023	EPA 8015B (M)	EPA 3510C	04/29/2013 14:55	847	GC 46	1
6-A	ES 023	GC/MS / EPA 8260	EPA 5030C	04/26/2013 21:26	670	GC/MS LL	2
7-G	ES 024	EPA 6020	EPA 3020A T	04/26/2013 21:04	598	ICP/MS 03	1
7-I	ES 024	EPA 8270C SIM PA	EPA 3510C	04/29/2013 14:13	449	GC/MS AA	1
7-H	ES 024	EPA 8015B (M)	EPA 3510C	04/29/2013 15:12	847	GC 46	1
7-A	ES 024	GC/MS / EPA 8260	EPA 5030C	04/26/2013 21:54	670	GC/MS LL	2
8-A	ES 023 UF	EPA 200.8	N/A	04/26/2013 21:07	598	ICP/MS 03	1

Location	Description
1	7440 Lincoln Way, Garden Grove, CA 92841
2	7445 Lampson Avenue, Garden Grove, CA 92841

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Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 13-04-1789

Qualifier	Definition
*	See applicable analysis comment.
<	Less than the indicated value.
>	Greater than the indicated value.
1	Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported without further clarification.
6	Surrogate recovery below the acceptance limit.
7	Surrogate recovery above the acceptance limit.
B	Analyte was present in the associated method blank.
BU	Sample analyzed after holding time expired.
DL	The Detection Limit (DL) is the smallest analyte concentration that can be demonstrated to be different from zero or a blank concentration at the 99% level of confidence.
E	Concentration exceeds the calibration range.
ET	Sample was extracted past end of recommended max. holding time.
HD	The chromatographic pattern was inconsistent with the profile of the reference fuel standard.
ICH	Initial calibration verification recovery is above the control limit for this analyte.
ICJ	Initial calibration verification recovery is below the control limit for this analyte.
IH	Calibration verification recovery is above the control limit for this analyte.
IJ	Calibration verification recovery is below the control limit for this analyte.
J	Analyte was detected at a concentration below the LOQ and above the DL. Reported value is estimated.
LOD	The Limit of Detection (LOD) is the smallest amount or concentration of a substance that must be present in a sample in order to be detected at 99% confidence level.
LOQ	The Limit of Quantitation (LOQ) is the lowest concentration of a substance that produces a quantitative result within specified limits of precision and bias.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
SG	The sample extract was subjected to Silica Gel treatment prior to analysis.
U	Undetected at Detection Limit (DL) and is reported as less than the Limit of Detection (LOD).
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis.

For any analysis identified as a "field" test with a holding time (HT) </= 15 minutes where the sample is received outside of HT, Calscience will adhere to its internal HT of 24 hours. In cases where sample analysis does not meet Calscience's internal HT, results will be appropriately qualified.

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Calscience Environmental Laboratories, Inc.

7440 Lincoln Way, Garden Grove, CA 92841-1427 • (714) 895-5494

Other CA office locations: Concord and San Luis Obispo

For courier service / sample drop off information, contact sales@calscience.com or call us.

CHAIN OF CUSTODY RECORD

WO # / LAB USE ONLY: **13-04-1789**

Date: 4/23/13

Page: 1 of 1

LABORATORY CLIENT: Environmental Science International

ADDRESS: 354 Uluniu St. #304

CITY: Kailua STATE: Hi ZIP: 96734

TEL: 808-261-0740 E-MAIL: RCHANG@ESCIENCEI.com, DFEHER@ESCIENCEI.com

CLIENT PROJECT NAME / NUMBER: Red Hill LTM 112066

P.O. NO.:

PROJECT CONTACT: Robert Chang

SAMPLER(S): (PRINT) BI/JL

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ STANDARD

☐ COELT EDF GLOBAL ID: LOG CODE:

SPECIAL INSTRUCTIONS:

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Unpreserved	Preserved	Field Filtered	TPH (g) or GRO 8260	TPH (d) or DRO or (C6-C36) or (C6-C44) 8015B	TPH ( )	BTEX / MTBE (8260) or ( )	VOCs (8260)	Oxygenates (8260)	En Core / Terra Core Prep (5035)	SVOCs (8270)	Pesticides (8081)	PCBs (8082)	PNAs (8310) or (8270) PAH	T22 Metals (6010B/747X)	Cr(VI) [7196 or 7199 or 218.6]	lead 6020	lead 200.8			
1	ES Trip	4/22/13	0700	water	3		X		X				X													
2	ES 019	4/22/13	0915	water	10	X	X	X	X	X			X						X			X				
3	ES 020	4/22/13	1100	water	10	X	X	X	X	X			X						X			X				
3 4	ES 020MS/MSD	4/22/13	1100	water	10	X	X	X	X	X			X						X			X				
4 5	ES 021	4/22/13	1215	water	10	X	X	X	X	X			X						X			X				
5 6	ES 022	4/22/13	1230	water	10	X	X	X	X	X			X						X			X				
6 7	ES 023	4/22/13	0925	water	9	X	X	X	X	X			X						X							
7 8	ES 024	4/23/13	1030	water	10	X	X	X	X	X			X						X			X				
8	ES 023 UF	4/23/13	0925	water	1		X																X			

Relinquished by: (Signature) Branden Ibara ESI	Received by: (Signature/Affiliation) BK# 14724	Date: 4/23/13	Time: 12:00
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date: 4/25/13	Time: 1030
Relinquished by: (Signature)	Received by: (Signature/Affiliation)	Date:	Time:

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Company Environmental Science International

Address 354 Uluniu St. Suite 304 Dept./Floor/Suite/Room

City Kailua State HI ZIP 96734

2 Your Internal Billing Reference

3 To

Recipient's Name Sample Control Phone 714 895-5494

Company Calscience Laboratories

Recipient's Address 7440 Lincoln Way

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Address

To request a package be held at a specific FedEx location, print FedEx address here.

City Garden Grove State Ca ZIP 92841

8531 6209 1619

4a Express Package Service *Packages up to 150 lbs.* * To most locations

- 1 ☐ FedEx Priority Overnight — Next business morning*
- 5 ☐ FedEx Standard Overnight — Next business afternoon*
- 6 ☐ FedEx First Overnight — Earliest next business morning delivery to select locations*
- 3 ☒ FedEx 2Day — Second business day*
- 20 ☐ FedEx Express Saver — Third business day*

FedEx Envelope rate not available. Minimum charge: One-pound rate

4b Express Freight Service *Packages over 150 lbs.* ** To most locations

- 7 ☐ FedEx 1Day Freight* — Next business day**
- 8 ☐ FedEx 2Day Freight — Second business day**
- 83 ☐ FedEx 3Day Freight — Third business day**

* Call for Confirmation:

5 Packaging * Declared value limit $500

- 6 ☐ FedEx Envelope*
- 2 ☐ FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak
- 3 ☐ FedEx Box
- 4 ☐ FedEx Tube
- ☒ Other

6 Special Handling Include FedEx address in Section 3.

- 3 ☐ SATURDAY Delivery — Available ONLY for FedEx Priority Overnight, FedEx 2Day, FedEx 1Day Freight, and FedEx 2Day Freight to select ZIP codes
- 1 ☐ HOLD Weekday at FedEx Location — Not available for FedEx First Overnight
- 31 ☐ HOLD Saturday at FedEx Location — Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

☐ No 4 ☐ Yes As per attached Shipper's Declaration ☐ Yes Shipper's Declaration not required 6 ☐ Dry Ice Dry Ice, 9, UN 1845 ___ x ___ kg

Dangerous goods (including Dry Ice) cannot be shipped in FedEx packaging. ☐ Cargo Aircraft Only

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below. Obtain Recip. Acct. No. ☐

1 ☐ Sender Acct. No. in Section 1 will be billed. 2 ☒ Recipient 3 ☐ Third Party 4 ☐ Credit Card 5 ☐ Cash/Check

FedEx Acct. No. Credit Card No. 1368-5394-5 Exp. Date

Total Packages 3 Total Weight 164 Total Charges

Credit Card Auth.

†Our liability is limited to $100 unless you declare a higher value. See the *FedEx Service Guide* for details.

8 Sign to Authorize Delivery Without a Signature

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

467

Rev. Date 11/03•Part #158281•©1994–2003 FedEx•PRINTED IN U.S.A. SRY 03/05

ORIGIN ID:HNLA (714) 895-549
CALSCIENCE ENVIRONMENTAL LAB
7440 LINCOLN WAY
GARDEN GROVE, CA 928411427
UNITED STATES US

RT 1239 04.25 FZ 30x18x16 IN BILL SENDER

TO **SAMPLE CONTROL**
CALSCIENCE ENVIRONMENTAL LABS
7440 LINCOLN WAY

GARDEN GROVE CA 92841
(714) 895–5494 REF:
INV:
PO: DEPT:

FedEx Express E

J131113021201 26

3 of 3
MPS# 0681 7957 7547 1239
Mstr# 8531 6209 1619 0200

THU – 25 APR AA
** 2DAY **

VZ APVA 92841 CA–US SNA

ORIGIN ID:HNLA (714) 895-5494
CALSCIENCE ENVIRONMENTAL LAB
7440 LINCOLN WAY
GARDEN GROVE, CA 928411427
UNITED STATES US

SHIP DATE: 23APR13
ACTWGT: 43.9 LB
CAD: /POS1400
DIMS: 24x14x14 IN
BILL SENDER

TO **SAMPLE CONTROL**
CALSCIENCE ENVIRONMENTAL LABS
7440 LINCOLN WAY

GARDEN GROVE CA 92841
(714) 895–5494 REF:
INV:
PO: DEPT:

FedEx Express E

2 of 3
MPS# 0681 7957 7547 1228
Mstr# 8531 6209 1619 0200

THU – 25 APR A
** 2DAY **

VZ APVA 9284 CA–US SN

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-04-1 7 8 9

SAMPLE RECEIPT FORM

Cooler 1 of 3

CLIENT: ESI

DATE: 04/25/13

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 2.5 °C - 0.2 °C (CF) = 2.3 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter Initial: JP

CUSTODY SEALS INTACT:

☑ Cooler ☐_____ ☐ No (Not Intact) ☐ Not Present ☐ N/A Initial: JP

☑ Sample ☐_____ ☐ No (Not Intact) ☐ Not Present Initial: YS

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☑ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☑	☐	☐
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Water: ☑VOA(6) ☑VOA**h**(6) ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☑1AGB(2) ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☑500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐1PB**na** ☐500PB

☐250PB ☑250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Canister **Other:** ☐_____ **Trip Blank Lot#:** 130405A **Labeled/Checked by:** YS

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** TN

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:** $Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** TN

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-04-1 7 6 9

SAMPLE RECEIPT FORM

Cooler 2 of 3

CLIENT: ESI DATE: 04/25/13

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 3.1 °C - 0.2 °C (CF) = 2.9 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter Initial: JP

CUSTODY SEALS INTACT:

☑ Cooler ☐_____ ☐ No (Not Intact) ☐ Not Present ☐ N/A Initial: JP

☑ Sample ☐_____ ☐ No (Not Intact) ☐ Not Present Initial: JS

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☑ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☑	☐	☐
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Water: ☑VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☑1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☑500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐1PB**na** ☐500PB

☐250PB ☑250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Canister **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** JS

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** TN

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:** $Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** TN

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Calscience Environmental Laboratories, Inc.

WORK ORDER #: 13-04-1789

SAMPLE RECEIPT FORM

Cooler 3 of 3

CLIENT: ESI DATE: 04/25/13

TEMPERATURE: Thermometer ID: SC1 (Criteria: 0.0 °C – 6.0 °C, not frozen except sediment/tissue)

Temperature 2.9 °C - 0.2 °C (CF) = 2.7 °C ☑ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by: _____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☐ Air ☐ Filter Initial: JP

CUSTODY SEALS INTACT:

☑ Cooler ☐_____ ☐ No (Not Intact) ☐ Not Present ☐ N/A Initial: JP

☑ Sample ☐_____ ☐ No (Not Intact) ☐ Not Present Initial: YS

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples	☑	☐	☐
COC document(s) received complete	☑	☐	☐
☐ Collection date/time, matrix, and/or # of containers logged in based on sample labels.			
☐ No analysis requested. ☐ Not relinquished. ☐ No date/time relinquished.			
Sampler's name indicated on COC	☑	☐	☐
Sample container label(s) consistent with COC	☑	☐	☐
Sample container(s) intact and good condition	☑	☐	☐
Proper containers and sufficient volume for analyses requested	☑	☐	☐
Analyses received within holding time	☑	☐	☐
pH / Res. Chlorine / Diss. Sulfide / Diss. Oxygen received within 24 hours	☐	☐	☑
Proper preservation noted on COC or sample container	☑	☐	☐
☑ Unpreserved vials received for Volatiles analysis			
Volatile analysis container(s) free of headspace	☑	☐	☐
Tedlar bag(s) free of condensation	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve (_____) ☐EnCores® ☐TerraCores® ☐_____

Water: ☑VOA ☐VOA**h** ☐VOA**na$_2$** ☐125AGB ☐125AGB**h** ☐125AGB**p** ☑1AGB ☐1AGB**na$_2$** ☐1AGB**s**

☐500AGB ☑500AGJ ☐500AGJ**s** ☐250AGB ☐250CGB ☐250CGB**s** ☐1PB ☐1PB**na** ☐500PB

☐250PB ☑250PB**n** ☐125PB ☐125PB**znna** ☐100PJ ☐100PJ**na$_2$** ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☐Canister **Other:** ☐_____ **Trip Blank Lot#:**_____ **Labeled/Checked by:** YS

Container: **C:** Clear **A:** Amber **P:** Plastic **G:** Glass **J:** Jar **B:** Bottle **Z:** Ziploc/Resealable Bag **E:** Envelope **Reviewed by:** JN

Preservative: **h:** HCL **n:** HNO_3 **na$_2$:**$Na_2S_2O_3$ **na:** NaOH **p:** H_3PO_4 **s:** H_2SO_4 **u:** Ultra-pure **znna:** $ZnAc_2$+NaOH **f:** Filtered **Scanned by:** JN

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APPENDIX D

Historical Groundwater Exceedance Trends

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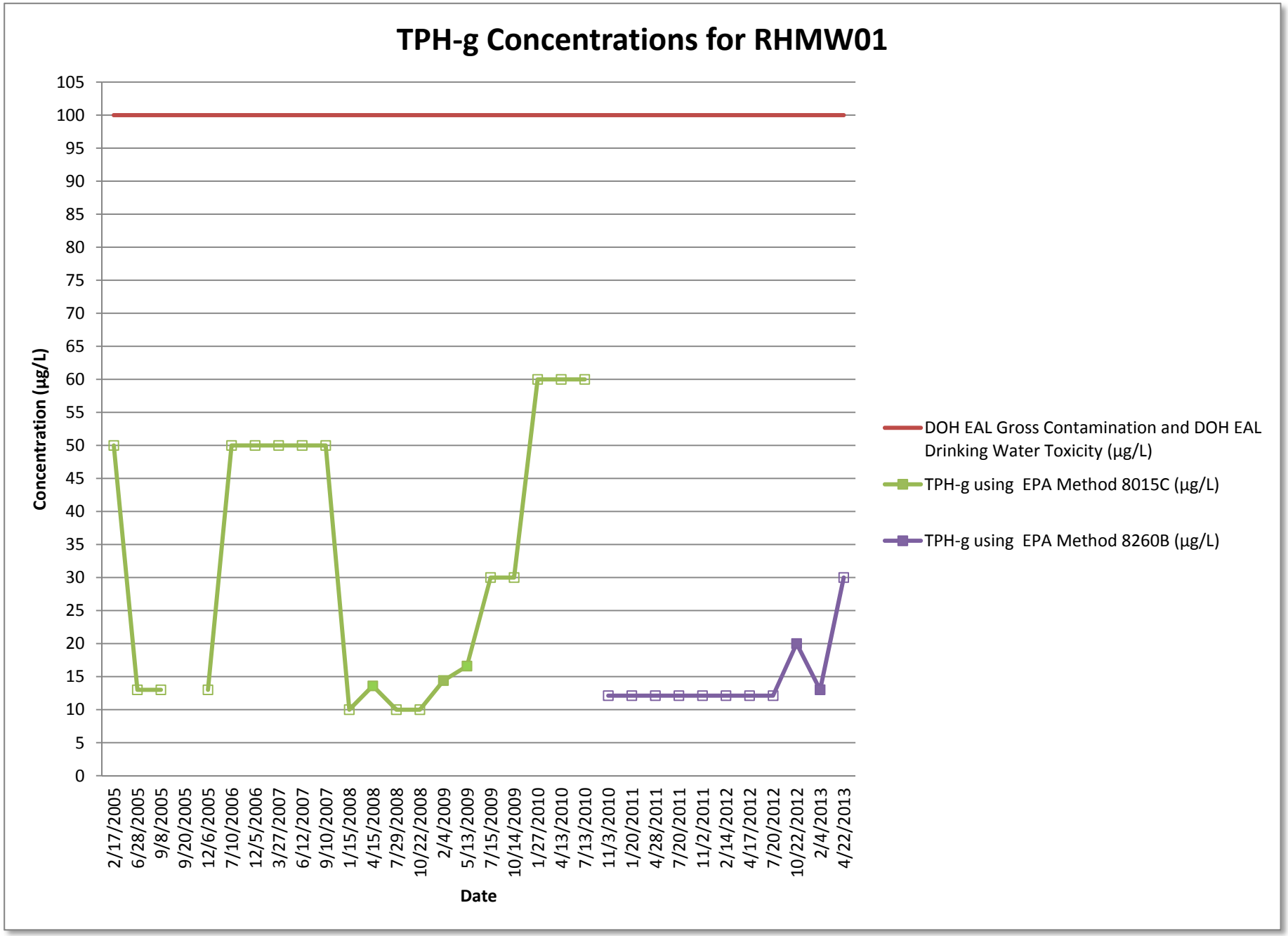

Data points for 2/17/2005 through 9/8/2005 and 12/6/2005 are the average of the primary and duplicate samples.
Unfilled boxes indicate non-detections. Method detection limits are shown.

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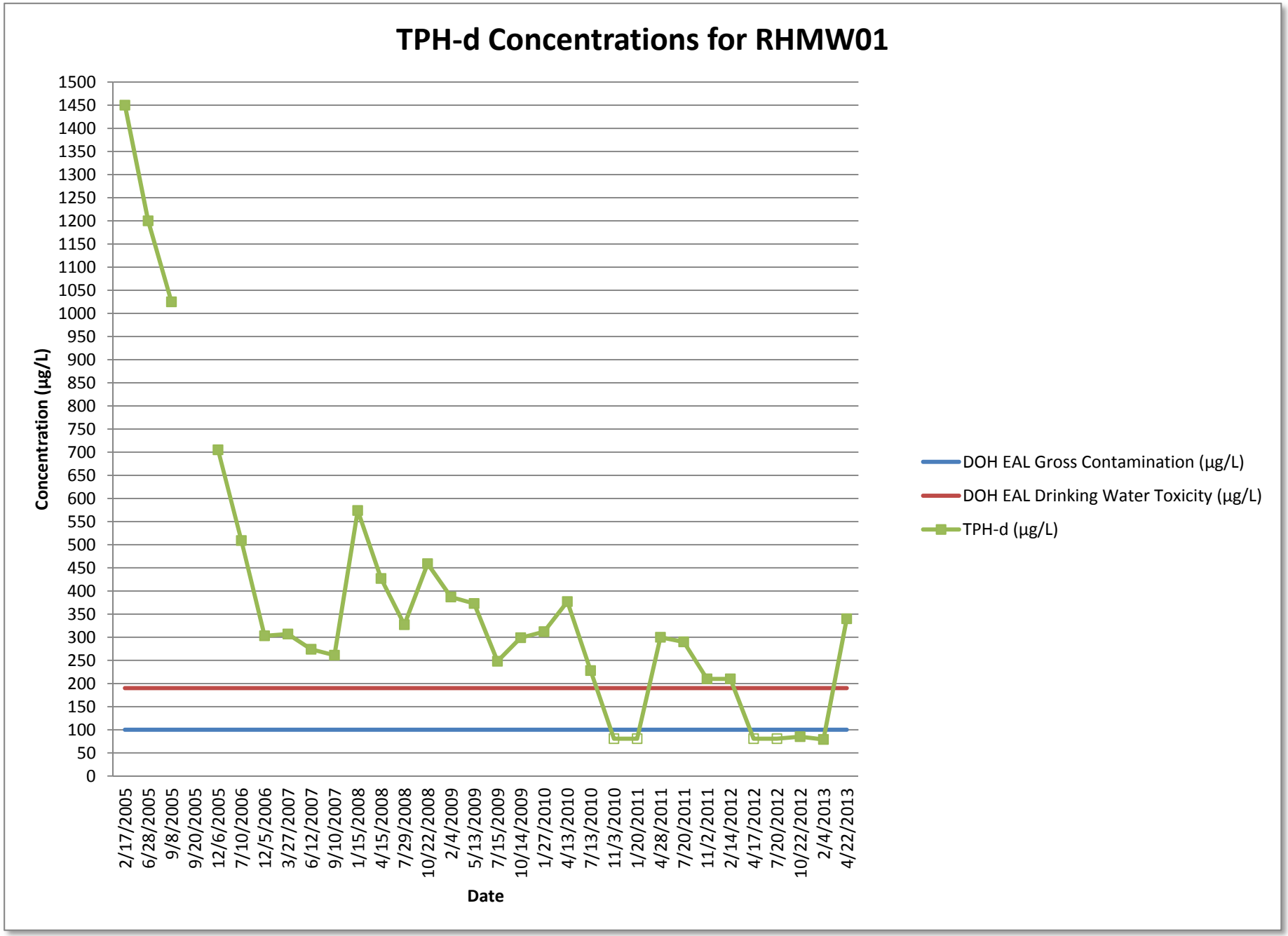

Data points for 2/17/2005 through 9/8/2005 and 12/6/2005 are the average of the primary and duplicate samples.
Unfilled boxes indicate non-detections. Method detection limits are shown.

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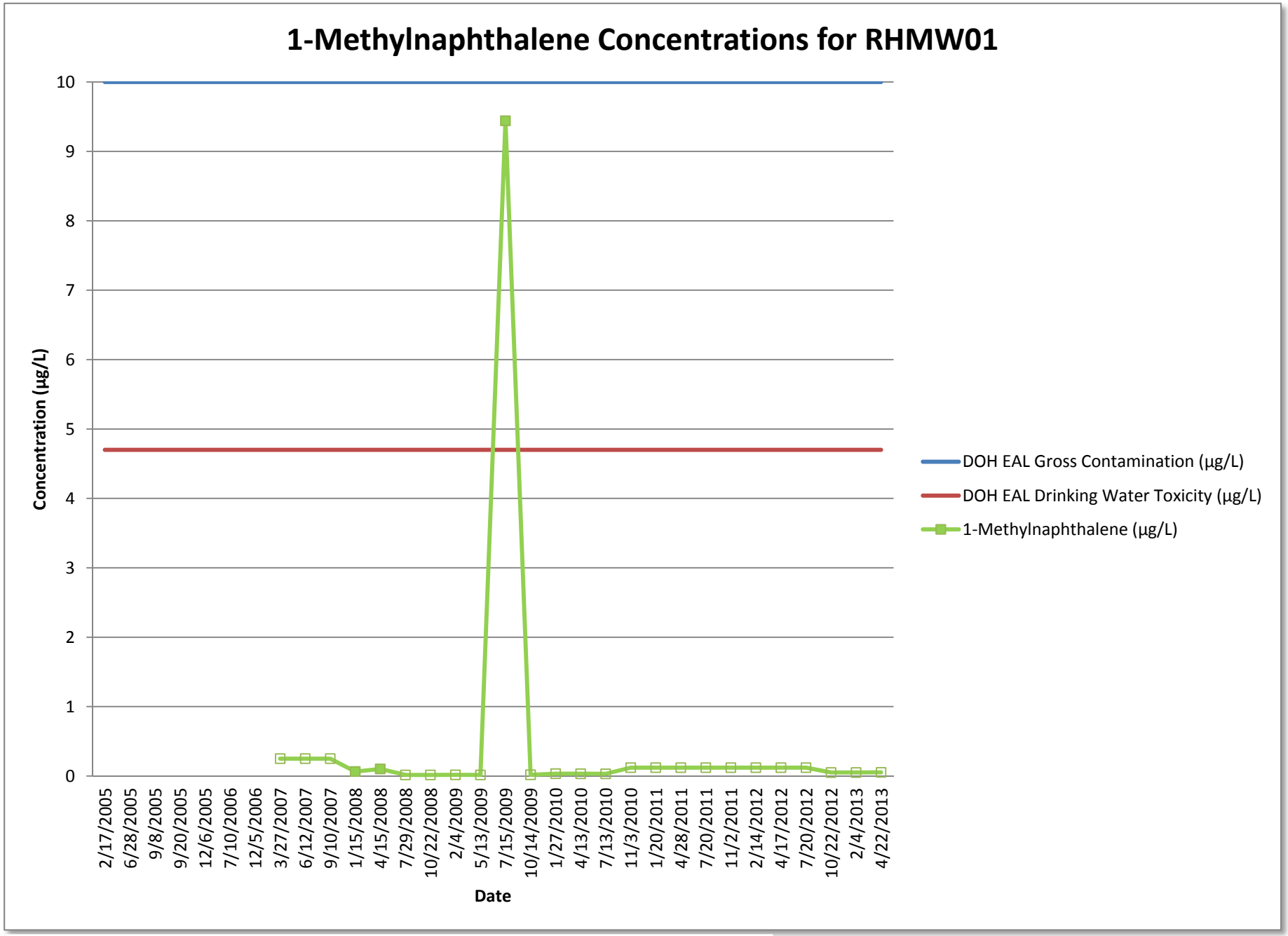

Unfilled boxes indicate non-detections. Method detection limits are shown.

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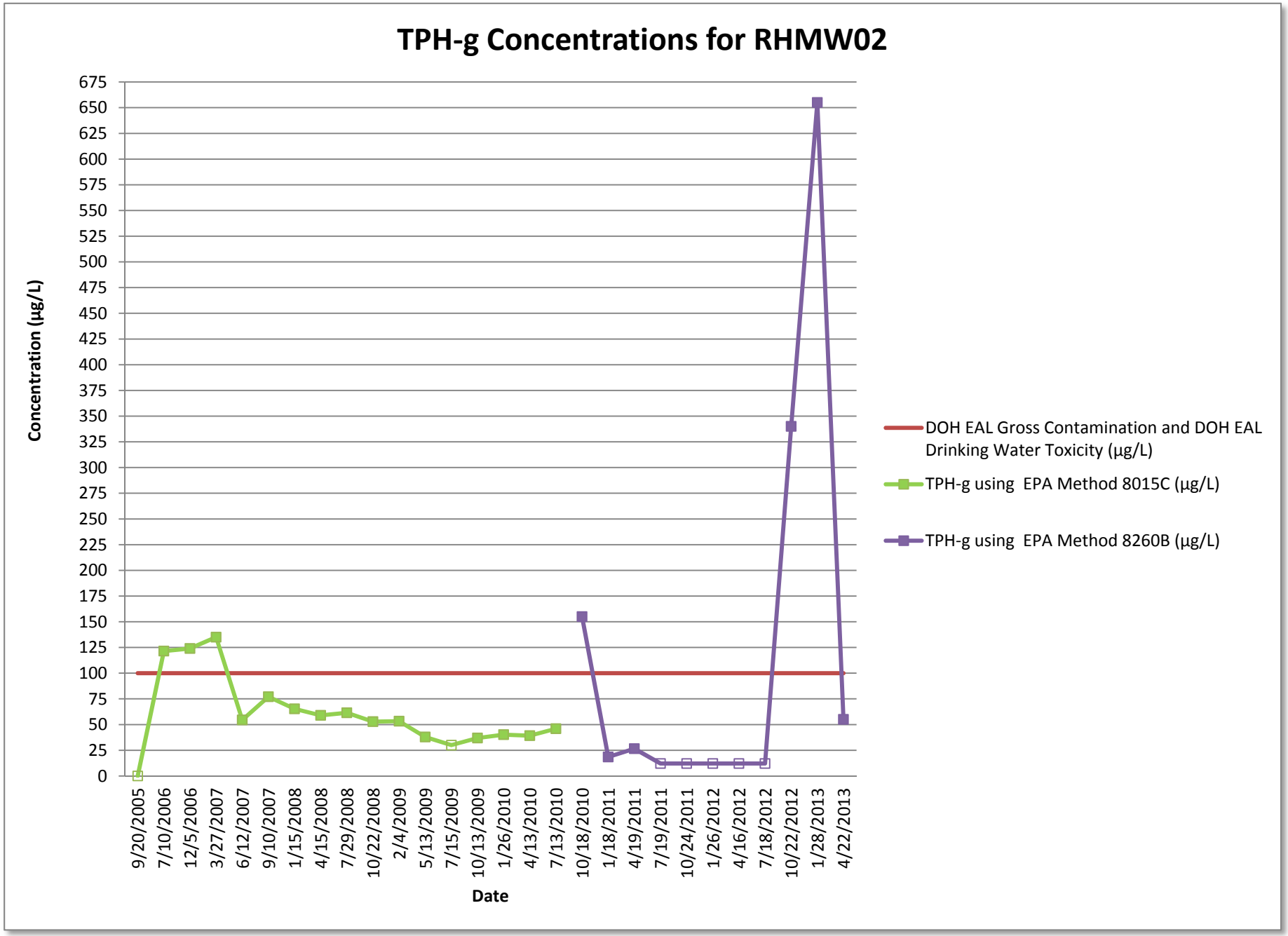

Data points for 9/20/2005 through 4/22/2013 are the average of the primary and duplicate samples.
Unfilled boxes indicate non-detections. Method detection limits are shown.
Primary sample results are shown for 1/26/2012 and 7/18/2012; all other concentrations are the average of the primary and duplicate sample results.
Unfilled boxes indicate non-detections. Method detection limits are shown.

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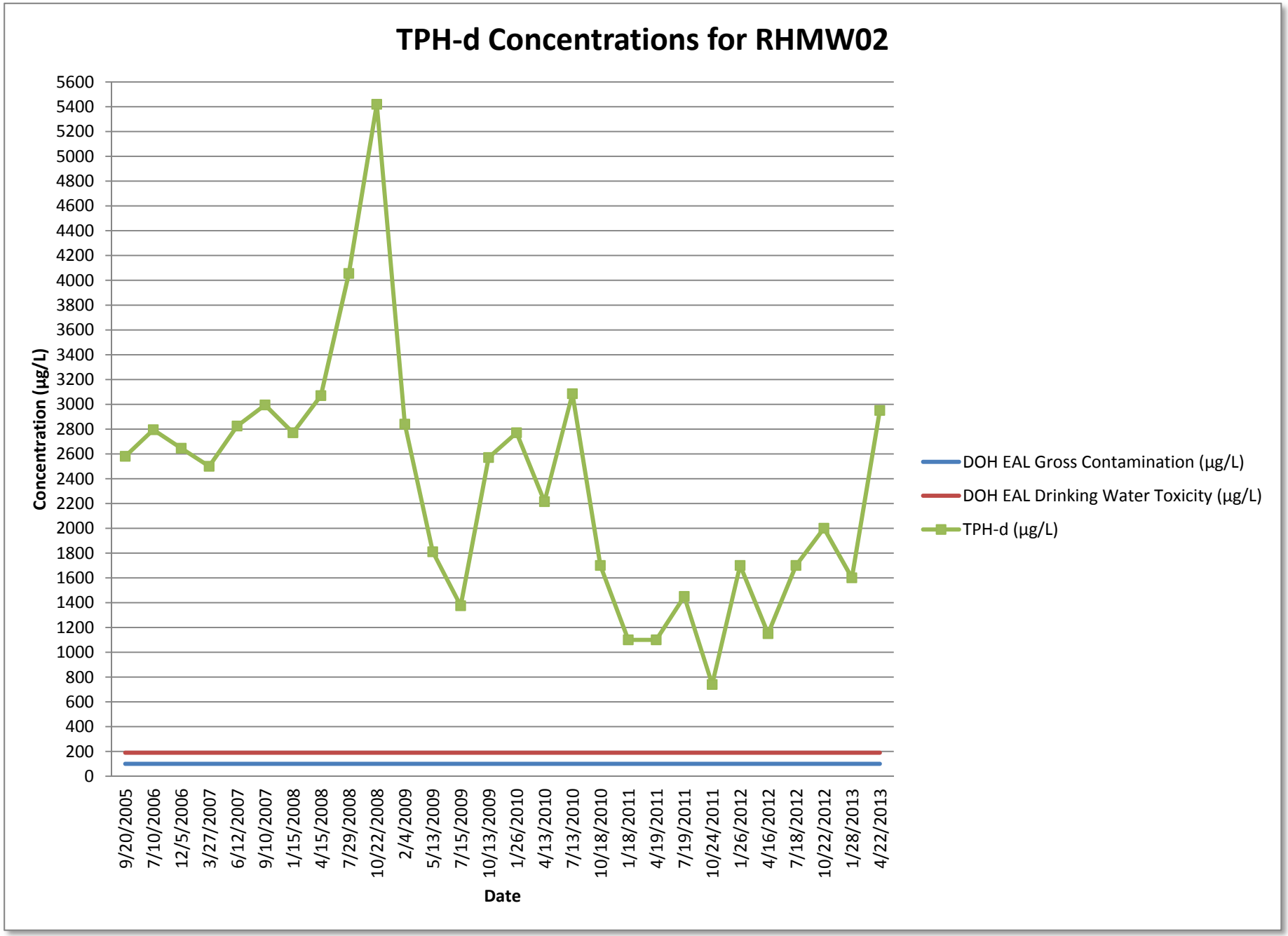

Data points for 9/20/2005 through 4/22/2013 are the average of the primary and duplicate samples.
Unfilled boxes indicate non-detections. Method detection limits are shown.

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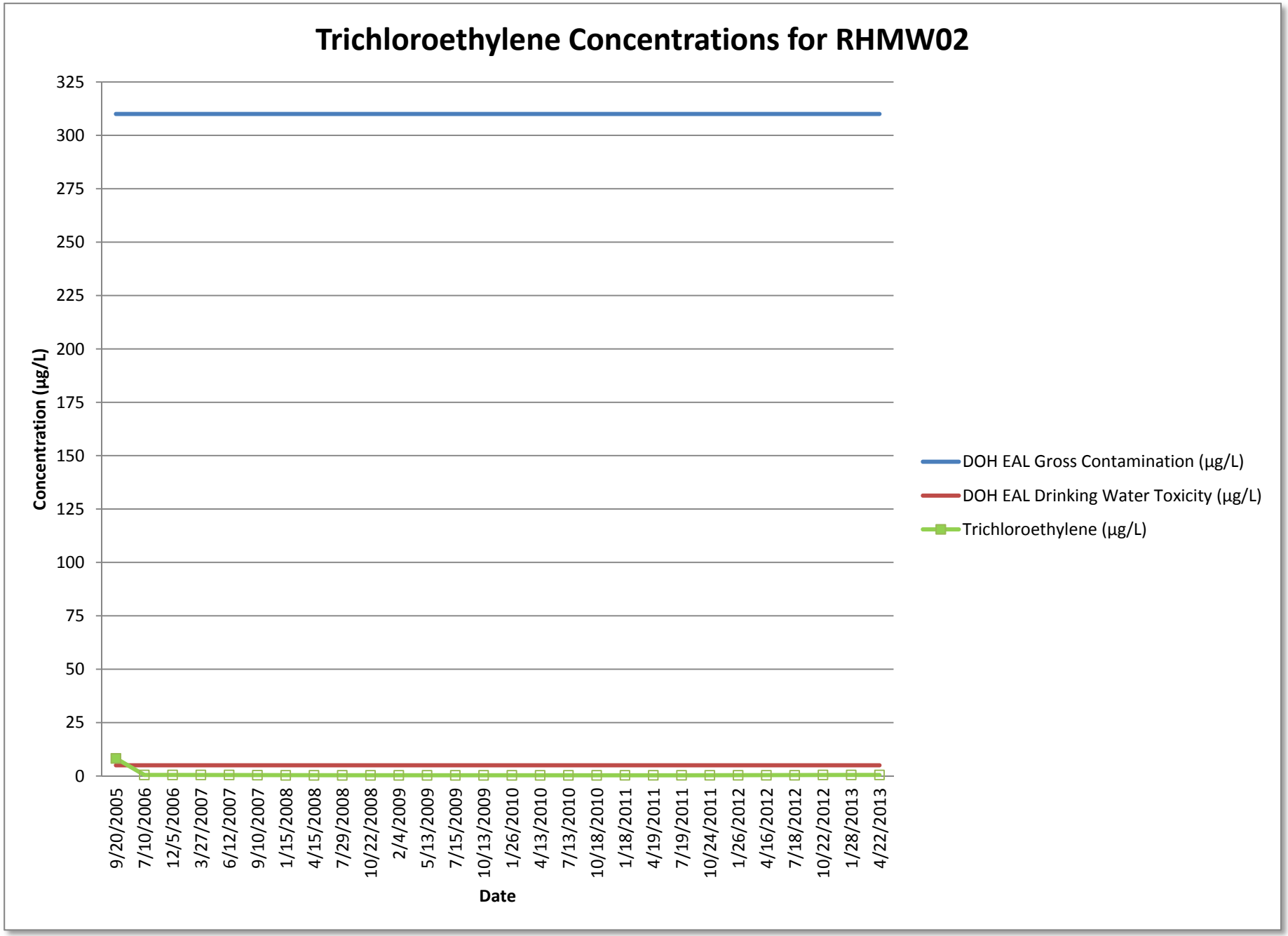

Data points for 9/20/2005 through 4/22/2013 are the average of the primary and duplicate samples.
Unfilled boxes indicate non-detections. Method detection limits are shown.

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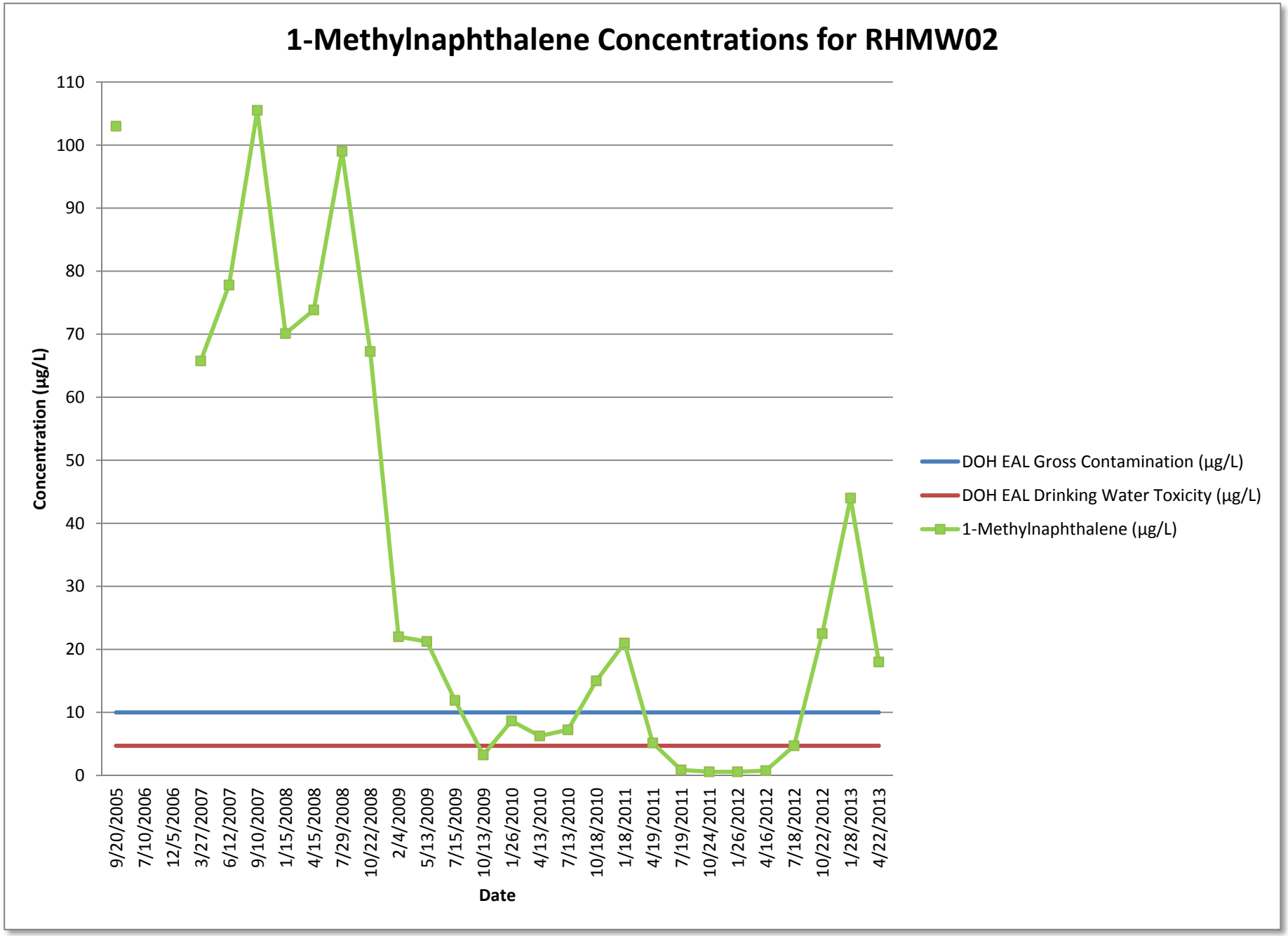

Data points for 9/20/2005 and 3/27/2007 through 4/22/2013 are the average of the primary and duplicate samples.
Unfilled boxes indicate non-detections. Method detection limits are shown.

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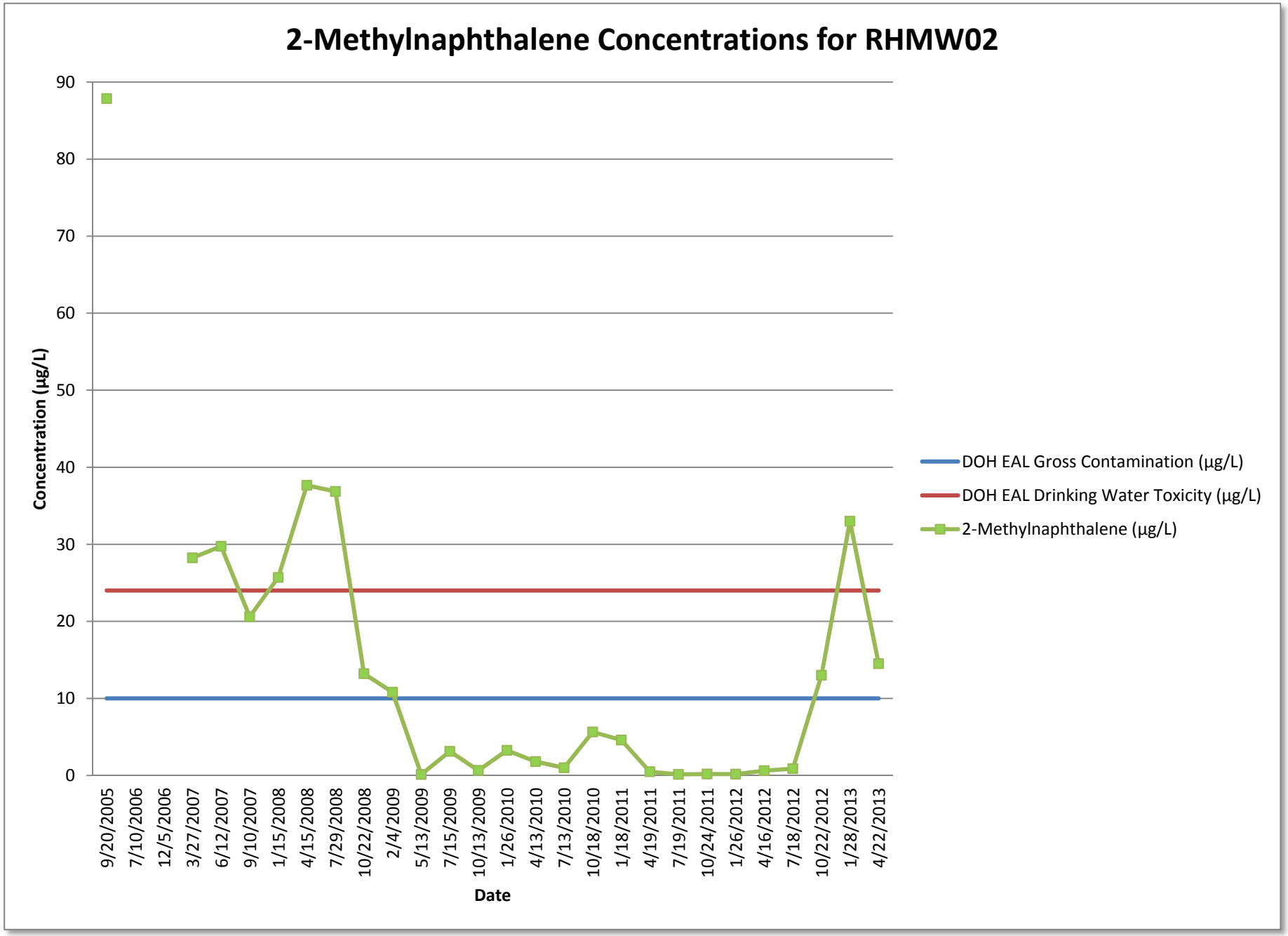

Data points for 9/20/2005 and 3/27/2007 through 4/22/2013 are the average of the primary and duplicate samples.
Unfilled boxes indicate non-detections. Method detection limits are shown.

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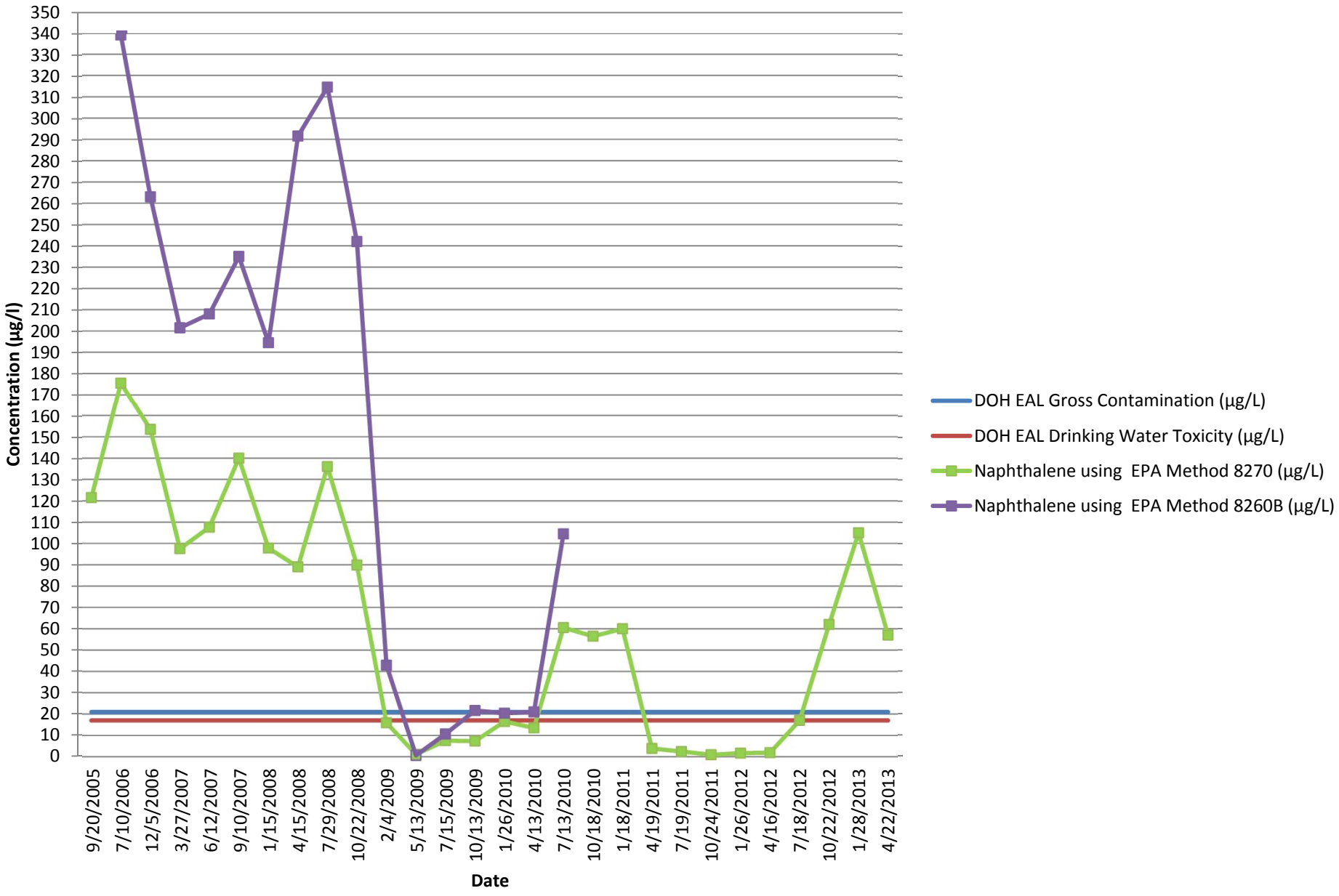
Naphthalene Concentrations for RHMW02



Primary sample results are shown for 1/26/2012 and 4/22/2012; all other concentrations are the average of the primary and duplicate sample results.
Unfilled boxes indicate non-detections. Method detection limits are shown.

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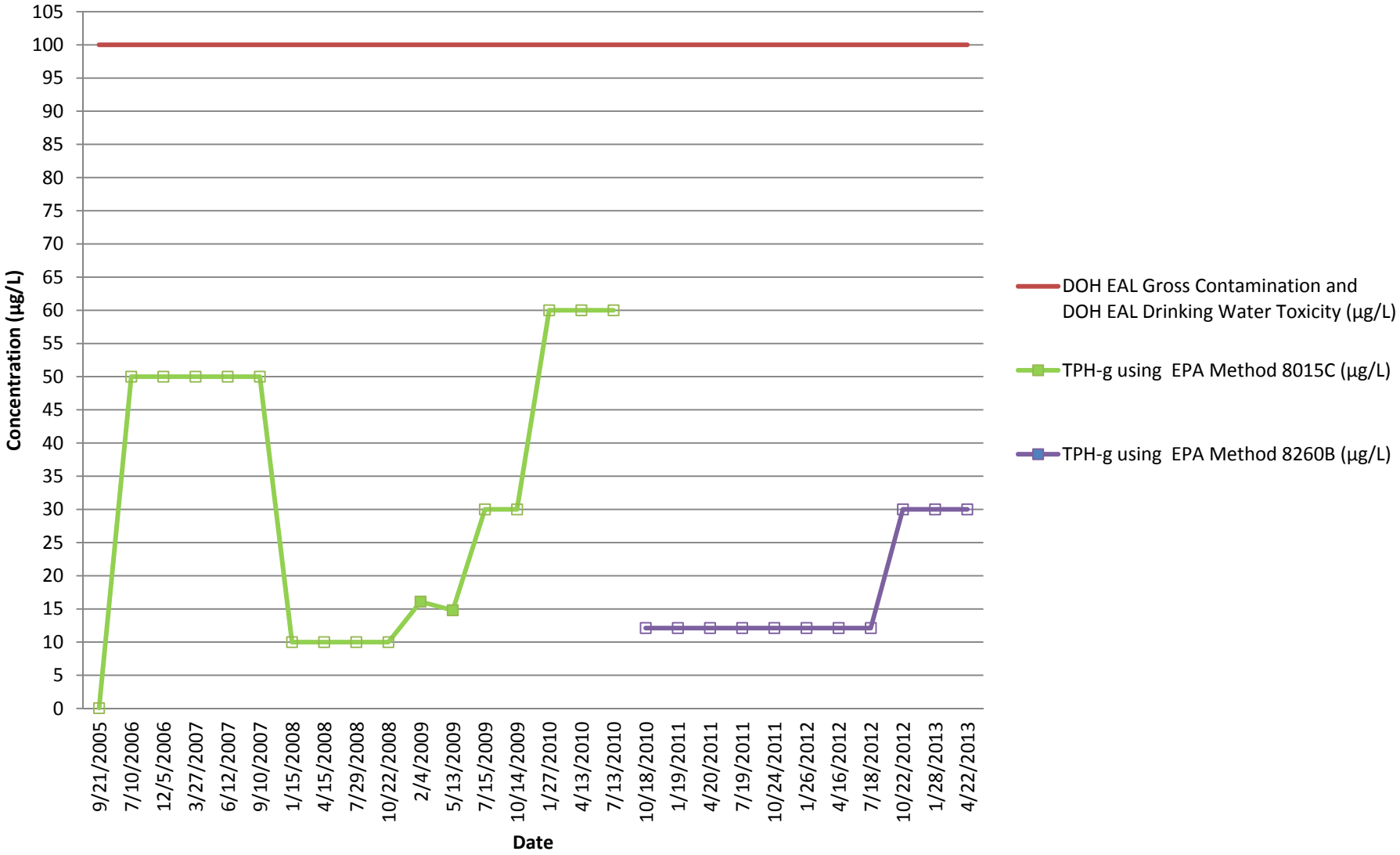
TPH-g Concentrations for RHMW03



Unfilled boxes indicate non-detections. Method detection limits are shown.

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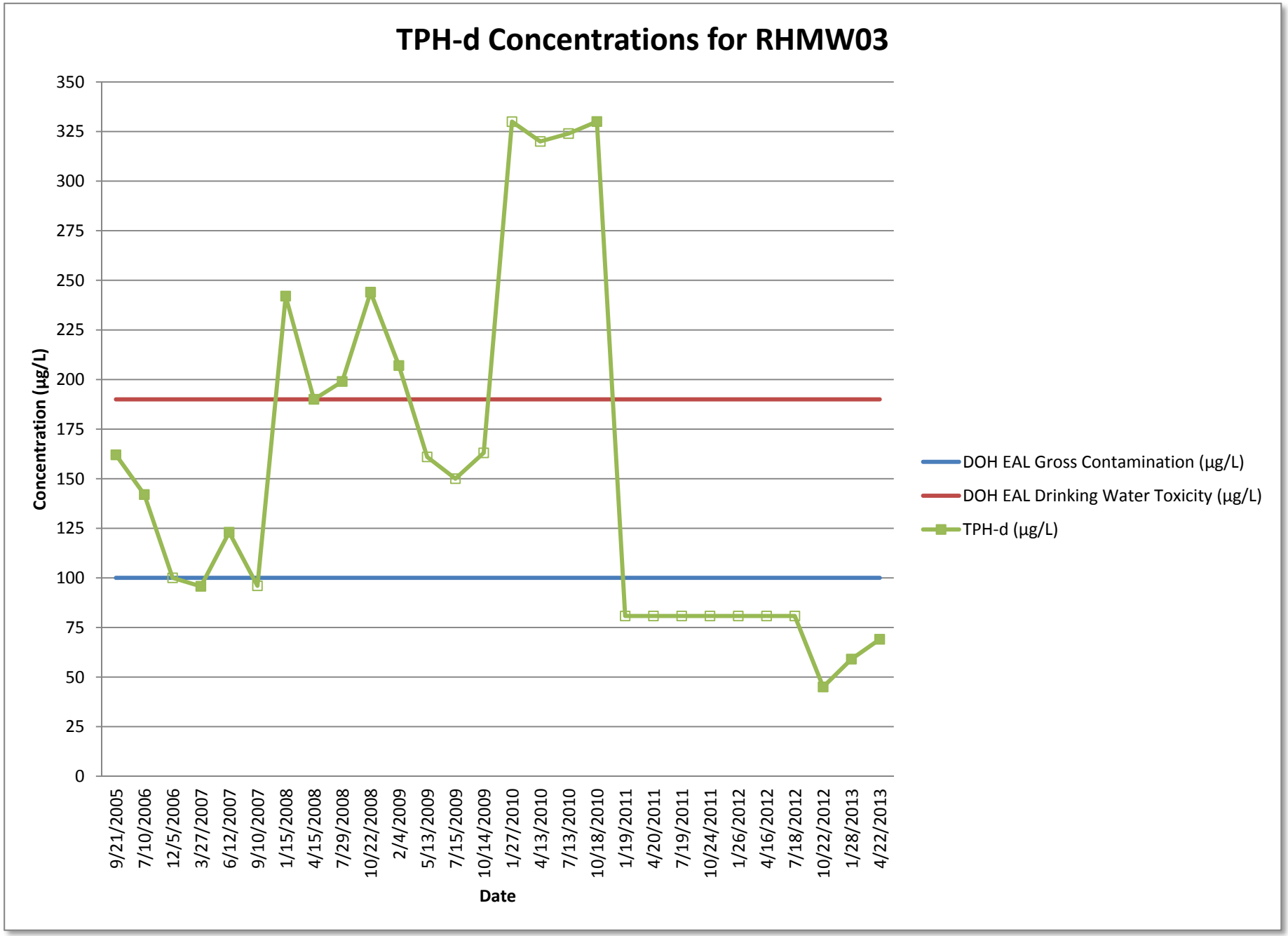

Unfilled boxes indicate non-detections. Method detection limits are shown.

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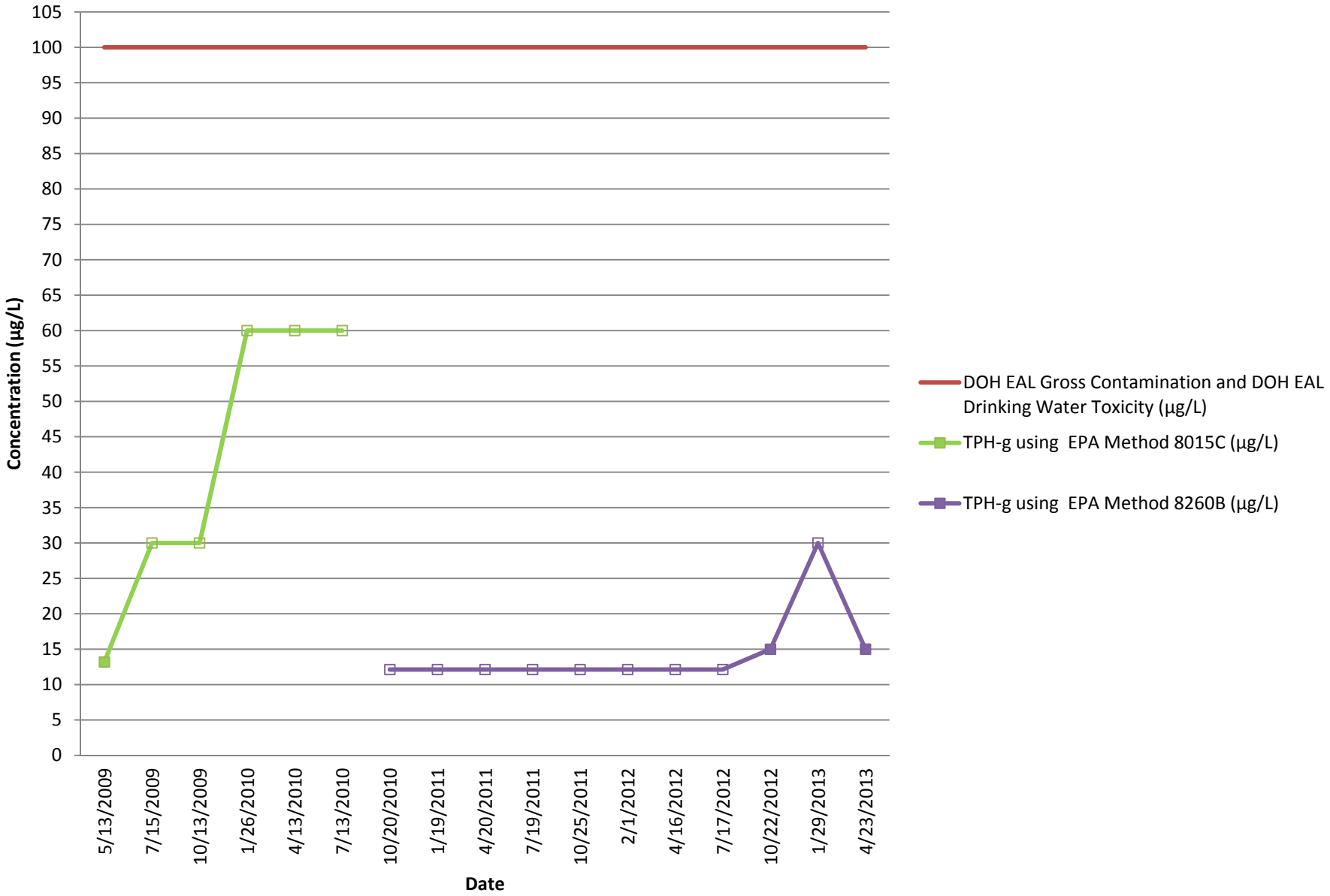
TPH-g Concentrations for RHMW05



Data point for 7/17/2012 is the average of the primary and duplicate samples.
Unfilled boxes indicate non-detections. Method detection limits are shown.
Possible laboratory contamination for 10/23/2012 sampling event.

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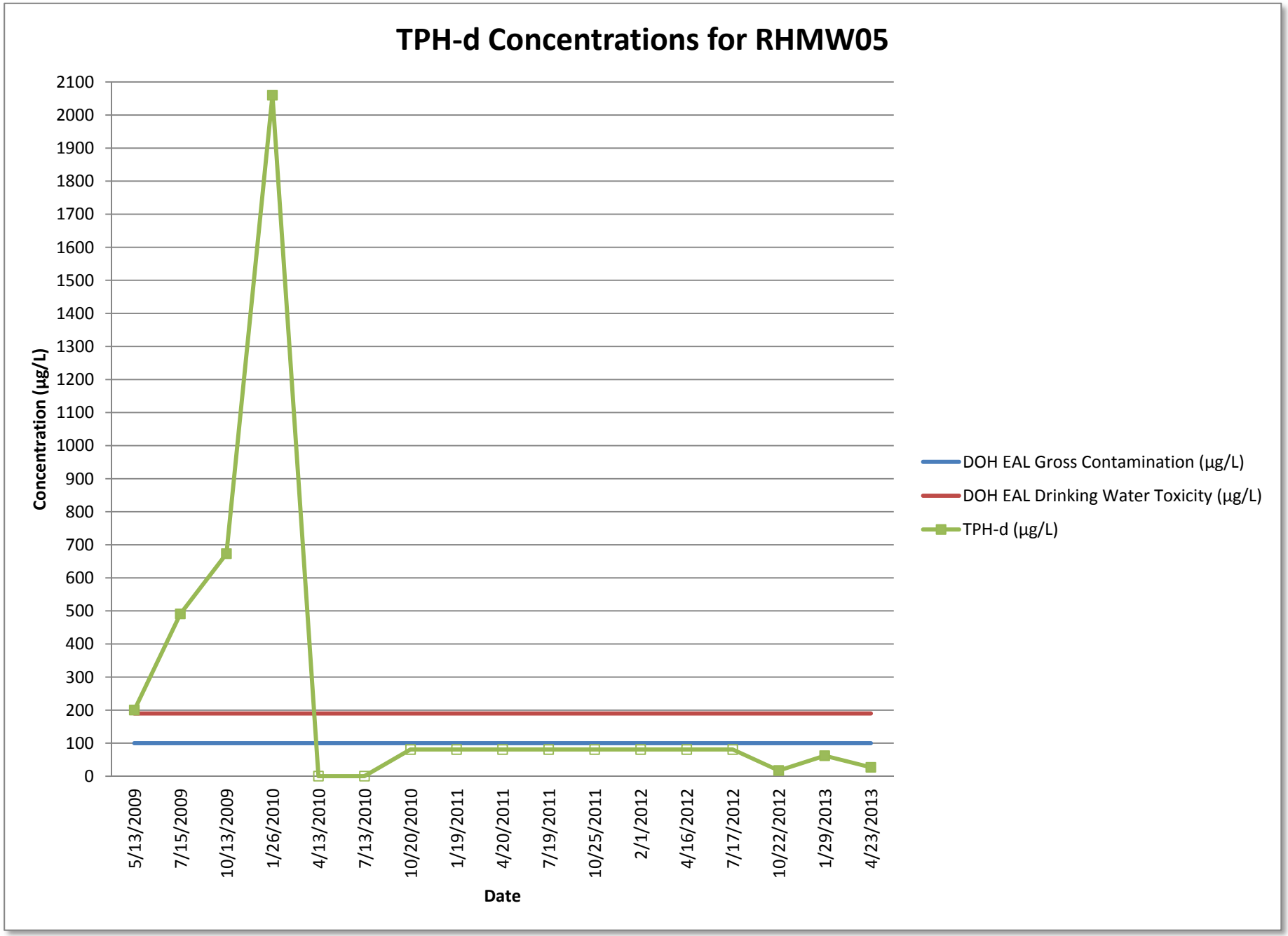

Data point for 7/17/2012 is the average of the primary and duplicate samples.
Unfilled boxes indicate non-detections. Method detection limits are shown.

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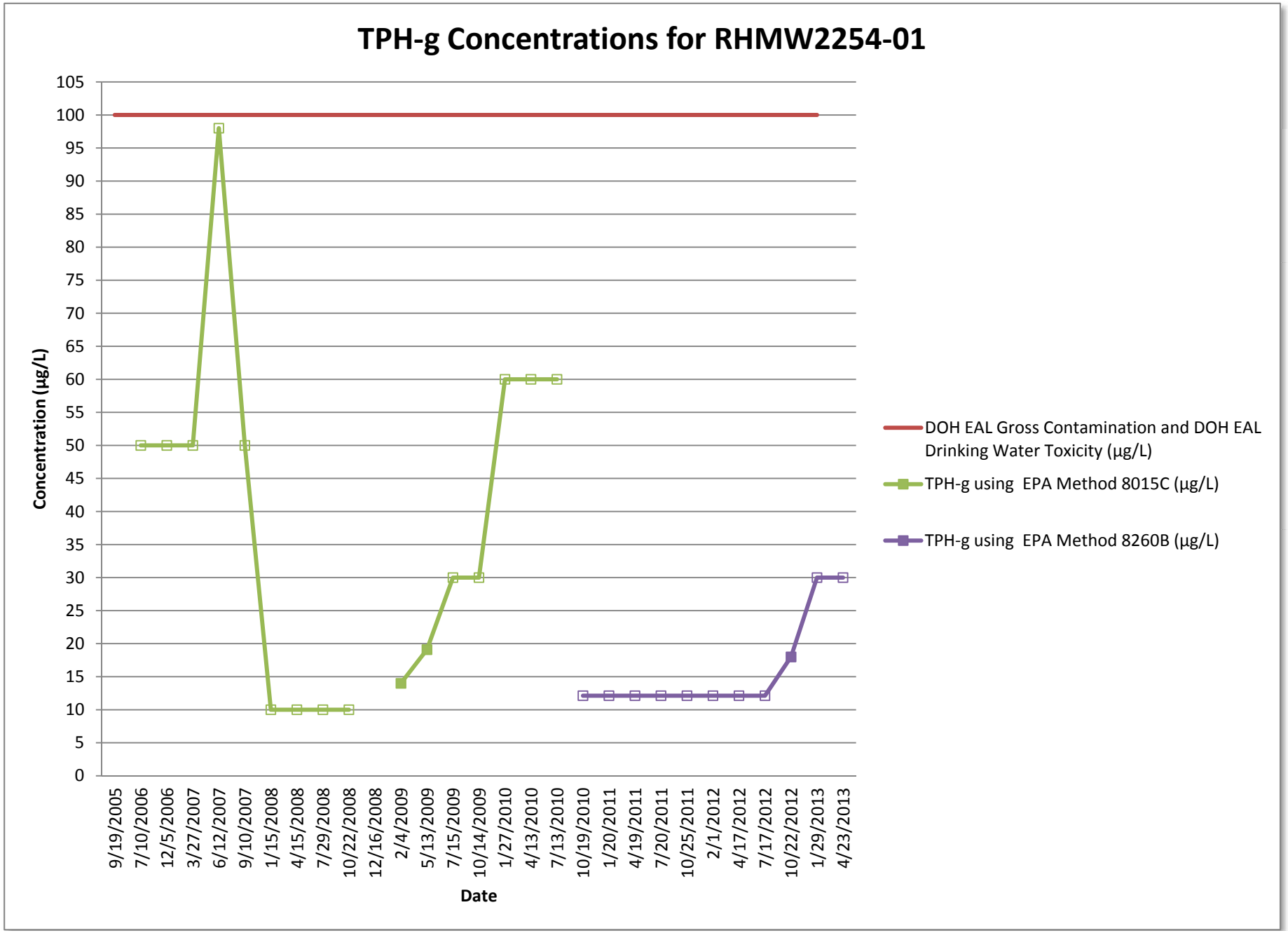

Unfilled boxes indicate non-detections. Method detection limits are shown.
Possible laboratory contamination for 10/23/2012 sampling event.

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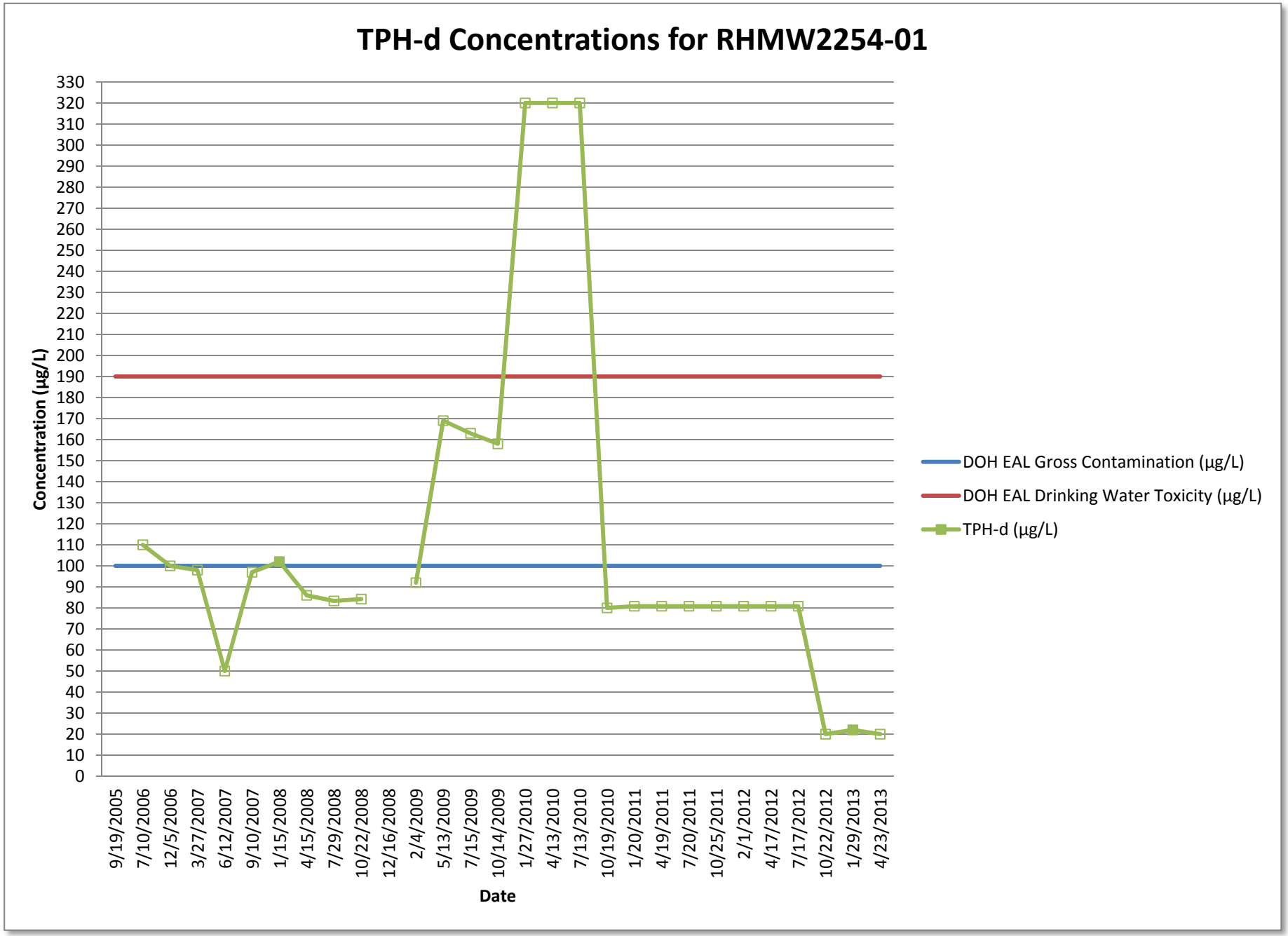

Unfilled boxes indicate non-detections. Method detection limits are shown.
Laboratory data rejected for 1/15/2008 sampling event.

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APPENDIX E

Waste Disposal Manifest

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NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
HIR 000 050 401	1	808-206-9989	000019554

GENERATOR

5. Generator's Name and Mailing Address
COMNAVREG HAWAII, C/O NAVFAC HAWAII, CODE PRJ42
400 MARSHALL ROAD, ATTN: ESTRELITA HIGA
JBPHH, HI 96860-3139
Generator's Phone: 808-471-4216

Generator's Site Address (if different than mailing address)
HIC8553-03
RED HILL BULK FUEL STORAGE FACILITY
AIEA, HI 96701

6. Transporter 1 Company Name: PACIFIC COMMERCIAL SERVICES, LLC. 808-545-4599
U.S. EPA ID Number: H I R 0 0 0 0 9 7 8 2 4

7. Transporter 2 Company Name: UNITEK SOLVENT SERVICES, INC.-OAHU 808-682-8284
U.S. EPA ID Number: H I D 9 8 2 4 4 3 7 1 5

8. Designated Facility Name and Site Address
UNITEK SOLVENT SERVICES, INC.
91-125 KAOMI LOOP
KAPOLEI, HI 96707
Facility's Phone: 808-682-8284
U.S. EPA ID Number: H I D 9 8 2 4 4 3 7 1 5

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	MATERIAL NOT REGULATED BY DOT (WELL PURGE AND DECONTAMINATION WATER)	001	DM	00020	G	NON-RCRA
2.						
3.	<300 ppm HQ PH=6 PCS SUPPLY TEST.					
4.						

13. Special Handling Instructions and Additional Information
9b1: NR 2008 9b1: TOTAL HALOGEN ~~HDC TEST H~~ <300PPM ~~300PPM~~

GENERATOR'S CERTIFICATION: I HEREBY DECLARE THAT THE CONTENTS OF THIS CONSIGNMENT ARE FULLY AND ACCURATELY DESCRIBED ABOVE BY PROPER SHIPPING NAME (WHERE APPLICABLE) AND ARE CLASSIFIED, PACKED, MARKED , AND LABELED AND ARE IN ALL RESPECTS IN PROPER CONDITION FOR TRANSPORT BY HIGHWAY ACCORDING TO APPLICABLE GOVERNMNET REGULATIONS. I FURTHER CERTIFY THAT IF THIS IS USED OIL IT IS SUBJECT TO REGULATION UNDER 40 CFR PART 279; THAT IT DOES NOT CONTAIN PCBS GREATER THAN OR EQUAL TO 2 PPM; AND THAT IT HAS NOT BEEN CONTAMINATED WITH CARBURATOR CLEANERS, BRAKE SPRAY, FREON, HALOGENATED SOLVENTS, OR OTHER HAZARDOUS MATERIALS AND/OR HAZARDOUS WASTES.

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Estrelita Higa
Signature: Estrelita Higa
Month 06 Day 05 Year 13

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Gradee G.
Signature:
Month 6 Day 5 Year 13

Transporter 2 Printed/Typed Name: ABB Auwa
Signature:
Month 6 Day 12 Year 13

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) Month Day Year

SEE CONSOLIDATED MANIFEST NUMBER

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: R. ~~ACHARYA~~
Signature:
Month 06 Day 14 Year 2013

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