

Quarterly Groundwater Monitoring Report Red Hill Fuel Storage Facility

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Prepared by:



TEC Inc.
1003 Bishop St. Suite 1505
Pauahi Tower
Honolulu, Hawaii 96813

Prepared for:



Commander
Navy Region Hawaii
Environmental Department, Code N45
850 Ticonderoga Street, Suite 110
Pearl Harbor, Hawaii 96860-5101

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Executive Summary

This quarterly groundwater monitoring report presents the results of groundwater sampling conducted on January 26 and 27, 2010 and resample events at RHMW02 on February 23, 2010 and again on March 30, 2010 at the United States (US) Navy Bulk Fuel Storage Facility at Red Hill, Oahu, Hawaii (the Facility). The sampling and reporting was conducted by TEC Inc. (TEC) for the Fleet and Industrial Supply Center (FISC) at Pearl Harbor, Hawaii. This report is part of a series of quarterly groundwater monitoring reports provided by the US Navy to the State of Hawaii Department of Health (HDOH) in accordance with HDOH's release response requirements. Currently, there are 18 active and 2 inactive, 12.5 million gallon, field-constructed underground storage tanks (USTs) located at the Facility.

Background

In 2002, the US Navy installed a groundwater monitoring well (currently named RHMW01) into the basal aquifer, directly located between RHMW02 and US Navy Well 2254-01, within the lower access tunnel. Groundwater samples from this well indicated that petroleum from the Facility has migrated to the basal aquifer (AMEC, 2002). In 2005, the US Navy began quarterly monitoring of the aquifer to protect their drinking water resource associated with the US Navy Well 2254-01. US Navy Well 2254-01 is located approximately 3,000 feet down-gradient from the Facility USTs and provides approximately 24% of the potable water to the Pearl Harbor Water System (PHWS).

By September 2005, the US Navy had installed two more groundwater monitoring wells (RHMW02 and RHMW03) within the Facility UST system, a background groundwater monitoring well (RHMW04) located north of UST tank 20 and adjacent to the US Navy Firing Range, and a groundwater monitoring well within the US Navy Well 2254-01 infiltration gallery (RHMW2254-01).

All five wells were sampled twice as part of a comprehensive environmental investigation and risk assessment (TEC, 2006). For this investigation, groundwater samples were analyzed for petroleum constituents and compared against HDOH Drinking Water Environmental Action Levels (EALs) (HDOH, July 2005). In addition, a three-dimensional (3-D) groundwater model was developed to produce site-specific risk-based levels (SSRBLs) for compounds of concern. The results of this modeling effort indicated that Jet Propulsion (JP)-5 fuel presented the biggest risk to the US Navy water supply, due to its mobility and toxicity. Finally, the model determined that a non-aqueous plume (free product) of JP-5 would need to migrate to within 1,100 feet of the US Navy Well 2254-01 infiltration gallery for HDOH EALs to be exceeded within the gallery. Based on this, free-product must be observed in RHMW01 for EALs to be exceeded at the US Navy Well 2254-01.

In April 2009, another groundwater monitoring well (RHMW05) was installed within the lower access tunnel between RHMW01 and US Navy Well 2254-01. It was installed to identify the extent of contaminant migration before it reaches US Navy Well 2254-01 (see Figure 1).

During the summer and fall of 2008, HDOH updated their EALs, which resulted in significant changes to the action levels associated with methylnaphthalenes. The HDOH Drinking Water toxicity EAL for these compounds was 240 micrograms per liter ($\mu\text{g/L}$). This concentration assumed that methylnaphthalenes were not human carcinogens. Once evidence emerged and was accepted by the US Environmental Protection Agency (USEPA) that methylnaphthalenes are carcinogenic to humans, HDOH adopted more rigorous EALs of 4.7 $\mu\text{g/L}$ for 1-methylnaphthalene and 24 $\mu\text{g/L}$ for 2-methylnaphthalene (HDOH, 2008).

The HDOH Drinking Water EAL for naphthalene was also updated during this process. Previously, HDOH based their naphthalene EAL on USEPA Region 9 Preliminary Remediation Goal (USEPA PRG) of 6.2 $\mu\text{g/L}$, which is associated with a non-cancer Hazard Index of 1. In deference to the California Department of Public Health's Drinking Water Notification Levels, (HDOH, 2008) HDOH updated their naphthalene drinking water EAL to 17 $\mu\text{g/L}$.

Finally, the HDOH Drinking Water EAL for TPH-DRO was increased from 100 $\mu\text{g/L}$ to 210 $\mu\text{g/L}$, although the Groundwater Gross Contamination EAL for TPH-DRO remains 100 $\mu\text{g/L}$.

Groundwater Protection Plan

In 2008, the US Navy completed the *Red Hill Bulk Fuel Storage Facility Final Groundwater Protection Plan* (TEC, 2008), which specified SSRBLs and various required actions based on the category status (i.e., categories 1 through 4) of each groundwater monitoring well. In 2009, the Plan was revised to account for ongoing changes, such as the installation of monitoring well RHMW05. The main objective of the Plan is to protect the groundwater quality of US Navy Well 2254-01, which provides potable water to the PHWS. This is accomplished by comparing petroleum concentrations in the Facility wells to established SSRBLs and taking appropriate action. A secondary, but important objective of the Plan is to identify leaking USTs by evaluating increasing concentration trends, or the presence of free product in one or more groundwater monitoring wells. This quarterly report compares observed water quality to these established categories and associated actions.

Current Results

On January 26 through 27, 2010, five groundwater samples (i.e., RHMW01, RHMW02, RHMW03, RHMW05 and RHMW2254-01), along with the required quality control samples (duplicate, matrix spike, spike duplicate, and trip blank) were collected for analysis. Samples were analyzed for Total Petroleum Hydrocarbons (TPH) quantified as Diesel-Range Organics (DRO) and Gasoline Range Organics (GRO), Volatile Organic Compounds (VOCs), Polynuclear Aromatic Hydrocarbons (PAHs), and dissolved lead. Due to elevated concentrations of TPH-DRO at RHMW02, additional samples were collected on February 23, 2010 and March 30, 2010 and analyzed for TPH-DRO.

TPH-DRO

TPH-DRO was detected at 312 ($\mu\text{g/L}$) in RHMW01, 2,770 $\mu\text{g/L}$ (i.e., the average of normal and duplicate samples) in RHMW02, and at 2,060 $\mu\text{g/L}$ in RHMW05. TPH-DRO was not detected above the laboratory method detection limit (MDL) in RHMW03 and RHMW2254-01. The

HDOH Drinking Water EAL and SSRBL for TPH-DRO are 210 µg/L and 4,500 µg/L, respectively.

TPH-GRO

For TPH-GRO the HDOH Drinking Water EAL is 100 µg/L. In samples RHMW01, RHMW03, RHMW05, and RHMW2254-01 TPH-GRO was not observed above the laboratory MDL (i.e., 30 µg/L). In the regular and duplicate samples from RHMW02, TPH-GRO was detected at an average of 40.2F µg/L [F indicates that the compound was identified, but the concentration was above the MDL and below the reporting limit (RL), therefore is considered an estimate].

Other Parameters above HDOH Drinking Water EALs

In RHMW02, the average concentrations between the normal and duplicate sample of naphthalene and 1-methylnaphthalene were 20.4 µg/L and 8.65 µg/L, respectively. This is above the HDOH Drinking Water EALs of 17 µg/L for naphthalene, and 4.7 µg/L for 1-methylnaphthalene.

Trend Analysis

The following is a discussion of compounds that exceeded HDOH Drinking Water EALs during two or more recent consecutive sampling events, thus establishing a trend:

RHMW01

At RHMW01, concentrations of TPH-DRO have been greater than the HDOH Drinking Water EAL since September 2005, but less than 25 percent of the SSRBL of 4,500 µg/L. TPH-DRO had exhibited a decreasing trend since October 2008 with the lowest concentration (i.e., 248 µg/L) recorded in July 2009. Since July 2009, this trend began increasing with 299F µg/L and 312F µg/L detected in October 2009 and January 2010, respectively.

RHMW02

From September 2005 through February 2009, TPH-DRO exceeded the HDOH Drinking Water EAL and was greater than 50 percent of the SSRBL (estimated solubility limit of 4,500 µg/L). However, there has been a decreasing trend since the SSRBL was exceeded in October 2008 to below 50 percent of the SSRBL in May and July 2009. However, since increasing above 50 percent of the SSRBL in October 2009, TPH-DRO continued exhibiting an increasing trend through January 2010. In January 2010, TPH-DRO increased to an average of 2,770 µg/L. This prompted resample events in February 2010 when TPH-DRO increased to an average of 7,780 µg/L, above the SSRBL and again in March 2010 when TPH-DRO averaged 2,490 µg/L. It is important to note that in January and February 2010 tentatively identified compounds (TICs) apparently not associated with petroleum from the Facility were detected at significant concentrations in RHMW02. However, TICs were not observed at significant concentrations for the March 2010 sampling event. After subtracting the TICs from the January and February 2010 results, TPH-DRO was detected at an average of 1,925 µg/L and 3,200 µg/L, respectively (see Appendix B).

For other parameters, 1-methylnaphthalene and 2-methylnaphthalene have almost consistently averaged concentrations above HDOH Drinking Water EALs (i.e., 4.7 µg/L and 24 µg/L, respectively) since September 2005. However, a significantly decreasing trend since October

2008 has since brought these concentrations below the HDOH Drinking Water EALs. In January 2010, 1-methylnaphthalene increased above the HDOH Drinking Water EAL to an average concentration of 8.645 µg/L, after decreasing to the lowest concentration of any round in October 2009 (i.e., 3.245 µg/L). In January 2010, although not exceeding the HDOH Drinking Water EAL, 2-methylnaphthalene increased to an average concentration of 3.25 µg/L after decreasing in October 2009. Naphthalene has exhibited a historical trend similar to 2-methylnaphthalene at RHMW02. However, in October 2009 and January 2010, naphthalene increased to an averaged 21.65 µg/L and 20.4 µg/L, respectively, greater than the HDOH Drinking Water EAL of 17 µg/L.

RHMW03

At RHMW03, historically, concentrations of TPH-DRO have fluctuated around the HDOH Drinking Water EAL, but have been significantly lower than corresponding values observed at RHMW01 and RHMW02. However, during the last four sampling events (i.e., May 2009, July 2009, October 2009, and January 2010), TPH-DRO was not detected above the laboratory MDL. These results represent a continuing decreasing trend for TPH-DRO that has existed since October 2008.

RHMW05

At RHMW05 there is an increasing trend for TPH-DRO. The January 2010 concentration was 2,060 µg/L, a significant increase as compared with the October 2009 concentration of 673 µg/L. The January 2010 concentration is greater than the HDOH EAL, but less than 50 percent of the SSRBL for TPH-DRO. However, as with RHMW02, TICs apparently not associated with petroleum from the Facility were detected at significant concentrations in RHMW05. After subtracting the TICs from the January 2010 results, TPH-DRO was estimated at a concentration of 541 µg/L (see Appendix B).

US Navy Well 2254-01

At RHMW2254-01, no compounds have been detected above the laboratory MDLs since trace concentrations of TPH-GRO and 2-methylnaphthalene were observed in the February and May 2009 events. However, in January 2010 naphthalene was detected at 0.0375F µg/L via EPA Method 8270C SIM, just above the laboratory MDL (i.e., 0.0326 µg/L) and below the HDOH EAL (i.e., 17 µg/L).

Current Groundwater Status

To date, there is no observation of a trend (i.e., two or more consecutive events) of light-non aqueous phased liquids (LNAPL), otherwise known as free product, on groundwater in any of the Facility monitoring wells.

US Navy Well 2254-01

Although a trace concentration of naphthalene was detected at RHMW2254-01 during the January 2010 sampling event, it does not place the well into the Category 1 status. Because no contamination trend (i.e., two or more consecutive events of detectable concentrations) has been established, RHMW2254-01 located at US Navy Well 2254-01, does not meet the Category 1 definition.

RHMW03

Based upon the January 2010 sampling event, RHMW03 is not eligible for any category status change since no compounds were detected above the laboratory MDLs.

Category 1 Status Locations

There are no Category 1 status locations based upon the January 2010 event.

Category 2 Status Locations

RHMW01

The January 2010 sampling event indicates that RHMW01 should remain in Category 2 status. This is because the TPH-DRO concentration increased to 312F µg/L and is greater than the HDOH Drinking Water EAL (210 µg/L), but less than half the SSRBL of 4,500 µg/L (estimated solubility limit of JP-5).

RHMW05

Based upon the January 2010 sampling event, RHMW05 should remain in a Category 2 status. TPH-DRO in RHMW05 (i.e., 2,060 µg/L) is above the drinking water EAL of 210 µg/L and has been showing an increasing trend over the last four rounds. However, TICs apparently not associated with petroleum from the Facility were detected at significant concentrations in RHMW05. After subtracting the TICs, TPH-DRO was estimated at a concentration of 541 µg/L (see Appendix B).

Category 2 for RHMW01 and RHMW05 requires:

1. Quarterly reports to be sent to HDOH; and
2. Initiation of a leak determination program to identify if tanks are leaking.

Category 3 Status Locations

RHMW02

Results from the January 2010 sampling event and the resample events in February and March 2010 indicate that RHMW02 is in Category 3 status. This is because TPH-DRO, after subtracting the TICs apparently not associated with petroleum from the Facility, is greater than the HDOH Drinking Water EAL (210 µg/L), and is between one half and the established SSRBL value of 4,500 µg/L (estimated solubility limit of JP-5). Specifically, the maximum observed TPH-DRO concentration among the January 2010 and February 2010 sampling efforts occurred during the re-sampling of RHMW02 on February 23, 2010 with concentrations of 3,470 µg/L and 2,930 µg/L (duplicate). These concentrations were corrected by removing apparently non-fuel related compounds from the TPH-DRO total concentration (see Appendix B). The March 2010 re-sampling results did not contain large concentrations of apparently non-fuel related TIC compounds. The March 2010 TPH-DRO concentrations of 2,630 µg/L and 2,350 µg/L (duplicate) provide an average TPH-DRO concentration 2,490 µg/L (Appendix B).

In addition, the HDOH Drinking Water EAL of 17 µg/L for naphthalene was exceeded in January 2010 [i.e., 20.4 µg/L (the average of normal and duplicate samples)].

Category 3 response at RHMW02 requires:

1. Send quarterly reports to HDOH;
2. Initiation of a leak determination program to identify if tanks are leaking;
3. Increase free product monitoring frequency to once per month (if concentrations increasing);
4. Notify HDOH verbally within 7 days and follow with written notification in 30 days;
5. Remove sampling pumps, measure product in pertinent wells with interface probe, re-install pumps if product is not detected; and
6. Immediately evaluate tanks for leaks.

Category 4 Status Locations

There are no Category 4 status locations.

Conclusions and Recommendations

There is no indication of an immediate threat of disruption to drinking water resources of the US Navy Well 2254-01 as a result of the January and February 2010 data. However, a trace concentration of naphthalene was detected just above the laboratory MDL, but significantly less than the HDOH drinking water EAL at RHMW2254-01. The increasing TPH-DRO concentrations at RHMW05 are of significant concern. This well is less than 700 feet from the east end of the US Navy Well 2254-01 infiltration gallery. The TPH-DRO concentration in this well was nearly 50 percent of the SSRBL prior to a re-quantification that adjusted the concentration by removing apparently non-fuel related TIC compounds from the TPH-DRO total concentration (Appendix B). If the total TPH-DRO concentration at RHMW05 had been from fuel-related compounds, there could be a high probability of contamination at some point entering the infiltration gallery. It is recommended that future quarterly analytical results be closely assessed at RHMW05, since its non-TIC adjusted concentrations exhibit an increasing contaminant trend for TPH-DRO (i.e., 200 µg/L in May 2009, 491µg/L in July 2009, 673 µg/L in October 2009, and 2,060 µg/L in January 2010). In addition, consideration should be given to performing a more detailed analytical assessment of the contamination found in this well (and other wells) such as having future samples analyzed using the Massachusetts Department of Environmental Protection (MADEP) analytical methods in addition to TPH-GRO and TPH-DRO analytical methods.

With the exception of RHMW03 and RHMW2254-01, compound concentrations for all the other monitoring wells (i.e., RHMW01, RHMW02, and RHMW05) are exhibiting increasing contaminant trends for TPH-DRO relative to the concentrations observed in October 2009. Current results from RHMW01 are still at concentration levels within the historical range. However, results from RHMW02 and RHMW05 have been exhibiting significant increases (i.e., for the non-TIC adjusted concentrations). After a thorough analysis of the analytical results from RHMW02 and RHMW05, TICs apparently not attributed to petroleum from the Facility contributed to a significant increase of TPH-DRO during January and February 2010 (see Appendix B). After subtracting these TICs, the estimated TPH-DRO concentrations in RHMW02 and RHMW05 remain within the historical range.

Quarterly groundwater sampling for TPH-DRO, TPH-GRO, VOCs, PAHs, and dissolved lead should continue at the Facility until such time that data indicates that a different monitoring plan is warranted.

1.0 Introduction

This report presents the results of the 18th groundwater sampling event, conducted in January 2010 and resample events at RHMW02 in February and March 2010 at the Red Hill Fuel Storage Facility, Oahu, Hawaii (hereafter referred to as “the Facility”). The Facility consists of 18 active and two inactive underground storage tanks (USTs) operated by the Fleet and Industrial Supply Center (FISC), Pearl Harbor. The groundwater sampling and analysis event is part of a groundwater monitoring program for the UST site in response to past UST releases, previous environmental investigations, and recommendations from the State of Hawaii Department of Health (HDOH).

1.1 Project Objective

This groundwater sampling project was performed to evaluate the presence of chemicals of potential concern in groundwater underlying the Facility. The project was conducted to ensure the Navy remains in compliance with HDOH UST release response requirements as described in Hawaii Administrative Rules (HAR) 11-281 Subchapter 7, Release Response Action. The groundwater sampling program followed the procedures described in *Red Hill Bulk Fuel Storage Facility Groundwater Protection Plan* [TEC Inc. (TEC), 2008 updated in 2009], also referred to as “the Plan”.

This groundwater sampling event was conducted by TEC under United States (US) Navy Contract Number N47408-04-D-8514, Task Order No. 54.

1.2 Previous Reports

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

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 Results, January 2008 (submitted March 2008);
11. Groundwater Monitoring Results, April 2008 (submitted May 2008);
12. Groundwater Monitoring Results, July 2008 (submitted October 2008);
13. Groundwater Monitoring Results, October and December 2008 (submitted February 2009);

14. Groundwater Monitoring Results, February 2009 (submitted May 2009);
15. Groundwater Monitoring Results, May 2009 (submitted July 2009);
16. Groundwater Monitoring Results, July 2009 (submitted September 2009); and
17. Groundwater Monitoring Results, October 2009 (submitted December 2009).

1.3 Background

The following sections provide a description of the site and information on the Facility and USTs.

1.3.1 Site Description

The Facility is located in Red Hill, Oahu, Hawaii. Land adjacent to the north of the Facility is occupied by Halawa Correctional Facility and private businesses. Land to the south and west of the Facility includes the Coast Guard Reservation. Moanalua Valley is located east of the Facility (Dawson, 2006).

The Navy Public Works Department operates a potable water infiltration tunnel approximately 1,550 feet hydraulically down-gradient from the Facility (Dawson, 2006). The US Navy Well 2254-01 is located approximately 3,000 feet down-gradient (west) of the Facility and provides approximately 24% of the potable water to the Pearl Harbor Water System (PHWS), which serves approximately 52,200 military consumers (TEC, 2008).

1.3.2 Facility Information

The Facility consists of 18 active and two inactive USTs operated by Navy FISC Pearl Harbor. Each UST has a capacity of 12.5 million gallons. The bottom of the USTs is located approximately 100 feet above the basal aquifer (Dawson, 2006).

1.3.3 UST Information

The USTs were constructed in the early 1940s. The tanks were fabricated from steel and currently contain Jet Propulsion (JP)–5 fuel, JP-8, and F-76 (diesel marine fuel). Previously, several tanks stored Navy Special Fuel Oil, Navy Distillate, aviation gasoline, and motor gasoline. Each tank measures approximately 245 feet in height and 100 feet in diameter. The upper domes of the tanks lie at depths varying between approximately 100 feet and 200 feet below the existing ground surface (TEC, 2006).

1.4 Previous Environmental Investigations

1998 to 2001: From 1998 to 2001, the Navy conducted an investigation at the Facility to assess potential releases from the fuel storage USTs and piping systems. In February 2001, the Navy installed a one-inch diameter RHMW01 (previously known as MW-V1D) to monitor for contamination of the basal aquifer underlying the Facility. The well was installed and completed at approximately 100 feet below grade within the lower access tunnel. At the time of well completion, depth to water in RHMW01 was measured at 86 feet below grade (Dawson, 2006).

In February 2001, groundwater samples collected from RHMW01 contained total petroleum hydrocarbons (TPH) concentrations ranging from 883 micrograms per liter ($\mu\text{g/L}$) to 1,050 $\mu\text{g/L}$ and total lead ranging from 10.4 $\mu\text{g/L}$ to 15 $\mu\text{g/L}$. The maximum total lead concentration in the

samples was equal to the primary drinking water standard of 15 µg/L for lead and exceeded the HDOH Tier 1 groundwater action level of 5.6 µg/L (Dawson, 2006).

2005 – Groundwater Sampling: The Navy began quarterly groundwater sampling at existing monitoring wells in 2005. Dawson Group, Inc. collected groundwater samples from RHMW01 and the Red Hill Navy Pump Station (US Navy Well 2254-01) in February, June, September, and December 2005.

Samples collected in February and June 2005 were not filtered in the field prior to analysis for lead. Analytical results for samples collected from RHMW01 indicated concentrations of total lead were above the HDOH Tier 1 action level of 5.6 µg/L. The results were not considered appropriate for risk assessment since the sample had not been filtered. In addition, lead was not a component of fuels from the tanks near RHMW01. Lead may have been part of the Facility construction material (TEC, 2007). Previous sampling efforts showed elevated lead when analyzed as unfiltered samples. Subsequent efforts where the lead samples were filtered has resolved this issue.

Samples were filtered in September and December 2005, and dissolved lead concentrations were below the HDOH Tier 1 action level. Concentrations of all other contaminants of potential concern were below HDOH Tier 1 action levels.

2005 – Site Investigation: As part of a site investigation, TEC installed three groundwater monitoring wells at the Facility between June and September 2005. Well RHMW02 was installed in the lower access tunnel near Tanks 5 and 6. Well RHMW03 was installed in the lower access tunnel near Tanks 13 and 14. Well RHMW04 was installed north of UST tank 20 to provide geochemistry for water moving through the basal aquifer beneath the Facility. Wells RHMW02 and RHMW03 were completed to depths of approximately 125 feet below the tunnel floor, and well RHMW04 was completed to a depth of approximately 300 feet below ground surface outside the tunnel. Groundwater samples were collected from the three newly installed wells and two existing wells (RHMW01 and RHMW2254-01) in September 2005.

Naphthalene and trichloroethylene were detected in samples collected from RHMW02 at concentrations greater than the HDOH Tier 1 action levels. Lead was detected in the sample collected from RHMW01 at a concentration greater than the HDOH Tier 1 action level; however, the sample was not filtered in the field prior to analysis. Analytical results for filtered samples obtained by Dawson during the same period indicated concentrations of dissolved lead were below the HDOH Tier 1 action level.

2006 – Site Investigation: Dedicated sampling pumps were installed in five wells (RHMW01, RHMW02, RHMW03, RHMW04, and US Navy Well 2254-01). TEC collected groundwater samples from the wells in July 2006. The groundwater samples were analyzed for petroleum constituents. Naphthalene was detected in samples collected from RHMW02 at concentrations above the HDOH Tier 1 action level.

In September 2005, with concurrence from the HDOH, the Navy decided to use the newer HDOH Environmental Action Levels (EALs) for the Red Hill Site Investigation and Risk

Assessment project. The EALs provide action levels for more chemicals, and are more useful for conducting screening risk assessments. Since the HDOH (HDOH May 2005) Policy Letter stated that the two sets of action levels should not be mixed, the Tier 1 screening levels presented in HAR Section 11-281-78 would no longer be used to evaluate environmental impact at the Facility.

2006 – Groundwater Sampling: Groundwater samples were collected in December 2006. Analytical results indicated the following:

- No chemicals were detected in groundwater from US Navy Well 2254-01 or RHMW03;
- TPH as diesel range organics (TPH-DRO) was detected in groundwater above the HDOH Drinking Water EALs in RHMW01; and
- TPH as gasoline range organics (TPH-GRO), TPH-DRO, and naphthalene were detected in groundwater above the HDOH Drinking Water EALs in RHMW02.

2007 – Groundwater Sampling: Groundwater samples were collected in March, June, and September 2007. Analytical results indicated the following:

- No chemicals were detected above HDOH Drinking Water EALs at US Navy Well 2254-01;
- TPH-DRO exceeded HDOH Drinking Water EALs at RHMW01 during all three sampling events;
- TPH-GRO exceeded HDOH Drinking Water EALs at RHMW02 in March;
- TPH-DRO and naphthalene exceeded HDOH Drinking Water EALs at RHMW02 during all three sampling events;
- 1-methylnaphthalene and 2-methylnaphthalene exceeded the HDOH Groundwater Gross Contamination EAL at RHMW02 during all three sampling events; and
- TPH-DRO exceeded HDOH Drinking Water EALs at RHMW03 in June.

2008 – Groundwater Sampling: Groundwater samples were collected in January, April, July, and October 2008. Analytical results indicated the following:

- No chemicals were detected above HDOH Drinking Water EALs at US Navy Well 2254-01;
- Trace detections of 1-methylnaphthalene and naphthalene prompted a resample event in December at US Navy Well 2254-01, no chemicals were detected above the MDL;
- TPH-DRO exceeded HDOH Drinking Water EALs at RHMW01 during all four sampling events;
- TPH-GRO did not exceed HDOH Drinking Water EALs at RHMW02;
- TPH-DRO, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene exceeded HDOH Drinking Water EALs at RHMW02. Additionally, the SSRBL of 4,500 µg/L for TPH-DRO was exceeded in the October sampling event; and
- TPH-DRO exceeded HDOH Drinking Water EALs at RHMW03 during all four sampling events.

2009 – Groundwater Sampling: Groundwater samples were collected in February, May, July, and October 2009. Analytical results indicated the following:

- No chemicals have been detected above HDOH Drinking Water EALs at US Navy Well 2254-01;
- Trace TPH-GRO at US Navy Well 2254-01 was detected above the laboratory MDL and significantly below the laboratory reporting limit and HDOH EAL, in February and May 2009;
- TPH-DRO exceeded HDOH Drinking Water EALs at RHMW01 during all four sampling events;
- TPH-GRO has not exceed HDOH Drinking Water EALs at RHMW02;
- TPH-DRO exceeded HDOH Drinking Water EALs at RHMW02 during all four sampling events;
- Naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene exceeded HDOH Drinking Water EALs at RHMW02 in February 2009, however only 1-methylnaphthalene exceeded the HDOH Drinking Water EALs in May and July 2009 and only naphthalene exceeded the HDOH Drinking Water EAL in October 2009;
- TPH-DRO exceeded HDOH Drinking Water EALs at RHMW03 in February, but not in May, July, or October; and
- TPH-DRO exceeded HDOH Drinking Water EAL at RHMW05 during the July and October 2009 sampling events.

1.5 Regulatory Updates

During the summer and fall of 2008, HDOH updated their EALs, which resulted in significant changes to the action levels associated with methylnaphthalenes. The drinking water toxicity EAL for these compounds was 240 µg/L. This concentration presumed that methylnaphthalenes were non-carcinogenic. Evidence that they are human carcinogens has now been accepted by the US Environmental Protection Agency (USEPA). As a result, HDOH adopted more rigorous EALs of 4.7 µg/L for 1-methylnaphthalene and 24 µg/L for 2-methylnaphthalene, corresponding to a residential tap water scenario, and a 1 in a million cancer risk (HDOH, 2008).

The drinking water EAL for naphthalene has also been updated during this process. Previously, HDOH based their naphthalene EAL on USEPA Region 9 Preliminary Remediation Goal (USEPA PRG) of 6.2 µg/L, which is associated with a non-cancer Hazard index (HI) of 1. The US Environmental Protection Agency (USEPA) generally considers a Hazard quotient (HQ) of 1.0 or less to be acceptable. For multiple chemicals or fractions at an exposure point (e.g. for a monitoring well) a HI is calculated by summing the HQs. HDOH has updated their naphthalene drinking water EAL to 17 µg/L, in deference to the California Department of Public Health's Drinking Water Notification Levels, a Hazard Index of 2.7 (HDOH, 2008).

Finally, the HDOH Drinking Water EAL for TPH-DRO was increased from 100 µg/L to 210 µg/L, although the HDOH Groundwater Gross Contamination EAL for TPH-DRO remains 100 µg/L.

1.6 RHMW05 Installation

In April 2009, a new groundwater monitoring well, RHMW05, was installed by TEC under US Navy Contract Number N47408-04-D-8514, Task Order No. 54. RHMW05 is located within the

lower access tunnel between RHMW01 and RHMW2254-01 (located at the US Navy Well 2254-01). It was installed to identify the extent of contaminant migration prior to contaminants reaching the infiltration gallery at the US Navy Well 2254-01.

2.0 Sample Collection and Analyses

Field activities relating to groundwater sample collection were conducted on January 26 and 27, 2010. Groundwater samples were collected from four monitoring wells located inside the Facility lower access tunnel and one monitoring well located at the Red Hill Navy Pump Station. Sampling and analysis were conducted according to *Red Hill Bulk Fuel Storage Facility Groundwater Protection Plan* (TEC, 2009). A total of eight samples were collected as follows:

- one environmental sample from RHMW2254-01 (i.e., located at the US Navy Well 2254-01), RHMW01, RHMW02, RHMW03, and RHMW05;
- one duplicate sample from RHMW02 (sampled as RHMWA01 and reported as RHMW02D); and
- one matrix spike and matrix spike duplicate from RHMW2254-01.

Due to elevated TPH-DRO concentrations in RHMW02, additional samples were collected on February 23, 2010 and March 30, 2010. During February and March, two samples were collected for TPH-DRO as follows:

- one environmental sample from RHMW02; and
- one duplicate sample from RHMW02 (sampled as RHMWA01 and reported as RHMW02D).

2.1 Monitoring Well Purging

All monitoring wells were purged prior to sampling. Well purging was considered complete when no less than three successive water quality parameter measurements had stabilized within approximately 10 percent. Field parameters were measured at regular intervals during well purging and included pH, temperature, specific conductivity, dissolved oxygen, and turbidity. During the February 2010 resample of RHMW02, the field parameters measured were limited to pH and turbidity as a result of a faulty water quality analyzer. Well purging was considered complete when greater than three well volumes had been purged. Purge water was collected and disposed in the Facility oil/water separator system.

2.2 Groundwater Sample Collection

Each monitoring well was sampled immediately following purging. All wells were sampled directly from their dedicated bladder pump system, except for RHMW02 and RHMW05. RHMW02 and RHMW05 were sampled using disposable bailers. Samples were placed into sampling containers with appropriate preservatives [i.e., hydrochloric acid (HCl) for volatile organic analysis, nitric acid (HNO₃) for dissolved lead]. Dissolved lead samples were filtered in the field and placed in preserved bottles. Sample containers were labeled with the date, sample identification number, type of analysis, and sampler's name. The containers were placed on ice in sample coolers and transported under chain-of-custody procedures to the certified laboratory for analysis.

2.3 Groundwater Sample Analyses

Groundwater samples were analyzed by SGS Environmental Service, Inc. in Anchorage, Alaska for TPH-DRO and TPH-GRO by EPA Method 8015B, VOCs by EPA Method 8260B, PAHs by EPA Method 8270C SIM, and dissolved lead by EPA Method 6020.

3.0 Groundwater Sample Analytical Results

This section provides a summary of analytical results for groundwater samples collected from four monitoring wells located in the lower access tunnel of the Facility and one monitoring well located at the Red Hill Navy Pump Station. Duplicate sample results from monitoring well RHMW02 are reported in this document as RHMW02D. A summary of groundwater analytical results for TPH-DRO, TPH-GRO, VOCs, PAHs, and dissolved lead is included in Table 1. Complete analytical laboratory reports are provided in Appendix A.

3.1 January, February, and March 2010 Sample Analytical Results

Groundwater samples were analyzed for TPH-DRO, TPH-GRO, VOCs, PAHs, and dissolved lead, with the exception of the February and March 2010 re-sampling efforts at RHMW02 where only TPH-DRO was analyzed. The results for each groundwater monitoring well are discussed below.

RHMW01

TPH-DRO at 312F µg/L exceeded the HDOH Drinking Water EALs of 210 µg/L. Concentrations of 2-methylnaphthalene, acenaphthene, flourene, naphthalene, and phenanthrene were detected at 0.0559 µg/L, 0.0372F µg/L, 0.0384F µg/L, 0.33 µg/L, and 0.0204F µg/L, respectfully (Table 1). All of these concentrations are below the HDOH EALs for each constituent. No other constituents were detected above the laboratory MDL.

RHMW02

TPH-DRO, TPH-GRO, 1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, fluoranthene, flourene, and naphthalene were detected in RHMW02. In January 2010, TPH-DRO was detected at RHMW02 in the normal and duplicate samples at 2,130 µg/L and 3,410 µg/L, respectively. During the resample event in February 2010, TPH-DRO was detected in the normal and duplicate samples at 8,650 µg/L and 6,910 µg/L, respectively. These results exceeded the HDOH EAL of 210 µg/L, and the site-specific risk based level (SSRBL) of 4,500 µg/L. However, after a thorough analysis of the analytical data, tentatively identified compounds (TICs) that are apparently not attributed to fuel from the Facility were contributing to elevated TPH-DRO concentrations. Adjusted concentrations (i.e., not including increases from TICs) for TPH-DRO are estimated at 1,740 µg/L and 2,110 µg/L, from the normal and duplicate samples from January 2010, respectively; and 3,470 µg/L and 2,930 µg/L, from the normal and duplicate samples from February 2010, respectively (see Appendix B). The March 2010 re-sampling results did not contain large concentrations of apparently non-fuel related TIC compounds. The March 2010 TPH-DRO concentrations of 2,630 µg/L and 2,350 µg/L (duplicate) provide an average TPH-DRO concentration of 2,490 µg/L (Appendix B).

Table 1. Analytical Results for Quarterly Groundwater Monitoring Release Response Report (January 26 - 27, February 23, and March 31, 2010)
Red Hill Fuel Storage Facility, Pearl Harbor, Hawaii

Method	Chemical	HDOH Drinking Water EALs ¹ for Human Toxicity UG/L	HDOH Groundwater Gross Contamination EALs ² UG/L	RHMW01 UG/L				RHMW02 UG/L				RHMW02D UG/L				RHMW03 UG/L				RHMW05 UG/L				RHMW2254-01 UG/L				RHMW02 UG/L				RHMW02D- UG/L				RHMW02 UG/L				RHMW02D- UG/L					
				January 27, 2010				January 26, 2010				January 26, 2010				January 27, 2010				January 26, 2010				January 27, 2010				February 23, 2010				February 23, 2010				March 30, 2010				March 30, 2010					
				Result	Q	MDL	RL	Result	Q	MDL	RL	Result	Q	MDL	RL	Result	Q	MDL	RL	Result	Q	MDL	RL	Result	Q	MDL	RL	Result	Q	MDL	RL	Result	Q	MDL	RL	Result	Q	MDL	RL						
8015B (Petroleum)	TPH as DIESEL RANGE ORGANICS	210	100	312	F	165	440	2130	F	161	430	3410	F	169	449	ND	U	165	440	2060	U	169	449	ND	U	160	426	8650	165	440	6910	163	435	2630	172	460	2350	167	444						
	TPH as GASOLINE RANGE ORGANICS	100	100	ND	U	30	100	42.3		30	100	38.1		30	100	ND	U	30	100	ND	U	30	100	ND	U	30	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA				
8270C SIM (PAHs)	1-METHYLNAPHTHALENE	4.7	10	ND	U	0.0167	0.0556	9.03		0.165	0.549	8.26		0.17	0.568	ND	U	0.0161	0.0538	0.0207	F	0.0172	0.0575	ND	U	0.0158	0.0526	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			
	2-METHYLNAPHTHALENE	24	10	0.0559		0.0167	0.0556	3.85		0.165	0.549	2.65		0.017	0.0568	ND	U	0.0161	0.0538	0.0246	F	0.0172	0.0575	ND	U	0.0158	0.0526	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	ACENAPHTHENE	370	20	0.0372	F	0.0167	0.0556	0.247		0.0165	0.0549	0.231		0.017	0.0568	ND	U	0.0161	0.0538	ND	U	0.0172	0.0575	ND	U	0.0158	0.0526	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	ACENAPHTHYLENE	240	2000	ND	U	0.0167	0.0556	ND	U	0.0165	0.0549	ND	U	0.017	0.0568	ND	U	0.0161	0.0538	ND	U	0.0172	0.0575	ND	U	0.0158	0.0526	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	ANTHRACENE	1800	22	ND	U	0.0167	0.0556	ND	U	0.0165	0.0549	ND	U	0.017	0.0568	ND	U	0.0161	0.0538	ND	U	0.0172	0.0575	ND	U	0.0158	0.0526	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	BENZO(a)ANTHRACENE	0.092	4.7	ND	U	0.0167	0.0556	ND	U	0.0165	0.0549	ND	U	0.017	0.0568	ND	U	0.0161	0.0538	ND	U	0.0172	0.0575	ND	U	0.0158	0.0526	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	BENZO(a)PYRENE	0.2	0.81	ND	U	0.0167	0.0556	ND	U	0.0165	0.0549	ND	U	0.017	0.0568	ND	U	0.0161	0.0538	ND	U	0.0172	0.0575	ND	U	0.0158	0.0526	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	BENZO(b)FLUORANTHENE	0.092	0.75	ND	U	0.0167	0.0556	ND	U	0.0165	0.0549	ND	U	0.017	0.0568	ND	U	0.0161	0.0538	ND	U	0.0172	0.0575	ND	U	0.0158	0.0526	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	BENZO(g,h,i)PERYLENE	1500	0.13	ND	U	0.0167	0.0556	ND	U	0.0165	0.0549	ND	U	0.017	0.0568	ND	U	0.0161	0.0538	ND	U	0.0172	0.0575	ND	U	0.0158	0.0526	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	BENZO(k)FLUORANTHENE	0.92	0.4	ND	U	0.0167	0.0556	ND	U	0.0165	0.0549	ND	U	0.017	0.0568	ND	U	0.0161	0.0538	ND	U	0.0172	0.0575	ND	U	0.0158	0.0526	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	CHRYSENE	9.2	1	ND	U	0.0167	0.0556	ND	U	0.0165	0.0549	ND	U	0.017	0.0568	ND	U	0.0161	0.0538	ND	U	0.0172	0.0575	ND	U	0.0158	0.0526	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	DIBENZ(a,h)ANTHRACENE	0.0092	0.52	ND	U	0.0167	0.0556	ND	U	0.0165	0.0549	ND	U	0.017	0.0568	ND	U	0.0161	0.0538	ND	U	0.0172	0.0575	ND	U	0.0158	0.0526	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	FLUORANTHENE	1500	130	ND	U	0.0167	0.0556	ND	U	0.0165	0.0549	0.0209	F	0.017	0.0568	ND	U	0.0161	0.0538	0.019	F	0.0172	0.0575	ND	U	0.0158	0.0526	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	FLUORENE	240	950	0.0384	F	0.0167	0.0556	0.144		0.0165	0.0549	0.122		0.017	0.0568	ND	U	0.0161	0.0538	ND	U	0.0172	0.0575	ND	U	0.0158	0.0526	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	INDENO(1,2,3-c,d)PYRENE	0.092	0.095	ND	U	0.0167	0.0556	ND	U	0.0165	0.0549	ND	U	0.017	0.0568	ND	U	0.0161	0.0538	ND	U	0.0172	0.0575	ND	U	0.0158	0.0526	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	NAPHTHALENE	17	21	0.33		0.0344	0.111	17.3		0.341	1.1	15.7		0.352	1.14	ND	U	0.0333	0.108	ND	U	0.0356	0.115	0.0375	F	0.0326	0.105	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	PHENANTHRENE	240	410	0.0204	F	0.0167	0.0556	ND	U	0.0165	0.0549	ND	U	0.017	0.0568	ND	U	0.0161	0.0538	0.0182	F	0.0172	0.0575	ND	U	0.0158	0.0526	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	PYRENE	180	68	ND	U	0.0167	0.0556	ND	U	0.0165	0.0549	ND	U	0.017	0.0568	ND	U	0.0161	0.0538	ND	U	0.0172	0.0575	ND	U	0.0158	0.0526	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
8260B (VOCs)	1,1,1,2-TETRACHLOROETHANE	0.52	50000	ND	U	0.15	0.5	ND	U	0.15	0.5	ND	U	0.15	0.5	ND	U	0.15	0.5	ND	U	0.15	0.5	ND	U	0.15	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	1,1,1-TRICHLOROETHANE	200	970	ND	U	0.31	1	ND	U	0.31	1	ND	U	0.31	1	ND	U	0.31	1	ND	U	0.31	1	ND	U	0.31	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1,1,2,2-TETRACHLOROETHANE	0.067	500	ND	U	0.15	0.5	ND	U	0.15	0.5	ND	U	0.15	0.5	ND	U	0.15	0.5	ND	U	0.15	0.5	ND	U	0.15	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	1,1,2-TRICHLOROETHANE	5	50000	ND	U	0.31	1	ND	U	0.31	1	ND	U	0.31	1	ND	U	0.31	1	ND	U	0.31	1	ND	U	0.31	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1,1-DICHLOROETHANE	2.4	50000	ND	U	0.31	1	ND	U	0.31	1	ND	U	0.31	1	ND	U	0.31	1	ND	U	0.31	1	ND	U	0.31	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1,2,3-TRICHLOROPROPANE (TCP)	0.6	50000	ND	U	0.31	1	ND	U	0.31	1	ND	U	0.31	1	ND	U	0.31	1	ND	U	0.31	1	ND	U	0.31	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1,2,4-TRICHLOROBENZENE	70	3000	ND	U	0.31	1	ND	U	0.31	1	ND	U	0.31	1	ND	U	0.31	1	ND	U	0.31	1	ND	U	0.31	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	0.04	10	ND	U	0.62	2	ND	U	0.62	2	ND	U	0.62	2	ND	U	0.62	2	ND	U	0.62	2	ND	U	0.62	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1,2-DIBROMOETHANE (EDB)	0.0065	50000	ND	U	0.31	1	ND	U	0.31	1	ND	U	0.31	1	ND	U	0.31	1	ND	U	0.31	1																						

TPH-GRO was detected above the laboratory MDL of 30 µg/L in the normal and duplicate samples (i.e., 42.3F µg/L and 38.1F µg/L, respectively). Naphthalene was analyzed by USEPA Method 8270C SIM and USEPA Method 8260B. USEPA Method 8260B produced the highest naphthalene concentrations, which averaged 20.4 µg/L from the normal and duplicate sample (HDOH Drinking Water EAL is 17 µg/L). In addition, 1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, and flourene were detected at average concentrations of 8.645 µg/L, 3.25 µg/L, 0.239 µg/L, and 0.133 µg/L, respectively (Table 1). Fluoranthene was only detected in the duplicate sample at 0.0209F µg/L. All of these concentrations are below the HDOH EALs for each constituent, except for 1-methylnaphthalene (HDOH Drinking Water EAL is 4.7 µg/L). The only other constituent detected above the laboratory MDL was dissolved lead in the normal sample only, at a concentration of 1.53 µg/L (HDOH Drinking Water EAL is 15 µg/L).

RHMW03

No parameters were detected above the laboratory MDLs in RHMW03 (Table 1).

RHMW05

TPH-DRO was detected at a concentration of 2,060 µg/L. This concentration exceeds the HDOH Drinking Water EAL of 210 µg/L and the HDOH Groundwater Gross Contamination EAL of 100 µg/L. However, TICs apparently not associated with petroleum from the Facility were detected at significant concentrations in RHMW05. After subtracting the TICs, TPH-DRO was estimated at a concentration of 541 µg/L (see Appendix B).

In addition, 1-methylnaphthalene, 2-methylnaphthalene, fluoranthene, and phenanthrene were detected above the laboratory MDL at 0.0207F µg/L, 0.0246F µg/L, 0.019F µg/L, and 0.0182F µg/L, respectively. All of these concentrations are below the HDOH EALs for each constituent (Table 1).

US Navy Well 2254-01

Naphthalene was detected at 0.0375F µg/L, just above the laboratory MDL and below the HDOH drinking water EAL of 17 µg/L (Table 1).

3.2 Groundwater Contaminant Trend

Groundwater samples have been collected and analyzed by TEC since September 2005. Figure 1 shows TPH trends in groundwater at the Facility. Figure 2 shows PAH trends in groundwater at the Facility. In these figures, open icons (without data) represent locations where the compounds being analyzed were not detected.

The following is a discussion of compounds that exceeded HDOH Drinking Water EALs during two or more recent consecutive sampling events, thus establishing a trend:

RHMW01

At RHMW01, concentrations of TPH-DRO have been greater than the HDOH Drinking Water EAL since September 2005, but less than 25 percent of the SSRBL of 4,500 µg/L. TPH-DRO had exhibited a decreasing trend since October 2008 with the lowest concentration (i.e., 248

µg/L) recorded in July 2009. Since July 2009, this trend began increasing with 299F µg/L and 312F µg/L detected in October 2009 and January 2010, respectively.

RHMW02

At RHMW02, from September 2005 through March 2009, TPH-DRO exceeded the HDOH Drinking Water EAL and was greater than 50 percent of the SSRBL (estimated solubility limit of 4,500 µg/L). Specifically, the concentration of TPH-DRO was relatively stable at RHMW02 until July 2008, ranging from 2,250 to 2,995 µg/L. However, during the July and October 2008 sampling events, these average concentrations increased. The July 2008 average concentration was 4,055 µg/L and the October 2008 average concentration was 5,420 µg/L. Both of these values were significantly above the HDOH Drinking Water EAL of 210 µg/L, with the October 2008 average also exceeding the SSRBL of 4,500 µg/L.

However, TPH-DRO at RHMW02 has shown a decreasing trend from October 2008 through July 2009. During this period, TPH-DRO remained above the HDOH Drinking Water EAL, but was below 50 percent of the SSRBL of 4,500 µg/L. In October 2009, TPH-DRO began an increasing trend greater than 50 percent of the SSRBL which continued through February 2010 when it exceeded the SSRBL. It is important to note that in January and February 2010, TICs apparently not associated with petroleum from the Facility were detected at significant concentrations. After subtracting the TICs from these results, the January 2010 TPH-DRO average shows a slight decrease from the October 2009 event. However, the February 2010 re-sampling event showed an increased average of 3,200 µg/L (Appendix B), exceeding the HDOH Drinking Water EAL and being over 50 percent of the SSRBL. The TPH-DRO concentration averaged 2,490 µg/L during the March 2010 re-sampling event when unlike during January and February, TICs were not observed at significant concentrations (Appendix B).

For other parameters, the average concentration for 1-methylnaphthalene (i.e., 8.645 µg/L) exhibited an increase from an October 2009 concentration that was less than the HDOH Drinking Water EAL of 4.7 µg/L. Naphthalene had shown an increasing trend since its lowest concentration in May 2009. In January 2010, naphthalene in RHMW02 (i.e., 20.4 µg/L) exceeded the HDOH Drinking Water EAL of 17 µg/L, but slightly decreased relative to the October 2009 concentration (i.e., 21.65 µg/L).

RHMW03

At RHMW03, historically, concentrations of TPH-DRO have fluctuated around the HDOH Drinking Water EAL, but have been significantly lower than corresponding values observed at RHMW01 and RHMW02. However, during the last four sampling events (i.e., May 2009, July 2009, October 2009, and January 2010), TPH-DRO was not detected above the laboratory MDL. These results represent a continuing decreasing trend for TPH-DRO that has existed since October 2008.

RHMW05

At RHMW05 there is an increasing trend for TPH-DRO over the last four sampling rounds. The January 2010 concentration was 2,060 µg/L, an increase as compared with the October 2009 concentration of 673 µg/L. The January 2010 concentration is greater than the HDOH EAL, but less than 50 percent of the SSRBL for TPH-DRO. However, as with RHMW02, TICs apparently

not associated with petroleum from the Facility were detected at significant concentrations in RHMW05. After subtracting the TICs from the January 2010 results, TPH-DRO was estimated at a concentration of 541 µg/L (see Appendix B).

US Navy Well 2254-01

At US Navy Well 2254-01, no compounds have been detected above the laboratory MDLs since trace concentrations of TPH-GRO and 2-methylnaphthalene that were observed in the February and May 2009. However, in January 2010, naphthalene was detected at 0.0375F µg/L via EPA Method 8270C SIM, just above the laboratory MDL (i.e., 0.0326 µg/L) and below the HDOH EAL (i.e., 17 µg/L).

3.3 Results of Oil/Water Interface Measurements

The presence and thickness of light-non aqueous phased liquids (LNAPL), otherwise known as free product, released from the USTs is monitored at the Facility (see Table 2). Static water levels and fuel thickness is measured to a precision of ± 0.01 feet.

In January 2008, fuel was measured in monitoring wells RHMW01 and RHMW02 at a thickness of < 0.01 ft, but has not been observed in other monitoring wells. Measurements to determine the presence and thickness of fuel were conducted at RHMW01, RHMW02, RHMW03, and RHMW05 prior to the January 2010 sampling round. At the end of February and March, subsequent rounds of oil/water interface measurements were conducted. Since January 2008, no free product has been observed in any of these wells.

Table 2. Oil/Water Interface Measurements

Date	RHMW01		RHMW02		RHMW03		RHMW05	
	SWL (ft)	LNAPL (ft)	SWL (ft)	LNAPL (ft)	SWL (ft)	LNAPL (ft)	SWL ⁶ (ft)	LNAPL (ft)
January 2008	17.74	< 0.01	18.78	< 0.01	NT ¹	NT ¹	----	----
July 2008	19.04	0.00	18.91	0.00	18.86	0.00	----	----
October 2008	18.61	0.00	18.56	0.00	18.82	0.00	----	----
November 2008	18.50	0.00	18.45	0.00	18.51	0.00	----	----
January 2009	19.28	0.00	19.22	0.00	19.27	0.00	----	----
February 2009	NT ²	NT ²	18.66	0.00	18.75	0.00	----	----
March 2009	18.59	0.00	18.57	0.00	18.67	0.00	----	----
May 2009 ³	18.69	0.00	18.64	0.00	18.72	0.00	NT ⁵	NT ⁵
May 2009	18.91	0.00	18.86	0.00	18.90	0.00	NT ⁵	NT ⁵
July 2009 ⁴	18.66	0.00	18.59	0.00	18.64	0.00	18.63	0.00
August 2009	18.37	0.00	18.30	0.00	18.47	0.00	18.21	0.00
September 2009	18.20	0.00	18.17	0.00	18.24	0.00	18.11	0.00
October 2009	18.17	0.00	18.14	0.00	18.24	0.00	18.10	0.00
November 2009	18.50	0.00	18.45	0.00	18.50	0.00	18.47	0.00
December 2009	18.29	0.00	18.26	0.00	18.31	0.00	18.19	0.00
January 2010	18.05	0.00	18.01	0.00	18.09	0.00	17.97	0.00
February 2010	18.17	0.00	18.12	0.00	18.17	0.00	18.12	0.00
March 2010	17.88	0.00	17.86	0.00	17.93	0.00	17.76	0.00

SWL - Static water level, elevation above mean sea level

LNAPL - Light Non-Aqueous Phased Liquid, fuel product on groundwater attributed to the Facility

ft - Feet

NT - Not Taken

¹ - The January 2008 measurement at RHMW03 was not taken due to equipment malfunction

² - During the February 2009 measurements, RHMW01 was inaccessible due to extensive work being conducted at Tank 02

³ - The measurements scheduled for April 2009 were postponed until May 6, 2009 due to RHMW05 drilling activities

⁴ - The June 2009 measurements were skipped due to the installation of dedicated oil/water interface probes

⁵ - Oil/water interface measurements were not taken at RHMW05 until the installation of the oil/water interface probe was completed

⁶ - Elevation at RHMW05 is estimated from the difference between RHMW01 and RHMW05 during a survey conducted in January 2010

---- - Time period prior to the installation of RHMW05

Oil/water interface measurements were not taken in April 2008

3.4 Groundwater Status

Constituents of concern are defined as petroleum-related chemicals that have been observed in the groundwater samples above the HDOH EALs. In accordance with the *Red Hill Bulk Fuel Storage Facility Final Groundwater Protection Plan* (TEC, 2008), Table 3 defines the constituents of concern in groundwater at the Facility and the SSRBLs and updated EALs for each (HDOH 2008).

Table 3. Action Levels for Constituents of Concern

Chemical	EAL (µg/L)	SSRBL (µg/L)
Petroleum Mixtures		
TPH-DRO	210	4,500
TPH-GRO	100	4,500
Semi-Volatile Compounds		
1-Methylnaphthalene	4.7	NA
2-Methylnaphthalene	24	NA
Naphthalene	17	NA

NA – Not applicable or not determined

SSRBLs are applicable at RHMW01, RHMW02, RHMW03, and RHMW05

EALs are applicable at US Navy Well 2254-01

In addition, the Plan defines four results categories of groundwater status for the Facility, based on concentrations of constituents of concern in RHMW01, RHMW02, RHMW03, RHMW05 and the US Navy Well 2254-01, and requires specific responses when these categories are observed during quarterly groundwater sampling. Table 4 describes each of the four results categories and identifies response actions to be taken in accordance with the Plan.

Table 4. Results Categories and Response Actions to Changes in Groundwater Status

Results Category	RHMW02 RHMW03 or RHMW05*	RHMW01	US Navy Pumping Well 2254-01
Results Category 1: Result above detection limit but below drinking water EAL and trend for all compounds stable or decreasing	A	A	A,D,M,E
Results Category 2: Trend for any compound increasing or drinking water EAL exceeded	A, B	A, B	A,B,C,D,E,F,G,K, L,O
Results Category 3: Result Between 1/10X SSRBL and SSRBL for benzene, or between 1/2X SSRBL and SSRBL for TPH	A,B,G,H,I,J	A,B,E,G,H,I,J	A,B,C,D,E,F,G,I,J, K,L,O
Results Category 4: Result Exceeding any SSRBL or petroleum product observed	A,C,D,E,F,I,J, K,M,N	A,C,D,E,F,I, J,K,M,N,O	A,C,D,E,F,G,I,J,K, L,O

*RHMW05 was installed in April 2009 and has been subsequently been added to this Table.

Specific Responses:

- A. Send quarterly reports to HDOH
- B. Begin program to determine the source of leak
- C. Notify HDOH verbally within 1 day and follow with written notification in 30 days
- D. Notify FISC Chain of Command within 1 day
- E. Send Type 1 Report (see box below) to HDOH

- F. Send Type 2 Report (see box below) to HDOH
- G. Increase monitoring frequency to once per month (if concentrations increasing)
- H. Notify HDOH verbally within 7 days and follow with written notification in 30 days
- I. Remove sampling pumps, measure product in pertinent wells with interface probe, re-install pumps if product is not detected.
- J. Immediately determine leaking tank
- K. Collect samples from nearby Halawa Deep Monitoring Well (2253-03) and OWDF MW01
- L. Provide alternative water source at 2254-01
- M. Prepare for alternative water source at US Navy Well 2254-01
- N. Re-measure for product every month with reports to HDOH
- O. Install additional monitoring well downgradient

Report Types

HDOH Type 1 Report

- Re-evaluate Tier 3 Risk Assessment/groundwater model results
- Proposal to HDOH on a course of action

HDOH Type 2 Report

- Proposal for groundwater treatment

Free Product Measurements

In response to the previous Category 3 status at RHMW02, free product measurements have been collected at the Facility monitoring wells (Table 2). To date, there is no trend (i.e., two or more consecutive events) of fuel presence on groundwater at any of these wells.

US Navy Well 2254-01

Although a trace concentration of naphthalene was detected at US Navy Well 2254-01 during the January 2010 sampling event, it does not place the well into the Category 1 status. Because no contamination trend (i.e., two or more consecutive events of detectable concentrations) has been established, US Navy Well 2254-01 does not meet the Category 1 definition.

RHMW03

Based upon the January 2010 sampling event, RHMW03 is not eligible for any category status change since no compounds were detected above the laboratory MDLs.

Category 1 Status Locations

There are no Category 1 status locations based upon the January 2010 event.

Category 2 Status Locations

RHMW01

The January 2010 sampling event indicates that RHMW01 should remain in Category 2 status. This is because the TPH-DRO concentration of 312F µg/L is greater than the HDOH Drinking

Water EAL (210 µg/L), but less than half the SSRBL of 4,500 µg/L (estimated solubility limit of JP-5).

RHMW05

Based upon the January 2010 sampling event RHMW05 should remain in a Category 2 status. TPH-DRO in RHMW05 (i.e., 2,060 µg/L) is above the drinking water EAL of 210 µg/L and has been showing an increasing trend over the last four rounds. However, as with RHMW02, TICs apparently not associated with petroleum from the Facility were detected at significant concentrations in RHMW05. After subtracting the TICs from the January 2010 results, TPH-DRO was estimated at a concentration of 541 µg/L which still exceeds the drinking water EAL (Appendix B).

Category 2 for RHMW01 and RHMW05 requires:

1. Quarterly reports to be sent to HDOH; and
2. Initiation of a leak determination program to identify if tanks are leaking.

Category 3 Status Locations

RHMW02

Results from the January 2010 sampling event and the resample event in February 2010 indicate that RHMW02 remains in Category 3 status. This is because TPH-DRO, after subtracting the TICs apparently not associated with petroleum from the Facility, is greater than the HDOH Drinking Water EAL (210 µg/L), and is between one half and the established SSRBL value of 4,500 µg/L (estimated solubility limit of JP-5). Specifically, the maximum observed TPH-DRO TICs adjusted concentration among the January 2010 and February 2010 sampling efforts occurred during the February 2010 effort with adjusted concentrations of 3,470 µg/L and 2,930 µg/L (duplicate) (Appendix B). However, TPH-DRO averaged 2,490 µg/L during the March 2010 re-sampling event when unlike during January and February, TICs were not observed at significant concentrations (Appendix B).

In addition, the HDOH Drinking Water EAL of 17 µg/L for naphthalene was exceeded in January 2010 [i.e., 20.4 µg/L (the average of normal and duplicate samples)].

Category 3 response at RHMW02 requires:

1. Send quarterly reports to HDOH;
2. Initiation of a leak determination program to identify if tanks are leaking;
3. Increase free product monitoring frequency to once per month (if concentrations increasing);
4. Notify HDOH verbally within 7 days and follow with written notification in 30 days;
5. Remove sampling pumps, measure product in lower access tunnel wells with interface probe, re-install pumps if product is not detected; and
6. Immediately evaluate tanks for leaks.

Category 4 Status Locations

There are no Category 4 status locations.

4.0 Summary and Conclusions

Summary

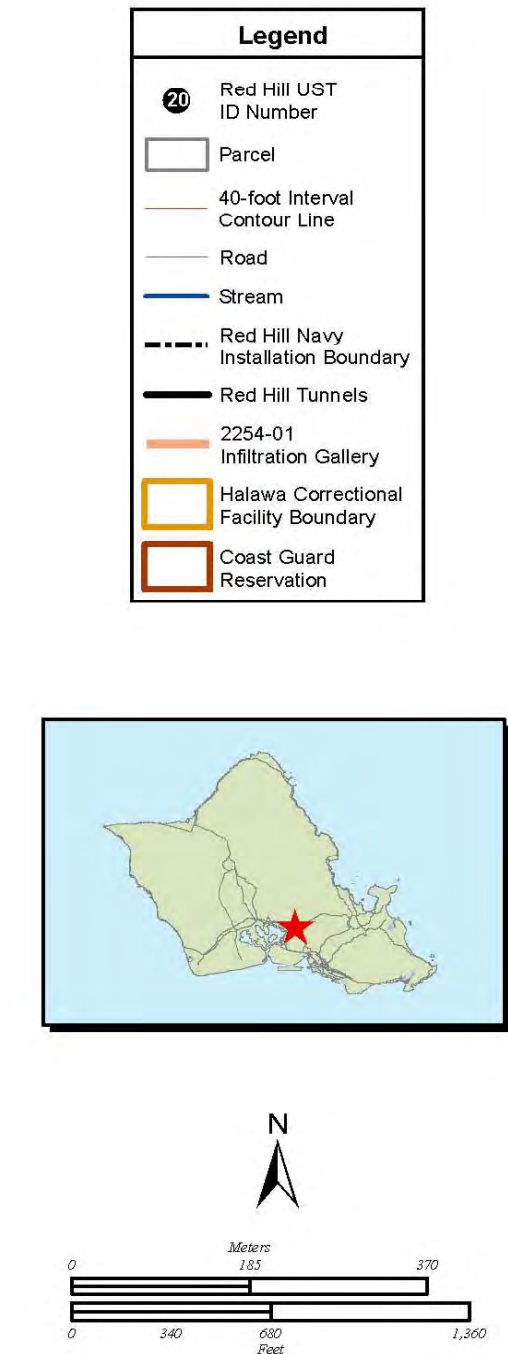
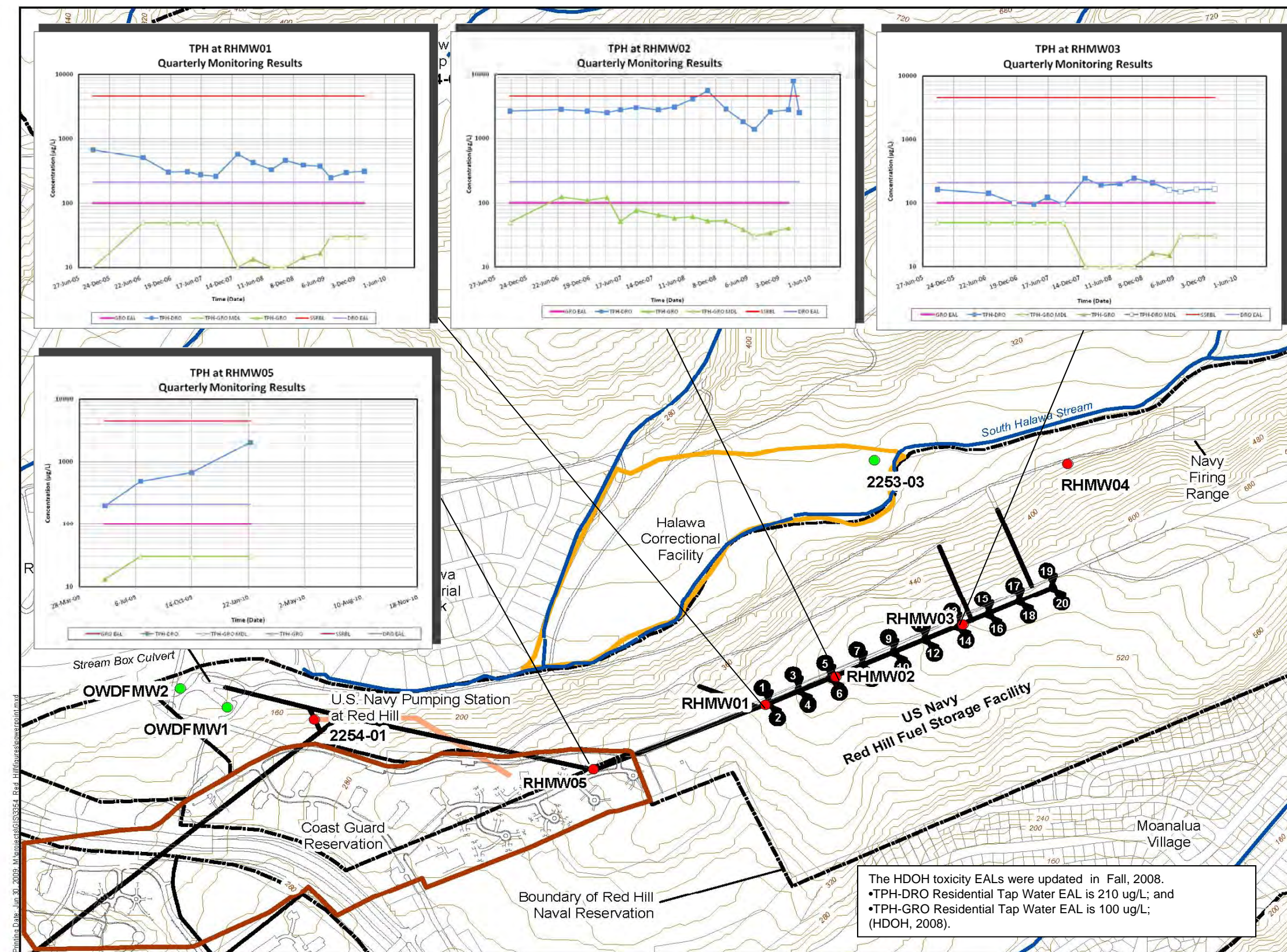
There is no indication of an immediate threat of disruption to drinking water resources of the US Navy Well 2254-01 as a result of the January and February 2010 data. However, a trace concentration of naphthalene was detected just above the laboratory MDL, but significantly less than the HDOH drinking water EAL at RHMW2254-01. The increasing TPH-DRO concentrations at RHMW05 are of significant concern. This well is less than 700 feet from the east end of the US Navy Well 2254-01 infiltration gallery. The TPH-DRO concentration in this well was nearly 50 percent of the SSRBL prior to a re-quantification that adjusted the concentration by removing apparently non-fuel related TIC compounds from the TPH-DRO total concentration (Appendix B). If the total TPH-DRO concentration at RHMW05 had been from fuel-related compounds, there could be a high probability of contamination at some point entering the infiltration gallery.

With the exception of RHMW03 and RHMW2254-01, compound concentrations for all the other monitoring wells (i.e., RHMW01, RHMW02, and RHMW05) are exhibiting increasing contaminant trends for TPH-DRO relative to the concentrations observed in October 2009. Current results from RHMW01 are still at concentration levels within the historical range. However, results from RHMW02 and RHMW05 have been exhibiting significant increases (i.e., for the non-TIC adjusted concentrations). After a thorough analysis of the analytical results from RHMW02 and RHMW05, TICs apparently not attributed to petroleum from the Facility contributed to a significant increase of TPH-DRO during January and February 2010 (see Appendix B). After subtracting these TICs, the estimated TPH-DRO concentrations in RHMW02 and RHMW05 remain within the historical range.

Conclusions/Recommendations

- To date, there is no trend (i.e., two or more consecutive events) of fuel presence on groundwater at the Facility wells (Table 2). In fact, fuel on the groundwater has been observed only once (i.e., in January 2008 in RHMW01 and RHMW02 at less than 0.01 ft.). It is recommended that the Facility continue regular monitoring of Facility wells for the presence of fuel on groundwater.
- The concentration of TPH-DRO measured in the newest monitoring well, RHMW05, in January 2010 (i.e., 2,060 µg/L) exceeded the HDOH Drinking Water EAL, but was less than half of the SSRBL. RHMW05 is located between RHMW01 and the US Navy Well 2254-01. It is recommended that future quarterly analytical results be closely assessed at RHMW05, since its non-TIC adjusted concentrations exhibit an increasing contaminant trend for TPH-DRO (i.e., 200 µg/L in May 2009, 491µg/L in July 2009, 673 µg/L in October 2009, and 2,060 µg/L in January 2010).
- RHMW01 and RHMW02 are exhibiting increasing contaminant trends, however, when adjusted for apparently non-fuel related TICs are still at concentration levels within the historical range. It is recommended that quarterly monitoring of the Facility wells continue so that overall groundwater quality trends may be established/observed and proactive action taken if the groundwater quality shows greater evidence of deterioration.

-
- The US Navy Well 2254-01 is not imminently threatened at this time; however, monitoring should continue to evaluate the extent of contaminant migration from up-gradient locations.
 - Do a more detailed analytical assessment of the contamination found in RHMW05 (and other wells) such as having future samples analyzed using the MADEP analytical methods in addition to TPH-GRO and TPH-DRO analytical methods.
 - The following activities are in process to monitor and/or clarify the groundwater contamination situation at the Facility:
 1. Re-evaluate risk assessment and groundwater model (TEC, 2007) to ensure both are valid and protective of human health and the environment under the existing conditions;
 2. Continue monthly free product measurements at RHMW01, RHMW02, RHMW03, and RHMW05;
 3. Continue to collect samples from nearby Halawa Deep Monitoring Well (2253-03), OWDF MW01, and RHMW04 to assess regional groundwater trends;
 4. Prepare for alternative water source at US Navy Well 2254-01, if appropriate.
 5. Continue quarterly groundwater monitoring of Facility wells for TPH-DRO, TPH-GRO, VOCs, PAHs, and lead until such time that new data indicates that a different monitoring program is warranted.



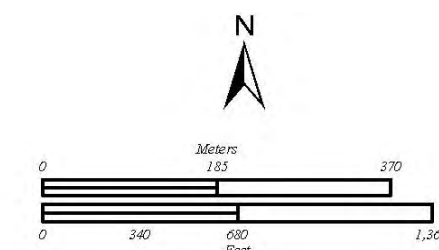
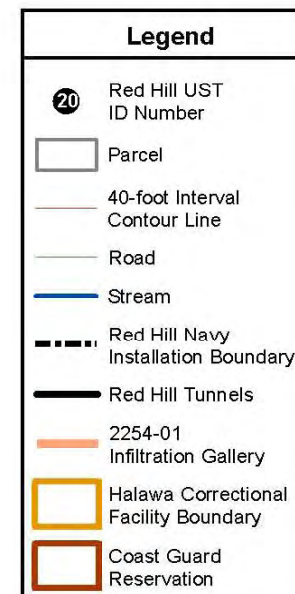
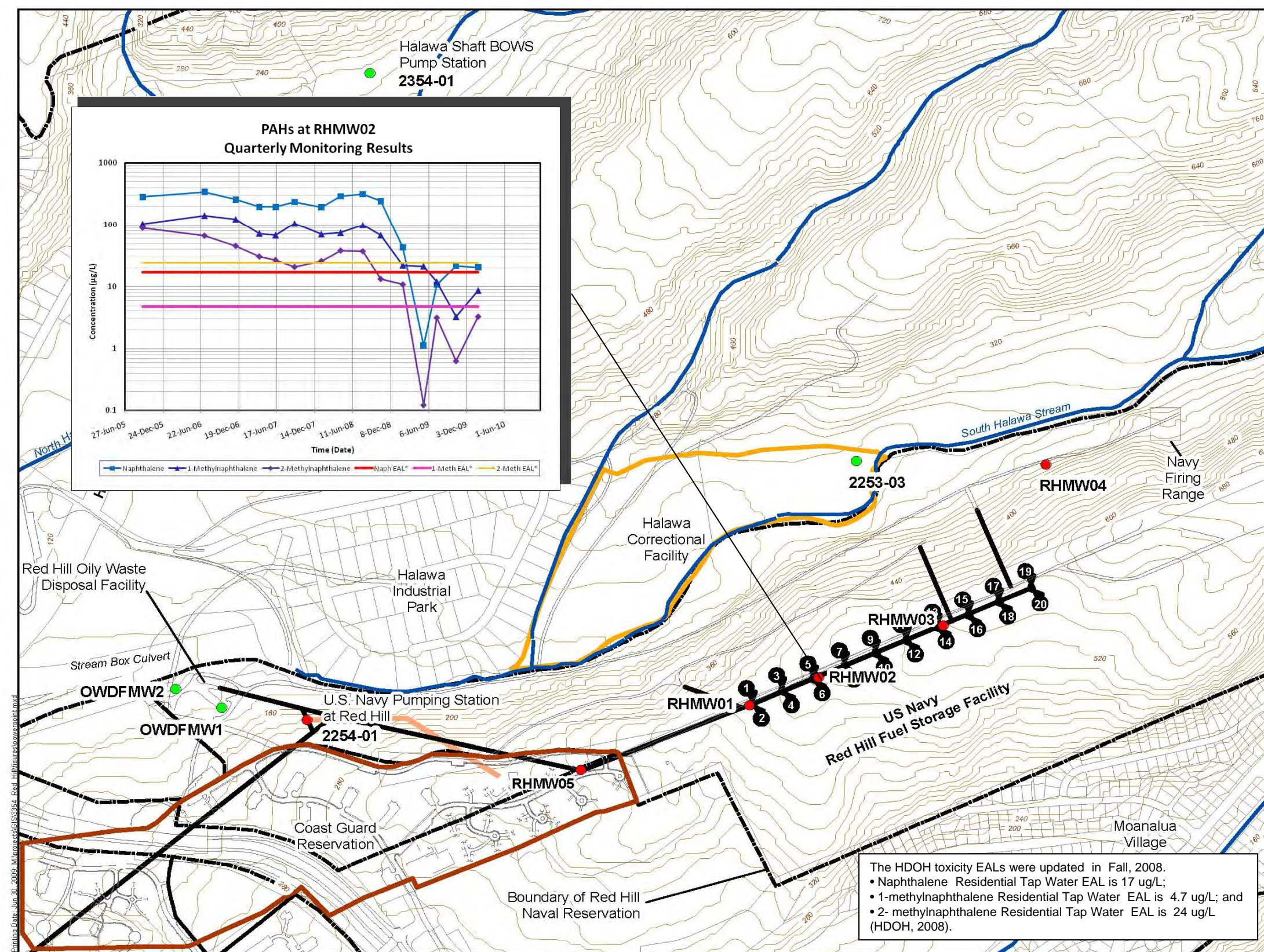


Figure 2
PAH Trends in Groundwater, Round 18
(January 26 – 27, February 23,
and March 30, 2010)
Red Hill Fuel Storage Facility
Oahu, Hawaii

5.0 References

AMEC. *Red Hill Bulk Fuel Storage Facility Investigation Report*, Prepared for NAVFAC Pacific, August 2002.

Dawson Group, Inc. *Fourth Quarter 2005 Groundwater Sampling Report, Red Hill Fuel Storage Facility, Hawaii*. February 2006.

Hawaii Administrative Rules, Title 11, Chapter 281, Subchapter 7.

HDOH. *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Summary Lookup Tables*. March 2009.

HDOH. *Use of May 2005 Environmental Action Levels (“EALs”) at Leaking Underground Storage Tank Sites*. Memo. July 2005.

HDOH. *Evaluation of Environmental Hazards at Sites with Contaminated Soil and Groundwater*. Summer 2008 (updated October 2008).

Massachusetts Department of Environmental Protection (MADEP). *Implementation of the MADEP VPH/EPH Approach*. Final Policy, October 2002

The Environmental Company, Inc. and AMEC. *Red Hill Bulk Fuel Storage Facility Work Plan, Pearl Harbor, Hawaii*. June 2005.

TEC, Inc. *Red Hill Bulk Fuel Storage Facility, Final – Addendum Planning Documents, Pearl Harbor, Hawaii*. May 2006.

TEC, Inc. *Red Hill Bulk Fuel Storage Facility, Final Technical Report, Pearl Harbor, Hawaii*. August 2007.

TEC, Inc. *Red Hill Bulk Fuel Storage Facility, Final Groundwater Protection Plan, Pearl Harbor, Hawaii*. January 2008 revised in December 2009.

Appendix A

Laboratory Analytical Reports

APPENDIX

A-1

Laboratory Analytical Results

January 26 - 27, 2010



SGS North America Inc.
Alaska Division
Level II Laboratory Data Report

Project: 3354-003 Red Hill BFSF
Client: The Environmental Company, Inc. (TEC)
SGS Work Order: 1100328

Released by:

Contents:

Cover Page
Case Narrative
Final Report Pages
Quality Control Summary Forms
Chain of Custody/Sample Receipt Forms

Note:
Unless otherwise noted, all quality assurance/quality control criteria is in compliance with the standards set forth by the proper regulatory authority, the SGS Quality Assurance Program Plan, and the National Environmental Accreditation Conference.

Case Narrative

Customer: THEENV

The Environmental Company, Inc. (TEC)

Project: 1100328

3354-003 Red Hill BFSF

Refer to the sample receipt form for information on sample condition.

1100328005 PS

RHMW02-WG18

DRO by 8015C - Unknown hydrocarbon with several peaks is present.

1100328006 PS

RHMWA01-WG18

DRO by 8015C - Unknown hydrocarbon with several peaks is present.

1100328008 PS

RHMW05-WG18

DRO by 8015C - Unknown hydrocarbon with several peaks is present.

1100328003 BMSD

RHMW2254-WG18 MSD

8270D SIM - MS recovery is outside of QC criteria for fluoranthene (biased high). Refer to LCS for accuracy.

947960 LCS

VXX/20449]

8260B - LCS recovery for 1,1-dichloroethane does not meet QC criteria (biased high). This analyte was not detected above the PQL in the associated samples.

947961 LCSD

VXX/20449

8260B - LCSD recovery for 1,1-dichloroethane, cis-1,3-dichloropropene and methyl-t-butyl ether does not meet QC criteria (biased high). These analytes were not detected above the PQL in the associated samples.

947963 CCV

VMS/11094]

8260B - CCV recovery for 1,1-dichloroethane does not meet QC criteria (biased high). This analyte was not detected above the PQL in the associated samples.



Laboratory Analytical Report

Client: **The Environmental Company, Inc.**

1003 Bishop Street,
Pauahi Tower Suite 1550
Honolulu, HI 96813

Attn: **Rick Adkisson**

T: (808)528-1445 F:(808)528-0768

Project: **3354-003 Red Hill BFSF**

Workorder No.: **1100328**

Certification:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, other than the conditions noted on the sample data sheet(s) and/or the case narrative. This certification applies only to the tested parameters and the specific sample(s) received at the laboratory.

If you have any questions regarding this report, or if we can be of further assistance, please contact your SGS Project Manager.

Jennifer Serna

Project Manager

Enclosed are the analytical results associated with the above work order. If you have any questions regarding this report, or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343. All work is provided under SGS general terms and conditions (http://www.sgs.com/terms_and_conditions.htm), unless other written agreements have been accepted by both parties.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & UST-005 (CS) for ADEC and AK100001 for NELAP (RCRA methods: 1020A, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035B, 6010B, 6020, 7470A, 7471B, 8021B, 8081B, 8082A, 8260B, 8270D, 8270D-SIM, 9040B, 9045C, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, the National Environmental Laboratory Accreditation Program and other regulatory authorities. The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV	Continuing Calibration Verification
CL	Control Limit
D	The analyte concentration is the result of a dilution.
DF	Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
F	Indicates value that is greater than or equal to the DL
GT	Greater Than
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
JL	The analyte was positively identified, but the quantitation is a low estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LOD	Limit of Detection (i.e., 2xDL)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
M	A matrix effect was present.
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
Q	QC parameter out of acceptance range.
R	Rejected
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content.
All DRO/RRO analyses are integrated per SOP.



SAMPLE SUMMARY

Print Date: 2/10/2010 8:51 am

Client Name: The Environmental Company, Inc. (TEC)

Project Name: 3354-003 Red Hill BFSF

Workorder No.: 1100328

Analytical Methods

<u>Method Description</u>	<u>Analytical Method</u>
8270 PAH SIM Semi-Vol GC/MS Liq/Liq ext.	8270D SIMS
AFCEE 3.1 8260 (W)	SW8260B
Dissolved Metals by ICP-MS	SW6020
DRO by 8015C (W)	SW8015C
GRO (W)	SW8015C

Sample ID Cross Reference

<u>Lab Sample ID</u>	<u>Client Sample ID</u>
1100328001	RHMW2254-WG18
1100328002	RHMW2254-WG18 MS
1100328003	RHMW2254-WG18 MSD
1100328004	RHMW03-WG18
1100328005	RHMW02-WG18
1100328006	RHMWA01-WG18
1100328007	RHMW01-WG18
1100328008	RHMW05-WG18
1100328009	TB01-WG18

**The Environmental Company, Inc. (TEC)**

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW2254-WG18**

SGS Ref. #: 1100328001

Collection Date/Time: 01/27/10 09:20

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Dissolved Metals by ICP/MS

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Lead	0.620 U	1.00	0.310	ug/L	5	MMS6300	MXX22713	

Batch Information

Analytical Batch: MMS6300

Prep Batch: MXX22713

Initial Prep Wt./Vol.: 50 mL

Analytical Method: SW6020

Prep Method: SW3010A

Prep Extract Vol.: 50 mL

Analysis Date/Time: 02/02/10 16:21

Prep Date/Time: 02/01/10 14:00

Container ID:1100328001-G

Dilution Factor: 5

Analyst: NRB



The Environmental Company, Inc. (TEC)

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW2254-WG18**

SGS Ref. #: 1100328001

Collection Date/Time: 01/27/10 09:20

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	60.0 U	100	30.0	ug/L	1	VFC9854	VXX20443	
4-Bromofluorobenzene <sur>	95.2	50-150		%	1	VFC9854	VXX20443	

Batch Information

Analytical Batch: VFC9854

Prep Batch: VXX20443

Initial Prep Wt./Vol.: 5 mL

Analytical Method: SW8015C

Prep Method: SW5030B

Prep Extract Vol.: 5 mL

Analysis Date/Time: 02/01/10 11:28

Prep Date/Time: 02/01/10 09:00

Container ID:1100328001-A

Dilution Factor: 1

Analyst: HM



The Environmental Company, Inc. (TEC)

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW2254-WG18**

SGS Ref. #: 1100328001

Collection Date/Time: 01/27/10 09:20

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	0.320 U	0.426	0.160	mg/L	1	XFC9100	XXX22248	
5a Androstane <surr>	87.1	50-150		%	1	XFC9100	XXX22248	

Batch Information

Analytical Batch: XFC9100

Prep Batch: XXX22248

Initial Prep Wt./Vol.: 940 mL

Analytical Method: SW8015C

Prep Method: SW3520C

Prep Extract Vol.: 1 mL

Analysis Date/Time: 02/02/10 19:56

Prep Date/Time: 02/01/10 10:20

Container ID:1100328001-J

Dilution Factor: 1

Analyst: LCE

**The Environmental Company, Inc. (TEC)**

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW2254-WG18**

SGS Ref. #: 1100328001

Collection Date/Time: 01/27/10 09:20

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	0.240 U	0.400	0.120	ug/L	1	VMS11094	VXX20449	
Toluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Ethylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
n-Butylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,4-Dichlorobenzene	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,2-Dichloroethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,3,5-Trimethylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
4-Chlorotoluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Chlorobenzene	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
4-Methyl-2-pentanone (MIBK)	6.20 U	10.0	3.10	ug/L	1	VMS11094	VXX20449	
cis-1,2-Dichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
4-Isopropyltoluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
cis-1,3-Dichloropropene	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
n-Propylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Styrene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Dibromomethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
trans-1,3-Dichloropropene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,4-Trichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Acetone	6.20 U	10.0	3.10	ug/L	1	VMS11094	VXX20449	
1,1,2,2-Tetrachloroethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,2-Dibromo-3-chloropropane	1.24 U	2.00	0.620	ug/L	1	VMS11094	VXX20449	
Methyl-t-butyl ether	3.00 U	5.00	1.50	ug/L	1	VMS11094	VXX20449	
Tetrachloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Dibromochloromethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,3-Dichloropropane	0.240 U	0.400	0.120	ug/L	1	VMS11094	VXX20449	
1,2-Dibromoethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Carbon tetrachloride	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1,1,2-Tetrachloroethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
Chloroform	0.600 U	1.00	0.300	ug/L	1	VMS11094	VXX20449	
Bromobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,3-Trichloropropane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Chloromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Bromomethane	1.88 U	3.00	0.940	ug/L	1	VMS11094	VXX20449	
Bromochloromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Vinyl chloride	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Dichlorodifluoromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	



The Environmental Company, Inc. (TEC)

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW2254-WG18**

SGS Ref. #: 1100328001

Collection Date/Time: 01/27/10 09:20

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Chloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
sec-Butylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Bromodichloromethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,1-Dichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
2-Butanone (MEK)	6.20 U	10.0	3.10	ug/L	1	VMS11094	VXX20449	
Methylene chloride	2.00 U	5.00	1.00	ug/L	1	VMS11094	VXX20449	
Trichlorofluoromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
P & M -Xylene	1.24 U	2.00	0.620	ug/L	1	VMS11094	VXX20449	
Naphthalene	1.24 U	2.00	0.620	ug/L	1	VMS11094	VXX20449	
o-Xylene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Bromoform	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1-Chlorohexane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,4-Trimethylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
tert-Butylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1,1-Trichloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1-Dichloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
2-Chlorotoluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Trichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
trans-1,2-Dichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2-Dichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
2,2-Dichloropropane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Hexachlorobutadiene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Isopropylbenzene (Cumene)	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2-Dichloropropane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1-Dichloropropene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1,2-Trichloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,3-Dichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,3-Trichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Xylenes (total)	2.00 U	2.00	1.00	ug/L	1	VMS11094	VXX20449	
1,2-Dichloroethane-D4 <sur>	101	73-120		%	1	VMS11094	VXX20449	
Toluene-d8 <sur>	99.7	80-120		%	1	VMS11094	VXX20449	
4-Bromofluorobenzene <sur>	103	76-120		%	1	VMS11094	VXX20449	



Client Sample ID: **RHMW2254-WG18**
SGS Ref. #: 1100328001
Project ID: 3354-003 Red Hill BFSF
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/27/10 09:20
Receipt Date/Time: 01/29/10 11:45

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Batch Information								
Analytical Batch: VMS11094		Prep Batch: VXX20449				Initial Prep Wt./Vol.: 5 mL		
Analytical Method: SW8260B		Prep Method: SW5030B				Prep Extract Vol.: 5 mL		
Analysis Date/Time: 02/02/10 17:00		Prep Date/Time: 02/02/10 11:17				Container ID:1100328001-D		
Dilution Factor: 1						Analyst: DSH		



The Environmental Company, Inc. (TEC)

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW2254-WG18**

SGS Ref. #: 1100328001

Project ID: 3354-003 Red Hill BFSF

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/27/10 09:20

Receipt Date/Time: 01/29/10 11:45

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Acenaphthylene	0.0316 U	0.0526	0.0158	ug/L	1	XMS5285	XXX22249	
Acenaphthene	0.0316 U	0.0526	0.0158	ug/L	1	XMS5285	XXX22249	
Fluorene	0.0316 U	0.0526	0.0158	ug/L	1	XMS5285	XXX22249	
Phenanthrene	0.0316 U	0.0526	0.0158	ug/L	1	XMS5285	XXX22249	
Anthracene	0.0316 U	0.0526	0.0158	ug/L	1	XMS5285	XXX22249	
Fluoranthene	0.0316 U	0.0526	0.0158	ug/L	1	XMS5285	XXX22249	
Pyrene	0.0316 U	0.0526	0.0158	ug/L	1	XMS5285	XXX22249	
Benzo(a)Anthracene	0.0316 U	0.0526	0.0158	ug/L	1	XMS5285	XXX22249	
Chrysene	0.0316 U	0.0526	0.0158	ug/L	1	XMS5285	XXX22249	
Benzo[b]Fluoranthene	0.0316 U	0.0526	0.0158	ug/L	1	XMS5285	XXX22249	
Benzo[k]fluoranthene	0.0316 U	0.0526	0.0158	ug/L	1	XMS5285	XXX22249	
Benzo[a]pyrene	0.0316 U	0.0526	0.0158	ug/L	1	XMS5285	XXX22249	
Indeno[1,2,3-c,d] pyrene	0.0316 U	0.0526	0.0158	ug/L	1	XMS5285	XXX22249	
Dibenzo[a,h]anthracene	0.0316 U	0.0526	0.0158	ug/L	1	XMS5285	XXX22249	
Benzo[g,h,i]perylene	0.0316 U	0.0526	0.0158	ug/L	1	XMS5285	XXX22249	
Naphthalene	0.0375 J	0.105	0.0326	ug/L	1	XMS5285	XXX22249	
1-Methylnaphthalene	0.0316 U	0.0526	0.0158	ug/L	1	XMS5285	XXX22249	
2-Methylnaphthalene	0.0316 U	0.0526	0.0158	ug/L	1	XMS5285	XXX22249	
Terphenyl-d14 <sur>	115	50-126		%	1	XMS5285	XXX22249	

Batch Information

Analytical Batch: XMS5285

Analytical Method: 8270D SIMS

Analysis Date/Time: 02/02/10 13:56

Dilution Factor: 1

Prep Batch: XXX22249

Prep Method: SW3520C

Prep Date/Time: 02/01/10 11:20

Initial Prep Wt./Vol.: 950 mL

Prep Extract Vol.: 1 mL

Container ID: 1100328001-H

Analyst: JDH

**The Environmental Company, Inc. (TEC)**

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW03-WG18**

SGS Ref. #: 1100328004

Collection Date/Time: 01/27/10 11:00

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Dissolved Metals by ICP/MS

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Lead	0.620 U	1.00	0.310	ug/L	5	MMS6300	MXX22713	

Batch Information

Analytical Batch: MMS6300

Prep Batch: MXX22713

Initial Prep Wt./Vol.: 50 mL

Analytical Method: SW6020

Prep Method: SW3010A

Prep Extract Vol.: 50 mL

Analysis Date/Time: 02/02/10 16:43

Prep Date/Time: 02/01/10 14:00

Container ID:1100328004-G

Dilution Factor: 5

Analyst: NRB



The Environmental Company, Inc. (TEC)

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW03-WG18**

SGS Ref. #: 1100328004

Collection Date/Time: 01/27/10 11:00

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	60.0 U	100	30.0	ug/L	1	VFC9854	VXX20443	
4-Bromofluorobenzene <sur>	95.3	50-150		%	1	VFC9854	VXX20443	

Batch Information

Analytical Batch: VFC9854

Prep Batch: VXX20443

Initial Prep Wt./Vol.: 5 mL

Analytical Method: SW8015C

Prep Method: SW5030B

Prep Extract Vol.: 5 mL

Analysis Date/Time: 02/01/10 12:41

Prep Date/Time: 02/01/10 09:00

Container ID:1100328004-A

Dilution Factor: 1

Analyst: HM



The Environmental Company, Inc. (TEC)

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW03-WG18**

SGS Ref. #: 1100328004

Collection Date/Time: 01/27/10 11:00

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	0.330 U	0.440	0.165	mg/L	1	XFC9100	XXX22248	
5a Androstane <surr>	92.6	50-150		%	1	XFC9100	XXX22248	

Batch Information

Analytical Batch: XFC9100

Prep Batch: XXX22248

Initial Prep Wt./Vol.: 910 mL

Analytical Method: SW8015C

Prep Method: SW3520C

Prep Extract Vol.: 1 mL

Analysis Date/Time: 02/02/10 20:59

Prep Date/Time: 02/01/10 10:20

Container ID:1100328004-J

Dilution Factor: 1

Analyst: LCE

**The Environmental Company, Inc. (TEC)**

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW03-WG18**

SGS Ref. #: 1100328004

Collection Date/Time: 01/27/10 11:00

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	0.240 U	0.400	0.120	ug/L	1	VMS11094	VXX20449	
Toluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Ethylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
n-Butylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,4-Dichlorobenzene	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,2-Dichloroethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,3,5-Trimethylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
4-Chlorotoluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Chlorobenzene	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
4-Methyl-2-pentanone (MIBK)	6.20 U	10.0	3.10	ug/L	1	VMS11094	VXX20449	
cis-1,2-Dichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
4-Isopropyltoluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
cis-1,3-Dichloropropene	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
n-Propylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Styrene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Dibromomethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
trans-1,3-Dichloropropene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,4-Trichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Acetone	6.20 U	10.0	3.10	ug/L	1	VMS11094	VXX20449	
1,1,2,2-Tetrachloroethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,2-Dibromo-3-chloropropane	1.24 U	2.00	0.620	ug/L	1	VMS11094	VXX20449	
Methyl-t-butyl ether	3.00 U	5.00	1.50	ug/L	1	VMS11094	VXX20449	
Tetrachloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Dibromochloromethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,3-Dichloropropane	0.240 U	0.400	0.120	ug/L	1	VMS11094	VXX20449	
1,2-Dibromoethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Carbon tetrachloride	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1,1,2-Tetrachloroethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
Chloroform	0.600 U	1.00	0.300	ug/L	1	VMS11094	VXX20449	
Bromobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,3-Trichloropropane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Chloromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Bromomethane	1.88 U	3.00	0.940	ug/L	1	VMS11094	VXX20449	
Bromochloromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Vinyl chloride	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Dichlorodifluoromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	



The Environmental Company, Inc. (TEC)

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW03-WG18**

SGS Ref. #: 1100328004

Collection Date/Time: 01/27/10 11:00

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Chloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
sec-Butylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Bromodichloromethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,1-Dichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
2-Butanone (MEK)	6.20 U	10.0	3.10	ug/L	1	VMS11094	VXX20449	
Methylene chloride	2.00 U	5.00	1.00	ug/L	1	VMS11094	VXX20449	
Trichlorofluoromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
P & M -Xylene	1.24 U	2.00	0.620	ug/L	1	VMS11094	VXX20449	
Naphthalene	1.24 U	2.00	0.620	ug/L	1	VMS11094	VXX20449	
o-Xylene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Bromoform	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1-Chlorohexane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,4-Trimethylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
tert-Butylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1,1-Trichloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1-Dichloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
2-Chlorotoluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Trichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
trans-1,2-Dichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2-Dichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
2,2-Dichloropropane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Hexachlorobutadiene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Isopropylbenzene (Cumene)	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2-Dichloropropane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1-Dichloropropene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1,2-Trichloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,3-Dichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,3-Trichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Xylenes (total)	2.00 U	2.00	1.00	ug/L	1	VMS11094	VXX20449	
1,2-Dichloroethane-D4 <sur>	101	73-120		%	1	VMS11094	VXX20449	
Toluene-d8 <sur>	99.1	80-120		%	1	VMS11094	VXX20449	
4-Bromofluorobenzene <sur>	102	76-120		%	1	VMS11094	VXX20449	



Client Sample ID: **RHMW03-WG18**
SGS Ref. #: 1100328004
Project ID: 3354-003 Red Hill BFSF
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/27/10 11:00
Receipt Date/Time: 01/29/10 11:45

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Batch Information								
Analytical Batch: VMS11094			Prep Batch: VXX20449				Initial Prep Wt./Vol.: 5 mL	
Analytical Method: SW8260B			Prep Method: SW5030B				Prep Extract Vol.: 5 mL	
Analysis Date/Time: 02/02/10 17:31			Prep Date/Time: 02/02/10 11:17				Container ID:1100328004-D	
Dilution Factor: 1							Analyst: DSH	

**The Environmental Company, Inc. (TEC)**

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW03-WG18**

SGS Ref. #: 1100328004

Project ID: 3354-003 Red Hill BFSF

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/27/10 11:00

Receipt Date/Time: 01/29/10 11:45

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Acenaphthylene	0.0322 U	0.0538	0.0161	ug/L	1	XMS5285	XXX22249	
Acenaphthene	0.0322 U	0.0538	0.0161	ug/L	1	XMS5285	XXX22249	
Fluorene	0.0322 U	0.0538	0.0161	ug/L	1	XMS5285	XXX22249	
Phenanthrene	0.0322 U	0.0538	0.0161	ug/L	1	XMS5285	XXX22249	
Anthracene	0.0322 U	0.0538	0.0161	ug/L	1	XMS5285	XXX22249	
Fluoranthene	0.0322 U	0.0538	0.0161	ug/L	1	XMS5285	XXX22249	
Pyrene	0.0322 U	0.0538	0.0161	ug/L	1	XMS5285	XXX22249	
Benzo(a)Anthracene	0.0322 U	0.0538	0.0161	ug/L	1	XMS5285	XXX22249	
Chrysene	0.0322 U	0.0538	0.0161	ug/L	1	XMS5285	XXX22249	
Benzo[b]Fluoranthene	0.0322 U	0.0538	0.0161	ug/L	1	XMS5285	XXX22249	
Benzo[k]fluoranthene	0.0322 U	0.0538	0.0161	ug/L	1	XMS5285	XXX22249	
Benzo[a]pyrene	0.0322 U	0.0538	0.0161	ug/L	1	XMS5285	XXX22249	
Indeno[1,2,3-c,d] pyrene	0.0322 U	0.0538	0.0161	ug/L	1	XMS5285	XXX22249	
Dibenzo[a,h]anthracene	0.0322 U	0.0538	0.0161	ug/L	1	XMS5285	XXX22249	
Benzo[g,h,i]perylene	0.0322 U	0.0538	0.0161	ug/L	1	XMS5285	XXX22249	
Naphthalene	0.0666 U	0.108	0.0333	ug/L	1	XMS5285	XXX22249	
1-Methylnaphthalene	0.0322 U	0.0538	0.0161	ug/L	1	XMS5285	XXX22249	
2-Methylnaphthalene	0.0322 U	0.0538	0.0161	ug/L	1	XMS5285	XXX22249	
Terphenyl-d14 <sur>	110	50-126		%	1	XMS5285	XXX22249	

Batch Information

Analytical Batch: XMS5285

Analytical Method: 8270D SIMS

Analysis Date/Time: 02/02/10 15:34

Dilution Factor: 1

Prep Batch: XXX22249

Prep Method: SW3520C

Prep Date/Time: 02/01/10 11:20

Initial Prep Wt./Vol.: 930 mL

Prep Extract Vol.: 1 mL

Container ID: 1100328004-H

Analyst: JDH

**The Environmental Company, Inc. (TEC)**

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW02-WG18**

SGS Ref. #: 1100328005

Project ID: 3354-003 Red Hill BFSF

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/26/10 16:30

Receipt Date/Time: 01/29/10 11:45

Dissolved Metals by ICP/MS

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Lead	1.53	1.00	0.310	ug/L	5	MMS6300	MXX22713	

Batch Information

Analytical Batch: MMS6300

Analytical Method: SW6020

Analysis Date/Time: 02/02/10 16:45

Dilution Factor: 5

Prep Batch: MXX22713

Prep Method: SW3010A

Prep Date/Time: 02/01/10 14:00

Initial Prep Wt./Vol.: 50 mL

Prep Extract Vol.: 50 mL

Container ID:1100328005-G

Analyst: NRB



The Environmental Company, Inc. (TEC)

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW02-WG18**

SGS Ref. #: 1100328005

Collection Date/Time: 01/26/10 16:30

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	42.3 J	100	30.0	ug/L	1	VFC9854	VXX20443	
4-Bromofluorobenzene <sur>	111	50-150		%	1	VFC9854	VXX20443	

Batch Information

Analytical Batch: VFC9854

Prep Batch: VXX20443

Initial Prep Wt./Vol.: 5 mL

Analytical Method: SW8015C

Prep Method: SW5030B

Prep Extract Vol.: 5 mL

Analysis Date/Time: 02/01/10 13:19

Prep Date/Time: 02/01/10 09:00

Container ID:1100328005-A

Dilution Factor: 1

Analyst: HM



The Environmental Company, Inc. (TEC)

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW02-WG18**

SGS Ref. #: 1100328005

Project ID: 3354-003 Red Hill BFSF

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/26/10 16:30

Receipt Date/Time: 01/29/10 11:45

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	2.13	0.430	0.161	mg/L	1	XFC9100	XXX22248	
5a Androstane <sur>	90.8	50-150		%	1	XFC9100	XXX22248	

Batch Information

Analytical Batch: XFC9100

Analytical Method: SW8015C

Analysis Date/Time: 02/02/10 21:20

Dilution Factor: 1

Prep Batch: XXX22248

Prep Method: SW3520C

Prep Date/Time: 02/01/10 10:20

Initial Prep Wt./Vol.: 930 mL

Prep Extract Vol.: 1 mL

Container ID:1100328005-J

Analyst: LCE

**The Environmental Company, Inc. (TEC)**

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW02-WG18**

SGS Ref. #: 1100328005

Collection Date/Time: 01/26/10 16:30

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	0.240 U	0.400	0.120	ug/L	1	VMS11094	VXX20449	
Toluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Ethylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
n-Butylbenzene	3.49	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,4-Dichlorobenzene	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,2-Dichloroethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,3,5-Trimethylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
4-Chlorotoluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Chlorobenzene	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
4-Methyl-2-pentanone (MIBK)	6.20 U	10.0	3.10	ug/L	1	VMS11094	VXX20449	
cis-1,2-Dichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
4-Isopropyltoluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
cis-1,3-Dichloropropene	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
n-Propylbenzene	5.48	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Styrene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Dibromomethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
trans-1,3-Dichloropropene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,4-Trichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Acetone	6.20 U	10.0	3.10	ug/L	1	VMS11094	VXX20449	
1,1,2,2-Tetrachloroethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,2-Dibromo-3-chloropropane	1.24 U	2.00	0.620	ug/L	1	VMS11094	VXX20449	
Methyl-t-butyl ether	3.00 U	5.00	1.50	ug/L	1	VMS11094	VXX20449	
Tetrachloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Dibromochloromethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,3-Dichloropropane	0.240 U	0.400	0.120	ug/L	1	VMS11094	VXX20449	
1,2-Dibromoethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Carbon tetrachloride	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1,1,2-Tetrachloroethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
Chloroform	0.600 U	1.00	0.300	ug/L	1	VMS11094	VXX20449	
Bromobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Chloromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,3-Trichloropropane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Bromomethane	1.88 U	3.00	0.940	ug/L	1	VMS11094	VXX20449	
Bromochloromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Vinyl chloride	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Dichlorodifluoromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	



The Environmental Company, Inc. (TEC)

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW02-WG18**

SGS Ref. #: 1100328005

Collection Date/Time: 01/26/10 16:30

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u>	<u>Prep</u>	<u>Qualifiers</u>
						<u>Batch</u>	<u>Batch</u>	
Chloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
sec-Butylbenzene	5.10	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Bromodichloromethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,1-Dichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
2-Butanone (MEK)	6.20 U	10.0	3.10	ug/L	1	VMS11094	VXX20449	
Methylene chloride	2.00 U	5.00	1.00	ug/L	1	VMS11094	VXX20449	
Trichlorofluoromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
P & M -Xylene	1.24 U	2.00	0.620	ug/L	1	VMS11094	VXX20449	
Naphthalene	31.5	2.00	0.620	ug/L	1	VMS11094	VXX20449	
o-Xylene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Bromoform	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1-Chlorohexane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,4-Trimethylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
tert-Butylbenzene	0.920 J	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1,1-Trichloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1-Dichloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
2-Chlorotoluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Trichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
trans-1,2-Dichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2-Dichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
2,2-Dichloropropane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Hexachlorobutadiene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Isopropylbenzene (Cumene)	3.73	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2-Dichloropropane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1-Dichloropropene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1,2-Trichloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,3-Dichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,3-Trichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Xylenes (total)	2.00 U	2.00	1.00	ug/L	1	VMS11094	VXX20449	
1,2-Dichloroethane-D4 <sur>	101	73-120		%	1	VMS11094	VXX20449	
Toluene-d8 <sur>	98.1	80-120		%	1	VMS11094	VXX20449	
4-Bromofluorobenzene <sur>	104	76-120		%	1	VMS11094	VXX20449	



Client Sample ID: **RHMW02-WG18**
SGS Ref. #: 1100328005
Project ID: 3354-003 Red Hill BFSF
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/26/10 16:30
Receipt Date/Time: 01/29/10 11:45

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Batch Information								
Analytical Batch: VMS11094			Prep Batch: VXX20449				Initial Prep Wt./Vol.: 5 mL	
Analytical Method: SW8260B			Prep Method: SW5030B				Prep Extract Vol.: 5 mL	
Analysis Date/Time: 02/02/10 18:02			Prep Date/Time: 02/02/10 11:17				Container ID:1100328005-D	
Dilution Factor: 1							Analyst: DSH	

**The Environmental Company, Inc. (TEC)**

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW02-WG18**

SGS Ref. #: 1100328005

Project ID: 3354-003 Red Hill BFSF

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/26/10 16:30

Receipt Date/Time: 01/29/10 11:45

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Acenaphthylene	0.0330 U	0.0549	0.0165	ug/L	1	XMS5285	XXX22249	
Acenaphthene	0.247	0.0549	0.0165	ug/L	1	XMS5285	XXX22249	
Fluorene	0.144	0.0549	0.0165	ug/L	1	XMS5285	XXX22249	
Phenanthrene	0.0330 U	0.0549	0.0165	ug/L	1	XMS5285	XXX22249	
Anthracene	0.0330 U	0.0549	0.0165	ug/L	1	XMS5285	XXX22249	
Fluoranthene	0.0330 U	0.0549	0.0165	ug/L	1	XMS5285	XXX22249	
Pyrene	0.0330 U	0.0549	0.0165	ug/L	1	XMS5285	XXX22249	
Benzo(a)Anthracene	0.0330 U	0.0549	0.0165	ug/L	1	XMS5285	XXX22249	
Chrysene	0.0330 U	0.0549	0.0165	ug/L	1	XMS5285	XXX22249	
Benzo[b]Fluoranthene	0.0330 U	0.0549	0.0165	ug/L	1	XMS5285	XXX22249	
Benzo[k]fluoranthene	0.0330 U	0.0549	0.0165	ug/L	1	XMS5285	XXX22249	
Benzo[a]pyrene	0.0330 U	0.0549	0.0165	ug/L	1	XMS5285	XXX22249	
Indeno[1,2,3-c,d] pyrene	0.0330 U	0.0549	0.0165	ug/L	1	XMS5285	XXX22249	
Dibenzo[a,h]anthracene	0.0330 U	0.0549	0.0165	ug/L	1	XMS5285	XXX22249	
Benzo[g,h,i]perylene	0.0330 U	0.0549	0.0165	ug/L	1	XMS5285	XXX22249	
Naphthalene	17.3	1.10	0.341	ug/L	10	XMS5287	XXX22249	
1-Methylnaphthalene	9.03	0.549	0.165	ug/L	10	XMS5287	XXX22249	
2-Methylnaphthalene	3.85	0.549	0.165	ug/L	10	XMS5287	XXX22249	
Terphenyl-d14 <sur>	111	50-126		%	1	XMS5285	XXX22249	

Batch Information

Analytical Batch: XMS5285

Analytical Method: 8270D SIMS

Analysis Date/Time: 02/02/10 16:07

Dilution Factor: 1

Prep Batch: XXX22249

Prep Method: SW3520C

Prep Date/Time: 02/01/10 11:20

Initial Prep Wt./Vol.: 910 mL

Prep Extract Vol.: 1 mL

Container ID:1100328005-H

Analyst: JDH

Analytical Batch: XMS5287

Analytical Method: 8270D SIMS

Analysis Date/Time: 02/03/10 12:45

Dilution Factor: 10

Prep Batch: XXX22249

Prep Method: SW3520C

Prep Date/Time: 02/01/10 11:20

Initial Prep Wt./Vol.: 910 mL

Prep Extract Vol.: 1 mL

Container ID:1100328005-H

Analyst: JDH

**The Environmental Company, Inc. (TEC)**

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMWA01-WG18**

SGS Ref. #: 1100328006

Collection Date/Time: 01/27/10 12:05

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Dissolved Metals by ICP/MS

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Lead	0.620 U	1.00	0.310	ug/L	5	MMS6300	MXX22713	

Batch Information

Analytical Batch: MMS6300

Prep Batch: MXX22713

Initial Prep Wt./Vol.: 50 mL

Analytical Method: SW6020

Prep Method: SW3010A

Prep Extract Vol.: 50 mL

Analysis Date/Time: 02/02/10 16:47

Prep Date/Time: 02/01/10 14:00

Container ID:1100328006-G

Dilution Factor: 5

Analyst: NRB



The Environmental Company, Inc. (TEC)

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMWA01-WG18**

SGS Ref. #: 1100328006

Collection Date/Time: 01/27/10 12:05

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	38.1 J	100	30.0	ug/L	1	VFC9854	VXX20443	
4-Bromofluorobenzene <sur>	112	50-150		%	1	VFC9854	VXX20443	

Batch Information

Analytical Batch: VFC9854

Prep Batch: VXX20443

Initial Prep Wt./Vol.: 5 mL

Analytical Method: SW8015C

Prep Method: SW5030B

Prep Extract Vol.: 5 mL

Analysis Date/Time: 02/01/10 13:38

Prep Date/Time: 02/01/10 09:00

Container ID:1100328006-A

Dilution Factor: 1

Analyst: HM



The Environmental Company, Inc. (TEC)

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMWA01-WG18**

SGS Ref. #: 1100328006

Collection Date/Time: 01/27/10 12:05

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	3.41	0.449	0.169	mg/L	1	XFC9100	XXX22248	
5a Androstane <sur>	83.1	50-150		%	1	XFC9100	XXX22248	

Batch Information

Analytical Batch: XFC9100

Prep Batch: XXX22248

Initial Prep Wt./Vol.: 890 mL

Analytical Method: SW8015C

Prep Method: SW3520C

Prep Extract Vol.: 1 mL

Analysis Date/Time: 02/02/10 21:41

Prep Date/Time: 02/01/10 10:20

Container ID:1100328006-J

Dilution Factor: 1

Analyst: LCE



The Environmental Company, Inc. (TEC)

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMWA01-WG18**

SGS Ref. #: 1100328006

Collection Date/Time: 01/27/10 12:05

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	0.240 U	0.400	0.120	ug/L	1	VMS11094	VXX20449	
Toluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Ethylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
n-Butylbenzene	4.42	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,4-Dichlorobenzene	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,2-Dichloroethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,3,5-Trimethylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
4-Chlorotoluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Chlorobenzene	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
4-Methyl-2-pentanone (MIBK)	6.20 U	10.0	3.10	ug/L	1	VMS11094	VXX20449	
cis-1,2-Dichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
4-Isopropyltoluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
cis-1,3-Dichloropropene	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
n-Propylbenzene	6.48	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Styrene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Dibromomethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
trans-1,3-Dichloropropene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,4-Trichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Acetone	6.20 U	10.0	3.10	ug/L	1	VMS11094	VXX20449	
1,1,2,2-Tetrachloroethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,2-Dibromo-3-chloropropane	1.24 U	2.00	0.620	ug/L	1	VMS11094	VXX20449	
Methyl-t-butyl ether	3.00 U	5.00	1.50	ug/L	1	VMS11094	VXX20449	
Tetrachloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Dibromochloromethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,3-Dichloropropane	0.240 U	0.400	0.120	ug/L	1	VMS11094	VXX20449	
1,2-Dibromoethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Carbon tetrachloride	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1,1,2-Tetrachloroethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
Chloroform	0.600 U	1.00	0.300	ug/L	1	VMS11094	VXX20449	
Bromobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Chloromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,3-Trichloropropane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Bromomethane	1.88 U	3.00	0.940	ug/L	1	VMS11094	VXX20449	
Bromochloromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Vinyl chloride	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Dichlorodifluoromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	



The Environmental Company, Inc. (TEC)

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMWA01-WG18**

SGS Ref. #: 1100328006

Collection Date/Time: 01/27/10 12:05

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Chloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
sec-Butylbenzene	6.42	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Bromodichloromethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,1-Dichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
2-Butanone (MEK)	6.20 U	10.0	3.10	ug/L	1	VMS11094	VXX20449	
Methylene chloride	2.00 U	5.00	1.00	ug/L	1	VMS11094	VXX20449	
Trichlorofluoromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
P & M -Xylene	1.24 U	2.00	0.620	ug/L	1	VMS11094	VXX20449	
Naphthalene	9.30	2.00	0.620	ug/L	1	VMS11094	VXX20449	
o-Xylene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Bromoform	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1-Chlorohexane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,4-Trimethylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
tert-Butylbenzene	1.19	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1,1-Trichloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1-Dichloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
2-Chlorotoluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Trichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
trans-1,2-Dichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2-Dichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
2,2-Dichloropropane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Hexachlorobutadiene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Isopropylbenzene (Cumene)	4.54	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2-Dichloropropane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1-Dichloropropene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1,2-Trichloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,3-Dichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,3-Trichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Xylenes (total)	2.00 U	2.00	1.00	ug/L	1	VMS11094	VXX20449	
1,2-Dichloroethane-D4 <surrogate>	106	73-120		%	1	VMS11094	VXX20449	
Toluene-d8 <surrogate>	98.7	80-120		%	1	VMS11094	VXX20449	
4-Bromofluorobenzene <surrogate>	103	76-120		%	1	VMS11094	VXX20449	



Client Sample ID: **RHMWA01-WG18**
SGS Ref. #: 1100328006
Project ID: 3354-003 Red Hill BFSF
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/27/10 12:05
Receipt Date/Time: 01/29/10 11:45

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Batch Information								
Analytical Batch: VMS11094		Prep Batch: VXX20449				Initial Prep Wt./Vol.: 5 mL		
Analytical Method: SW8260B		Prep Method: SW5030B				Prep Extract Vol.: 5 mL		
Analysis Date/Time: 02/02/10 18:33		Prep Date/Time: 02/02/10 11:17				Container ID:1100328006-D		
Dilution Factor: 1						Analyst: DSH		



The Environmental Company, Inc. (TEC)

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMWA01-WG18**

SGS Ref. #: 1100328006

Project ID: 3354-003 Red Hill BFSF

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/27/10 12:05

Receipt Date/Time: 01/29/10 11:45

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Acenaphthylene	0.0340 U	0.0568	0.0170	ug/L	1	XMS5285	XXX22249	
Acenaphthene	0.231	0.0568	0.0170	ug/L	1	XMS5285	XXX22249	
Fluorene	0.122	0.0568	0.0170	ug/L	1	XMS5285	XXX22249	
Phenanthrene	0.0340 U	0.0568	0.0170	ug/L	1	XMS5285	XXX22249	
Anthracene	0.0340 U	0.0568	0.0170	ug/L	1	XMS5285	XXX22249	
Fluoranthene	0.0209 J	0.0568	0.0170	ug/L	1	XMS5285	XXX22249	
Pyrene	0.0340 U	0.0568	0.0170	ug/L	1	XMS5285	XXX22249	
Benzo(a)Anthracene	0.0340 U	0.0568	0.0170	ug/L	1	XMS5285	XXX22249	
Chrysene	0.0340 U	0.0568	0.0170	ug/L	1	XMS5285	XXX22249	
Benzo[b]Fluoranthene	0.0340 U	0.0568	0.0170	ug/L	1	XMS5285	XXX22249	
Benzo[k]fluoranthene	0.0340 U	0.0568	0.0170	ug/L	1	XMS5285	XXX22249	
Benzo[a]pyrene	0.0340 U	0.0568	0.0170	ug/L	1	XMS5285	XXX22249	
Indeno[1,2,3-c,d] pyrene	0.0340 U	0.0568	0.0170	ug/L	1	XMS5285	XXX22249	
Dibenzo[a,h]anthracene	0.0340 U	0.0568	0.0170	ug/L	1	XMS5285	XXX22249	
Benzo[g,h,i]perylene	0.0340 U	0.0568	0.0170	ug/L	1	XMS5285	XXX22249	
Naphthalene	15.7	1.14	0.352	ug/L	10	XMS5287	XXX22249	
1-Methylnaphthalene	8.26	0.568	0.170	ug/L	10	XMS5287	XXX22249	
2-Methylnaphthalene	2.65	0.0568	0.0170	ug/L	1	XMS5285	XXX22249	
Terphenyl-d14 <sur>	112	50-126		%	1	XMS5285	XXX22249	

Batch Information

Analytical Batch: XMS5285

Analytical Method: 8270D SIMS

Analysis Date/Time: 02/02/10 16:39

Dilution Factor: 1

Prep Batch: XXX22249

Prep Method: SW3520C

Prep Date/Time: 02/01/10 11:20

Initial Prep Wt./Vol.: 880 mL

Prep Extract Vol.: 1 mL

Container ID:1100328006-H

Analyst: JDH

Analytical Batch: XMS5287

Analytical Method: 8270D SIMS

Analysis Date/Time: 02/03/10 13:17

Dilution Factor: 10

Prep Batch: XXX22249

Prep Method: SW3520C

Prep Date/Time: 02/01/10 11:20

Initial Prep Wt./Vol.: 880 mL

Prep Extract Vol.: 1 mL

Container ID:1100328006-H

Analyst: JDH

**The Environmental Company, Inc. (TEC)**

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW01-WG18**

SGS Ref. #: 1100328007

Collection Date/Time: 01/27/10 15:40

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Dissolved Metals by ICP/MS

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Lead	0.620 U	1.00	0.310	ug/L	5	MMS6300	MXX22714	

Batch Information

Analytical Batch: MMS6300

Prep Batch: MXX22714

Initial Prep Wt./Vol.: 50 mL

Analytical Method: SW6020

Prep Method: SW3010A

Prep Extract Vol.: 50 mL

Analysis Date/Time: 02/02/10 17:15

Prep Date/Time: 02/01/10 14:00

Container ID:1100328007-L

Dilution Factor: 5

Analyst: NRB



The Environmental Company, Inc. (TEC)

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW01-WG18**

SGS Ref. #: 1100328007

Collection Date/Time: 01/27/10 15:40

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	60.0 U	100	30.0	ug/L	1	VFC9854	VXX20443	
4-Bromofluorobenzene <sur>	98.2	50-150		%	1	VFC9854	VXX20443	

Batch Information

Analytical Batch: VFC9854

Prep Batch: VXX20443

Initial Prep Wt./Vol.: 5 mL

Analytical Method: SW8015C

Prep Method: SW5030B

Prep Extract Vol.: 5 mL

Analysis Date/Time: 02/01/10 13:57

Prep Date/Time: 02/01/10 09:00

Container ID:1100328007-A

Dilution Factor: 1

Analyst: HM



The Environmental Company, Inc. (TEC)

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW01-WG18**

SGS Ref. #: 1100328007

Collection Date/Time: 01/27/10 15:40

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	0.312 J	0.440	0.165	mg/L	1	XFC9100	XXX22248	
5a Androstane <sur>	92.7	50-150		%	1	XFC9100	XXX22248	

Batch Information

Analytical Batch: XFC9100

Prep Batch: XXX22248

Initial Prep Wt./Vol.: 910 mL

Analytical Method: SW8015C

Prep Method: SW3520C

Prep Extract Vol.: 1 mL

Analysis Date/Time: 02/02/10 22:02

Prep Date/Time: 02/01/10 10:20

Container ID:1100328007-J

Dilution Factor: 1

Analyst: LCE



The Environmental Company, Inc. (TEC)

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW01-WG18**

SGS Ref. #: 1100328007

Collection Date/Time: 01/27/10 15:40

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	0.240 U	0.400	0.120	ug/L	1	VMS11094	VXX20449	
Toluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Ethylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
n-Butylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,4-Dichlorobenzene	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,2-Dichloroethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,3,5-Trimethylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
4-Chlorotoluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Chlorobenzene	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
4-Methyl-2-pentanone (MIBK)	6.20 U	10.0	3.10	ug/L	1	VMS11094	VXX20449	
cis-1,2-Dichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
4-Isopropyltoluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
cis-1,3-Dichloropropene	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
n-Propylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Styrene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Dibromomethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
trans-1,3-Dichloropropene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,4-Trichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Acetone	6.20 U	10.0	3.10	ug/L	1	VMS11094	VXX20449	
1,1,2,2-Tetrachloroethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,2-Dibromo-3-chloropropane	1.24 U	2.00	0.620	ug/L	1	VMS11094	VXX20449	
Methyl-t-butyl ether	3.00 U	5.00	1.50	ug/L	1	VMS11094	VXX20449	
Tetrachloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Dibromochloromethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,3-Dichloropropane	0.240 U	0.400	0.120	ug/L	1	VMS11094	VXX20449	
1,2-Dibromoethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Carbon tetrachloride	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1,1,2-Tetrachloroethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
Chloroform	0.600 U	1.00	0.300	ug/L	1	VMS11094	VXX20449	
Bromobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,3-Trichloropropane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Chloromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Bromomethane	1.88 U	3.00	0.940	ug/L	1	VMS11094	VXX20449	
Bromochloromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Vinyl chloride	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Dichlorodifluoromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	

**The Environmental Company, Inc. (TEC)**

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW01-WG18**

SGS Ref. #: 1100328007

Collection Date/Time: 01/27/10 15:40

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Chloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
sec-Butylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Bromodichloromethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,1-Dichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
2-Butanone (MEK)	6.20 U	10.0	3.10	ug/L	1	VMS11094	VXX20449	
Methylene chloride	2.00 U	5.00	1.00	ug/L	1	VMS11094	VXX20449	
Trichlorofluoromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
P & M -Xylene	1.24 U	2.00	0.620	ug/L	1	VMS11094	VXX20449	
Naphthalene	1.24 U	2.00	0.620	ug/L	1	VMS11094	VXX20449	
o-Xylene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Bromoform	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1-Chlorohexane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,4-Trimethylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
tert-Butylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1,1-Trichloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1-Dichloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
2-Chlorotoluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Trichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
trans-1,2-Dichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2-Dichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
2,2-Dichloropropane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Hexachlorobutadiene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Isopropylbenzene (Cumene)	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2-Dichloropropane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1-Dichloropropene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1,2-Trichloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,3-Dichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,3-Trichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Xylenes (total)	2.00 U	2.00	1.00	ug/L	1	VMS11094	VXX20449	
1,2-Dichloroethane-D4 <sur>	101	73-120		%	1	VMS11094	VXX20449	
Toluene-d8 <sur>	100	80-120		%	1	VMS11094	VXX20449	
4-Bromofluorobenzene <sur>	102	76-120		%	1	VMS11094	VXX20449	



Client Sample ID: **RHMW01-WG18**
SGS Ref. #: 1100328007
Project ID: 3354-003 Red Hill BFSF
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/27/10 15:40
Receipt Date/Time: 01/29/10 11:45

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Batch Information								
Analytical Batch: VMS11094			Prep Batch: VXX20449				Initial Prep Wt./Vol.: 5 mL	
Analytical Method: SW8260B			Prep Method: SW5030B				Prep Extract Vol.: 5 mL	
Analysis Date/Time: 02/02/10 19:04			Prep Date/Time: 02/02/10 11:17				Container ID:1100328007-D	
Dilution Factor: 1							Analyst: DSH	

**The Environmental Company, Inc. (TEC)**

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW01-WG18**

SGS Ref. #: 1100328007

Project ID: 3354-003 Red Hill BFSF

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/27/10 15:40

Receipt Date/Time: 01/29/10 11:45

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Acenaphthylene	0.0334 U	0.0556	0.0167	ug/L	1	XMS5285	XXX22249	
Acenaphthene	0.0372 J	0.0556	0.0167	ug/L	1	XMS5285	XXX22249	
Fluorene	0.0384 J	0.0556	0.0167	ug/L	1	XMS5285	XXX22249	
Phenanthrene	0.0204 J	0.0556	0.0167	ug/L	1	XMS5285	XXX22249	
Anthracene	0.0334 U	0.0556	0.0167	ug/L	1	XMS5285	XXX22249	
Fluoranthene	0.0334 U	0.0556	0.0167	ug/L	1	XMS5285	XXX22249	
Pyrene	0.0334 U	0.0556	0.0167	ug/L	1	XMS5285	XXX22249	
Benzo(a)Anthracene	0.0334 U	0.0556	0.0167	ug/L	1	XMS5285	XXX22249	
Chrysene	0.0334 U	0.0556	0.0167	ug/L	1	XMS5285	XXX22249	
Benzo[b]Fluoranthene	0.0334 U	0.0556	0.0167	ug/L	1	XMS5285	XXX22249	
Benzo[k]fluoranthene	0.0334 U	0.0556	0.0167	ug/L	1	XMS5285	XXX22249	
Benzo[a]pyrene	0.0334 U	0.0556	0.0167	ug/L	1	XMS5285	XXX22249	
Indeno[1,2,3-c,d] pyrene	0.0334 U	0.0556	0.0167	ug/L	1	XMS5285	XXX22249	
Dibenzo[a,h]anthracene	0.0334 U	0.0556	0.0167	ug/L	1	XMS5285	XXX22249	
Benzo[g,h,i]perylene	0.0334 U	0.0556	0.0167	ug/L	1	XMS5285	XXX22249	
Naphthalene	0.330	0.111	0.0344	ug/L	1	XMS5285	XXX22249	
1-Methylnaphthalene	0.0334 U	0.0556	0.0167	ug/L	1	XMS5285	XXX22249	
2-Methylnaphthalene	0.0559	0.0556	0.0167	ug/L	1	XMS5285	XXX22249	
Terphenyl-d14 <sur>	121	50-126		%	1	XMS5285	XXX22249	

Batch Information

Analytical Batch: XMS5285

Analytical Method: 8270D SIMS

Analysis Date/Time: 02/02/10 17:11

Dilution Factor: 1

Prep Batch: XXX22249

Prep Method: SW3520C

Prep Date/Time: 02/01/10 11:20

Initial Prep Wt./Vol.: 900 mL

Prep Extract Vol.: 1 mL

Container ID: 1100328007-H

Analyst: JDH

**The Environmental Company, Inc. (TEC)**

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW05-WG18**

SGS Ref. #: 1100328008

Project ID: 3354-003 Red Hill BFSF

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/26/10 17:15

Receipt Date/Time: 01/29/10 11:45

Dissolved Metals by ICP/MS

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Lead	0.620 U	1.00	0.310	ug/L	5	MMS6300	MXX22713	

Batch Information

Analytical Batch: MMS6300

Analytical Method: SW6020

Analysis Date/Time: 02/02/10 16:49

Dilution Factor: 5

Prep Batch: MXX22713

Prep Method: SW3010A

Prep Date/Time: 02/01/10 14:00

Initial Prep Wt./Vol.: 50 mL

Prep Extract Vol.: 50 mL

Container ID:1100328008-G

Analyst: NRB



The Environmental Company, Inc. (TEC)

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW05-WG18**

SGS Ref. #: 1100328008

Collection Date/Time: 01/26/10 17:15

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	60.0 U	100	30.0	ug/L	1	VFC9854	VXX20443	
4-Bromofluorobenzene <sur>	96.9	50-150		%	1	VFC9854	VXX20443	

Batch Information

Analytical Batch: VFC9854

Prep Batch: VXX20443

Initial Prep Wt./Vol.: 5 mL

Analytical Method: SW8015C

Prep Method: SW5030B

Prep Extract Vol.: 5 mL

Analysis Date/Time: 02/01/10 14:23

Prep Date/Time: 02/01/10 09:00

Container ID:1100328008-A

Dilution Factor: 1

Analyst: HM

**The Environmental Company, Inc. (TEC)**

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW05-WG18**

SGS Ref. #: 1100328008

Collection Date/Time: 01/26/10 17:15

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	2.06	0.449	0.169	mg/L	1	XFC9100	XXX22248	
5a Androstane <sur>	88.5	50-150		%	1	XFC9100	XXX22248	

Batch Information

Analytical Batch: XFC9100

Prep Batch: XXX22248

Initial Prep Wt./Vol.: 890 mL

Analytical Method: SW8015C

Prep Method: SW3520C

Prep Extract Vol.: 1 mL

Analysis Date/Time: 02/02/10 22:23

Prep Date/Time: 02/01/10 10:20

Container ID:1100328008-J

Dilution Factor: 1

Analyst: LCE

**The Environmental Company, Inc. (TEC)**

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW05-WG18**

SGS Ref. #: 1100328008

Collection Date/Time: 01/26/10 17:15

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	0.240 U	0.400	0.120	ug/L	1	VMS11094	VXX20449	
Toluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Ethylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
n-Butylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,4-Dichlorobenzene	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,2-Dichloroethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,3,5-Trimethylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
4-Chlorotoluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Chlorobenzene	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
4-Methyl-2-pentanone (MIBK)	6.20 U	10.0	3.10	ug/L	1	VMS11094	VXX20449	
cis-1,2-Dichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
4-Isopropyltoluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
cis-1,3-Dichloropropene	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
n-Propylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Styrene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Dibromomethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
trans-1,3-Dichloropropene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,4-Trichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Acetone	6.20 U	10.0	3.10	ug/L	1	VMS11094	VXX20449	
1,1,2,2-Tetrachloroethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,2-Dibromo-3-chloropropane	1.24 U	2.00	0.620	ug/L	1	VMS11094	VXX20449	
Methyl-t-butyl ether	3.00 U	5.00	1.50	ug/L	1	VMS11094	VXX20449	
Tetrachloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Dibromochloromethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,3-Dichloropropane	0.240 U	0.400	0.120	ug/L	1	VMS11094	VXX20449	
1,2-Dibromoethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Carbon tetrachloride	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1,1,2-Tetrachloroethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
Chloroform	0.600 U	1.00	0.300	ug/L	1	VMS11094	VXX20449	
Bromobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,3-Trichloropropane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Chloromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Bromomethane	1.88 U	3.00	0.940	ug/L	1	VMS11094	VXX20449	
Bromochloromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Vinyl chloride	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Dichlorodifluoromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	

**The Environmental Company, Inc. (TEC)**

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW05-WG18**

SGS Ref. #: 1100328008

Project ID: 3354-003 Red Hill BFSF

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/26/10 17:15

Receipt Date/Time: 01/29/10 11:45

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Chloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
sec-Butylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Bromodichloromethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,1-Dichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
2-Butanone (MEK)	6.20 U	10.0	3.10	ug/L	1	VMS11094	VXX20449	
Methylene chloride	2.00 U	5.00	1.00	ug/L	1	VMS11094	VXX20449	
Trichlorofluoromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
P & M -Xylene	1.24 U	2.00	0.620	ug/L	1	VMS11094	VXX20449	
Naphthalene	1.24 U	2.00	0.620	ug/L	1	VMS11094	VXX20449	
o-Xylene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Bromoform	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1-Chlorohexane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,4-Trimethylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
tert-Butylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1,1-Trichloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1-Dichloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
2-Chlorotoluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Trichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
trans-1,2-Dichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2-Dichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
2,2-Dichloropropane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Hexachlorobutadiene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Isopropylbenzene (Cumene)	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2-Dichloropropane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1-Dichloropropene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1,2-Trichloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,3-Dichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,3-Trichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Xylenes (total)	2.00 U	2.00	1.00	ug/L	1	VMS11094	VXX20449	
1,2-Dichloroethane-D4 <surrogate>	99.6	73-120		%	1	VMS11094	VXX20449	
Toluene-d8 <surrogate>	99.7	80-120		%	1	VMS11094	VXX20449	
4-Bromofluorobenzene <surrogate>	105	76-120		%	1	VMS11094	VXX20449	



The Environmental Company, Inc. (TEC)

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW05-WG18**

SGS Ref. #: 1100328008

Collection Date/Time: 01/26/10 17:15

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Batch Information								
Analytical Batch: VMS11094			Prep Batch: VXX20449				Initial Prep Wt./Vol.: 5 mL	
Analytical Method: SW8260B			Prep Method: SW5030B				Prep Extract Vol.: 5 mL	
Analysis Date/Time: 02/02/10 19:36			Prep Date/Time: 02/02/10 11:17				Container ID:1100328008-D	
Dilution Factor: 1							Analyst: DSH	

**The Environmental Company, Inc. (TEC)**

Print Date: 2/10/2010 8:51 am

Client Sample ID: **RHMW05-WG18**

SGS Ref. #: 1100328008

Project ID: 3354-003 Red Hill BFSF

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/26/10 17:15

Receipt Date/Time: 01/29/10 11:45

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Acenaphthylene	0.0344 U	0.0575	0.0172	ug/L	1	XMS5285	XXX22249	
Acenaphthene	0.0344 U	0.0575	0.0172	ug/L	1	XMS5285	XXX22249	
Fluorene	0.0344 U	0.0575	0.0172	ug/L	1	XMS5285	XXX22249	
Phenanthrene	0.0182 J	0.0575	0.0172	ug/L	1	XMS5285	XXX22249	
Anthracene	0.0344 U	0.0575	0.0172	ug/L	1	XMS5285	XXX22249	
Fluoranthene	0.0190 J	0.0575	0.0172	ug/L	1	XMS5285	XXX22249	
Pyrene	0.0344 U	0.0575	0.0172	ug/L	1	XMS5285	XXX22249	
Benzo(a)Anthracene	0.0344 U	0.0575	0.0172	ug/L	1	XMS5285	XXX22249	
Chrysene	0.0344 U	0.0575	0.0172	ug/L	1	XMS5285	XXX22249	
Benzo[b]Fluoranthene	0.0344 U	0.0575	0.0172	ug/L	1	XMS5285	XXX22249	
Benzo[k]fluoranthene	0.0344 U	0.0575	0.0172	ug/L	1	XMS5285	XXX22249	
Benzo[a]pyrene	0.0344 U	0.0575	0.0172	ug/L	1	XMS5285	XXX22249	
Indeno[1,2,3-c,d] pyrene	0.0344 U	0.0575	0.0172	ug/L	1	XMS5285	XXX22249	
Dibenzo[a,h]anthracene	0.0344 U	0.0575	0.0172	ug/L	1	XMS5285	XXX22249	
Benzo[g,h,i]perylene	0.0344 U	0.0575	0.0172	ug/L	1	XMS5285	XXX22249	
Naphthalene	0.0712 U	0.115	0.0356	ug/L	1	XMS5285	XXX22249	
1-Methylnaphthalene	0.0207 J	0.0575	0.0172	ug/L	1	XMS5285	XXX22249	
2-Methylnaphthalene	0.0246 J	0.0575	0.0172	ug/L	1	XMS5285	XXX22249	
Terphenyl-d14 <sur>	120	50-126		%	1	XMS5285	XXX22249	

Batch Information

Analytical Batch: XMS5285

Analytical Method: 8270D SIMS

Analysis Date/Time: 02/02/10 17:44

Dilution Factor: 1

Prep Batch: XXX22249

Prep Method: SW3520C

Prep Date/Time: 02/01/10 11:20

Initial Prep Wt./Vol.: 870 mL

Prep Extract Vol.: 1 mL

Container ID: 1100328008-H

Analyst: JDH



The Environmental Company, Inc. (TEC)

Print Date: 2/10/2010 8:51 am

Client Sample ID: **TB01-WG18**

SGS Ref. #: 1100328009

Collection Date/Time: 01/26/10 08:05

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Volatile Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical Batch</u>	<u>Prep Batch</u>	<u>Qualifiers</u>
Gasoline Range Organics	60.0 U	100	30.0	ug/L	1	VFC9854	VXX20443	
4-Bromofluorobenzene <sur>	101	50-150		%	1	VFC9854	VXX20443	

Batch Information

Analytical Batch: VFC9854

Prep Batch: VXX20443

Initial Prep Wt./Vol.: 5 mL

Analytical Method: SW8015C

Prep Method: SW5030B

Prep Extract Vol.: 5 mL

Analysis Date/Time: 02/01/10 14:42

Prep Date/Time: 02/01/10 09:00

Container ID:1100328009-A

Dilution Factor: 1

Analyst: HM



The Environmental Company, Inc. (TEC)

Print Date: 2/10/2010 8:51 am

Client Sample ID: **TB01-WG18**

SGS Ref. #: 1100328009

Collection Date/Time: 01/26/10 08:05

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Benzene	0.240 U	0.400	0.120	ug/L	1	VMS11094	VXX20449	
Toluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Ethylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
n-Butylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,4-Dichlorobenzene	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,2-Dichloroethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,3,5-Trimethylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
4-Chlorotoluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Chlorobenzene	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
4-Methyl-2-pentanone (MIBK)	6.20 U	10.0	3.10	ug/L	1	VMS11094	VXX20449	
cis-1,2-Dichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
4-Isopropyltoluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
cis-1,3-Dichloropropene	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
n-Propylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Styrene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Dibromomethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
trans-1,3-Dichloropropene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,4-Trichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Acetone	6.20 U	10.0	3.10	ug/L	1	VMS11094	VXX20449	
1,1,2,2-Tetrachloroethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,2-Dibromo-3-chloropropane	1.24 U	2.00	0.620	ug/L	1	VMS11094	VXX20449	
Methyl-t-butyl ether	3.00 U	5.00	1.50	ug/L	1	VMS11094	VXX20449	
Tetrachloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Dibromochloromethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,3-Dichloropropane	0.240 U	0.400	0.120	ug/L	1	VMS11094	VXX20449	
1,2-Dibromoethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Carbon tetrachloride	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1,1,2-Tetrachloroethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
Chloroform	0.600 U	1.00	0.300	ug/L	1	VMS11094	VXX20449	
Bromobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Chloromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,3-Trichloropropane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Bromomethane	1.88 U	3.00	0.940	ug/L	1	VMS11094	VXX20449	
Bromochloromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Vinyl chloride	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Dichlorodifluoromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	



The Environmental Company, Inc. (TEC)

Print Date: 2/10/2010 8:51 am

Client Sample ID: **TB01-WG18**

SGS Ref. #: 1100328009

Collection Date/Time: 01/26/10 08:05

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 01/29/10 11:45

Matrix: Water (Surface, Eff., Ground)

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u>	<u>Prep</u>	<u>Qualifiers</u>
						<u>Batch</u>	<u>Batch</u>	
Chloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
sec-Butylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Bromodichloromethane	0.300 U	0.500	0.150	ug/L	1	VMS11094	VXX20449	
1,1-Dichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
2-Butanone (MEK)	6.20 U	10.0	3.10	ug/L	1	VMS11094	VXX20449	
Methylene chloride	2.00 U	5.00	1.00	ug/L	1	VMS11094	VXX20449	
Trichlorofluoromethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
P & M -Xylene	1.24 U	2.00	0.620	ug/L	1	VMS11094	VXX20449	
Naphthalene	1.24 U	2.00	0.620	ug/L	1	VMS11094	VXX20449	
o-Xylene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Bromoform	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1-Chlorohexane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,4-Trimethylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
tert-Butylbenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1,1-Trichloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1-Dichloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
2-Chlorotoluene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Trichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
trans-1,2-Dichloroethene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2-Dichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
2,2-Dichloropropane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Hexachlorobutadiene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Isopropylbenzene (Cumene)	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2-Dichloropropane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1-Dichloropropene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,1,2-Trichloroethane	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,3-Dichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
1,2,3-Trichlorobenzene	0.620 U	1.00	0.310	ug/L	1	VMS11094	VXX20449	
Xylenes (total)	2.00 U	2.00	1.00	ug/L	1	VMS11094	VXX20449	
1,2-Dichloroethane-D4 <surr>	101	73-120		%	1	VMS11094	VXX20449	
Toluene-d8 <surr>	98.1	80-120		%	1	VMS11094	VXX20449	
4-Bromofluorobenzene <surr>	108	76-120		%	1	VMS11094	VXX20449	



Client Sample ID: **TB01-WG18**
SGS Ref. #: 1100328009
Project ID: 3354-003 Red Hill BFSF
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 01/26/10 08:05
Receipt Date/Time: 01/29/10 11:45

Volatile Gas Chromatography/Mass Spectroscopy

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Batch Information								
Analytical Batch: VMS11094		Prep Batch: VXX20449				Initial Prep Wt./Vol.: 5 mL		
Analytical Method: SW8260B		Prep Method: SW5030B				Prep Extract Vol.: 5 mL		
Analysis Date/Time: 02/02/10 16:28		Prep Date/Time: 02/02/10 11:17				Container ID:1100328009-B		
Dilution Factor: 1						Analyst: DSH		



SGS Ref.#	947654	Method Blank	Printed Date/Time	02/10/2010 8:51
Client Name	The Environmental Company, Inc. (TEC)		Prep	Batch XXX22248
Project Name/#	3354-003 Red Hill BFSF		Method	SW3520C
Matrix	Water (Surface, Eff., Ground)		Date	02/01/2010

QC results affect the following production samples:

1100328001, 1100328004, 1100328005, 1100328006, 1100328007, 1100328008

Parameter	Results	LOQ/CL	DL	Units	Analysis Date
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Semivolatile Organic Fuels Department

Diesel Range Organics	0.300 U	0.400	0.150	mg/L	02/02/10
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Surrogates

5a Androstane <surr>	93.2	60-120	%	02/02/10
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Batch XFC9100

Method SW8015C

Instrument HP 7890A FID SV E F



SGS Ref.# 947711 Method Blank
Client Name The Environmental Company, Inc. (TEC)
Project Name/# 3354-003 Red Hill BFSF
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 02/10/2010 8:51
Prep Batch XXX22249
Method SW3520C
Date 02/01/2010

QC results affect the following production samples:

1100328001, 1100328004, 1100328005, 1100328006, 1100328007, 1100328008

Parameter	Results	LOQ/CL	DL	Units	Analysis Date
<u>Polynuclear Aromatics GC/MS</u>					
Acenaphthylene	0.0300 U	0.0500	0.0150	ug/L	02/02/10
Acenaphthene	0.0300 U	0.0500	0.0150	ug/L	02/02/10
Fluorene	0.0300 U	0.0500	0.0150	ug/L	02/02/10
Phenanthrene	0.0300 U	0.0500	0.0150	ug/L	02/02/10
Anthracene	0.0300 U	0.0500	0.0150	ug/L	02/02/10
Fluoranthene	0.0300 U	0.0500	0.0150	ug/L	02/02/10
Pyrene	0.0300 U	0.0500	0.0150	ug/L	02/02/10
Benzo(a)Anthracene	0.0300 U	0.0500	0.0150	ug/L	02/02/10
Chrysene	0.0300 U	0.0500	0.0150	ug/L	02/02/10
Benzo[b]Fluoranthene	0.0300 U	0.0500	0.0150	ug/L	02/02/10
Benzo[k]fluoranthene	0.0300 U	0.0500	0.0150	ug/L	02/02/10
Benzo[a]pyrene	0.0300 U	0.0500	0.0150	ug/L	02/02/10
Indeno[1,2,3-c,d] pyrene	0.0300 U	0.0500	0.0150	ug/L	02/02/10
Dibenzo[a,h]anthracene	0.0300 U	0.0500	0.0150	ug/L	02/02/10
Benzo[g,h,i]perylene	0.0300 U	0.0500	0.0150	ug/L	02/02/10
Naphthalene	0.0620 U	0.100	0.0310	ug/L	02/02/10
1-Methylnaphthalene	0.0300 U	0.0500	0.0150	ug/L	02/02/10
2-Methylnaphthalene	0.0300 U	0.0500	0.0150	ug/L	02/02/10

Surrogates

Terphenyl-d14 <surr>	109	50-126	%	02/02/10
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Batch XMS5285
Method 8270D SIMS
Instrument HP 6890/5973 MS SVQA



SGS Ref.#	947747	Method Blank	Printed Date/Time	02/10/2010 8:51
Client Name	The Environmental Company, Inc. (TEC)		Prep	Batch
Project Name/#	3354-003 Red Hill BFSF			VXX20443
Matrix	Water (Surface, Eff., Ground)		Method	SW5030B
			Date	02/01/2010

QC results affect the following production samples:

1100328001, 1100328004, 1100328005, 1100328006, 1100328007, 1100328008, 1100328009

Parameter	Results	LOQ/CL	DL	Units	Analysis Date
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Volatile Fuels Department

Gasoline Range Organics	60.0 U	100	30.0	ug/L	02/01/10
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Surrogates

4-Bromofluorobenzene <surr>	96.8	50-150		%	02/01/10
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Batch	VFC9854
Method	SW8015C
Instrument	HP 5890 Series II PID+FID VCA



SGS Ref.#	947859	Method Blank	Printed Date/Time	02/10/2010 8:51
Client Name	The Environmental Company, Inc. (TEC)		Prep	Batch
Project Name/#	3354-003 Red Hill BFSF			MXX22713
Matrix	Water (Surface, Eff., Ground)		Method	SW3010A
			Date	02/01/2010

QC results affect the following production samples:
1100328001, 1100328004, 1100328005, 1100328006, 1100328008

Parameter	Results	LOQ/CL	DL	Units	Analysis Date
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Metals by ICP/MS

Lead	0.620 U	1.00	0.310	ug/L	02/02/10
Batch	MMS6300				
Method	SW6020				
Instrument	Perkin Elmer Sciex ICP-MS P3				



SGS Ref.#	947864	Method Blank	Printed Date/Time	02/10/2010 8:51
Client Name	The Environmental Company, Inc. (TEC)		Prep	Batch
Project Name/#	3354-003 Red Hill BFSF			MXX22714
Matrix	Water (Surface, Eff., Ground)		Method	SW3010A
			Date	02/01/2010

QC results affect the following production samples:
1100328007

Parameter	Results	LOQ/CL	DL	Units	Analysis Date
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Metals by ICP/MS

Lead	0.620 U	1.00	0.310	ug/L	02/02/10
Batch	MMS6300				
Method	SW6020				
Instrument	Perkin Elmer Sciex ICP-MS P3				



SGS Ref.#	947959	Method Blank	Printed Date/Time	02/10/2010 8:51
Client Name	The Environmental Company, Inc. (TEC)		Prep	Batch
Project Name/#	3354-003 Red Hill BFSF			VXX20449
Matrix	Water (Surface, Eff., Ground)		Method	SW5030B
			Date	02/02/2010

QC results affect the following production samples:

1100328001, 1100328004, 1100328005, 1100328006, 1100328007, 1100328008, 1100328009

Parameter	Results	LOQ/CL	DL	Units	Analysis Date
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Volatile Gas Chromatography/Mass Spectroscopy



SGS Ref.# 947959 Method Blank
Client Name The Environmental Company, Inc. (TEC)
Project Name/# 3354-003 Red Hill BFSF
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 02/10/2010 8:51
Prep Batch VXX20449
Method SW5030B
Date 02/02/2010

Parameter	Results	LOQ/CL	DL	Units	Analysis Date
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Volatile Gas Chromatography/Mass Spectroscopy

Benzene	0.240 U	0.400	0.120	ug/L	02/02/10
Toluene	0.620 U	1.00	0.310	ug/L	02/02/10
Ethylbenzene	0.620 U	1.00	0.310	ug/L	02/02/10
n-Butylbenzene	0.620 U	1.00	0.310	ug/L	02/02/10
1,4-Dichlorobenzene	0.300 U	0.500	0.150	ug/L	02/02/10
1,2-Dichloroethane	0.300 U	0.500	0.150	ug/L	02/02/10
1,3,5-Trimethylbenzene	0.620 U	1.00	0.310	ug/L	02/02/10
4-Chlorotoluene	0.620 U	1.00	0.310	ug/L	02/02/10
Chlorobenzene	0.300 U	0.500	0.150	ug/L	02/02/10
4-Methyl-2-pentanone (MIBK)	6.20 U	10.0	3.10	ug/L	02/02/10
cis-1,2-Dichloroethene	0.620 U	1.00	0.310	ug/L	02/02/10
4-Isopropyltoluene	0.620 U	1.00	0.310	ug/L	02/02/10
cis-1,3-Dichloropropene	0.300 U	0.500	0.150	ug/L	02/02/10
n-Propylbenzene	0.620 U	1.00	0.310	ug/L	02/02/10
Styrene	0.620 U	1.00	0.310	ug/L	02/02/10
Dibromomethane	0.620 U	1.00	0.310	ug/L	02/02/10
trans-1,3-Dichloropropene	0.620 U	1.00	0.310	ug/L	02/02/10
1,2,4-Trichlorobenzene	0.620 U	1.00	0.310	ug/L	02/02/10
Acetone	6.20 U	10.0	3.10	ug/L	02/02/10
1,1,2,2-Tetrachloroethane	0.300 U	0.500	0.150	ug/L	02/02/10
1,2-Dibromo-3-chloropropane	1.24 U	2.00	0.620	ug/L	02/02/10
Methyl-t-butyl ether	3.00 U	5.00	1.50	ug/L	02/02/10
Tetrachloroethene	0.620 U	1.00	0.310	ug/L	02/02/10
Dibromochloromethane	0.300 U	0.500	0.150	ug/L	02/02/10
1,3-Dichloropropane	0.240 U	0.400	0.120	ug/L	02/02/10
1,2-Dibromoethane	0.620 U	1.00	0.310	ug/L	02/02/10
Carbon tetrachloride	0.620 U	1.00	0.310	ug/L	02/02/10
1,1,1,2-Tetrachloroethane	0.300 U	0.500	0.150	ug/L	02/02/10
Chloroform	0.600 U	1.00	0.300	ug/L	02/02/10
Bromobenzene	0.620 U	1.00	0.310	ug/L	02/02/10
Chloromethane	0.620 U	1.00	0.310	ug/L	02/02/10
1,2,3-Trichloropropane	0.620 U	1.00	0.310	ug/L	02/02/10
Bromomethane	1.88 U	3.00	0.940	ug/L	02/02/10
Bromochloromethane	0.620 U	1.00	0.310	ug/L	02/02/10
Vinyl chloride	0.620 U	1.00	0.310	ug/L	02/02/10
Dichlorodifluoromethane	0.620 U	1.00	0.310	ug/L	02/02/10
Chloroethane	0.620 U	1.00	0.310	ug/L	02/02/10
sec-Butylbenzene	0.620 U	1.00	0.310	ug/L	02/02/10
Bromodichloromethane	0.300 U	0.500	0.150	ug/L	02/02/10



SGS Ref.# 947959 Method Blank

Client Name The Environmental Company, Inc. (TEC)

Project Name/# 3354-003 Red Hill BFSF

Matrix Water (Surface, Eff., Ground)

Printed Date/Time

02/10/2010 8:51

Prep

Batch

VXX20449

Method

SW5030B

Date

02/02/2010

Parameter	Results	LOQ/CL	DL	Units	Analysis Date
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Volatile Gas Chromatography/Mass Spectroscopy

1,1-Dichloroethene	0.620 U	1.00	0.310	ug/L	02/02/10
2-Butanone (MEK)	6.20 U	10.0	3.10	ug/L	02/02/10
Methylene chloride	2.00 U	5.00	1.00	ug/L	02/02/10
Trichlorofluoromethane	0.620 U	1.00	0.310	ug/L	02/02/10
P & M -Xylene	1.24 U	2.00	0.620	ug/L	02/02/10
Naphthalene	1.24 U	2.00	0.620	ug/L	02/02/10
o-Xylene	0.620 U	1.00	0.310	ug/L	02/02/10
Bromoform	0.620 U	1.00	0.310	ug/L	02/02/10
1-Chlorohexane	0.620 U	1.00	0.310	ug/L	02/02/10
1,2,4-Trimethylbenzene	0.620 U	1.00	0.310	ug/L	02/02/10
tert-Butylbenzene	0.620 U	1.00	0.310	ug/L	02/02/10
1,1,1-Trichloroethane	0.620 U	1.00	0.310	ug/L	02/02/10
1,1-Dichloroethane	0.620 U	1.00	0.310	ug/L	02/02/10
2-Chlorotoluene	0.620 U	1.00	0.310	ug/L	02/02/10
Trichloroethene	0.620 U	1.00	0.310	ug/L	02/02/10
trans-1,2-Dichloroethene	0.620 U	1.00	0.310	ug/L	02/02/10
1,2-Dichlorobenzene	0.620 U	1.00	0.310	ug/L	02/02/10
2,2-Dichloropropane	0.620 U	1.00	0.310	ug/L	02/02/10
Hexachlorobutadiene	0.620 U	1.00	0.310	ug/L	02/02/10
Isopropylbenzene (Cumene)	0.620 U	1.00	0.310	ug/L	02/02/10
1,2-Dichloropropane	0.620 U	1.00	0.310	ug/L	02/02/10
1,1-Dichloropropene	0.620 U	1.00	0.310	ug/L	02/02/10
1,1,2-Trichloroethane	0.620 U	1.00	0.310	ug/L	02/02/10
1,3-Dichlorobenzene	0.620 U	1.00	0.310	ug/L	02/02/10
1,2,3-Trichlorobenzene	0.620 U	1.00	0.310	ug/L	02/02/10
Xylenes (total)	2.00 U	2.00	1.00	ug/L	02/02/10

Surrogates

1,2-Dichloroethane-D4 <surr>	103	73-120	%	02/02/10
Toluene-d8 <surr>	100	80-120	%	02/02/10
4-Bromofluorobenzene <surr>	105	76-120	%	02/02/10

Batch VMS11094

Method SW8260B

Instrument HP 5890 Series II MS1 VJA



SGS Ref.# 947712 Lab Control Sample

Printed Date/Time 02/10/2010 8:51
Prep Batch XXX22249

Client Name The Environmental Company, Inc. (TEC)
Project Name/# 3354-003 Red Hill BFSF
Matrix Water (Surface, Eff., Ground)

Method SW3520C
Date 02/01/2010

QC results affect the following production samples:

1100328001, 1100328004, 1100328005, 1100328006, 1100328007, 1100328008

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
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Polynuclear Aromatics GC/MS

Acenaphthylene	LCS	0.403	81	(50-101)		0.5 ug/L	02/02/2010
Acenaphthene	LCS	0.406	81	(45-93)		0.5 ug/L	02/02/2010
Fluorene	LCS	0.421	84	(50-98)		0.5 ug/L	02/02/2010
Phenanthrene	LCS	0.434	87	(50-104)		0.5 ug/L	02/02/2010
Anthracene	LCS	0.437	87	(55-105)		0.5 ug/L	02/02/2010
Fluoranthene	LCS	0.512	102	(58-109)		0.5 ug/L	02/02/2010
Pyrene	LCS	0.491	98	(56-105)		0.5 ug/L	02/02/2010
Benzo(a)Anthracene	LCS	0.523	105	(55-120)		0.5 ug/L	02/02/2010
Chrysene	LCS	0.464	93	(56-109)		0.5 ug/L	02/02/2010
Benzo[b]Fluoranthene	LCS	0.481	96	(45-120)		0.5 ug/L	02/02/2010
Benzo[k]fluoranthene	LCS	0.493	99	(56-112)		0.5 ug/L	02/02/2010
Benzo[a]pyrene	LCS	0.507	101	(57-110)		0.5 ug/L	02/02/2010
Indeno[1,2,3-c,d] pyrene	LCS	0.456	91	(55-111)		0.5 ug/L	02/02/2010
Dibenzo[a,h]anthracene	LCS	0.461	92	(54-113)		0.5 ug/L	02/02/2010
Benzo[g,h,i]perylene	LCS	0.439	88	(49-116)		0.5 ug/L	02/02/2010
Naphthalene	LCS	0.354	71	(44-89)		0.5 ug/L	02/02/2010
1-Methylnaphthalene	LCS	0.385	77	(42-92)		0.5 ug/L	02/02/2010
2-Methylnaphthalene	LCS	0.363	73	(45-89)		0.5 ug/L	02/02/2010

Surrogates

Terphenyl-d14 <surr>	LCS		103	(50-126)			02/02/2010
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SGS Ref.#	947712	Lab Control Sample	Printed Date/Time	02/10/2010	8:51
			Prep	Batch	XXX22249
Client Name	The Environmental Company, Inc. (TEC)			Method	SW3520C
Project Name/#	3354-003 Red Hill BFSF			Date	02/01/2010
Matrix	Water (Surface, Eff., Ground)				

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
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Polynuclear Aromatics GC/MS

Batch	XMS5285
Method	8270D SIMS
Instrument	HP 6890/5973 MS SVQA



SGS Ref.#	947748	Lab Control Sample	Printed Date/Time	02/10/2010	8:51
	947749	Lab Control Sample Duplicate	Prep	Batch	VXX20443
Client Name	The Environmental Company, Inc. (TEC)		Method	SW5030B	
Project Name/#	3354-003 Red Hill BFSF		Date	02/01/2010	
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

1100328001, 1100328004, 1100328005, 1100328006, 1100328007, 1100328008, 1100328009

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
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Volatile Fuels Department

Gasoline Range Organics	LCS	198	99	(79-108)		200 ug/L	02/01/2010
	LCSD	185	93		7	(< 20)	200 ug/L

Surrogates

4-Bromofluorobenzene <surr>	LCS		100	(50-150)			02/01/2010
	LCSD		98		2		02/01/2010

Batch	VFC9854
Method	SW8015C
Instrument	HP 5890 Series II PID+FID VCA



SGS Ref.# 947860 Lab Control Sample

Printed Date/Time 02/10/2010 8:51

Client Name The Environmental Company, Inc. (TEC)

Project Name/# 3354-003 Red Hill BFSF

Matrix Water (Surface, Eff., Ground)

Prep Batch MXX22713

Method SW3010A

Date 02/01/2010

QC results affect the following production samples:

1100328001, 1100328004, 1100328005, 1100328006, 1100328008

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
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Metals by ICP/MS

Lead	LCS	1030	103	(80-120)		1000 ug/L	02/02/2010
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Batch MMS6300

Method SW6020

Instrument Perkin Elmer Sciex ICP-MS P3



SGS Ref.#	947865	Lab Control Sample	Printed Date/Time	02/10/2010	8:51
Client Name	The Environmental Company, Inc. (TEC)		Prep	Batch	MXX22714
Project Name/#	3354-003 Red Hill BFSF			Method	SW3010A
Matrix	Water (Surface, Eff., Ground)			Date	02/01/2010

QC results affect the following production samples:

1100328007

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
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Metals by ICP/MS

Lead	LCS	1020	102	(80-120)		1000 ug/L	02/02/2010
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Batch	MMS6300
Method	SW6020
Instrument	Perkin Elmer Sciex ICP-MS P3



SGS Ref.#	947960	Lab Control Sample	Printed Date/Time	02/10/2010	8:51
	947961	Lab Control Sample Duplicate	Prep	Batch	VXX20449
Client Name	The Environmental Company, Inc. (TEC)		Method	SW5030B	
Project Name/#	3354-003 Red Hill BFSF		Date	02/02/2010	
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:
1100328001, 1100328004, 1100328005, 1100328006, 1100328007, 1100328008, 1100328009

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
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Volatile Gas Chromatography/Mass Spectroscopy



SGS Ref.#	947960	Lab Control Sample	Printed Date/Time	02/10/2010	8:51
	947961	Lab Control Sample Duplicate	Prep	Batch	VXX20449
Client Name	The Environmental Company, Inc. (TEC)			Method	SW5030B
Project Name/#	3354-003 Red Hill BFSF			Date	02/02/2010
Matrix	Water (Surface, Eff., Ground)				

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<u>Volatile Gas Chromatography/Mass Spectroscopy</u>								
Benzene	LCS	31.2	104	(80-120)			30 ug/L	02/02/2010
	LCSD	32.3	108		4	(< 20)	30 ug/L	02/02/2010
Toluene	LCS	32.1	107	(77-120)			30 ug/L	02/02/2010
	LCSD	33.3	111		4	(< 20)	30 ug/L	02/02/2010
Ethylbenzene	LCS	32.1	107	(80-120)			30 ug/L	02/02/2010
	LCSD	32.9	110		2	(< 20)	30 ug/L	02/02/2010
n-Butylbenzene	LCS	35.9	120	(80-124)			30 ug/L	02/02/2010
	LCSD	37.0	123		3	(< 20)	30 ug/L	02/02/2010
1,4-Dichlorobenzene	LCS	32.3	108	(80-120)			30 ug/L	02/02/2010
	LCSD	34.4	115		6	(< 20)	30 ug/L	02/02/2010
1,2-Dichloroethane	LCS	33.2	111	(80-129)			30 ug/L	02/02/2010
	LCSD	34.2	114		3	(< 20)	30 ug/L	02/02/2010
1,3,5-Trimethylbenzene	LCS	34.1	114	(80-128)			30 ug/L	02/02/2010
	LCSD	35.9	120		5	(< 20)	30 ug/L	02/02/2010
4-Chlorotoluene	LCS	34.5	115	(79-128)			30 ug/L	02/02/2010
	LCSD	36.6	122		6	(< 20)	30 ug/L	02/02/2010
Chlorobenzene	LCS	32.0	107	(80-120)			30 ug/L	02/02/2010
	LCSD	32.7	109		2	(< 20)	30 ug/L	02/02/2010
4-Methyl-2-pentanone (MIBK)	LCS	94.8	105	(69-134)			90 ug/L	02/02/2010
	LCSD	96.6	107		2	(< 20)	90 ug/L	02/02/2010
cis-1,2-Dichloroethene	LCS	34.8	116	(80-125)			30 ug/L	02/02/2010
	LCSD	31.7	106		9	(< 20)	30 ug/L	02/02/2010
4-Isopropyltoluene	LCS	34.6	115	(80-125)			30 ug/L	02/02/2010
	LCSD	36.6	122		6	(< 20)	30 ug/L	02/02/2010
cis-1,3-Dichloropropene	LCS	35.3	118	(80-120)			30 ug/L	02/02/2010
	LCSD	36.6	122 *		4	(< 20)	30 ug/L	02/02/2010
n-Propylbenzene	LCS	34.0	113	(80-129)			30 ug/L	02/02/2010
	LCSD	35.8	119		5	(< 20)	30 ug/L	02/02/2010



SGS Ref.#	947960	Lab Control Sample	Printed Date/Time	02/10/2010	8:51
	947961	Lab Control Sample Duplicate	Prep	Batch	VXX20449
Client Name	The Environmental Company, Inc. (TEC)			Method	SW5030B
Project Name/#	3354-003 Red Hill BFSF			Date	02/02/2010
Matrix	Water (Surface, Eff., Ground)				

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
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Volatile Gas Chromatography/Mass Spectroscopy

Styrene	LCS	32.7	109	(80-120)			30 ug/L	02/02/2010
	LCSD	33.6	112		3	(< 20)	30 ug/L	02/02/2010
Dibromomethane	LCS	33.0	110	(80-120)			30 ug/L	02/02/2010
	LCSD	33.5	112		1	(< 20)	30 ug/L	02/02/2010
trans-1,3-Dichloropropene	LCS	32.7	109	(80-124)			30 ug/L	02/02/2010
	LCSD	34.5	115		5	(< 20)	30 ug/L	02/02/2010
1,2,4-Trichlorobenzene	LCS	32.3	108	(80-120)			30 ug/L	02/02/2010
	LCSD	35.0	117		8	(< 20)	30 ug/L	02/02/2010
Acetone	LCS	80.9	90	(50-135)			90 ug/L	02/02/2010
	LCSD	81.7	91		1	(< 20)	90 ug/L	02/02/2010
1,1,2,2-Tetrachloroethane	LCS	32.6	109	(76-123)			30 ug/L	02/02/2010
	LCSD	34.5	115		6	(< 20)	30 ug/L	02/02/2010
1,2-Dibromo-3-chloropropane	LCS	33.1	110	(73-130)			30 ug/L	02/02/2010
	LCSD	35.0	117		6	(< 20)	30 ug/L	02/02/2010
Methyl-t-butyl ether	LCS	53.2	118	(80-120)			45 ug/L	02/02/2010
	LCSD	55.2	123 *		4	(< 20)	45 ug/L	02/02/2010
Tetrachloroethene	LCS	32.0	107	(79-122)			30 ug/L	02/02/2010
	LCSD	32.5	108		2	(< 20)	30 ug/L	02/02/2010
Dibromochloromethane	LCS	28.9	96	(80-120)			30 ug/L	02/02/2010
	LCSD	30.4	101		5	(< 20)	30 ug/L	02/02/2010
1,3-Dichloropropane	LCS	33.2	111	(80-121)			30 ug/L	02/02/2010
	LCSD	34.8	116		5	(< 20)	30 ug/L	02/02/2010
1,2-Dibromoethane	LCS	32.2	107	(80-120)			30 ug/L	02/02/2010
	LCSD	32.8	109		2	(< 20)	30 ug/L	02/02/2010
Carbon tetrachloride	LCS	32.1	107	(80-126)			30 ug/L	02/02/2010
	LCSD	33.2	111		3	(< 20)	30 ug/L	02/02/2010
1,1,1,2-Tetrachloroethane	LCS	33.5	112	(80-120)			30 ug/L	02/02/2010



SGS Ref.#	947960	Lab Control Sample	Printed Date/Time	02/10/2010	8:51
	947961	Lab Control Sample Duplicate	Prep	Batch	VXX20449
Client Name	The Environmental Company, Inc. (TEC)			Method	SW5030B
Project Name/#	3354-003 Red Hill BFSF			Date	02/02/2010
Matrix	Water (Surface, Eff., Ground)				

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<u>Volatile Gas Chromatography/Mass Spectroscopy</u>								
	LCSD	35.1	117		5	(< 20)	30 ug/L	02/02/2010
Chloroform	LCS	31.6	105	(80-124)			30 ug/L	02/02/2010
	LCSD	32.2	107		2	(< 20)	30 ug/L	02/02/2010
Bromobenzene	LCS	31.7	106	(80-120)			30 ug/L	02/02/2010
	LCSD	33.1	110		5	(< 20)	30 ug/L	02/02/2010
Chloromethane	LCS	32.7	109	(67-125)			30 ug/L	02/02/2010
	LCSD	34.0	113		4	(< 20)	30 ug/L	02/02/2010
1,2,3-Trichloropropane	LCS	30.8	103	(80-120)			30 ug/L	02/02/2010
	LCSD	32.6	109		6	(< 20)	30 ug/L	02/02/2010
Bromomethane	LCS	27.1	90	(30-140)			30 ug/L	02/02/2010
	LCSD	30.9	103		13	(< 20)	30 ug/L	02/02/2010
Bromochloromethane	LCS	29.4	98	(77-129)			30 ug/L	02/02/2010
	LCSD	29.4	98		0	(< 20)	30 ug/L	02/02/2010
Vinyl chloride	LCS	29.0	97	(72-145)			30 ug/L	02/02/2010
	LCSD	29.2	97		1	(< 20)	30 ug/L	02/02/2010
Dichlorodifluoromethane	LCS	31.8	106	(62-153)			30 ug/L	02/02/2010
	LCSD	32.6	109		2	(< 20)	30 ug/L	02/02/2010
Chloroethane	LCS	29.7	99	(67-133)			30 ug/L	02/02/2010
	LCSD	30.1	100		1	(< 20)	30 ug/L	02/02/2010
sec-Butylbenzene	LCS	34.2	114	(80-120)			30 ug/L	02/02/2010
	LCSD	35.9	120		5	(< 20)	30 ug/L	02/02/2010
Bromodichloromethane	LCS	34.4	115	(80-120)			30 ug/L	02/02/2010
	LCSD	35.5	118		3	(< 20)	30 ug/L	02/02/2010
1,1-Dichloroethene	LCS	27.5	92	(76-130)			30 ug/L	02/02/2010
	LCSD	28.4	95		3	(< 20)	30 ug/L	02/02/2010
2-Butanone (MEK)	LCS	94.0	104	(66-136)			90 ug/L	02/02/2010
	LCSD	94.8	105		1	(< 20)	90 ug/L	02/02/2010



SGS Ref.#	947960	Lab Control Sample	Printed Date/Time	02/10/2010	8:51
	947961	Lab Control Sample Duplicate	Prep	Batch	VXX20449
Client Name	The Environmental Company, Inc. (TEC)			Method	SW5030B
Project Name/#	3354-003 Red Hill BFSF			Date	02/02/2010
Matrix	Water (Surface, Eff., Ground)				

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<u>Volatile Gas Chromatography/Mass Spectroscopy</u>								
Methylene chloride	LCS	27.4	91	(63-131)			30 ug/L	02/02/2010
	LCSD	28.3	94		3	(< 20)	30 ug/L	02/02/2010
Trichlorofluoromethane	LCS	29.4	98	(68-145)			30 ug/L	02/02/2010
	LCSD	29.8	99		1	(< 20)	30 ug/L	02/02/2010
P & M -Xylene	LCS	66.2	110	(80-120)			60 ug/L	02/02/2010
	LCSD	67.7	113		2	(< 20)	60 ug/L	02/02/2010
Naphthalene	LCS	31.8	106	(75-120)			30 ug/L	02/02/2010
	LCSD	33.7	112		6	(< 20)	30 ug/L	02/02/2010
o-Xylene	LCS	31.4	105	(80-120)			30 ug/L	02/02/2010
	LCSD	32.8	109		4	(< 20)	30 ug/L	02/02/2010
Bromoform	LCS	29.4	98	(80-120)			30 ug/L	02/02/2010
	LCSD	31.0	103		5	(< 20)	30 ug/L	02/02/2010
1-Chlorohexane	LCS	48.6	108	(70-125)			45 ug/L	02/02/2010
	LCSD	49.3	109		1	(< 20)	45 ug/L	02/02/2010
1,2,4-Trimethylbenzene	LCS	34.2	114	(80-125)			30 ug/L	02/02/2010
	LCSD	36.0	120		5	(< 20)	30 ug/L	02/02/2010
tert-Butylbenzene	LCS	33.1	110	(80-122)			30 ug/L	02/02/2010
	LCSD	34.7	116		5	(< 20)	30 ug/L	02/02/2010
1,1,1-Trichloroethane	LCS	32.9	110	(80-122)			30 ug/L	02/02/2010
	LCSD	33.0	110		0	(< 20)	30 ug/L	02/02/2010
1,1-Dichloroethane	LCS	37.9	126 *	(80-120)			30 ug/L	02/02/2010
	LCSD	38.8	129 *		2	(< 20)	30 ug/L	02/02/2010
2-Chlorotoluene	LCS	34.0	113	(80-125)			30 ug/L	02/02/2010
	LCSD	35.7	119		5	(< 20)	30 ug/L	02/02/2010
Trichloroethene	LCS	33.0	110	(80-125)			30 ug/L	02/02/2010
	LCSD	33.7	112		2	(< 20)	30 ug/L	02/02/2010
trans-1,2-Dichloroethene	LCS	33.2	111	(79-132)			30 ug/L	02/02/2010
	LCSD	33.6	112		1	(< 20)	30 ug/L	02/02/2010



SGS Ref.#	947960	Lab Control Sample	Printed Date/Time	02/10/2010	8:51
	947961	Lab Control Sample Duplicate	Prep	Batch	VXX20449
Client Name	The Environmental Company, Inc. (TEC)			Method	SW5030B
Project Name/#	3354-003 Red Hill BFSF			Date	02/02/2010
Matrix	Water (Surface, Eff., Ground)				

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
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Volatile Gas Chromatography/Mass Spectroscopy

1,2-Dichlorobenzene	LCS	31.9	106	(80-120)			30 ug/L	02/02/2010
	LCSD	34.2	114		7	(< 20)	30 ug/L	02/02/2010
2,2-Dichloropropane	LCS	33.6	112	(80-132)			30 ug/L	02/02/2010
	LCSD	33.5	112		0	(< 20)	30 ug/L	02/02/2010
Hexachlorobutadiene	LCS	31.5	105	(77-125)			30 ug/L	02/02/2010
	LCSD	32.7	109		4	(< 20)	30 ug/L	02/02/2010
Isopropylbenzene (Cumene)	LCS	34.0	113	(80-121)			30 ug/L	02/02/2010
	LCSD	34.3	114		1	(< 20)	30 ug/L	02/02/2010
1,2-Dichloropropane	LCS	35.3	118	(80-121)			30 ug/L	02/02/2010
	LCSD	36.3	121		3	(< 20)	30 ug/L	02/02/2010
1,1-Dichloropropene	LCS	34.1	114	(80-122)			30 ug/L	02/02/2010
	LCSD	34.3	114		1	(< 20)	30 ug/L	02/02/2010
1,1,2-Trichloroethane	LCS	32.1	107	(77-120)			30 ug/L	02/02/2010
	LCSD	33.9	113		5	(< 20)	30 ug/L	02/02/2010
1,3-Dichlorobenzene	LCS	32.7	109	(80-120)			30 ug/L	02/02/2010
	LCSD	34.5	115		5	(< 20)	30 ug/L	02/02/2010
1,2,3-Trichlorobenzene	LCS	30.5	102	(77-120)			30 ug/L	02/02/2010
	LCSD	32.6	109		7	(< 20)	30 ug/L	02/02/2010
Xylenes (total)	LCS	97.6	108	(80-120)			90 ug/L	02/02/2010
	LCSD	100	112		3	(< 20)	90 ug/L	02/02/2010

Surrogates

1,2-Dichloroethane-D4 <surr>	LCS		99	(73-120)				02/02/2010
	LCSD		100		0			02/02/2010
Toluene-d8 <surr>	LCS		97	(80-120)				02/02/2010
	LCSD		96		2			02/02/2010
4-Bromofluorobenzene <surr>	LCS		102	(76-120)				02/02/2010
	LCSD		102		1			02/02/2010



SGS Ref.#	947960	Lab Control Sample	Printed Date/Time	02/10/2010	8:51
	947961	Lab Control Sample Duplicate	Prep	Batch	VXX20449
Client Name	The Environmental Company, Inc. (TEC)		Method	SW5030B	
Project Name/#	3354-003 Red Hill BFSF		Date	02/02/2010	
Matrix	Water (Surface, Eff., Ground)				

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
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Volatile Gas Chromatography/Mass Spectroscopy

Batch	VMS11094
Method	SW8260B
Instrument	HP 5890 Series II MS1 VJA



SGS Ref.# 947982 Lab Control Sample

Printed Date/Time 02/10/2010 8:51

Prep Batch XXX22248

Client Name The Environmental Company, Inc. (TEC)

Method SW3520C

Project Name/# 3354-003 Red Hill BFSF

Date 02/01/2010

Matrix Water (Surface, Eff., Ground)

QC results affect the following production samples:

1100328001, 1100328004, 1100328005, 1100328006, 1100328007, 1100328008

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
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Semivolatile Organic Fuels Department

Diesel Range Organics	LCS	4.84	97	(75-125)		5 mg/L	02/02/2010
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Surrogates

5a Androstane <surr>	LCS		98	(60-120)			02/02/2010
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Batch XFC9100

Method SW8015C

Instrument HP 7890A FID SV E F



SGS Ref.#	947866	Matrix Spike	Printed Date/Time		02/10/2010 8:51
	947867	Matrix Spike Duplicate	Prep	Batch	MXX22714
				Method	3010 H2O Digest for Metals ICI
				Date	02/01/2010
Original	1100319001				
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

1100328007

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
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Metals by ICP/MS

Lead	MS	(0.620) U	985	99	(80-120)			1000	ug/L 02/02/2010
	MSD		1010	101		3	(< 15)	1000	ug/L 02/02/2010
Batch	MMS6300								
Method	SW6020								
Instrument	Perkin Elmer Sciex ICP-MS P3								



SGS Ref.# 1100328002 Billable Matrix Spike
1100328003 Billable Matrix Spike Dup.

Printed Date/Time 02/10/2010 8:51
Prep Batch MXX22713
Method 3010 H2O Digest for Metals ICI
Date 02/01/2010

Original 1100328001
Matrix Water (Surface, Eff., Ground)

QC results affect the following production samples:

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
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Dissolved Metals by ICP/MS

Lead	BMS (0.620) U	1050	105	(80-120)				1000	ug/L 02/02/2010
	BMSD	1010	101			4	(< 15)	1000	ug/L 02/02/2010

Batch MMS6300
Method SW6020
Instrument Perkin Elmer Sciex ICP-MS P3

Volatile Fuels Department

Gasoline Range Organics	BMS (60.0) U	462	103	(79-108)				450	ug/L 02/01/2010
	BMSD	468	104			1	(< 20)	450	ug/L 02/01/2010

Surrogates

4-Bromofluorobenzene <surr>	BMS	51.1	102	(50-150)					02/01/2010
	BMSD	51.4	103			1			02/01/2010

Batch VFC9854
Method SW8015C
Instrument HP 5890 Series II PID+FID VCA

Semivolatile Organic Fuels Department

Diesel Range Organics	BMS (0.320) U	5.06	92	(75-125)				5.49	mg/L 02/02/2010
	BMSD	4.56	84			11	(< 30)	5.43	mg/L 02/02/2010

Surrogates

5a Androstane <surr>	BMS	.104	95	(50-150)					02/02/2010
	BMSD	0.0947	87			10			02/02/2010

Batch XFC9100
Method SW8015C
Instrument HP 7890A FID SV E F

Volatile Gas Chromatography/Mass Spectroscopy



SGS Ref.# 1100328002 Billable Matrix Spike
1100328003 Billable Matrix Spike Dup.

Printed Date/Time 02/10/2010 8:51
Prep Batch VXX20449
Method Volatiles Extraction AFCEE 3.1
Date 02/02/2010

Original 1100328001
Matrix Water (Surface, Eff., Ground)

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Gas Chromatography/Mass Spectroscopy									
Benzene	BMS (0.240) U	28.8		96	(80-120)			30.0	ug/L 02/02/2010
	BMSD	29.0		97		1	(< 20)	30.0	ug/L 02/02/2010
Toluene	BMS (0.620) U	29.8		99	(77-120)			30.0	ug/L 02/02/2010
	BMSD	31.2		104		5	(< 20)	30.0	ug/L 02/02/2010
Ethylbenzene	BMS (0.620) U	30.3		101	(80-120)			30.0	ug/L 02/02/2010
	BMSD	30.8		103		2	(< 20)	30.0	ug/L 02/02/2010
n-Butylbenzene	BMS (0.620) U	33		110	(80-124)			30.0	ug/L 02/02/2010
	BMSD	34.5		115		4	(< 20)	30.0	ug/L 02/02/2010
1,4-Dichlorobenzene	BMS (0.300) U	30.9		103	(80-120)			30.0	ug/L 02/02/2010
	BMSD	32.1		107		4	(< 20)	30.0	ug/L 02/02/2010
1,2-Dichloroethane	BMS (0.300) U	30.6		102	(80-129)			30.0	ug/L 02/02/2010
	BMSD	30.7		102		0	(< 20)	30.0	ug/L 02/02/2010
1,3,5-Trimethylbenzene	BMS (0.620) U	31.6		105	(80-128)			30.0	ug/L 02/02/2010
	BMSD	33.0		110		4	(< 20)	30.0	ug/L 02/02/2010
4-Chlorotoluene	BMS (0.620) U	32		107	(79-128)			30.0	ug/L 02/02/2010
	BMSD	33.8		113		6	(< 20)	30.0	ug/L 02/02/2010
Chlorobenzene	BMS (0.300) U	29.9		100	(80-120)			30.0	ug/L 02/02/2010
	BMSD	31.1		104		4	(< 20)	30.0	ug/L 02/02/2010
4-Methyl-2-pentanone (MIBK)	BMS (6.20) U	96.2		107	(69-134)			90.0	ug/L 02/02/2010
	BMSD	86.9		97		10	(< 20)	90.0	ug/L 02/02/2010
cis-1,2-Dichloroethene	BMS (0.620) U	31.7		106	(80-125)			30.0	ug/L 02/02/2010
	BMSD	31.1		104		2	(< 20)	30.0	ug/L 02/02/2010
4-Isopropyltoluene	BMS (0.620) U	32.3		108	(80-125)			30.0	ug/L 02/02/2010
	BMSD	33.8		113		5	(< 20)	30.0	ug/L 02/02/2010
cis-1,3-Dichloropropene	BMS (0.300) U	33.2		111	(80-120)			30.0	ug/L 02/02/2010
	BMSD	33.2		111		0	(< 20)	30.0	ug/L 02/02/2010
n-Propylbenzene	BMS (0.620) U	31.6		105	(80-129)			30.0	ug/L 02/02/2010
	BMSD	32.9		110		4	(< 20)	30.0	ug/L 02/02/2010
Styrene	BMS (0.620) U	29.9		100	(80-120)			30.0	ug/L 02/02/2010
	BMSD	30.6		102		3	(< 20)	30.0	ug/L 02/02/2010
Dibromomethane	BMS (0.620) U	30.6		102	(80-120)			30.0	ug/L 02/02/2010
	BMSD	30.7		102		0	(< 20)	30.0	ug/L 02/02/2010
trans-1,3-Dichloropropene	BMS (0.620) U	30.8		103	(80-124)			30.0	ug/L 02/02/2010
	BMSD	32.3		108		5	(< 20)	30.0	ug/L 02/02/2010
1,2,4-Trichlorobenzene	BMS (0.620) U	31.4		105	(80-120)			30.0	ug/L 02/02/2010
	BMSD	32.8		109		4	(< 20)	30.0	ug/L 02/02/2010
Acetone	BMS (6.20) U	83.7		93	(50-135)			90.0	ug/L 02/02/2010
	BMSD	81.4		90		3	(< 20)	90.0	ug/L 02/02/2010
1,1,2,2-Tetrachloroethane	BMS (0.300) U	32.6		109	(76-123)			30.0	ug/L 02/02/2010
	BMSD	32.4		108		1	(< 20)	30.0	ug/L 02/02/2010



SGS Ref.# 1100328002 Billable Matrix Spike
1100328003 Billable Matrix Spike Dup.

Printed Date/Time 02/10/2010 8:51
Prep Batch VXX20449
Method Volatiles Extraction AFCEE 3.1
Date 02/02/2010

Original 1100328001
Matrix Water (Surface, Eff., Ground)

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Gas Chromatography/Mass Spectroscopy									
1,2-Dibromo-3-chloropropane	BMS (1.24) U	33.4		111	(73-130)			30.0	ug/L 02/02/2010
	BMSD	33.3		111		0	(< 20)	30.0	ug/L 02/02/2010
Methyl-t-butyl ether	BMS (3.00) U	51.7		115	(80-120)			45.0	ug/L 02/02/2010
	BMSD	50.5		112		2	(< 20)	45.0	ug/L 02/02/2010
Tetrachloroethene	BMS (0.620) U	29.3		98	(79-122)			30.0	ug/L 02/02/2010
	BMSD	30.3		101		3	(< 20)	30.0	ug/L 02/02/2010
Dibromochloromethane	BMS (0.300) U	27.7		92	(80-120)			30.0	ug/L 02/02/2010
	BMSD	28.9		96		4	(< 20)	30.0	ug/L 02/02/2010
1,3-Dichloropropane	BMS (0.240) U	31.7		106	(80-121)			30.0	ug/L 02/02/2010
	BMSD	32.9		110		4	(< 20)	30.0	ug/L 02/02/2010
1,2-Dibromoethane	BMS (0.620) U	30.8		103	(80-120)			30.0	ug/L 02/02/2010
	BMSD	31.6		105		3	(< 20)	30.0	ug/L 02/02/2010
Carbon tetrachloride	BMS (0.620) U	30.2		101	(80-126)			30.0	ug/L 02/02/2010
	BMSD	30.1		100		0	(< 20)	30.0	ug/L 02/02/2010
1,1,1,2-Tetrachloroethane	BMS (0.300) U	31.4		105	(80-120)			30.0	ug/L 02/02/2010
	BMSD	32.3		108		3	(< 20)	30.0	ug/L 02/02/2010
Chloroform	BMS (0.600) U	29.2		97	(80-124)			30.0	ug/L 02/02/2010
	BMSD	29.3		98		1	(< 20)	30.0	ug/L 02/02/2010
Bromobenzene	BMS (0.620) U	29.8		99	(80-120)			30.0	ug/L 02/02/2010
	BMSD	30.8		103		4	(< 20)	30.0	ug/L 02/02/2010
Chloromethane	BMS (0.620) U	31.9		106	(67-125)			30.0	ug/L 02/02/2010
	BMSD	31.3		104		2	(< 20)	30.0	ug/L 02/02/2010
1,2,3-Trichloropropane	BMS (0.620) U	30.4		101	(80-120)			30.0	ug/L 02/02/2010
	BMSD	30.7		102		1	(< 20)	30.0	ug/L 02/02/2010
Bromomethane	BMS (1.88) U	31.1		104	(30-140)			30.0	ug/L 02/02/2010
	BMSD	31.6		105		2	(< 20)	30.0	ug/L 02/02/2010
Bromochloromethane	BMS (0.620) U	27		90	(77-129)			30.0	ug/L 02/02/2010
	BMSD	27.7		92		2	(< 20)	30.0	ug/L 02/02/2010
Vinyl chloride	BMS (0.620) U	26.9		90	(72-145)			30.0	ug/L 02/02/2010
	BMSD	26.7		89		1	(< 20)	30.0	ug/L 02/02/2010
Dichlorodifluoromethane	BMS (0.620) U	30		100	(62-153)			30.0	ug/L 02/02/2010
	BMSD	30.0		100		0	(< 20)	30.0	ug/L 02/02/2010
Chloroethane	BMS (0.620) U	27.1		90	(67-133)			30.0	ug/L 02/02/2010
	BMSD	27.3		91		1	(< 20)	30.0	ug/L 02/02/2010
sec-Butylbenzene	BMS (0.620) U	31.7		106	(80-120)			30.0	ug/L 02/02/2010
	BMSD	33.2		111		5	(< 20)	30.0	ug/L 02/02/2010
Bromodichloromethane	BMS (0.300) U	32.3		108	(80-120)			30.0	ug/L 02/02/2010
	BMSD	32.6		109		1	(< 20)	30.0	ug/L 02/02/2010
1,1-Dichloroethene	BMS (0.620) U	26.2		87	(76-130)			30.0	ug/L 02/02/2010
	BMSD	25.8		86		2	(< 20)	30.0	ug/L 02/02/2010



SGS Ref.#	1100328002	Billable Matrix Spike	Printed Date/Time	02/10/2010 8:51
	1100328003	Billable Matrix Spike Dup.	Prep Batch	VXX20449
			Method	Volatiles Extraction AFCEE 3.1
			Date	02/02/2010

Original 1100328001
Matrix Water (Surface, Eff., Ground)

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
<u>Volatile Gas Chromatography/Mass Spectroscopy</u>									
2-Butanone (MEK)	BMS	(6.20) U	98.5	109	(66-136)			90.0	ug/L 02/02/2010
	BMSD		92.6	103		6	(< 20)	90.0	ug/L 02/02/2010
Methylene chloride	BMS	(2.00) U	26	87	(63-131)			30.0	ug/L 02/02/2010
	BMSD		26.4	88		2	(< 20)	30.0	ug/L 02/02/2010
Trichlorofluoromethane	BMS	(0.620) U	26.9	90	(68-145)			30.0	ug/L 02/02/2010
	BMSD		26.9	90		0	(< 20)	30.0	ug/L 02/02/2010
P & M -Xylene	BMS	(1.24) U	61.3	102	(80-120)			60.0	ug/L 02/02/2010
	BMSD		63.5	106		4	(< 20)	60.0	ug/L 02/02/2010
Naphthalene	BMS	(1.24) U	32.6	109	(75-120)			30.0	ug/L 02/02/2010
	BMSD		33.0	110		1	(< 20)	30.0	ug/L 02/02/2010
o-Xylene	BMS	(0.620) U	29.3	98	(80-120)			30.0	ug/L 02/02/2010
	BMSD		30.4	101		4	(< 20)	30.0	ug/L 02/02/2010
Bromoform	BMS	(0.620) U	29.3	98	(80-120)			30.0	ug/L 02/02/2010
	BMSD		29.9	100		2	(< 20)	30.0	ug/L 02/02/2010
1-Chlorohexane	BMS	(0.620) U	44.8	99	(70-125)			45.0	ug/L 02/02/2010
	BMSD		46.1	102		3	(< 20)	45.0	ug/L 02/02/2010
1,2,4-Trimethylbenzene	BMS	(0.620) U	31.9	106	(80-125)			30.0	ug/L 02/02/2010
	BMSD		33.4	111		5	(< 20)	30.0	ug/L 02/02/2010
tert-Butylbenzene	BMS	(0.620) U	30.8	103	(80-122)			30.0	ug/L 02/02/2010
	BMSD		32.1	107		4	(< 20)	30.0	ug/L 02/02/2010
1,1,1-Trichloroethane	BMS	(0.620) U	30.5	102	(80-122)			30.0	ug/L 02/02/2010
	BMSD		30.3	101		1	(< 20)	30.0	ug/L 02/02/2010
1,1-Dichloroethane	BMS	(0.620) U	34.5	115	(80-120)			30.0	ug/L 02/02/2010
	BMSD		34.9	116		1	(< 20)	30.0	ug/L 02/02/2010
2-Chlorotoluene	BMS	(0.620) U	31.9	106	(80-125)			30.0	ug/L 02/02/2010
	BMSD		33.1	110		4	(< 20)	30.0	ug/L 02/02/2010
Trichloroethene	BMS	(0.620) U	30.2	101	(80-125)			30.0	ug/L 02/02/2010
	BMSD		30.5	102		1	(< 20)	30.0	ug/L 02/02/2010
trans-1,2-Dichloroethene	BMS	(0.620) U	30.9	103	(79-132)			30.0	ug/L 02/02/2010
	BMSD		30.6	102		1	(< 20)	30.0	ug/L 02/02/2010
1,2-Dichlorobenzene	BMS	(0.620) U	30.2	101	(80-120)			30.0	ug/L 02/02/2010
	BMSD		31.4	105		4	(< 20)	30.0	ug/L 02/02/2010
2,2-Dichloropropane	BMS	(0.620) U	31.4	105	(80-132)			30.0	ug/L 02/02/2010
	BMSD		31.4	105		0	(< 20)	30.0	ug/L 02/02/2010
Hexachlorobutadiene	BMS	(0.620) U	29.2	97	(77-125)			30.0	ug/L 02/02/2010
	BMSD		31.6	105		8	(< 20)	30.0	ug/L 02/02/2010
Isopropylbenzene (Cumene)	BMS	(0.620) U	31.3	104	(80-121)			30.0	ug/L 02/02/2010
	BMSD		32.4	108		4	(< 20)	30.0	ug/L 02/02/2010
1,2-Dichloropropane	BMS	(0.620) U	32.2	107	(80-121)			30.0	ug/L 02/02/2010
	BMSD		32.7	109		2	(< 20)	30.0	ug/L 02/02/2010



SGS Ref.# 1100328002 Billable Matrix Spike
1100328003 Billable Matrix Spike Dup.

Printed Date/Time 02/10/2010 8:51
Prep Batch VXX20449
Method Volatiles Extraction AFCEE 3.1
Date 02/02/2010

Original 1100328001
Matrix Water (Surface, Eff., Ground)

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
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Volatile Gas Chromatography/Mass Spectroscopy

1,1-Dichloropropene	BMS (0.620) U	31	103	(80-122)				30.0	ug/L 02/02/2010
	BMSD	31.0	103			0	(< 20)	30.0	ug/L 02/02/2010
1,1,2-Trichloroethane	BMS (0.620) U	31.2	104	(77-120)				30.0	ug/L 02/02/2010
	BMSD	31.8	106			2	(< 20)	30.0	ug/L 02/02/2010
1,3-Dichlorobenzene	BMS (0.620) U	30.8	103	(80-120)				30.0	ug/L 02/02/2010
	BMSD	32.0	107			4	(< 20)	30.0	ug/L 02/02/2010
1,2,3-Trichlorobenzene	BMS (0.620) U	30.1	100	(77-120)				30.0	ug/L 02/02/2010
	BMSD	30.9	103			3	(< 20)	30.0	ug/L 02/02/2010
Xylenes (total)	BMS (2.00) U	90.6	101	(80-120)				90.0	ug/L 02/02/2010
	BMSD	93.9	104			4	(< 20)	90.0	ug/L 02/02/2010

Surrogates

1,2-Dichloroethane-D4 <surr>	BMS	29.8	99	(73-120)					02/02/2010
	BMSD	28.9	96			3			02/02/2010
Toluene-d8 <surr>	BMS	28.9	96	(80-120)					02/02/2010
	BMSD	29.4	98			2			02/02/2010
4-Bromofluorobenzene <surr>	BMS	30.9	103	(76-120)					02/02/2010
	BMSD	30.9	103			0			02/02/2010

Batch VMS11094
Method SW8260B
Instrument HP 5890 Series II MS1 VJA

Polynuclear Aromatics GC/MS



SGS Ref.#	1100328002	Billable Matrix Spike	Printed Date/Time	02/10/2010 8:51
	1100328003	Billable Matrix Spike Dup.	Prep Batch	XXX22249
			Method	3520 Liquid/Liquid Ext for 827/
			Date	02/01/2010

Original	1100328001
Matrix	Water (Surface, Eff., Ground)

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Polynuclear Aromatics GC/MS									
Acenaphthylene	BMS (0.0316) U	.459		87	(50-101)			0.526	ug/L 02/02/2010
	BMSD	0.423		80		8	(< 30)	0.532	ug/L 02/02/2010
Acenaphthene	BMS (0.0316) U	.448		85	(45-93)			0.526	ug/L 02/02/2010
	BMSD	0.399		75		12	(< 30)	0.532	ug/L 02/02/2010
Fluorene	BMS (0.0316) U	.469		89	(50-98)			0.526	ug/L 02/02/2010
	BMSD	0.437		82		7	(< 30)	0.532	ug/L 02/02/2010
Phenanthrene	BMS (0.0316) U	.469		89	(50-104)			0.526	ug/L 02/02/2010
	BMSD	0.459		86		2	(< 30)	0.532	ug/L 02/02/2010
Anthracene	BMS (0.0316) U	.488		93	(55-105)			0.526	ug/L 02/02/2010
	BMSD	0.484		91		1	(< 30)	0.532	ug/L 02/02/2010
Fluoranthene	BMS (0.0316) U	.562		107	(58-109)			0.526	ug/L 02/02/2010
	BMSD	0.585		110*		4	(< 30)	0.532	ug/L 02/02/2010
Pyrene	BMS (0.0316) U	.539		102	(56-105)			0.526	ug/L 02/02/2010
	BMSD	0.549		103		2	(< 30)	0.532	ug/L 02/02/2010
Benzo(a)Anthracene	BMS (0.0316) U	.543		103	(55-120)			0.526	ug/L 02/02/2010
	BMSD	0.568		107		5	(< 30)	0.532	ug/L 02/02/2010
Chrysene	BMS (0.0316) U	.457		87	(56-109)			0.526	ug/L 02/02/2010
	BMSD	0.495		93		8	(< 30)	0.532	ug/L 02/02/2010
Benzo[b]Fluoranthene	BMS (0.0316) U	.466		89	(45-120)			0.526	ug/L 02/02/2010
	BMSD	0.539		101		15	(< 30)	0.532	ug/L 02/02/2010
Benzo[k]fluoranthene	BMS (0.0316) U	.442		84	(56-112)			0.526	ug/L 02/02/2010
	BMSD	0.523		98		17	(< 30)	0.532	ug/L 02/02/2010
Benzo[a]pyrene	BMS (0.0316) U	.467		89	(57-110)			0.526	ug/L 02/02/2010
	BMSD	0.565		106		19	(< 30)	0.532	ug/L 02/02/2010
Indeno[1,2,3-c,d] pyrene	BMS (0.0316) U	.482		92	(55-111)			0.526	ug/L 02/02/2010
	BMSD	0.527		99		9	(< 30)	0.532	ug/L 02/02/2010
Dibenzo[a,h]anthracene	BMS (0.0316) U	.495		94	(54-113)			0.526	ug/L 02/02/2010
	BMSD	0.538		101		8	(< 30)	0.532	ug/L 02/02/2010
Benzo[g,h,i]perylene	BMS (0.0316) U	.48		91	(49-116)			0.526	ug/L 02/02/2010
	BMSD	0.500		94		4	(< 30)	0.532	ug/L 02/02/2010
Naphthalene	BMS 0.0375 J	.387		67	(44-89)			0.526	ug/L 02/02/2010
	BMSD	0.366		62		6	(< 30)	0.532	ug/L 02/02/2010
1-Methylnaphthalene	BMS (0.0316) U	.424		81	(42-92)			0.526	ug/L 02/02/2010
	BMSD	0.407		77		4	(< 30)	0.532	ug/L 02/02/2010
2-Methylnaphthalene	BMS (0.0316) U	.389		74	(45-89)			0.526	ug/L 02/02/2010
	BMSD	0.377		71		3	(< 30)	0.532	ug/L 02/02/2010
Surrogates									
Terphenyl-d14 <surr>	BMS	.56		106	(50-126)				02/02/2010
	BMSD	0.577		108		3			02/02/2010



SGS Ref.#	1100328002	Billable Matrix Spike	Printed Date/Time	02/10/2010 8:51	
	1100328003	Billable Matrix Spike Dup.		Prep	Batch
				Method	3520 Liquid/Liquid Ext for 827/
				Date	02/01/2010
Original	1100328001				
Matrix	Water (Surface, Eff., Ground)				

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
-----------	------------	--------------------	--------------	--------------	------------------	-----	---------------	------------------	------------------

Polynuclear Aromatics GC/MS

Batch	XMS5285
Method	8270D SIMS
Instrument	HP 6890/5973 MS SVQA



1100328



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- ☐ 200 W. Potter Drive **Anchorage, AK 99518** Tel: (907) 562-2343 Fax: (907) 561-5301
- ☐ 3180 Peger Road **Fairbanks, AK 99701** Tel: (907) 474-8656 Fax: (907) 474-9685
- ☐ 255 Sand Island Access Rd., Unit 1B **Honolulu, HI 96819** Tel: (808) 224-6217 Fax: (808) 845-2287

- ☐ 151 James Drive West **St Rose, LA 70087** Tel: (504) 469-6401 Fax: (504) 463-3304
- ☐ 1258 Greenbrier Street **Charleston, WV 25311** Tel: (304) 346-0725 Fax: (304) 346-0761
- ☐ 5500 Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1557



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1100328



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- ☐ 255 Sand Island Access Rd., Unit 1B **Honolulu, HI 96819** Tel: (808) 224-6217 Fax: (808) 845-2287

- | | | | | |
|--------------------------|------------------------|----------------------|---------------------|---------------------|
| <input type="checkbox"/> | 151 James Drive West | St Rose, LA 70087 | Tel: (504) 469-6401 | Fax: (504) 463-3304 |
| <input type="checkbox"/> | 1258 Greenbrier Street | Charleston, WV 25311 | Tel: (304) 346-0725 | Fax: (304) 346-0761 |
| <input type="checkbox"/> | 5500 Business Drive | Wilmington, NC 28405 | Tel: (910) 350-1903 | Fax: (910) 350-1557 |

SAMPLE RECEIPT FORM

SGS WO#:



Yes No NA

- ☒ Are samples **RUSH**, priority or w/in 72 hrs of hold time?
☒ If yes, have you done e-mail ALERT notification?
☒ Are samples within 24 hrs. of hold time or due date?
☒ If yes, have you also spoken with supervisor?
☒ Archiving bottles: Are lids marked w/ red "X"?
☒ Were samples collected with proper preservative?
☒ Any problems (ID, cond'n, HT, etc)? Explain:

- ☒ If this is for PWS, provide PWSID: _____
☒ Payment received: \$ _____ by Check or Credit Card
☒ Will courier charges apply?
☒ Data package required? (Level: 1 / 2 / 3 / 4)
 Notes: _____
☒ Is this a DoD project? (USACE, Navy, AFCEE)

This section must be filled out for DoD projects (USACE, Navy, AFCEE):

- Yes No
☒ Is received temperature $\leq 6^{\circ}\text{C}$?
☒ Were containers ice-free? *Notify PM immediately of any ice in samples.*
 If some cooler temperatures are non-compliant, see form FS-0029 (attached) for samples/analyses affected.
☒ Was there an airbill? (If "yes," see attached.)
☒ Was cooler sealed with custody seals & were they intact?
 # / where: _____
☒ Was there a COC with cooler?
☒ Was COC sealed in plastic bag & taped inside lid of cooler?
☒ Was the COC filled out properly? Did labels correspond?
☒ Did the COC indicate USACE / Navy / AFCEE project?
 Samples were packed to prevent breakage with (circle one):
Bubble Wrap Vermiculite Other (specify): _____
☒ Were all samples sealed in separate plastic bags?
☒ Were all VOCs free of headspace and/or MeOH preserved?
☒ Were correct container / sample sizes submitted?
☒ Was the PM notified of arrival so they can send Sample Receipt Acknowledgement to client?

TAT (circle one): Standard or- RushReceived Date: 7-28-10Received Time: P: 3:15

Cooler ID	Temperature	Measured w/ (Therm/IR ID#)
#1	3 °C	
#2	4 °C	
#3	3 °C	
#4	5 °C	
#5	4 °C	

Note: Temperature readings include thermometer correction factors

Delivery method (circle all that apply):

- ☒ Client / Alert Courier / Lynden / SGS
 UPS / FedEx / USPS / DHL / Carlisle
 AkAir Goldstreak / NAC / ERA / PenAir
 Other: _____

Additional Sample Remarks: (✓ if applicable)

- Extra Sample Volume?
 Limited Sample Volume?
 Multi-Incremental Samples?
 Lab-filtered for dissolved _____
 Ref Lab required for _____
 Foreign Soil?

This section must be completed if problems are noted.

Was client notified of problems? Yes / No

By (SGS PM): _____

Individual contacted: _____

Via: Phone / Fax / E-mail (circle one)

Date/Time: _____

Reason for contact: _____

Change Order Required? Yes / No

Notes:

* Sample RHM 001-UG18 needs to be
 filed in lab for dissolved Pb

Completed by (sign): _____ (print): MARK ASELogin proof: Self-check completed ☒ Peer-reviewer's Initials Ma

SAMPLE RECEIPT FORM

SGS WO#:



Yes No NA

- ☒ Are samples **RUSH**, priority or w/in 72 hrs of hold time?
☒ If yes, have you done *e-mail ALERT* notification?
☒ Are samples *within 24 hrs.* of hold time or due date?
☒ If yes, have you also *spoken with* supervisor?
☒ Archiving bottles: Are lids marked w/ red "X" ?
☒ Were samples collected with proper preservative?
☒ Any problems (ID, cond'n , HT, etc)? Explain:

- ☒ If this is for PWS, provide **PWSID**:
☒ Payment received: \$ _____ by Check or Credit Card
☒ Will courier charges apply?
☒ Data package required? (Level: 1 / 2 / 3 / 4)
 Notes:
☒ Is this a DoD project? (USACE, Navy, AFCEE)

TAT (circle one): Standard -or- Rush

Received Date: _____

Received Time: _____

Cooler ID	Temperature	Measured w/ (Therm #)
1	1.7 °C	36d
2	1.3 °C	36d
3	1.2 °C	36d
4	1.0 °C	36d

Note: Temperature readings include thermometer correction factors

Delivery method (circle all that apply):

Client / Alert Courier / Lynden / SGS
 UPS / FedEx / USPS / DHL / Carlile
 AkAir Goldstreak / NAC / ERA / PenAir
 Other:

Additional Sample Remarks: (✓ if applicable)

Extra Sample Volume?

☒ Limited Sample Volume?

Multi-Incremental Samples?

Lab-filtered for dissolved

Ref Lab required for

Foreign Soil?

This section must be completed if problems are noted.

Was client notified of problems? Yes / No

By (SGS PM): _____

Individual contacted: _____

Via: Phone / Fax / E-mail (circle one)

Date/Time: _____

Reason for contact: _____

Change Order Required? Yes / No

This section must be filled out for DoD projects (USACE, Navy, AFCEE):

- | Yes | No | Yes | N/A |
|-------------------------------------|-------------------------------------|---|-------------------------------|
| <input checked="" type="checkbox"/> | | Is received temperature $\leq 6^{\circ}\text{C}$? | Was pH verified upon receipt? |
| <input checked="" type="checkbox"/> | | Were containers ice-free? <i>Notify PM immediately of any ice in samples.</i> | |
| | | If some cooler temperatures are non-compliant, see form FS-0029 (attached) for samples/analyses affected. | |
| <input checked="" type="checkbox"/> | | Was there an airbill? (If "yes," see attached.) | |
| <input checked="" type="checkbox"/> | | Was cooler sealed with custody seals & were they intact? | |
| | | # / where: <i>2 FRONT & BACK FOR LID</i> | |
| <input checked="" type="checkbox"/> | | Was there a COC with cooler? | |
| <input checked="" type="checkbox"/> | | Was COC sealed in plastic bag & taped inside lid of cooler? | |
| <input checked="" type="checkbox"/> | | Was the COC filled out properly? Did labels correspond? | |
| <input checked="" type="checkbox"/> | | Did the COC indicate USACE / Navy / AFCEE project? | |
| | | Samples were packed to prevent breakage with (circle one): | |
| | | <u>Bubble Wrap</u> Vermiculite Other (specify): | |
| | <input checked="" type="checkbox"/> | Were all samples sealed in separate plastic bags? | |
| <input checked="" type="checkbox"/> | | Were all VOCs free of headspace and/or MeOH preserved? | |
| <input checked="" type="checkbox"/> | | Were correct container / sample sizes submitted? | |
| <input checked="" type="checkbox"/> | | Was the PM notified of arrival so they can send | |
| | | Sample Receipt Acknowledgement to client? | |

Cooler ID 1	Cooler Temp °C 1.0	Cooler ID 3	Cooler Temp °C 1.6
Cooler ID 2	Cooler Temp °C 1.6	Cooler ID 4	Cooler Temp °C 0.9

Notes: *SAMPLE ID RHMW 2254-4618 ONE CONTAINER FOR DRUG ANALYSIS**BROKEN IN COOLER UPON RECEIPT 1 liter Ag w/HCL JCD**COOLER # 5 TB = 33 C = 2.6 36d.*

Completed by (sign):

(print):

Login proof:

Self-check completed

Peer-reviewer's Initials

SGS WO#

#	Container ID	Matrix	Test	QC	TB	Container Volume							Container Type							Preservative							*Notes
						1L	500mL	250mL or 8oz	125mL or 4oz	60mL	40mL	Other:	AG	CG	HDPE	Nalgene	Coli	Septa	Other:	None	HCl	HNO3	H2SO4	NaOH	Ascorbic Acid	NH4Cl	
1	A-C	1	GRO								3																
	D-F		VOC								3																
	G		Diss Metal Pb					1																			
	H,I		PAH			2																					
	J,K		DRO			2																					
2	A-C	1	GRO	3/5							3																
	D-F		VOC	3/5							3																
	G		Diss Pb	3/5				5	J	A	16																
	H,I		PAH	3/5		2																					
	J,K		DRO	3/5		2																					
	L		EXTRA VOC	3/5				1																			
3	A-C	1	GRO	3/50							3																
	D-F	1	VOC	3/50							3																
	G		Diss Pb	3/50				5	J	A	16																
	H,I		PAH	3/50																							
	J		DRO	3/50		1																					
	K		EXTRA-VOL	3/50				1																			
Bottle Totals						9		3			18																
* Note: Containers which require (additional) chemical preservation upon receipt must be documented per SOP#106																											

: *John Dango*

Date: 1-29-10

SGS WO#

F042r02 Revised 9/8/2009

1100328

**SGS**

Samples/Analyses Affected by Non-compliant Cooler Temperatures

Total # of Coolers in this WO#: 5

SGS WO#: _____

Cooler # or ID: #1TB (°C): 1.7 C (°C): 1.0

Samples/Analyses Affected: _____

SAMPLES ① H, J, K ② H, I, J ③ H

Cooler # or ID: #2TB (°C): 1.3 C (°C): 1.6

Samples/Analyses Affected: _____

SAMPLES ⑤ H-K ⑥ H-K

Cooler # or ID: #3TB (°C): 1.2 C (°C): 1.6

Samples/Analyses Affected: _____

SAMPLES ④, ⑦ H-K

Cooler # or ID: #4TB (°C): 1.0 C (°C): 0.9

Samples/Analyses Affected: _____

SAMPLES ① I ② K ③ I, J

Cooler # or ID: #5TB (°C): 3.3 C (°C): 2.6

Samples/Analyses Affected: _____

SAMPLES ①-⑤ A-F, G ② L ③ K

Note: _____

Completed by: _____

Date: 1-29-10

SGS Environmental

CUSTODY SEAL

Signature: _____ Date/Time: 1-28-10

36D Cooler 1

TB = 1.7
C = 1.0

SGS Environmental

CUSTODY SEAL

Signature: _____ Date/Time: 1-28-10

SGS Environmental

CUSTODY SEAL

Signature: _____ Date/Time: 1-28-10

36D Cooler 2

TB = 1.3
C = 1.6

SGS Environmental

CUSTODY SEAL

Signature: _____ Date/Time: 1-28-10

SGS Environmental

CUSTODY SEAL

Signature: _____ Date/Time: 1-28-10

Cooler 3
36D

TB = 1.2
C = 1.6

SGS Environmental

CUSTODY SEAL

Signature: _____ Date/Time: 1-28-10

SGS Environmental

CUSTODY SEAL

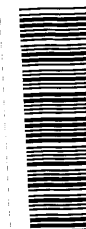
Signature: _____ Date/Time: 1-28-10

Cooler 4
TB = 1.0
C = 0.9

SGS Environmental

CUSTODY SEAL

Signature: _____ Date/Time: 1-28-10



1100328

SGS

Environmental

CUSTODY SEAL

Signature: _____

Date/Time: 1-28-10

SGS

Environmental

CUSTODY SEAL

Signature: _____

Date/Time: 1-28-10

cooler 5

36D

TB = 3.3

C = 2.6

1100328



FedEx
Tracking
Number

8709 5110 7652

Form
10 No.

0200

1100328



Saturday delivery NOT available.

From 1-21-10Date 1-21-10Sender's Name Mark A. ... Phone 810 300 6710Company ...Address ... Dept./Floor/Suite/Room ...City ... State ... ZIP ...

2 Your Internal Billing Reference

3 To Recipient's Name ... Phone ...Company ... HOLD Weekday ☐ HOLD Saturday ☐Address ... We cannot deliver to P.O. boxes or P.O. ZIP codes. Dept./Floor/Suite/Room ...Address ... Print FedEx location address here if a HOLD option is selected.City ... State ... ZIP ...

8709 5110 7652

4a Express Package Service

☐ FedEx Priority Overnight
Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.☐ FedEx 2Day
Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.☒ FedEx Next Business Day
Next business day.* Saturday L.☐ FedEx Express Saver
Third business day.* Saturday Delivery NOT available.

4b Express Freight Service

☐ FedEx 1Day Freight
Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.☐ FedEx 2Day Freight
Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.☐ FedEx 3Day Freight
Third business day.** Saturday Delivery NOT available.

5 Packaging

☐ FedEx Envelope* ☐ FedEx Pak*
Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options

☐ SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.☐ No Signature Required
Package may be left without obtaining a signature for delivery.☐ Direct Signature
Someone at recipient's address may sign for delivery. Fee applies.☐ Indirect Signature
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

One box must be checked.

☒ No ☐ Yes
As per attached Shipper's Declaration.☐ Yes
Shipping Declaration not required.☐ Dry Ice
Dry ice, 9, UN 1845 x kg☐ Cargo Aircraft Only

7 Payment Bill to:

Enter FedEx Acct. No. or Credit Card No. below. Obtain Recip. Acct. No. ☐☐ Sender's Acct. No. in Section 1 will be billed. ☒ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/CheckTotal Packages 5 Total Weight 261 lbs. Total Declared Value \$ Credit Card Auth.

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

554

Rev. Date 2/08*Part #158281*©1994-2008 FedEx*PRINTED IN U.S.A. SRY

APPENDIX

A-2

Laboratory Analytical Results

February 23, 2010



SGS North America Inc.
Alaska Division
Level II Laboratory Data Report

Project: 3354-003 Red Hill BFSF
Client: The Environmental Company, Inc. (TEC)
SGS Work Order: 1100658

Released by:

Contents:

Cover Page
Case Narrative
Final Report Pages
Quality Control Summary Forms
Chain of Custody/Sample Receipt Forms

Note:
Unless otherwise noted, all quality assurance/quality control criteria is in compliance with the standards set forth by the proper regulatory authority, the SGS Quality Assurance Program Plan, and the National Environmental Accreditation Conference.



CASE NARRATIVE

Print Date: 3/4/2010

Client Name: The Environmental Company, Inc. (TEC)

Project Name: 3354-003 Red Hill BFSF

Workorder No.: 1100658

Sample Comments

Refer to the sample receipt form for information on sample condition.

<u>Lab Sample ID</u>	<u>Sample Type</u>	<u>Client Sample ID</u>
1100658001	PS	RHMMW02-WG18B
	AK102 - Unknown hydrocarbon with several peaks is present.	
1100658002	PS	RHMWA01-WG18B
	AK102 - Unknown hydrocarbon with several peaks is present.	



Laboratory Analytical Report

Client: **The Environmental Company, Inc.**

1003 Bishop Street,
Pauahi Tower Suite 1550
Honolulu, HI 96813

Attn: **Rick Adkisson**

T: (808)528-1445 F:(808)528-0768

Project: **3354-003 Red Hill BFSF**

Workorder No.: **1100658**

Certification:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, other than the conditions noted on the sample data sheet(s) and/or the case narrative. This certification applies only to the tested parameters and the specific sample(s) received at the laboratory.

If you have any questions regarding this report, or if we can be of further assistance, please contact your SGS Project Manager.

Jennifer Serna

Project Manager



Enclosed are the analytical results associated with the above work order. If you have any questions regarding this report, or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343. All work is provided under SGS general terms and conditions (http://www.sgs.com/terms_and_conditions.htm), unless other written agreements have been accepted by both parties.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & UST-005 (CS) for ADEC and AK100001 for NELAP (RCRA methods: 1020A, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035B, 6010B, 6020, 7470A, 7471B, 8021B, 8081B, 8082A, 8260B, 8270D, 8270D-SIM, 9040B, 9045C, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, the National Environmental Laboratory Accreditation Program and other regulatory authorities. The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV	Continuing Calibration Verification
CL	Control Limit
D	The analyte concentration is the result of a dilution.
DF	Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
F	Indicates value that is greater than or equal to the DL
GT	Greater Than
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
JL	The analyte was positively identified, but the quantitation is a low estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LOD	Limit of Detection (i.e., 2xDL)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
M	A matrix effect was present.
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
Q	QC parameter out of acceptance range.
R	Rejected
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content.
All DRO/RRO analyses are integrated per SOP.



SAMPLE SUMMARY

Print Date: 3/4/2010 4:07 pm

Client Name: The Environmental Company, Inc. (TEC)

Project Name: 3354-003 Red Hill BFSF

Workorder No.: 1100658

Analytical Methods

<u>Method Description</u>	<u>Analytical Method</u>
DRO by 8015C (W)	SW8015C

Sample ID Cross Reference

<u>Lab Sample ID</u>	<u>Client Sample ID</u>
1100658001	RHMW02-WG18B
1100658002	RHMWA01-WG18B

**The Environmental Company, Inc. (TEC)**

Print Date: 3/4/2010 4:07 pm

Client Sample ID: **RHMW02-WG18B**

SGS Ref. #: 1100658001

Project ID: 3354-003 Red Hill BFSF

Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 02/23/10 10:25

Receipt Date/Time: 02/24/10 11:00

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	8.65	0.440	0.165	mg/L	1	XFC9119	XXX22334	
5a Androstane <sur>	81.3	50-150		%	1	XFC9119	XXX22334	

Batch Information

Analytical Batch: XFC9119

Analytical Method: SW8015C

Analysis Date/Time: 03/02/10 01:29

Dilution Factor: 1

Prep Batch: XXX22334

Prep Method: SW3520C

Prep Date/Time: 03/01/10 10:05

Initial Prep Wt./Vol.: 910 mL

Prep Extract Vol.: 1 mL

Container ID:1100658001-A

Analyst: LCE

**The Environmental Company, Inc. (TEC)**

Print Date: 3/4/2010 4:07 pm

Client Sample ID: **RHMWA01-WG18B**

SGS Ref. #: 1100658002

Collection Date/Time: 02/23/10 12:05

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 02/24/10 11:00

Matrix: Water (Surface, Eff., Ground)

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	6.91	0.435	0.163	mg/L	1	XFC9119	XXX22334	
5a Androstane <surr>	89.3	50-150		%	1	XFC9119	XXX22334	

Batch Information

Analytical Batch: XFC9119

Prep Batch: XXX22334

Initial Prep Wt./Vol.: 920 mL

Analytical Method: SW8015C

Prep Method: SW3520C

Prep Extract Vol.: 1 mL

Analysis Date/Time: 03/02/10 01:50

Prep Date/Time: 03/01/10 10:05

Container ID:1100658002-A

Dilution Factor: 1

Analyst: LCE



SGS Ref.#	950630	Method Blank	Printed Date/Time	03/04/2010 16:07
Client Name	The Environmental Company, Inc. (TEC)		Prep	Batch XXX22334
Project Name/#	3354-003 Red Hill BFSF		Method	SW3520C
Matrix	Water (Surface, Eff., Ground)		Date	03/01/2010

QC results affect the following production samples:
1100658001, 1100658002

Parameter	Results	LOQ/CL	DL	Units	Analysis Date
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Semivolatile Organic Fuels Department

Diesel Range Organics	0.300 U	0.400	0.150	mg/L	03/02/10
-----------------------	---------	-------	-------	------	----------

Surrogates

5a Androstane <surr>	91.7	60-120		%	03/02/10
----------------------	------	--------	--	---	----------

Batch	XFC9119			
Method	SW8015C			
Instrument	HP 7890A	FID SV E F		



SGS Ref.# 950633 Lab Control Sample

Printed Date/Time 03/04/2010 16:07

Prep Batch XXX22334

Client Name The Environmental Company, Inc. (TEC)

Method SW3520C

Project Name/# 3354-003 Red Hill BFSF

Date 03/01/2010

Matrix Water (Surface, Eff., Ground)

QC results affect the following production samples:

1100658001, 1100658002

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
-----------	---------------	--------------	--------------------	-----	---------------	------------------	------------------

Semivolatile Organic Fuels Department

Diesel Range Organics	LCS	4.09	82	(75-125)		5 mg/L	03/02/2010
-----------------------	-----	------	----	------------	--	--------	------------

Surrogates

5a Androstane <surr>	LCS		94	(60-120)			03/02/2010
----------------------	-----	--	----	------------	--	--	------------

Batch XFC9119

Method SW8015C

Instrument HP 7890A FID SV E F

CHAIN OF CUSTODY RECORD
SGS Environmental Services Inc.

1100658



Locations Nationwide

Alaska	Hawaii
Maryland	Louisiana
New Jersey	West Virginia
North Carolina	

www.us.sgs.com

[illegible]

- ☐ 200 W. Potter Drive **Anchorage, AK 99518** Tel: (907) 562-2343 Fax: (907) 561-5301
- ☐ 3180 Peger Road **Fairbanks, AK 99701** Tel: (907) 474-8656 Fax: (907) 474-9685
- ☐ 255 Sand Island Access Rd., Unit 1B **Honolulu, HI 96819** Tel: (808) 224-6217 Fax: (808) 845-2267

- ☒ 151 James Drive West **St Rose, LA 70087** Tel: (504) 469-6401 Fax: (504) 463-3304
- ☐ 1258 Greenbrier Street **Charleston, WV 25311** Tel: (304) 346-0725 Fax: (304) 346-0761
- ☐ 5500 Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1557



SAMPLE RECEIPT FORM

SGS WO#:

Yes No NA

☒ Are samples **RUSH**, priority or w/in 72 hrs of hold time?

☒ If yes, have you done e-mail ALERT notification?

☒ Are samples *within 24 hrs.* of hold time or due date?

☒ If yes, have you also *spoken with* supervisor?

☒ Archiving bottles: Are lids marked w/ red "X"?

☒ Were samples collected with proper preservative?

☒ Any problems (ID, cond'n, HT, etc)? Explain:

☐
☐
☒ If this is for PWS, provide PWSID:

☒ Payment received: \$ by Check or Credit Card

☒ Will courier charges apply?

☒ Data package required? (Level: 1 / 2 / 3 / 4)

Notes:

☒ Is this a DoD project? (USACE, Navy, AFCEE)
TAT (circle one): Standard -or- RushReceived Date: 2/24/10Received Time: 1100

Cooler ID Temperature Measured w/

(Therm #)

☐ 1 2.8 °C 360

☐ °C

☐ °C

☐ °C

Note: Temperature readings include thermometer correction factors

Delivery method (circle all that apply):

Client / Alert Courier / Lynden / SGS

UPS / FedEx / USPS / DHL / Carfile

AkAir Goldstreak / NAC / ERA / PenAir

Other:

Additional Sample Remarks: (✓ if applicable)

☐ Extra Sample Volume?

☒ Limited Sample Volume?

☐ Multi-Incremental Samples?

☐ Lab-filtered for dissolved

☐ Ref Lab required for

☐ Foreign Soil?
This section must be filled out for DoD projects (USACE, Navy, AFCEE):

Yes No

Yes N/A

☒ Is received temperature ≤6°C? ☒ Was pH verified upon receipt?

☒ Were containers ice-free? *Notify PM immediately of any ice in samples.*

If some cooler temperatures are non-compliant, see form FS-0029 (attached) for samples/analyses affected.

☒ Was there an airbill? (If "yes," see attached.)

☒ Was cooler sealed with custody seals & were they intact?

 # / where: 2, 1 on front & 1 on back
☒ Was there a COC with cooler?

☒ Was COC sealed in plastic bag & taped inside lid of cooler?

☒ Was the COC filled out properly? Did labels correspond?

☒ Did the COC indicate USACE / Navy / AFCEE project?

☒ Samples were packed to prevent breakage with (circle one):

Bubble Wrap Vermiculite Other (specify):

☒ Were all samples sealed in separate plastic bags?

☒ Were all VOCs free of headspace and/or MeOH preserved?

☒ Were correct container / sample sizes submitted?

☒ Was the PM notified of arrival so they can send

Sample Receipt Acknowledgement to client?

Cooler ID 1 Cooler Temp °C 2.5 Cooler ID Cooler Temp °C

Cooler ID Cooler Temp °C Cooler ID Cooler Temp °C

This section must be completed if problems are noted.

Was client notified of problems? Yes / No

By (SGS PM):

Individual contacted:

Via: Phone / Fax / E-mail (circle one)

Date/Time:

Reason for contact:

☐
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Notes: * 1 jar for sample "RHM W02-W618B" was broken in transit

Completed by (sign):

(print): Joe Ried

Login proof:

Self-check completed JJR

Peer-reviewer's Initials

SSS

SGS WO#

SGS WO#

[illegible]

Completed by: Joe Rudi

Date: 2/24/10

From: Origin ID: HIKA (808) 528-1445
 BILL WHITMAN
 TEC INC.
 1001 BISHOP STREET, ASB TOWER
 SUITE 1400
 HONOLULU, HI 96813



J10101002050224

Ship Date: 23FEB10
 ActWgt: 30.0 LB
 CAD: 1774997/NET3010

Dims: 25 X 15 X 17 IN

Delivery Address Bar Code

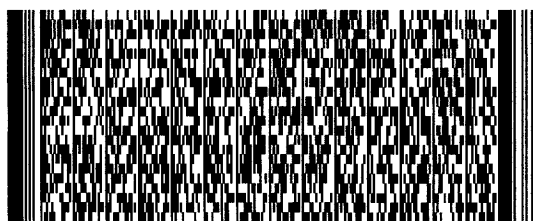


Ref # P# 3354
 Invoice #
 PO #
 Dept #

SHIP TO: (907) 562-2343

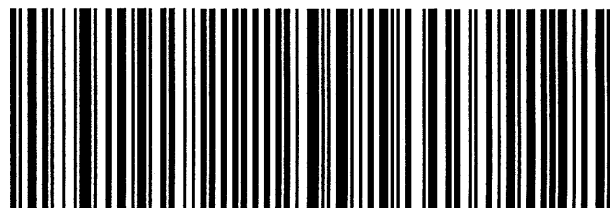
BILL THIRD PARTY

SAMPLE RECEIVING
SGS Environmental Services
200 W POTTER DR

ANCHORAGE, AK 99518**1100658**

TRK#
 0201 7984 1463 4640

WED - 24 FEB AM
PRIORITY OVERNIGHT

99518**AK-US****ANC****WU CYMA**

505G2/C733/5FEB

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APPENDIX

A-3

Laboratory Analytical Results

March 30, 2010



SGS North America Inc.
Alaska Division
Level II Laboratory Data Report

Project: 3354-003 Red Hill BFSF
Client: The Environmental Company, Inc. (TEC)
SGS Work Order: 1101343

Released by:

Contents:

Cover Page
Case Narrative
Final Report Pages
Quality Control Summary Forms
Chain of Custody/Sample Receipt Forms

Note:
Unless otherwise noted, all quality assurance/quality control criteria is in compliance with the standards set forth by the proper regulatory authority, the SGS Quality Assurance Program Plan, and the National Environmental Accreditation Conference.



CASE NARRATIVE

Print Date: 4/8/2010

Client Name: The Environmental Company, Inc. (TEC)
Project Name: 3354-003 Red Hill BFSF
Workorder No.: 1101343

Sample Comments

Refer to the sample receipt form for information on sample condition.

<u>Lab Sample ID</u>	<u>Sample Type</u>	<u>Client Sample ID</u>
1101343001	PS	RHMW02-WG18C
	AK102 - The pattern is consistent with a weathered middle distillate.	
1101343002	PS	RHMWA01-WG18C
	AK102 - The pattern is consistent with a weathered middle distillate.	



Laboratory Analytical Report

Client: **The Environmental Company, Inc.**

1003 Bishop Street,
Pauahi Tower Suite 1550
Honolulu, HI 96813

Attn: **Rick Adkisson**

T: (808)528-1445 F:(808)528-0768

Project: **3354-003 Red Hill BFSF**

Workorder No.: **1101343**

Certification:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, other than the conditions noted on the sample data sheet(s) and/or the case narrative. This certification applies only to the tested parameters and the specific sample(s) received at the laboratory.

If you have any questions regarding this report, or if we can be of further assistance, please contact your SGS Project Manager.

Jennifer Serna

jennifer.serna@sgs.com

Project Manager

Enclosed are the analytical results associated with the above work order. If you have any questions regarding this report, or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343. All work is provided under SGS general terms and conditions (http://www.sgs.com/terms_and_conditions.htm), unless other written agreements have been accepted by both parties.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & UST-005 (CS) for ADEC and AK100001 for NELAP (RCRA methods: 1020A, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035B, 6010B, 6020, 7470A, 7471B, 8021B, 8081B, 8082A, 8260B, 8270D, 8270D-SIM, 9040B, 9045C, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, the National Environmental Laboratory Accreditation Program and other regulatory authorities. The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV	Continuing Calibration Verification
CL	Control Limit
D	The analyte concentration is the result of a dilution.
DF	Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
F	Indicates value that is greater than or equal to the DL
GT	Greater Than
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
JL	The analyte was positively identified, but the quantitation is a low estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LOD	Limit of Detection (i.e., 2xDL)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
M	A matrix effect was present.
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
Q	QC parameter out of acceptance range.
R	Rejected
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content.
All DRO/RRO analyses are integrated per SOP.



SAMPLE SUMMARY

Print Date: 4/8/2010 5:29 pm

Client Name: The Environmental Company, Inc. (TEC)

Project Name: 3354-003 Red Hill BFSF

Workorder No.: 1101343

Analytical Methods

Method Description

DRO by 8015C (W)

Analytical Method

SW8015C

Sample ID Cross Reference

Lab Sample ID

1101343001

1101343002

Client Sample ID

RHMW02-WG18C

RHMWA01-WG18C

**The Environmental Company, Inc. (TEC)**

Print Date: 4/8/2010 5:29 pm

Client Sample ID: **RHMW02-WG18C**

SGS Ref. #: 1101343001

Collection Date/Time: 03/30/10 10:25

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 03/31/10 11:14

Matrix: Water (Surface, Eff., Ground)

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	2.63	0.460	0.172	mg/L	1	XFC9145	XXX22440	
5a Androstane <sur>	86.7	50-150		%	1	XFC9145	XXX22440	

Batch Information

Analytical Batch: XFC9145

Prep Batch: XXX22440

Initial Prep Wt./Vol.: 870 mL

Analytical Method: SW8015C

Prep Method: SW3520C

Prep Extract Vol.: 1 mL

Analysis Date/Time: 04/07/10 16:23

Prep Date/Time: 04/02/10 09:55

Container ID:1101343001-A

Dilution Factor: 1

Analyst: LCE



The Environmental Company, Inc. (TEC)

Print Date: 4/8/2010 5:29 pm

Client Sample ID: **RHMWA01-WG18C**

SGS Ref. #: 1101343002

Collection Date/Time: 03/30/10 12:05

Project ID: 3354-003 Red Hill BFSF

Receipt Date/Time: 03/31/10 11:14

Matrix: Water (Surface, Eff., Ground)

Semivolatile Organic Fuels Department

<u>Parameter</u>	<u>Result</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Analytical</u> <u>Batch</u>	<u>Prep</u> <u>Batch</u>	<u>Qualifiers</u>
Diesel Range Organics	2.35	0.444	0.167	mg/L	1	XFC9145	XXX22440	
5a Androstane <sur>	89	50-150		%	1	XFC9145	XXX22440	

Batch Information

Analytical Batch: XFC9145

Prep Batch: XXX22440

Initial Prep Wt./Vol.: 900 mL

Analytical Method: SW8015C

Prep Method: SW3520C

Prep Extract Vol.: 1 mL

Analysis Date/Time: 04/07/10 16:44

Prep Date/Time: 04/02/10 09:55

Container ID:1101343002-A

Dilution Factor: 1

Analyst: LCE



SGS Ref.# 954865 Method Blank
Client Name The Environmental Company, Inc. (TEC)
Project Name/# 3354-003 Red Hill BFSF
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 04/08/2010 17:30
Prep Batch XXX22440
Method SW3520C
Date 04/02/2010

QC results affect the following production samples:
1101343001, 1101343002

Parameter	Results	LOQ/CL	DL	Units	Analysis Date
-----------	---------	--------	----	-------	---------------

Semivolatile Organic Fuels Department

Diesel Range Organics	0.300 U	0.400	0.150	mg/L	04/07/10
-----------------------	---------	-------	-------	------	----------

Surrogates

5a Androstane <surr>	76.6	60-120	%	04/07/10
----------------------	------	--------	---	----------

Batch XFC9145
Method SW8015C
Instrument HP 7890A FID SV E F



SGS Ref.# 954867 Lab Control Sample
954869 Lab Control Sample Duplicate
Client Name The Environmental Company, Inc. (TEC)
Project Name/# 3354-003 Red Hill BFSF
Matrix Water (Surface, Eff., Ground)

Printed Date/Time 04/08/2010 17:30
Prep Batch XXX22440
Method SW3520C
Date 04/02/2010

QC results affect the following production samples:

1101343001, 1101343002

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
-----------	---------------	--------------	--------------------	-----	---------------	------------------	------------------

Semivolatile Organic Fuels Department

Diesel Range Organics	LCS	3.94	79	(75-125)		5 mg/L	04/07/2010
	LCSD	4.10	82		4	(< 20)	5 mg/L 04/07/2010

Surrogates

5a Androstane <surr>	LCS		84	(60-120)			04/07/2010
	LCSD		87		4		04/07/2010

Batch XFC9145
Method SW8015C
Instrument HP 7890A FID SV E F



1101343



page _____ of _____

[illegible]

- ☐ 200 W. Potter Drive **Anchorage, AK 99518** Tel: (907) 562-2343 Fax: (907) 561-5301
- ☐ 3180 Peger Road **Fairbanks, AK 99701** Tel: (907) 474-8656 Fax: (907) 474-9685
- ☐ 255 Sand Island Access Rd., Unit 1B **Honolulu, HI 96819** Tel: (808) 224-6217 Fax: (808) 845-2287

- ☐ 151 James Drive West **St Rose, LA 70087** Tel: (504) 469-6401 Fax: (504) 463-3304
- ☐ 1258 Greenbrier Street **Charleston, WV 25311** Tel: (304) 346-0725 Fax: (304) 346-0761
- ☐ 5500 Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1557



SAMPLE RECEIPT FORM

SGS WO#:

Yes No NA

- ☒ Are samples **RUSH**, priority or w/in 72 hrs of hold time?
☒ If yes, have you done e-mail **ALERT** notification?
☒ Are samples *within 24 hrs.* of hold time or due date?
☒ If yes, have you also *spoken with* supervisor?
☒ Archiving bottles: Are lids marked w/ red "X" ?
☒ Were samples collected with proper preservative?
☒ Any problems (ID, cond'n , HT, etc)? Explain:

- ☒ If this is for PWS, provide **PWSID**:
☒ Payment received: \$ _____ by Check or Credit Card
☒ Will courier charges apply?
☒ Data package required? (Level: 1 / 2 / 3 / 4)
Notes:
☒ Is this a DoD project? (USACE, Navy, AFCEE)

TAT (circle one): Standard -or- RushReceived Date: 3.31.10Received Time: 1114

Cooler ID	Temperature	Measured w/ (Therm #)
<u>1</u>	<u>1.0</u> °C	<u>342</u>
	°C	
	°C	
	°C	

Note: Temperature readings include thermometer correction factors

Delivery method (circle all that apply):

Client / Alert Courier / Lynden / SGS
 UPS FedEx USPS / DHL / Carlile
 AkAir Goldstreak / NAC / ERA / PenAir
 Other:

Additional Sample Remarks: (✓ if applicable)

☐ Extra Sample Volume?
☐ Limited Sample Volume?
☐ Multi-Incremental Samples?
☐ Lab-filtered for dissolved
☐ Ref Lab required for
☐ Foreign Soil?

This section must be filled out for DoD projects (USACE, Navy, AFCEE):

- | Yes | No | Yes | NA |
|-------------------------------------|----|--|-------------------------------|
| <input checked="" type="checkbox"/> | | Is received temperature <6°C? | Was pH verified upon receipt? |
| <input checked="" type="checkbox"/> | | Were containers ice-free? <i>Notify PM immediately of any ice in samples.</i> | |
| | | If some cooler temperatures are non-compliant, see form FS-0029 (attached) for samples/analyses affected | |
| <input checked="" type="checkbox"/> | | Was there an airbill? (If "yes" see attached.) | |
| <input checked="" type="checkbox"/> | | Was cooler sealed with custody seals & were they intact? | |
| | | # / where: <u>2 PLANT & 1114 TOO IN</u> | |
| <input checked="" type="checkbox"/> | | Was there a COC with cooler? | |
| <input checked="" type="checkbox"/> | | Was COC sealed in plastic bag & taped inside lid of cooler? | |
| <input checked="" type="checkbox"/> | | Was the COC filled out properly? Did labels correspond? | |
| <input checked="" type="checkbox"/> | | Did the COC indicate USACE / Navy / AFCEE project? | |
| | | Samples were packed to prevent breakage with (circle one): | |
| | | <u>Bubble Wrap</u> Vermiculite Other (Specify): | |
| <input checked="" type="checkbox"/> | | Were all samples sealed in separate plastic bags? | |
| <input checked="" type="checkbox"/> | | Were all VOCs free of headspace and/or MeOH preserved? | |
| <input checked="" type="checkbox"/> | | Were correct container / sample sizes submitted? | |
| <input checked="" type="checkbox"/> | | Was the PM notified of arrival so they can send | |

Sample Receipt Acknowledgement to client?

Cooler ID <u>1</u>	Cooler Temp °C <u>1.3</u>	Cooler ID	Cooler Temp °C
Cooler ID	Cooler Temp °C	Cooler ID	Cooler Temp °C

This section must be completed if problems are noted.

Was client notified of problems? Yes / No

By (SGS PM):

Individual contacted:

Via: Phone / Fax / E-mail (circle one)

Date/Time:

Reason for contact:

Change Order Required? Yes / No

Notes:

Completed by (sign):

(print):

Login proof:

Self-check completed

Peer-reviewer's In itials

1101343



SAMPLE RECEIPT FORM - Bottle Tracking

SGS WO#

Completed by:

Date: 3.31-10

From: Origin ID: HIKA (808) 528-1445
 BILL WHITMAN
 TEC INC.
 1001 BISHOP STREET, ASB TOWER
 SUITE 1400
 HONOLULU, HI 96813



J10101082220224

Ship Date: 30MAR10
 Act/Wgt: 10.0 LB
 CAD: 1774997/INET3010

Dims: 24 X 14 X 14 IN

1101343



SHIP TO: (907) 562-2343 BILL THIRD PARTY

SAMPLE RECEIVING
SGS Environmental Services
200 W POTTER DR

ANCHORAGE, AK 99518

Delivery Address Bar Code



Ref # P# 3354
 Invoice #
 PO #
 Dept #

TRK# 7985 2186 4963
 0201

WED - 31 MAR AM
 PRIORITY OVERNIGHT

99518

AK-US

ANC

WU ANCA

595G1/DBF2/5FE8

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1114

1101343

**SGS** Environmental

CUSTODY SEAL

Signature: Willard Date/Time: 3/30/10 / 1300**SGS** Environmental

CUSTODY SEAL

Signature: Willard Date/Time: 3/30/10 / 1300

Appendix B

January, February, and March 2010 TPH-DRO Results Memorandum



April 19, 2010

January 2010 Sampling Event at the Red Hill Facility

TPH-DRO at RHMW02

The January 2010 total petroleum hydrocarbon, diesel range organics (TPH-DRO) results at RHMW02 were significantly impacted by two large peaks identified by the laboratory as caprolactam and DEET. These tentatively identified compound (TIC) peaks were reported as part of the TPH-DRO result because according to the analytical method, all peaks within the diesel range must be quantified. However, these TICs are apparently unrelated to Red Hill Bulk Fuels Storage Facility (Facility) stored fuels. Caprolactam is a monomer used to produce "Nylon 6" and is found in plastics and possibly in paints and floor polishes. DEET is a pesticide commonly used as an insect repellent.

Neither of these TIC compounds was detected as part of the laboratory extraction or instrument quality control process (e.g., method blanks, instrument blanks, and laboratory control spikes). Also, caprolactam and DEET are not used or found in the SGS laboratory that performed the analysis. Therefore, the TICs are not laboratory introduced contaminants. In addition, the same field personnel performed the January sampling and their sampling approach was identical to that used in previous Facility sampling events. Furthermore, the field personnel were extremely careful and cognizant not to introduce any contaminants to the collected and/or shipped samples. Consequently, it is not believed that the TICs were introduced via the analytical or sampling/shipping process.

As shown in Table 1, these two significant TIC peaks (i.e., identified by the laboratory as caprolactam and DEET) contributed significantly to the reported TPH-DRO results. Although the TPH-DRO analytical method requires that all peaks in the diesel range be quantified for the "officially reported" TPH-DRO result, Table 1 estimates what the respective TPH-DRO concentrations would have been without the two TIC peaks. The reprocessing or re-quantification results were provided by the laboratory. These "adjusted concentrations" more closely represent what would be anticipated with normal and duplicate samples.

Table 1 – January 2010 RHMW02 Analytical Results**

January 2010 Results	Official TPH-DRO Result (µg/L)	Estimated TPH-DRO Result without the two TIC peaks included (µg/L)
RHMW02	2,130	1,740
RHMW02D (duplicate sample)	3,410	2,110

Table 1 Note: ** TICs are “tentatively identified” compounds. The TPH-DRO analytical method is not specific (i.e., is designed to quantify any and all organic compounds within the diesel range). By scanning the TPH-DRO extract via GC/MS, unknown peaks have been “tentatively identified” (i.e., without the benefit of “neat” standards and the use of specific methods designed to accurately quantify the particular TIC peaks “identified”). Therefore, although the TICs are believed to be the “identified” compounds, there is some inherent uncertainty associated with this identification process. This uncertainty is why the “officially reported” TPH-DRO result must quantify all the organic compounds within the TPH-DRO range.

In summary, these TICs from the January 2010 sampling event are apparently not attributable to stored fuels at the Facility, they are not laboratory contaminants, and it is unlikely that they were introduced by the sampling/shipping process.

TPH-DRO at RHMW05

Similar to RHMW02, the January 2010 TPH-DRO result for RHMW05 was significantly impacted by two large peaks identified by the laboratory as caprolactam and DEET. These TIC peaks were reported as part of the TPH-DRO result because according to the analytical method, all peaks within the diesel range must be quantified. However as mentioned above, these TICs are apparently unrelated to Facility stored fuels. Caprolactam is a monomer used to produce “Nylon 6” and is found in plastics and possibly in paints and floor polishes. DEET is a pesticide commonly used as an insect repellent.

As with RHMW02, neither of these TIC compounds was detected as part of the laboratory extraction or instrument quality control process (e.g., method blanks, instrument blanks, and laboratory control spikes). Also, caprolactam and DEET are not used or found in the SGS laboratory that performed the analysis. Therefore, the TICs are not laboratory introduced contaminants. In addition, the same field personnel performed the January sampling and their sampling approach was identical to that used in previous Facility sampling events. Furthermore, the field personnel were extremely careful and cognizant not to introduce any contaminants to the collected and/or shipped samples. Consequently, it is not believed that the TICs were introduced via the analytical or sampling/shipping process.

As shown in Table 2, these two significant TIC peaks contributed significantly to the reported TPH-DRO results. Although the TPH-DRO analytical method requires that all peaks in the diesel range be quantified for the “officially reported” TPH-DRO result, Table 2 estimates what the respective TPH-DRO concentrations would have been without the two TIC peaks. The reprocessing or re-quantification results were provided by the laboratory.

Table 2 – January 2010 RHMW05 Analytical Results**

January 2010 Results	Official TPH-DRO Result (µg/L)	Estimated TPH-DRO Result without the two TIC peaks included (µg/L)
RHMW05	2,060	541

Table 2 Note: ** TICs are “tentatively identified” compounds. The TPH-DRO analytical method is not specific (i.e., is designed to quantify any and all organic compounds within the diesel range). By scanning the TPH-DRO extract via GC/MS, unknown peaks have been “tentatively identified” (i.e., without the benefit of “neat” standards and the use of specific methods designed to accurately quantify the particular TIC peaks “identified”). Therefore, although the TICs are believed to be the “identified” compounds, there is some inherent uncertainty associated with this identification process. This uncertainty is why the “officially reported” TPH-DRO result must quantify all the organic compounds within the TPH-DRO range.

In summary, these TICs from the January 2010 sampling event are apparently not attributable to stored fuels at the Facility, they are not laboratory contaminants, and it is unlikely that they were introduced by the sampling/shipping process.

February 2010 Re-sampling Event at the Red Hill Facility

TPH-DRO at RHMW02

Per the Facility Groundwater Protection Plan, because of the January 2010 results for RHMW02, the monitoring well was re-sampled in February 2010 for TPH-DRO. The February 2010 TPH-DRO results for RHMW02 were significantly impacted by three relatively large TIC peaks. The first peak (i.e., likely caprolactum) provided the largest TIC contribution toward the “officially reported” TPH-DRO concentration. The second peak was initially thought to be DEET, but following additional analyses, was identified to likely be dodecanoic acid. The third TIC peak was not able to be identified, even after subsequent analyses.

These three TIC peaks were reported as part of the TPH-DRO result because according to the analytical method, all peaks within the diesel range must be quantified. Caprolactam is a monomer used to produce “Nylon 6” and would be found in plastics and possibly in paints and floor polishes. Dodecanoic acid is not used or found in the SGS laboratory and was not found as part of the laboratory quality control process (e.g., instrument and method blanks), thus is not a laboratory contaminant. The third TIC peak that contributed to the “officially reported” TPH-DRO concentration could not be identified, even given subsequent analyses.

Chromatograms from the February laboratory data depict the two TIC peaks (i.e., identified as caprolactam and dodecanoic acid) that apparently are unrelated to Facility stored fuels and the third unknown TIC compound. The three peaks are summarized on the chromatograph as follows:

- The first peak marked (~2 minutes) should be caprolactam/nylon6. This is the largest TIC peak and is the major TIC contributor to the “officially reported” TPH-DRO result.
- The second peak marked (~4 minutes) was initially thought to be DEET, but following subsequent analysis was identified as likely to be dodecanoic acid.

- The third peak marked (~6.6 minutes) is an unidentified/unknown compound (i.e., not identifiable following an 8270 analytical method TIC library search). This peak was also present on the chromatograms for the January 2010 TPH-DRO sample results, but was much smaller and did not significantly influence the “officially reported” January TPH-DRO results.

Note that none of these three TIC peaks appear as part of the associated laboratory quality control process (e.g., method blanks and instrument blanks).

Table 3 depicts the “official reported” TPH-DRO results that include all three TIC peaks described above. Table 3 also estimates what the TPH-DRO results would be in the event that the three TIC peaks (i.e., likely caprolactam, dodecanoic acid, and an unknown compound) were not present. This reprocessing or re-quantification of the chromatograms was performed by the laboratory.

Table 3 – February 2010 RHMW02 Analytical Results**

February 2010 Results	Official TPH-DRO Result (µg/L)	Estimated TPH-DRO Result without the three major TIC peaks included (µg/L)
RHMW02	8,650	3,470
RHMW02D (duplicate sample)	6,910	2,930

Table 3 Note: ** TICs are “tentatively identified” compounds. The TPH-DRO analytical method is not specific (i.e., is designed to quantify any and all organic compounds within the diesel range). By scanning the TPH-DRO extract via GC/MS, unknown peaks have been “tentatively identified” (i.e., without the benefit of “neat” standards and the use of specific methods designed to accurately quantify the particular TIC peaks “identified”). Therefore, although the TICs are believed to be the “identified” compounds, there is some inherent uncertainty associated with this identification process. This uncertainty is why the “officially reported” TPH-DRO result must quantify all the organic compounds within the TPH-DRO range.

In summary, for the February analytical results, the first two TICs (and possibly the third TIC) are apparently not attributable to stored fuels at the Facility and they are likely not laboratory contaminants. Also, it is believed that none of these three TIC peaks have been significant contaminants of past Facility TPH-DRO reported concentrations prior to the January and February 2010 sampling events. In addition, the same field personnel performed the February sampling and their sampling approach was identical to that used in previous Facility sampling events. Furthermore, the field personnel were extremely careful and cognizant not to introduce any contaminants to the collected and/or shipped samples. Consequently, TEC does not believe that the TICs were introduced via the analytical or sampling/shipping process.

One identifiable variable that occurred during the January and February sampling events that was not true with earlier rounds was the ongoing process of dismantling/removing temporary PVC collection pipelines and the demobilization of various equipment and supplies from the tunnel complex. It is unclear how or if these occurrences may have had any effect/influence on the January and February 2010 TPH-DRO results.

March 2010 Re-sampling Event at the Red Hill Facility

TPH-DRO at RHMW02

Per the Facility Groundwater Protection Plan, because of the February 2010 results for RHMW02, the monitoring well was re-sampled in March 2010 for TPH-DRO. These sampling results (normal and duplicate samples) did not show large concentrations of the TICs described above that are apparently non-fuel related. Furthermore, the TPH-DRO concentrations more closely approximate the levels that have been historically observed from RHMW02. Table 4 presents the RHMW02 TPH-DRO March 2010 results.

Table 4 – March 2010 RHMW02 Analytical Results

March 2010 Results	Official TPH-DRO Result (µg/L)
RHMW02	2,630
RHMW02D (duplicate sample)	2,350

Please feel free to contact me if you have any questions or comments on my cell phone at 865-742-2181.

Sincerely,



Rick Adkisson
TEC, Project Manager