Tank 17 Removal Action Report
Red Hill Fuel Storage Facility

Pearl Harbor, Oahu, Hawaii
Latitude: 21°22'15" N
Longitude: 157°53'33" W

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List of Acronyms and Abbreviations

µg/m^3	micrograms per cubic meter
µg/kg	micrograms per kilogram
AFCEE	Air Force Center for Engineering and the Environment
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
DOH	State of Hawaii Department of Health
EALs	Environmental Action Levels
EHE	Environmental Hazard Evaluation
F-76	diesel marine fuel
FISC	Fleet Industrial Supply Center
HAR	Hawaii Administrative Rules
HRS	Hawaii Revised Statutes
JP-5	Jet Propulsion fuel 5
MDL	method detection limit
mgd	million gallons per day
mg/kg	milligrams per kilogram
mg/L	milligrams per Liter
mm	millimeter
MtBE	methyl tert-butyl Ether
PAHs	polynuclear aromatic hydrocarbons
PHWS	Pearl Harbor Water System
PID	photo-ionization detector
ppmv	parts per million by volume
RL	reporting limit
SIM	Selected Ion Monitoring
SVMP	soil vapor monitoring point
TEC	TEC Inc
TPH	Total Petroleum Hydrocarbon
TPH-GRO	Total Petroleum Hydrocarbons -Gasoline Range Organics
TPH-DRO	Total Petroleum Hydrocarbons -Diesel Range Organics
USEPA	United States Environmental Protection Agency
U.S. Navy	United States Navy
UST	underground storage tank
VOCs	volatile organic compounds

EXECUTIVE SUMMARY

This Removal Action report is presented by the U.S. Navy to document activities conducted to mitigate an inadvertent release of fuel from overhead piping located in the lower access tunnel of the Red Hill Bulk Fuel Storage Facility.

There are 18 active and 2 inactive, 12.5 million-gallon field-constructed underground storage tanks (USTs) located at the Red Hill Bulk Fuel Storage Facility (the Facility). The active USTs contain middle distillate petroleum fuels: Jet Propulsion fuel 5 (JP-5), JP-8 and F-76 (diesel marine fuel). The top of the USTs are located at least 100 feet below ground surface (bgs) and the bottoms are located at least 80 feet above the groundwater table. The aquifer underlying the Facility is categorized as a currently used, fresh (chloride content below 250 milligrams per Liter [mg/L]) drinking water source that is irreplaceable and has a high vulnerability to contamination (Mink and Lau, 1990). The nearest production well is the United States Navy (U.S. Navy) Well 2254-01, located approximately 3,000 feet down-gradient from the Facility. The U.S Navy Well 2254-01 produces between 4 million gallons per day (mgd) and 10 mgd of potable water for the U.S. Navy's Pearl Harbor Water System (PHWS).

Previous environmental site investigations indicated fuel releases have occurred that have impacted groundwater underlying the Facility. A risk assessment conducted by the U.S. Navy (TEC Inc., 2007) concluded that the USTs were below the bottom of the adjacent valleys, and past or future releases will not present a risk to above ground receptors, either due to direct exposure or soil vapor intrusion. In addition, the risk assessment used a three-dimensional groundwater model to estimate the minimum size of a release that would degrade the water produced by the U.S. Navy Well 2254-01. Assuming natural degradation of the middle distillate fuel, it was estimated that a minimum release of 16,000 gallons would be required to impact the U.S. Navy Well 2254-01.

On March 4, 2008, approximately four gallons of JP-5 fuel was released from overhead piping in the Facility lower access tunnel adjacent to Tank 17. The release landed on a pile of excavated soil covered with plastic sheeting, and migrated into an adjacent trench covered with plywood. Approximately two gallons were immediately removed from the ground surface using absorbent material leaving an estimated two gallons to seep into the bedrock in the plywood-covered trench.

In June, TEC Inc. (TEC) was contracted to conduct a limited removal action and site characterization investigation as part of the release response activity required by the Hawaii Revised Statutes (HRS), Title 19, Chapter 342L and Hawaii Administrative Rules (HAR), Title 11, Chapter 281, Subchapters 1 through 10. The open trench was manually excavated to approximately five feet below the tunnel floor through the consolidated basalt bedrock, until observed pore-space fluid and staining was diminished. Excavation was halted because further digging will require engineering controls to stabilize the adjacent tunnel-wall bulkheads and additional removal of the concrete tunnel floor. Although petroleum-impacted rock remains in the trench walls and floor, all potentially mobile fuel was removed. Maximum headspace measurements from a field photoionization detector (PID) at the extent of the excavation was 225 parts per million by volume (ppmv). Laboratory results from a composite sample of material collected at the extent of the excavation showed Total Petroleum Hydrocarbons (TPH)

as Gasoline Range Organics (TPH-GRO) at 110 milligrams per kilogram (mg/kg) and TPH as Diesel Range Organics (TPH-DRO) at 5,670 mg/kg, as well as detected concentrations of naphthalene, ethylbenzene and xylenes. Benzene was not detected.

An Environmental Hazard Evaluation (EHE) was conducted to assess the hazards associated with the petroleum-impacted material that remains in place. The risk drivers were evaluated as TPH-DRO and TPH-GRO. The State of Hawaii Department of Health (DOH) Environmental Action Levels (EALs) (DOH 2005 and 2006 updates) for soil contamination were used to screen the EHE:

- The gross contamination (for staining and odor nuisance) EAL is 100 mg/kg.
    - The results of the final sample exceed this EAL for impacted bedrock located below the concrete floor of the lower access tunnel of the Facility.
    - The location of the impacted material is a secure facility.
    - Excavation in this area is not expected in the future, nor will this impacted material be used for backfill in the future since it is consolidated bedrock, and very difficult to excavate.
    - The Facility is strictly regulated for combustion sources to mitigate a potential flammability concern.
    - Gross contamination left in place is not considered a significant environmental hazard for the reasons described above.
- EALs associated with terrestrial receptors are site-specific, depending on the type and availability of receptors to the chemicals of concern.
    - The pathway to terrestrial receptors is incomplete since the impacted material is greater than 300 feet bgs and located beneath the concrete floor of the lower access tunnel in a secure facility, nor will this impacted material be used for backfill in the future since it is consolidated bedrock, and very difficult to excavate.
    - Impact to terrestrial receptors is not considered a significant environmental hazard for the reasons described above.
- Soil gas (for potential impact to indoor air) EAL for commercial/industrial receptors is 140,000 $\mu g/m^3$ (micrograms per cubic meter), or approximately 20 ppmv for middle distillate fuels;
    - The maximum headspace reading at the bottom of the trench excavation was 225 ppmv, which exceeded the soil gas EAL by a factor of 11.
    - However, the EAL assumes commercial/industrial exposure factors including:
        - Exposure duration of 25 years;
        - Exposure frequency of 250 days per year.
    - Actual exposure to the limited release at Tank 17 is expected to be much less:
        - Exposure duration of 10 years;
        - Exposure frequency of 1 day per year;
        - Actual estimated exposure is probably 600 times less than the commercial/industrial exposure factors, thus the site specific action level is 12,500 ppmv, or 55 times more than the concentrations observed.
    - The Facility has a ventilation system designed to completely replenish the indoor air with ambient outdoor air from ground surface on the Red Hill ridgeline to

ensure safe indoor air quality during activities associated with open UST manways, and other potential exposure events.

  - Soil gas intrusion to indoor air from the impacted material remaining in place is not considered a significant environmental hazard for the reasons described above.
- Soil leaching (potential for contaminants in soil to migrate in infiltrating groundwater to the groundwater table) EAL for TPH-DRO is 5,000 mg/kg and for TPH-GRO is 2,000 mg/kg.
  - The composite sample results from the excavation extents exceeded the EAL for TPH-DRO (5,670 mg/kg) and was less than the EAL for TPH-GRO (110 mg/kg).
  - The risk assessment associated with the 2007 site investigation report (TEC, 2007) indicated that leachate was not a significant driver for impacting the down gradient U.S. Navy Well 2254-01. A significant liquid fuel on groundwater was necessary to impact the drinking water quality in this well.
  - The location of the remaining impacted soil is under the concrete floor of the Facility, and will not encounter significant infiltrating groundwater.
  - Leaching of contaminants from impacted material left in place to infiltrating groundwater is not considered a significant environmental hazard for the reasons described above.

It is recommended that the trench excavation be back-filled using the following procedure.

1. Place low-permeable clay material to approximately one foot below the floor surface. This will greatly reduce the migration pathway of water through the impacted material, and will likewise reduce the soil vapor migration pathway to floor surface.
2. Place compaction gravel from the surface of the low-permeable clay to 6 inches from the ground surface. This material should be compacted to limit settling of the fill material over time that could destabilize the concrete floor of the tunnel.
3. Finish installing the soil vapor monitoring point (SVMP) surface completions for the newly installed SVMPs.
4. Complete the upper six inches with hardened concrete, finished to floor surface.

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Section 1
INTRODUCTION

This Removal Action Report is prepared by TEC Inc. (TEC) for the Air Force Center for Engineering and the Environment (AFCEE) in support of the United States Navy (U.S. Navy), Fleet Industrial Supply Center (FISC), Pearl Harbor, Hawaii under contract F41624-03-D-8618-0021.

1.1 PROJECT OBJECTIVE

The objectives of this report are to:

1. Describe the activities associated with the inadvertent release of approximately four gallons of Jet Propulsion fuel 5 (JP-5) on March 4, 2008 in the lower access tunnel of the Facility, adjacent to Tank 17;
2. Describe the removal action and site characterization activities that were performed in June 2008 to mitigate the release to the subsurface;
3. Present the results of the release response removal action and confirmation sampling event;
4. Provide an Environmental Hazard Evaluation (EHE) to assess the hazards associated with the petroleum contaminated rock that remains in place in accordance with *Long-Term Management of Petroleum-Contaminated Soil and Groundwater,* June 2007.

1.2 PREVIOUS REPORTS

The following environmental reports previously submitted to the State of Hawaii Department of Health (DOH) are pertinent to this removal action report:

1. TEC Inc. 2007. *Red Hill Bulk Fuel Storage Facility, Final Technical Report, Pearl Harbor, Hawaii.* August.
2. TEC Inc. 2008. *Red Hill Bulk Fuel Storage Facility, Final Groundwater Protection Plan, Pearl Harbor, Hawaii.* January.

1.3 BACKGROUND

1.3.1 Site Description

The Facility is located northeast of Pearl Harbor, between Halawa Valley and Moanalua Valley on the island of Oahu, Hawaii. Figure 1-1 presents the regional location map of the Facility.

The Facility is located on the boundary between the Moanalua Aquifer system, which is part of the Honolulu Aquifer sector, and the Waimalu Aquifer system, which is part of the Pearl Harbor Aquifer sector. Both the Moanalua Aquifer and Waimalu Aquifer systems are classified by Mink and Lau as unconfined, basal and flank. Their status is listed as a currently used, fresh (chloride content below 250 milligrams per Liter [mg/L]) drinking water source that is irreplaceable and has a high vulnerability to contamination (Mink and Lau, 1990). Figure 1-2 illustrates the Facility with respect to area wells and aquifers.

The Navy Public Works Department operates a potable water infiltration tunnel approximately 1,550 feet hydraulically downgradient from the Facility (Dawson, 2006). The U.S. Navy Well 2254-01 is located approximately 3,000 feet downgradient (west) of the Facility and provides

approximately 24% of the potable water to the Pearl Harbor Water System, which serves approximately 52,200 military consumers (TEC, 2008). Figure 1-3 illustrates the location of the Facility with respect to the U.S. Navy Well 2254-01 and its infiltration gallery.

According to the Total Petroleum Hydrocarbon (TPH) Criteria Working Group Series, Volume 2 (TCWG, 1998), JP-5 contains approximately 6.8% aromatic hydrocarbons, less than 1% benzene, toluene, ethylbenzene, and xylenes (BTEX), and less than 0.02% benzene; and diesel-based fuels contain even less aromatic hydrocarbons. In addition, diesels and JP fuels do not contain lead or methyl tert-butyl Ether (MtBE). An important mechanism is the solubility limit of a fuel at standard temperature and pressure, which is the highest concentration of petroleum hydrocarbons one can expect to dissolve in water. The solubility limit for JP-5 is approximately 4.5 mg/L. The solubility limit for benzene in JP-5 is 0.75 mg/L. These concentrations will only be reached if these fuels are in direct contact and at equilibrium with the groundwater table. The lower dissolved concentration resulting from JP-5 allows the fuel to be degraded by natural attenuation mechanisms, such as by the metabolism of natural microbes in the groundwater.

1.3.2 Facility Information

The Facility consists of 18 active and 2 inactive underground storage tanks (USTs) operated by FISC, Pearl Harbor. Each UST has a capacity of approximately 12.5 million gallons, and currently contain JP-5, JP-8, and F-76 (diesel marine fuel). All fuels currently contained in the Facility are middle distillates, thus are not highly volatile or highly mobile in groundwater. The Facility 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 constructed of steel and currently contain JP-5, JP-8 and F-76. 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) (Figure 1-3).

1.4 DESCRIPTION OF PROBLEM

On March 4, 2008, the sample line to the bottom of Tank 17 in the lower access tunnel leaked JP-5 fuel. The leak was associated with the repair of this sample pipeline. The sample line that was responsible for the leak had trapped JP-5 that was inadvertently released. Once the sample line was cleared, no more JP-5 fuel was released. The duration of the JP-5 release was approximately 20 seconds resulting in an estimated three to four gallons spilled onto an excavated pile of soil and rubble that had been covered with plastic sheeting. The fuel migrated off the sheeting, onto the concrete floor of the tunnel and into an open trench that was being prepared for soil vapor monitoring points (SVMPs) associated with Tank 17. The bottom of the trench contained both consolidated and unconsolidated bedrock. FISC site personnel (Ryan Gilla and Neal Horimoto) initiated immediate spill response measures that included the placement of absorbent pads on the floor and surrounding soil/rock to recover as much JP-5 as possible. The estimated quantity of JP-5 recovered by the absorbent pads was one to two gallons while the remainder of the fuel most likely infiltrated into the adjacent trench. Initial spill response actions by FISC personnel did not include removal of liquid or contaminated soil other than what was removed in the absorbent material. Figure 1-4 shows the Tank 17 site layout and features.

Following the immediate measures conducted by FISC, the excavated debris pile and trench were covered while FISC prepared contracts to address the contaminated material that remained following the March 4, 2008 events.

1.5 PREVIOUS ENVIRONMENTAL INVESTIGATIONS AT THE FACILITY

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 sentinel well 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 underground 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 sentinel well RHMW01 contained TPH concentrations ranging from 0.883 mg/L to 1.05 mg/L and total lead ranging from 0.0104 mg/L to 0.015 mg/L. The maximum total lead concentration in the samples was equal to the primary drinking water standard of 0.015 mg/L for lead and exceeded the DOH Tier 1 groundwater action level of 0.0056 mg/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 (U.S. 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 DOH Tier 1 action level of 0.0056 mg/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).

Samples were filtered in September and December 2005, and dissolved lead concentrations were below the DOH Tier 1 action level. Concentrations of all other contaminants of potential concern were below DOH 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 hydraulically upgradient of the USTs 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 (bgs) outside the tunnel. Groundwater samples were collected from the three newly installed wells and two existing wells (RHMW01 and U.S. Navy Well 2254-01) in September 2005.

Naphthalene and trichloroethylene were detected in samples collected from RHMW02 at concentrations greater than the DOH Tier 1 action levels. Lead was detected in the sample collected from RHMW01 at a concentration greater than the DOH 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 DOH Tier 1 action level.

2006 – Site Investigation: Dedicated sampling pumps were installed in five wells (RHMW01, RHMW02, RHMW03, RHMW04, and U.S. 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 DOH Tier 1 action level.

In September 2005, with concurrence from the DOH, the Navy decided to use the newer DOH Environmental Action Levels (EALs) for the Red Hill Site Investigation and Risk Assessment project. The EALs are current and provide action levels for more chemicals, and are much more useful for conducting screening risk assessments. Since the DOH June 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 U.S. Navy Well 2254-01 or RHMW03;
- TPH as diesel range organics (TPH-DRO) was detected in groundwater above the DOH Drinking Water EALs in RHMW01; and
- TPH as gasoline range organics (TPH-GRO), TPH-DRO, and naphthalene were detected in groundwater above the DOH 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 DOH Drinking Water EALs at U.S. Navy Well 2254-01;
- TPH-DRO exceeded DOH Drinking Water EALs at RHMW01 during all three sampling events;
- TPH-GRO exceeded DOH Drinking Water EALs at RHMW02 in March;
- TPH-DRO and naphthalene exceeded DOH Drinking Water EALs at RHMW02 during all three sampling events;
- 1-methylnaphthalene and 2-methylnaphthalene exceeded DOH Drinking Water EAL for taste and odor at RHMW02 during all three sampling events; and
- TPH-DRO exceeded DOH Drinking Water EALs at RHMW03 in June.

2008 – Groundwater Sampling: Groundwater samples were collected in January, April and July 2008. Groundwater data for the July events are not summarized here because they have not

been fully validated at the date of this writing. Analytical results for January 2008 indicated the following:

- No chemicals were detected above DOH Drinking Water EALs at U.S. Navy Well 2254-01;
- TPH-DRO exceeded DOH Drinking Water EALs at RHMW0, but did not exceed the site-specific action level, which would require free product at this location;
- TPH-GRO did not exceed DOH Drinking Water EALs at RHMW02;
- TPH-DRO and naphthalene exceeded DOH Drinking Water EALs at RHMW02;
- 1-methylnaphthalene and 2-methylnaphthalene exceeded DOH Drinking Water EAL for taste and odor at RHMW02; and
- TPH-DRO exceeded DOH Drinking Water EALs at RHMW03.

Analytical results for April 2008 indicated the following:

- No chemicals were detected above DOH Drinking Water EALs at U.S. Navy Well 2254-01;
- TPH-DRO exceeded DOH Drinking Water EALs at RHMW01, but did not exceed the site-specific action level that would indicate free product at this location;
- TPH-GRO did not exceed DOH Drinking Water EALs at RHMW02;
- TPH-DRO and naphthalene exceeded DOH Drinking Water EALs at RHMW02 and concentrations measured for TPH-DRO (3,120 μg/L and 3,020 μg/L for the normal and duplicate sample, respectively) were close to the solubility limit estimated for JP-5 (about 4,700 μg/L);
- 1-methylnaphthalene and 2-methylnaphthalene exceeded DOH Drinking Water EAL for taste and odor at RHMW02; and
- TPH-DRO exceeded DOH Drinking Water EALs at RHMW03, but below the site-specific action limits that would indicate free product.

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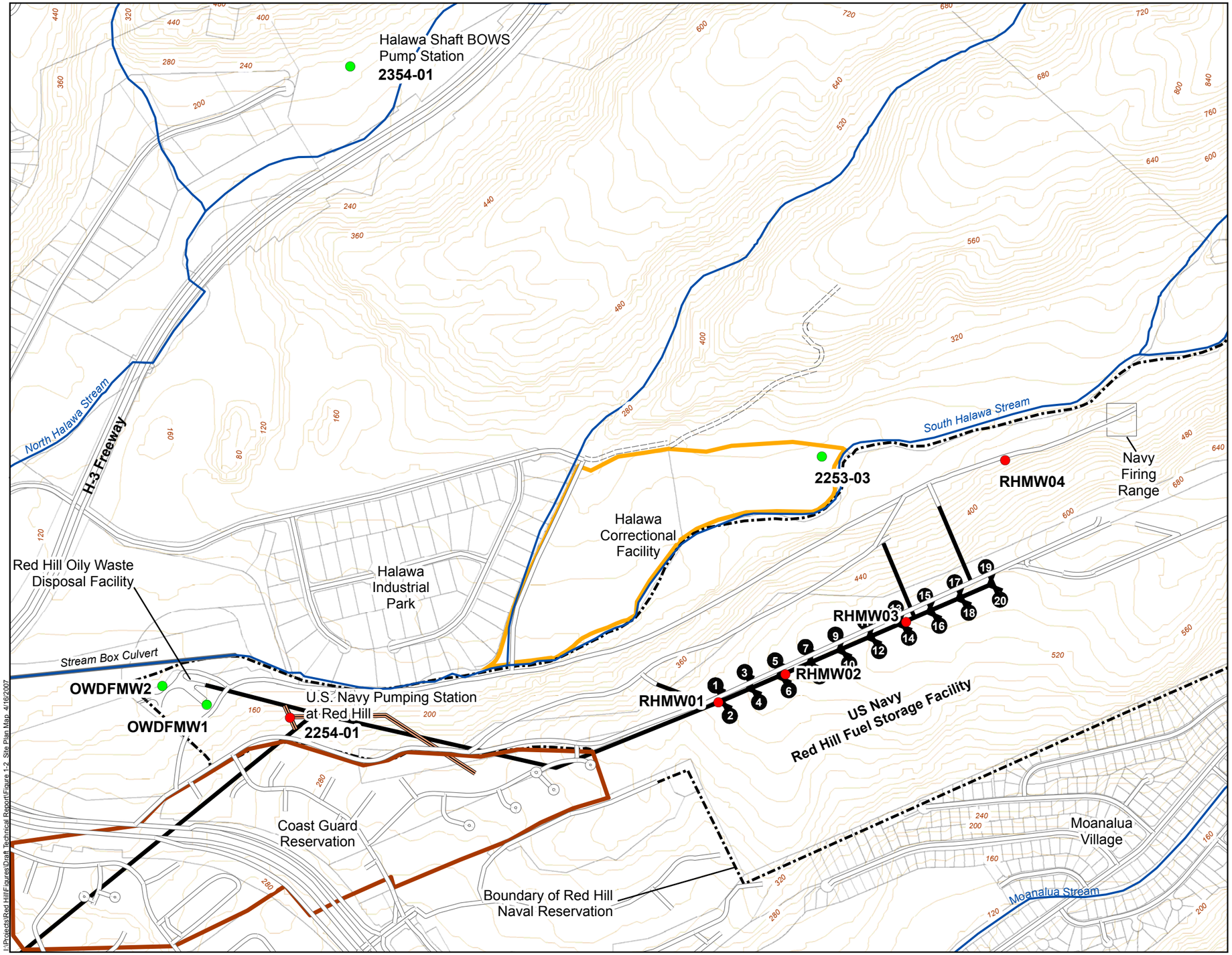


J:\Projects\Red Hill\Figures\Draft Technical Report\Figure 1-2 Site Plan Map 4/16/2007

Legend

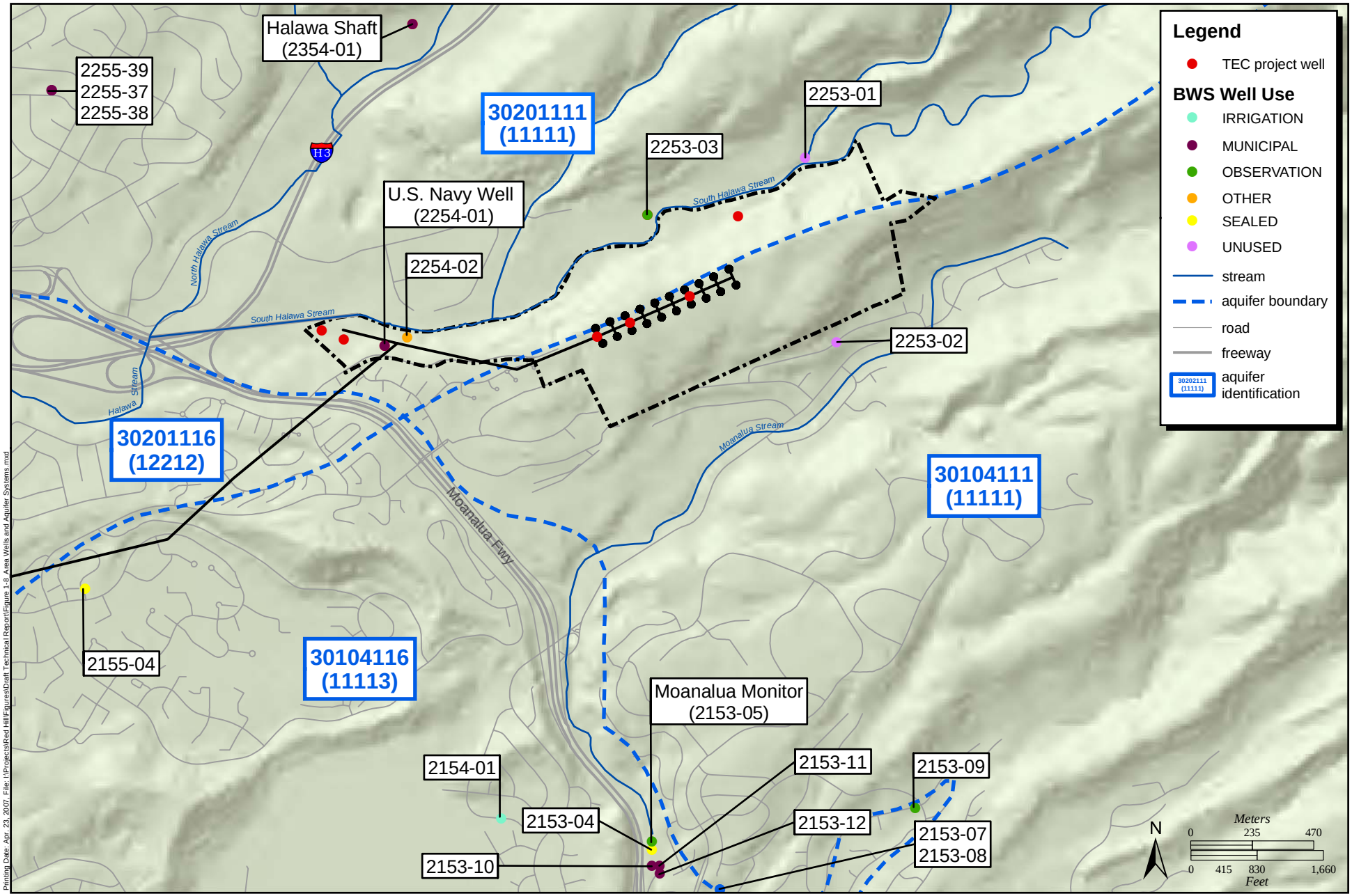
- Red Hill UST ID Number
- Parcel
- 40-foot Interval Contour Line
- Unpaved Road
- Road
- Stream
- Red Hill Navy Installation Boundary
- Red Hill Tunnels
- 2254-01 Infiltration Gallery
- Halawa Correctional Facility Boundary
- Coast Guard Reservation

N

Meters
0 175 350
0 312.5 625 1,250
Feet

Figure 1-1

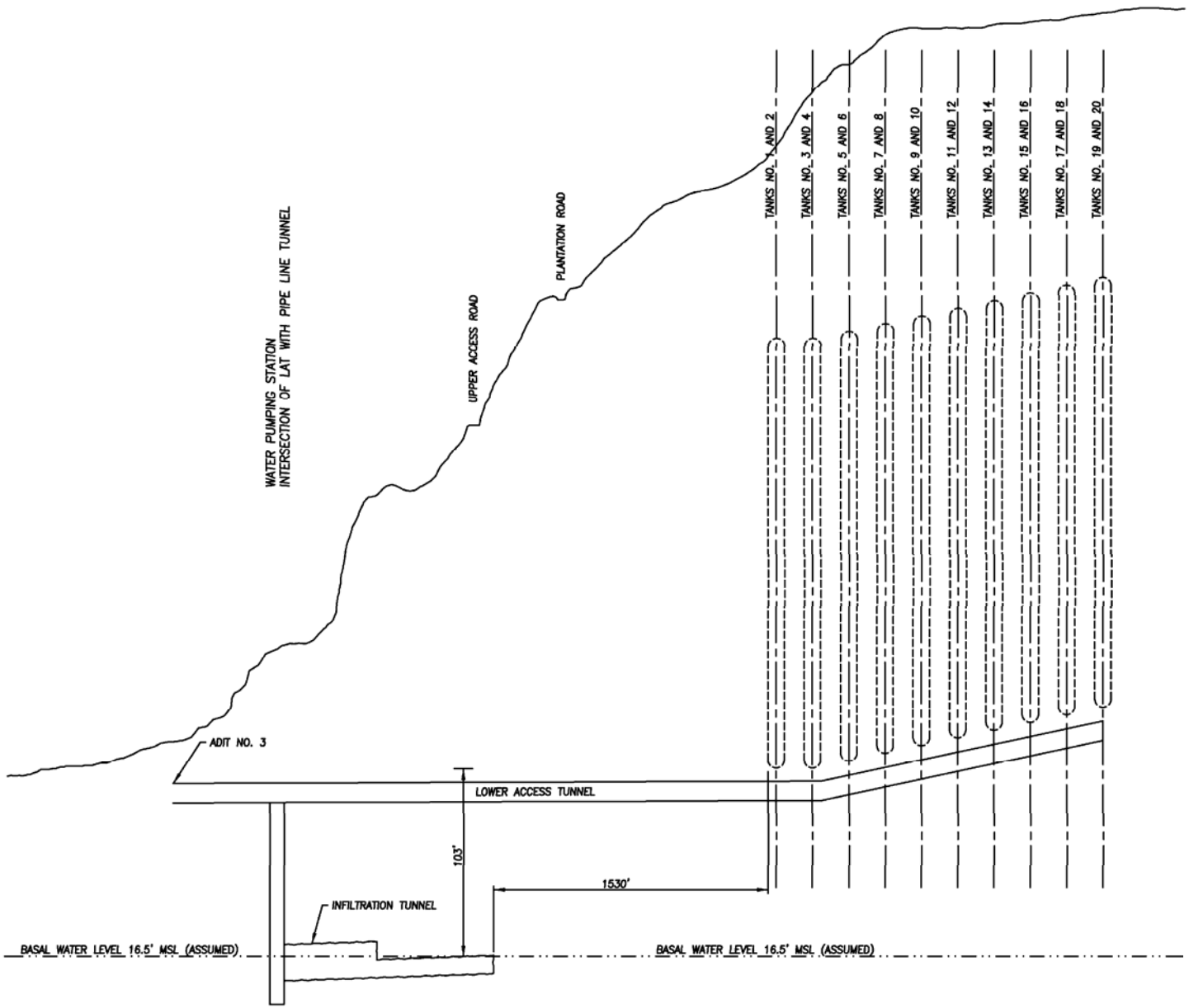
Regional Location Map
Red Hill Fuel Storage Facility
Oahu, Hawaii



Printing Date: Apr. 23, 2007. File: I:\Projects\Red Hill\Figures\Draft Technical Report\Figure 1-8 Area Wells and Aquifer Systems.mxd

Figure 1-2
Area Wells and Aquifer Systems
Red Hill Fuel Storage Facility
Oahu, Hawaii

Source Data:
City & County of Honolulu,
GIS base layers
DLNR Board of Water Supply,
2005 water supply well IDs



Printing Date: Apr. 16, 2007, I:\Projects\Red Hill\Figures\Draft Technical Report\Figure 1-4. Fuel Storage Tanks and Water Tunnel Cross Section.mxd

Figure 1-3
Fuel Storage Tanks and Water Tunnel Cross Section
Red Hill Fuel Storage Facility
Oahu, Hawaii

SCALE: HORIZ. 1" = 500'
VERT. 1" = 60'

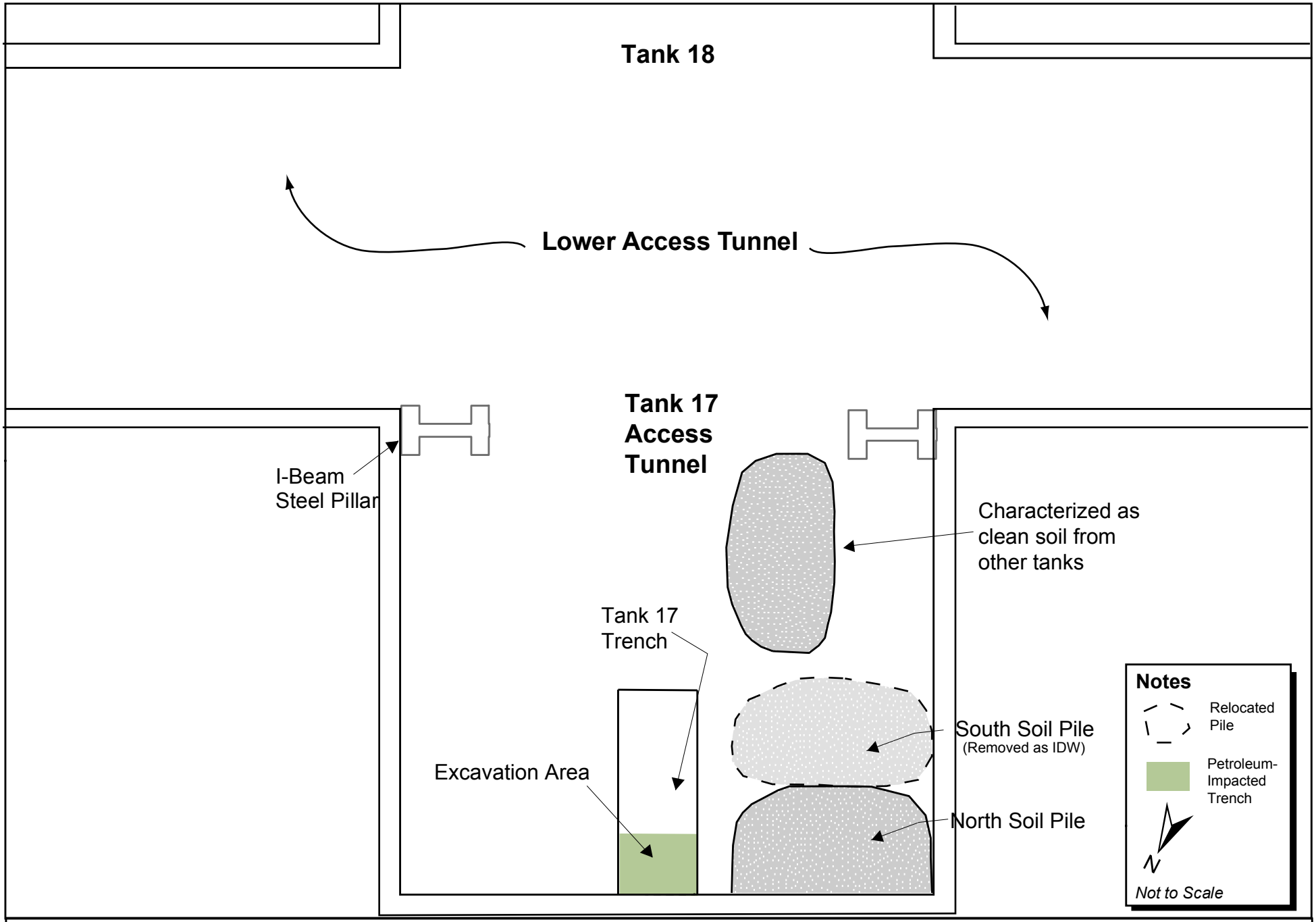


Figure 1-4
Tank 17 Excavation Site Layout Map
Red Hill Fuel Storage Facility
Oahu, Hawaii

Section 2
REMOVAL ACTION ACTIVITIES

On June 10 and 17, 2008, TEC conducted removal action activities at the Tank 17 site. These activities included but are not limited to soil excavation, sampling and monitoring. Photo-documentation of the removal action activities are presented in Appendix A.

2.1 JUNE 10, 2008 ACTIVITIES

On June 10, 2008, TEC personnel assessed the area and mobilized the equipment needed to perform a limited removal of contaminated bedrock resulting from approximately 2 gallons of JP-5 released to the subsurface trench. These included a pneumatic jackhammer with a two foot extension bit, shovels, two 55-gallon drums, health and safety equipment and sampling equipment. Sampling equipment included ppbPlus RAE photoionization detector (PID) field headspace measurements, and containers for impacted soil samples to be collected at the extents of the excavation. Headspace readings were taken from the excavated material pile adjacent to the trench at nine locations, and at two locations in the trench. The readings were highest in the excavation nearest the bulkhead and in the southern portion of the previously excavated pile (visual staining).

The headspace readings ranged from approximately 5 parts per million by volume (ppmv) to 81 ppmv, with background at approximately 5 ppmv. In general the readings from the north and south piles, excluding the hot spot, ranged from approximately 5 ppmv to greater than 25 ppmv. The soil in the north pile was determined to be suitable to use as backfill for the Tank 17 soil vapor sampling trench (see Figure 2-1).

The bulkhead side of the trench (north) was excavated to approximately 1.5 feet below the initial starting depth (two feet below the concrete surface). PID readings by depth were as follows:

- Surface approximately 81 ppmv;
- 6 inches approximately 95 ppmv;
- 1foot approximately 109 ppmv; and
- 1.5 feet approximately 120 ppmv.

At a depth of one foot below the original surface, petroleum (presumably JP-5) was observed to pool within the low points of the excavation. TEC personnel used a vacuum to remove the pooled fluid to the extent practical. Fluid increased with depth to a total depth of 1.5 feet below the original grade. The excavation was advanced by breaking fragments of the bedrock using the pneumatic jackhammer then removing the material with a shovel or by hand. The excavated material consisted of solid rock (basalt with very small vesicles less than 2 millimeters (mm) in diameter). During the use of the demolition hammer, strong fuel odor was coming from the trench and one breathing zone reading was approximately 25 ppmv. Work continued using full-faced respirators. The trench was excavated to dimensions of approximately 2 feet long by 1.7 inches wide by 1.5 feet deep. Excavation activities ceased once TEC personnel reached the depth where the demolition hammer was no longer effective.

One composite sample (RHTK17-1) was collected for both trench characterization and soil/rock disposal from the bottom of the excavation at 1.5 feet below the original trench grade. Figure 2-1 indicates the location of the composited grab samples. The southern soil pile and excavated material were put into a drum for disposal following receipt of laboratory analyses. The sample was analyzed for volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method 8021; polynuclear aromatic hydrocarbons (PAHs) by USEPA method 8270 by Selected Ion Monitoring (SIM); and TPH-DRO and TPH-GRO by USEPA Method 8015 modified. In addition, flashpoint was analyzed for disposal purposes. The sample was collected in four four-ounce containers, cooled to specifications and shipped under chain-of-custody to SGS Environmental Services, Alaska.

Investigative-derived waste from June 10, 2008 events included one 55-galllon drum of material excavated from the trench, and an additional 20 gallons of material from the stained soil stockpile.

2.2 JUNE 17, 2008 ACTIVITIES

On June 17, 2008, TEC returned to the Tank 17 excavation site with a 4-foot extension to the pneumatic jack-hammer and advanced the excavation to approximately 4 feet below the original trench grade (4.5 feet bgs). PID readings by depth were as follows:

- 3 feet below tunnel surface, 83.9 ppmv; and
- 4.5 feet below tunnel floor surface, 225 ppmv.

Saturated bedrock was removed to about 4.5 feet below grade at which point a weathered low permeability saprolitic material was encountered. Saprolite is weathered basalt that has the grain size of silty clay but maintains some of the texture of the original basalt. Although headspace measurements remained elevated, pooled material was no longer evident. Excavation ceased because of the potential for destabilizing the bulkhead and tunnel walls without proper engineering controls. In total, approximately 11 cubic feet of bedrock was removed from beneath the Tank 17 trench. An additional composite sample (RHTK17-3) was collected from locations within the excavation shown in Figure 2-1 (similar to RHTK17-1, except deeper), containerized and shipped in a similar fashion to SGS Environmental Services, Alaska.

2.3 SAMPLE COLLECTION

Samples were collected from four locations within the trench illustrated in Figure 2-1 and composited into sample containers. Aliquots to be analyzed for TPH-GRO and BTEX by USEPA Method 8021 were placed in a 4-ounce container with septa and covered with methanol for preservation. The aliquot for the remaining analyses (TPH-DRO, PAHs, and flashpoint) was placed in a second 4-ounce jar for preparation. 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.

2.4 SOIL SAMPLE ANALYSES

Composite samples were analyzed by SGS Environmental Services, Inc. in Anchorage, Alaska for TPH-DRO by EPA Method 8015B, TPH-GRO and VOCs by EPA Method 8021, PAHs by EPA Method 8270C SIM, and flashpoint for disposal.

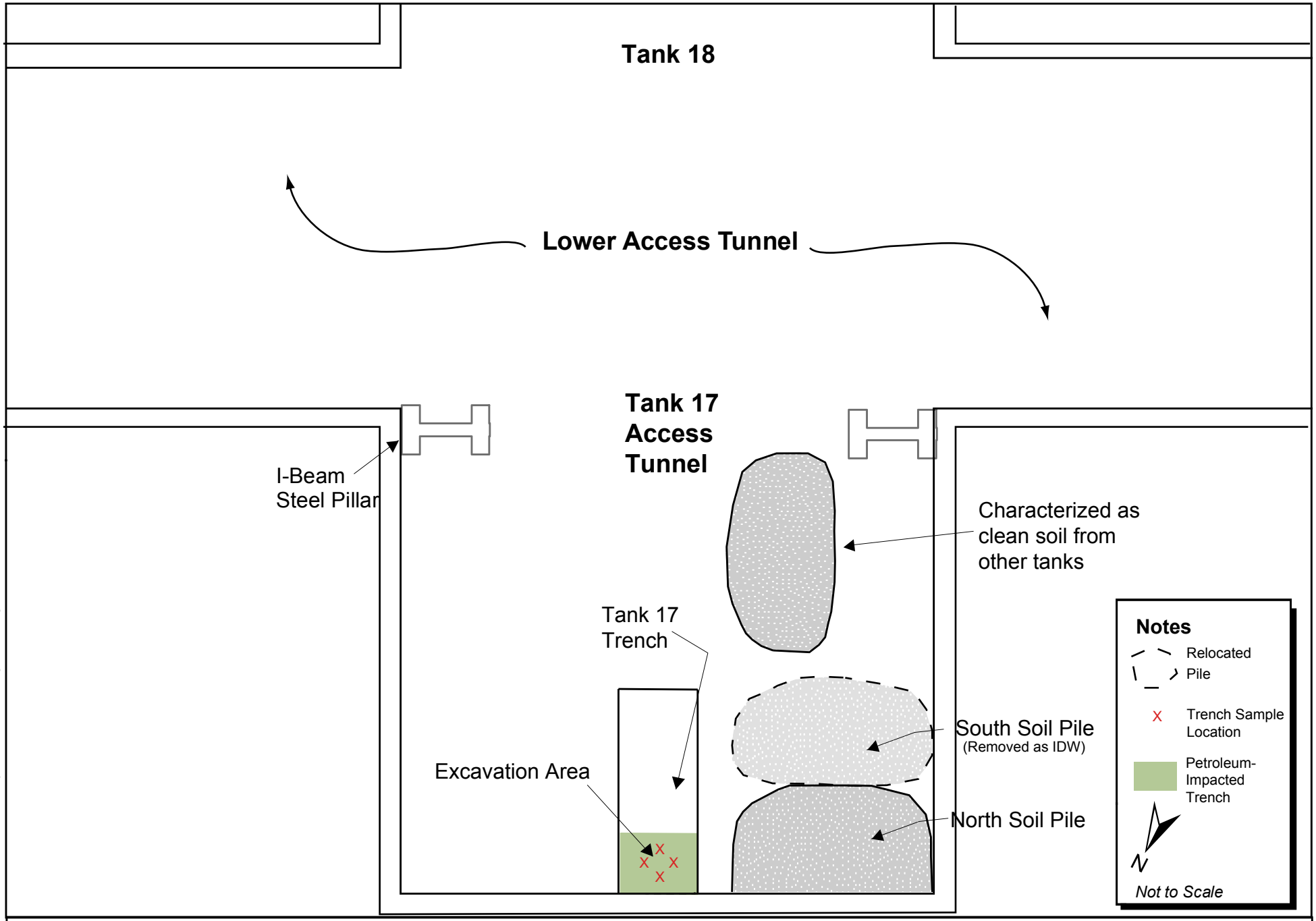


Figure 2-1
Tank 17 Site Composite Sample Locations
Red Hill Fuel Storage Facility
Oahu, Hawaii

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Section 3
SOIL SAMPLE RESULTS

This section provides a summary of analytical results from two composite samples collected from the excavation trench located adjacent to Tank 17 in the lower access tunnel of the Facility (Figure 2-1). Sample results are summarized in Table 3-1. Complete laboratory reports are included in Appendix B.

3.1 SAMPLE ANALYTICAL RESULTS

Both composite samples were analyzed for TPH-DRO, TPH-GRO, VOCs, PAHs, and flashpoint. Data qualifier "J" indicates the result is between the method detection limit (MDL) and the reporting limit (RL) and considered an estimated value.

RHTK17-1 was composited from four discrete samples at about 2 feet below the tunnel ground surface (1.5 feet below the original trench grade). RHTK17-3 was composited from four discrete samples at about 4.5 feet below the tunnel ground surface (4 feet below the original trench grade).

TPH-DRO and TPH-GRO were measured at 5,040 milligrams per kilogram (mg/kg) and 111 mg/kg at 2.5 feet bgs, respectively, compared to 5,670 mg/kg and 110 mg/kg at 4.5 ft bgs. The EAL for leaching to groundwater for TPH-DRO (100 mg/kg) was exceeded in both samples. Though concentrations were similar in both samples, the lack of liquid product at the end of the excavation indicated that the limited remaining fuel would not be expected to migrate further. Leaching is expected to be insignificant since the material will be covered by the concrete floor of the lower access tunnel.

Benzene was not detected in either sample above the MDL of 6.95 micrograms per kilogram (μg/kg). Ethylbenzene and total xylenes were detected at 5 feet bgs, and the total xylenes concentration (3,200 μg/kg) exceeded the DOH EAL for leaching to groundwater (2,300 μg/kg). The leaching pathway is expected to be insignificant.

Nine PAHs were detected at 2 feet bgs and six were detected at 4.5 feet bgs. Naphthalene (3.3 mg/kg), 1-methylnaphthalene (6.85 mg/kg) and 2-methylnaphthalene (7.29 mg/kg) were detected above the EALs for leaching (1.9 mg/kg, 0.24 mg/kg and 0.24 mg/kg, respectively). However, the EAL for 1-methylanphthalene and 2-methylnaphthalene is based on toxicity to ecological receptors in surface water and the exposure pathway to surface water is insignificant (TEC 2007). The human health toxicity EAL is approximately 100 times greater. In addition, the leaching pathway is expected to be insignificant. The EAL for soil vapor intrusion into residential buildings was exceeded for 1-methylanphthalene and 2-methylnaphthalene (2.6 mg/kg). It should be noted that the ambient air within the Facility is tested periodically to ensure conditions are appropriate for occupational use.

Table 3-1. Results for Composite Samples Compared to Environmental Action Levels
Tank 17 Removal Action
Red Hill Bulk Fuel Storage Facility

		Environmental Chemical Results								[1]Environmental Action Levels				
		RHTK17-1				RHTK17-3				[2]Gross Contamination (Odors, etc.)	Urban Area Ecotoxicity Criteria	[2]Human Health		Leaching & Groundwater Protection
		06/10/2008				06/17/2008						Direct Exposure	Vapor Intrusion Into Buildings	Drinking Water Resource
	Chemicals	Results	Q Flag	MDL	RL	Results	Q Flag	MDL	RL	Table F-2	Table K	Table I-1	Table C-1b	Table E-1
Total Petroleum Hydrocarbons														
(mg/kg)	Diesel Range Organics	5040		34.5	111	5670		35.7	115	5.0E+02		5.0E+02	(Use soil gas)	1.0E+02
	Gasoline Range Organics	111		868	4340	110		678	3390	1.0E+02		6.0E+02	(Use soil gas)	1.0E+02
Volatile Organic Compounds														
(µg/kg)	Benzene	ND		6.95	21.7	ND		5.42	16.9	5.0E+05	2.5E+04	1.1E+03	5.3E+02	3.1E+02
	Toluene	296		26	86.8	ND		20.3	67.8	5.0E+05		9.3E+05	9.2E+05	3.4E+03
	Ethylbenzene	1270		26	86.8	90		20.3	67.8	5.0E+05		5.8E+03	1.6E+03	4.0E+03
	P & M -Xylene	2250		26	86.8	1950		20.3	67.8	4.4E+05		4.4E+05	2.5E+05	2.3E+03
	o-Xylene	49.2	J	26	86.8	1270		20.3	67.8	4.4E+05		4.4E+05	2.5E+05	2.3E+03
	Total Xylenes	2299.2				3220				4.4E+05		4.4E+05	2.5E+05	2.3E+03
Polynuclear Aromatic Hydrocarbons														
(µg/kg)	Acenaphthene	ND		8.32	27.7	154		8.56	28.5	1.0E+06		6.3E+05	1.4E+05	2.0E+04
	Acenaphthylene	ND		8.32	27.7	ND		8.56	28.5	5.0E+05		3.2E+05		1.0E+05
	Anthracene	ND		8.32	27.7	ND		8.56	28.5	5.0E+05	4.0E+04	3.4E+06	5.3E+03	2.5E+03
	Benzo(a)Anthracene	14.8	J	8.32	27.7	ND		8.56	28.5	5.0E+05	4.0E+04	1.5E+03		1.3E+04
	Benzo[a]pyrene	16.8	J	8.32	27.7	ND		8.56	28.5	5.0E+05	4.0E+04	1.5E+02		7.6E+03
	Benzo[b]Fluoranthene	ND		8.32	27.7	ND		8.56	28.5	5.0E+05		1.5E+03		1.2E+04
	Benzo[g,h,i]perylene	15.9	J	8.32	27.7	ND		8.56	28.5	5.0E+05	4.0E+04	4.6E+05		2.7E+04
	Benzo[k]fluoranthene	ND		8.32	27.7	ND		8.56	28.5	5.0E+05	4.0E+04	1.5E+04		5.2E+04
	Chrysene	ND		8.32	27.7	ND		8.56	28.5	1.0E+06	4.0E+04	1.5E+05		1.4E+04
	Dibenzo[a,h]anthracene	ND		8.32	27.7	ND		8.56	28.5	5.0E+05		1.5E+02		1.6E+04
	Fluoranthene	ND		8.32	27.7	ND		8.56	28.5	5.0E+05	4.0E+04	4.6E+05		4.7E+05
	Fluorene	ND		8.32	27.7	156		8.56	28.5	5.0E+05		4.4E+05	1.3E+05	4.6E+05
	Indeno[1,2,3-c,d] pyrene	18.6	J	8.32	27.7	ND		8.56	28.5	5.0E+05	4.0E+04	1.5E+03		4.1E+04
	Naphthalene	2140		83.2	277	3300		171	571	5.0E+05	4.0E+04	3.0E+04	4.0E+03	1.9E+03
	Phenanthrene	22.9	J	8.32	27.7	23	J	8.56	28.5	5.0E+05	4.0E+04	4.4E+05		1.8E+04
	Pyrene	8.63	J	8.32	27.7	ND		8.56	28.5	5.0E+05		3.4E+05	5.6E+04	5.6E+04
	1-Methylnaphthalene	7890		166	555	6850		171	571	5.0E+05		1.1E+04	2.6E+03	2.4E+02
	2-Methylnaphthalene	8050		166	555	7290		171	571	5.0E+05		1.1E+04	2.6E+03	2.4E+02

Notes:

mg/kg milligrams per kilogram
µg/kg micrograms per killogram
Q Flag Data Quality Flag
J Result is between the MDL and the RL and is estimated
MDL Method Detection Limit
RL Reporting Limit
1 State of Hawaii Department of Health. 2005. Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Volume 1: Summary Tier 1 Lookup Tables. 2008 updates
2 Based on unrestricted current or future land use. Considered adequate for residential housing, schools, medical facilities, day-care centers, parks and other sensitive uses.
5040 Environmental chemical result that exceeds one or more Tier 1 Environmental Action Level
5.0E+02 Chemical-specific Tier 1 Environmentl Action Level exceeded

Section 4
ENVIRONMENTAL HAZARD EVALUATION

This EHE is provided to assess the hazards associated with the JP-5 that remains in the subsurface from the limited release in the lower access tunnel at Tank 17 that occurred on March 4, 2008.

A previous investigation evaluated risk associated with releases of middle distillate fuels, such as JP-5, from the Facility (TEC 2007). The results of this investigation indicated the following items.

- Soil vapor intrusion from releases associated with the USTs was potentially a significant pathway to the lower access tunnel, but not to buildings at ground surface. The Facility is ventilated to mitigate petroleum vapors associated with activities in the tunnels, and is periodically evaluated by an industrial hygienist to ensure that air quality within the tunnel is suitable for onsite workers.
- Although the bedrock beneath several of the USTs was shown to have been impacted by past inadvertent releases from the Facility, there were no direct contact pathways to residential receptors or onsite workers due to the depth of the releases (greater than 300 feet underground).
- The bases of the USTs (where inadvertent releases would pool) are below the bottom of the adjacent valleys; therefore the seepage pathway to ground surface and the exposure pathway to terrestrial receptors are considered incomplete.
- Groundwater beneath the Facility has been impacted by past inadvertent releases of petroleum at concentrations greater than the EALs for some chemicals; however, assuming JP-5 as the middle distillate petroleum mixture of concern, a three-dimensional MODFLOW groundwater model with reactive transport module RT3D showed that maximum concentrations of leachate from JP-5 would not impact the down-gradient drinking water well (U.S. Navy Well 2254-01).
- Based on calculations using the model described above, a minimum release volume of 16,000 gallons was required to impact the U.S. Navy Well 2254-01assuming a JP-5 fuel.

The gross contamination (for staining and odor nuisance) EAL for TPH-DRO and TPH-GRO is 100 mg/kg.

- The remaining concentrations exceed this EAL for impacted bedrock located below the concrete floor of the lower access tunnel of the Facility.
- The location of the impacted material is a secure facility.
- Excavation in this area is not expected in the future, nor will this impacted material be used for backfill in the future since it is consolidated bedrock, and very difficult to excavate.
- The Facility is strictly regulated for combustion sources to mitigate a potential flammability concern.
- Gross contamination left in place not considered a significant environmental hazard for the reasons described above.

The EALs associated with terrestrial receptors is site-specific.

- The pathway to terrestrial receptors is incomplete since the impacted material is greater than 300 feet bgs and located beneath the concrete floor of the lower access tunnel in a secure facility, nor will this impacted material be used for backfill in the future since it is consolidated bedrock, and very difficult to excavate.
- Impact to terrestrial receptors is not considered a significant environmental hazard for the reasons described above.

Soil gas (for potential impact to indoor air, commercial/industrial) EAL is 140,000 $\mu g/m^3$, or approximately 20 ppmv for middle distillate fuels.

- The maximum headspace reading at the bottom of the trench excavation was 225 ppmv, which exceeded the soil gas EAL by a factor of 11.
- However, the EAL assumes residential exposure factors including:
    - Exposure duration of 25 years;
    - Exposure frequency of 250 days per year.
- Actual exposure to the limited release at Tank 17 is expected to be much less:
    - Exposure duration of 10 years;
    - Exposure frequency of 1 day per year;
    - Actual estimated exposure is probably 600 times less than the commercial/industrial exposure factors, thus the site specific action level is 12,500 ppmv, or 55 times more than the concentrations observed.
- The Facility has a ventilation system designed to completely replenish the indoor air with ambient outdoor air from ground surface on the Red Hill ridgeline to ensure safe indoor air quality during activities associated with open UST manways, and other potential exposure events.
- The Facility has periodic audits for air quality to ensure health and safety of onsite workers and visitors.
- Soil gas intrusion to indoor air from the impacted material remaining in place is not considered a significant environmental hazard for the reasons described above.

Soil leaching (potential for contaminants in soil to migrate in infiltrating groundwater to the groundwater table) EAL for TPH-DRO is 5,000 mg/kg and for TPH-GRO is 2,000 mg/kg.

- The composite sample results from the excavation extents exceeded the EAL for TPH-DRO (5,670 mg/kg) and was less than the EAL for TPH-GRO (110 mg/kg).
- The risk assessment associated with the 2007 site investigation report (TEC, 2007) indicated that leachate was not a significant driver for impacting the down gradient U.S. Navy Well 2254-01. A significant liquid fuel on groundwater was necessary to impact the drinking water quality in this well.
- The location of the remaining impacted soil is under the concrete floor of the Facility, and will not be experiencing significant infiltrating groundwater.
- Leaching of contaminants from impacted material left in place to infiltrating groundwater is not considered a significant environmental hazard for the reasons described above.

Section 5
CONCLUSIONS AND RECOMMENDATIONS

Based on the EHE presented in Section 4 of this document, it is concluded that, although contaminants remain in place in the bedrock beneath the lower access tunnel floor following the removal actions of June 10 and June 17, 2008, the risk and hazards associated with these contaminants are insignificant. It is estimated that less than one gallon of JP-5 remains in the subsurface from the three to four gallon release which occurred on March 4, 2008.

It is recommended that no further action be taken to remove or destroy the remaining JP-5 due to the insignificant risk and technical difficulty associated with additional excavation adjacent to the wall of the Tank 17 access tunnel. It is further recommended that the trench excavation be completed as follows:

1. Backfill with low-permeable clay material to approximately one foot below the floor surface. This will greatly reduce the migration pathway of water through the impacted material, and will likewise reduce the soil vapor migration pathway to floor surface.
2. Place compaction gravel from the surface of the low-permeable clay to 6 inches from the ground surface. This material should be compacted to limit settling of the fill material over time that could destabilize the concrete floor of the tunnel.
3. Finish the SVMP installation surface completion for the newly installed SVMPs.
4. Complete the upper six inches with hardened concrete, finished to floor surface.

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Section 6
REFERENCES

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Appendix A
Photo-documentation

Photo 1
Locations of PID measurements from the soil stockpile that was under the release. The stockpile was mostly covered in plastic.
Tank 17 Excavation **June 10, 2008**

Photo 2
Impacted bedrock in trench before excavation.
Tank 17 Excavation **June 10, 2008**

Photo 3
Excavation extents adjacent to Tank 17 bulkhead (5 ft below surface)
Tank 17 Excavation **June 17, 2008**

Photo 4
Excavation extents adjacent to Tank 17 bulkhead (Close-up).
Tank 17 Excavation **June 17, 2008**

Appendix B
Laboratory Analytical Reports

SGS Environmental Services
Alaska Division
Level II Laboratory Data Report

Project:	9121 Red Hill BFSF
Client:	The Environmental Company, Inc. (TEC)
SGS Work Order:	1082739

Released by:

Contents:

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: 7/21/2008

Client Name: The Environmental Company, Inc. (TEC)
Project Name: 9121 Red Hill BFSF
Workorder No.: 1082739

Sample Comments

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

Lab Sample ID	Sample Type	Client Sample ID
1082739001	PS	RHTK17-1

AK101/8021B - BFB (surrogate) recovery does not meet QC goals (biased high) due to hydrocarbon interference.
8015C - This sample was extracted one day outside of holding time.
8015C DRO - The pattern is consistent with a weathered middle distillate.
8015C - DRO MB result is greater than one-half the PQL, but less than PQL.
8270D SIMS - LCS recovery for fluoranthene and chrysene does not meet QC criteria (biased low). The reported results may be biased low in the associated samples.

837229	LCS	LCS for HBN 201830 [XXX/19540]

8270D SIMS - LCS recovery for fluoranthene and chrysene does not meet QC criteria (biased low). The reported results may be biased low in the associated samples.

837230	MS	08-1576-G03(1082602003MS)

8270D SIMS - LCS recovery for fluoranthene and chrysene does not meet QC criteria (biased low). The reported results may be biased low in the associated samples.
8270D SIMS - MS/MSD did not meet QC criteria for several compounds (biased high). See LCS for control.

837231	MSD	08-1576-G03(1082602003MSD)

8270D SIMS - LCS recovery for fluoranthene and chrysene does not meet QC criteria (biased low). The reported results may be biased low in the associated samples.
8270D SIMS - MS/MSD did not meet QC criteria for several compounds (biased high). See LCS for control.

837477	MS	RHTK17-1(1082739001MS)

AK101/8015C - MS recovery does not meet QC goals (biased high) due to hydrocarbon interference. The associated LCS/LCSD meet all QC goals.

837478	MSD	RHTK17-1(1082739001MSD)

AK101/8015C - MSD recovery does not meet QC goals (biased high) due to hydrocarbon interference. The associated LCS/LCSD meet all QC goals.

837479	MS	RHTK17-1(1082739001MS)

AK101/8015C - MS recovery does not meet QC goals (biased high) due to matrix interference. The associated LCS/LCSD meet all QC goals.

837480	MSD	RHTK17-1(1082739001MSD)

AK101/8015C - MSD recovery does not meet QC goals (biased high) due to matrix interference. The associated LCS/LCSD meet all QC goals.

837656	MB	MB for HBN 201919 [XXX/19550]

8015C - DRO MB result is greater than one-half the PQL, but less than PQL.

840742	CCV	CCV for HBN 202568 [XMS/4602]

8270D SIMS - CCV recovery for dibenzo[a,h]anthracene does not meet QC criteria (biased high). This analyte was not detected above above the PQL in the associated samples.

841408	CCV	CCV for HBN 202716 [XMS/4606]

625 SIMS - CCV recovery for dibenzo[a,h]anthracene does not meet QC criteria (biased high). This analyte was not detected above above the PQL in the associated samples.

841410	CCV	CCV for HBN 202716 (XMS/4606)

625 SIMS - CCV recovery for dibenzo[a,h]anthracene does not meet QC criteria (biased high). This analyte was not detected above above the PQL in the associated samples.

842288	CCV	CCV for HBN 202908 [XMS/4616]

8270D SIMS - CCV recoveries do not meet QC criteria for indeno(1,2,3-c,d) pyrene and dibenzo(a,h)anthracene (biased high). The analytes are not detected above the PQL in the associated samples.

842707	CCV	CCV for HBN 202984 [XMS/4621]

8270D SIMS - CCV recovery for dibenzo(a,h)anthracene does not meet QC criteria (biased high). The analyte does not read above the PQL in the associated samples.

Laboratory Analytical Report

Client: **The Environmental Company, Inc.**
1001 Bishop Street Ste 1400
ASB Tower
Honolulu, HI 96813

Attn: **Jeff Hart**
T: (808)528-1445 F:(808)528-0768
jshart@tecinc.com

Project: **9121 Red Hill BFSF**

Workorder No.: **1082739**

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.

Barbara Hager

Barbara.Hager@sgs.com

Project Manager

Print Date: 7/21/2008

Enclosed are the analytical results associated with this workorder.

As required by the state of Alaska and the USEPA, a formal Quality Assurance/Quality Control Program is maintained by SGS. A copy of our Quality Assurance Plan (QAP), which outlines this program is available at your request.

The laboratory certification numbers are AK971-05 (DW), UST-005 (CS) and AK00971 (Micro) for ADEC and 001992 for NELAP (RCRA methods: 1020A, 1311, 6010B, 7470A,7471A,9040B,9045C, 9056, 9060, 9065, 8015B, 8021B, 8081A/8082, 8260B, 8270C).

Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP, the National Environmental Laboratory Accreditation Program and, when applicable, other regulatory authorities.

If you have any questions regarding this report or if we can be of any assistance, please contact your SGS Project Manager at 907-562-2343.

The following descriptors may be found on your report which will serve to further qualify the data.

MDL	Method Detection Limit
PQL	Practical Quantitation Limit (reporting limit).
CL	Control Limit
U	Indicates the analyte was analyzed for but not detected.
F	Indicates value that is greater than or equal to the MDL.
J	The quantitation is an estimation.
ND	Indicates the analyte is not detected
B	Indicates the analyte is found in a blank associated with the sample.
*	The analyte has exceeded allowable regulatory or control limits.
D	The analyte concentration is the result of dilution.
GT	Greater Than
LT	Less Than
Q	QC parameter out of acceptance range.
M	A matrix effect was present.
E	The analyte result is above the calibrated range.
R	Rejected
DF	Analytical Dilution Factor
JL	The analyte was positively identified, but the quantitation is a low estimation.
<Surr>	Surrogate QC spiked standard
<Surr/IS>	Surrogate / Internal Standard QC spiked standard
QC	Quality Control
QA	Quality Assurance
MB	Method Blank
LCS (D)	Laboratory Control Sample (Duplicate)
MS(D)	Matrix Spike (Duplicate)
BMS(D)	Site Specific Matrix Spike
RPD	Relative Percent Difference
ICV	Initial Calibration Verification
CCV	Continuous Calibration Verification
MSA	Method of Standard Addition

Notes: Soil samples are reported on a dry weight basis unless otherwise specified

All DRO/RRO analysese are integrated per SOP.

SAMPLE SUMMARY

Print Date: 7/21/2008

Client Name: The Environmental Company, Inc. (TEC)
Project Name: 9121 Red Hill BFSF
Workorder No.: 1082739

Analytical Methods

Method Description	Analytical Method
8270 PAH SIM Semi-Volatiles GC/MS	8270D SIMS
DRO by 8015B (S)	SW8015C
GRO/BTEX (W)	SW8015C
GRO/BTEX (W)	SW8021B
Ignitability Seta Flash	SW1020A
Percent Solids SM2540G	SM20 2540G

Sample ID Cross Reference

Lab Sample ID	Client Sample ID
1082739001	RHTK17-1
1082739002	RHTK17-2
1082739003	TB01

The Environmental Company, Inc. (TEC) Print Date: 7/21/2008

Client Sample ID: **RHTK17-1**
SGS Ref. #: 1082739001
Project ID: 9121 Red Hill BFSF
Matrix: Soil/Solid (dry weight)
Percent Solids: 89.2

All Dates/Times are Alaska Local Time
Collection Date/Time: 06/10/08 14:05
Receipt Date/Time: 06/12/08 11:27

Oils Laboratory

Parameter	Result	PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Ignitability Seta Flash	GT200	70.0	70.0	degrees F	1	FHV4987		

Batch Information

Analytical Batch: FHV4987
Analytical Method: SW1020A
Analysis Date/Time: 06/26/08 13:10
Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL
Container ID:1082739001-B
Analyst: FWY

The Environmental Company, Inc. (TEC) Print Date: 7/21/2008

Client Sample ID: **RHTK17-1**
SGS Ref. #: 1082739001
Project ID: 9121 Red Hill BFSF
Matrix: Soil/Solid (dry weight)
Percent Solids: 89.2

All Dates/Times are Alaska Local Time
Collection Date/Time: 06/10/08 14:05
Receipt Date/Time: 06/12/08 11:27

Volatile Fuels Department

Parameter	Result		PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Gasoline Range Organics	111000		4340	868	ug/Kg	1	VFC9022	VXX18296	
Benzene	ND		21.7	6.95	ug/Kg	1	VFC9022	VXX18296	
Toluene	49.2 J		86.8	26.0	ug/Kg	1	VFC9022	VXX18296	
Ethylbenzene	296		86.8	26.0	ug/Kg	1	VFC9022	VXX18296	
o-Xylene	1270		86.8	26.0	ug/Kg	1	VFC9022	VXX18296	
P & M -Xylene	2250		86.8	26.0	ug/Kg	1	VFC9022	VXX18296	
4-Bromofluorobenzene <surr>	644	*	60-120		%	1	VFC9022	VXX18296	
1,4-Difluorobenzene <surr>	90.2		85-110		%	1	VFC9022	VXX18296	

Batch Information

Analytical Batch: VFC9022
Analytical Method: SW8015C
Analysis Date/Time: 06/24/08 12:18
Dilution Factor: 1
Prep Batch: VXX18296
Prep Method: SW5035A
Prep Date/Time: 06/10/08 14:05
Initial Prep Wt./Vol.: 32.883 g
Prep Extract Vol.: 28.55 mL
Container ID:1082739001-A
Analyst: HM

Analytical Batch: VFC9022
Analytical Method: SW8021B
Analysis Date/Time: 06/24/08 12:18
Dilution Factor: 1
Prep Batch: VXX18296
Prep Method: SW5035A
Prep Date/Time: 06/10/08 14:05
Initial Prep Wt./Vol.: 32.883 g
Prep Extract Vol.: 28.55 mL
Container ID:1082739001-A
Analyst: HM

The Environmental Company, Inc. (TEC) Print Date: 7/21/2008

Client Sample ID: **RHTK17-1**
SGS Ref. #: 1082739001
Project ID: 9121 Red Hill BFSF
Matrix: Soil/Solid (dry weight)
Percent Solids: 89.2

All Dates/Times are Alaska Local Time
Collection Date/Time: 06/10/08 14:05
Receipt Date/Time: 06/12/08 11:27

Semivolatile Organic Fuels Department

Parameter	Result	PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Diesel Range Organics	5040	111	34.5	mg/Kg	10	XFC8010	XXX19550	
5a Androstane <surr>	74.3	50-150		%	10	XFC8010	XXX19550	

Batch Information

Analytical Batch: XFC8010
Analytical Method: SW8015C
Analysis Date/Time: 06/26/08 14:44
Dilution Factor: 10

Prep Batch: XXX19550
Prep Method: SW3550C
Prep Date/Time: 06/25/08 11:00

Initial Prep Wt./Vol.: 30.234 g
Prep Extract Vol.: 1 mL
Container ID:1082739001-B
Analyst: HKG

The Environmental Company, Inc. (TEC) Print Date: 7/21/2008

Client Sample ID: **RHTK17-1**
SGS Ref. #: 1082739001
Project ID: 9121 Red Hill BFSF
Matrix: Soil/Solid (dry weight)
Percent Solids: 89.2

All Dates/Times are Alaska Local Time
Collection Date/Time: 06/10/08 14:05
Receipt Date/Time: 06/12/08 11:27

Polynuclear Aromatics GC/MS

Parameter	Result	PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Acenaphthylene	ND	27.7	8.32	ug/Kg	5	XMS4606	XXX19540	
Acenaphthene	ND	27.7	8.32	ug/Kg	5	XMS4606	XXX19540	
Fluorene	ND	27.7	8.32	ug/Kg	5	XMS4606	XXX19540	
Phenanthrene	22.9 J	27.7	8.32	ug/Kg	5	XMS4606	XXX19540	
Anthracene	ND	27.7	8.32	ug/Kg	5	XMS4606	XXX19540	
Fluoranthene	ND	27.7	8.32	ug/Kg	5	XMS4606	XXX19540	
Pyrene	8.63 J	27.7	8.32	ug/Kg	5	XMS4606	XXX19540	
Benzo(a)Anthracene	14.8 J	27.7	8.32	ug/Kg	5	XMS4606	XXX19540	
Chrysene	ND	27.7	8.32	ug/Kg	5	XMS4606	XXX19540	
Benzo[b]Fluoranthene	ND	27.7	8.32	ug/Kg	5	XMS4606	XXX19540	
Benzo[k]fluoranthene	ND	27.7	8.32	ug/Kg	5	XMS4606	XXX19540	
Benzo[a]pyrene	16.8 J	27.7	8.32	ug/Kg	5	XMS4606	XXX19540	
Indeno[1,2,3-c,d] pyrene	18.6 J	27.7	8.32	ug/Kg	5	XMS4606	XXX19540	
Dibenzo[a,h]anthracene	ND	27.7	8.32	ug/Kg	5	XMS4606	XXX19540	
Benzo[g,h,i]perylene	15.9 J	27.7	8.32	ug/Kg	5	XMS4606	XXX19540	
Naphthalene	2140	277	83.2	ug/Kg	50	XMS4616	XXX19540	
1-Methylnaphthalene	7890	555	166	ug/Kg	100	XMS4621	XXX19540	
2-Methylnaphthalene	8050	555	166	ug/Kg	100	XMS4621	XXX19540	
Terphenyl-d14 <surr>	51.3	30-125		%	5	XMS4606	XXX19540	

Batch Information

Analytical Batch: XMS4606
Analytical Method: 8270D SIMS
Analysis Date/Time: 07/09/08 11:26
Dilution Factor: 5
Prep Batch: XXX19540
Prep Method: SW3550C
Prep Date/Time: 06/23/08 13:30
Initial Prep Wt./Vol.: 22.734 g
Prep Extract Vol.: 1 mL
Container ID:1082739001-B
Analyst: JDH

Analytical Batch: XMS4616
Analytical Method: 8270D SIMS
Analysis Date/Time: 07/17/08 14:17
Dilution Factor: 50
Prep Batch: XXX19540
Prep Method: SW3550C
Prep Date/Time: 06/23/08 13:30
Initial Prep Wt./Vol.: 22.734 g
Prep Extract Vol.: 1 mL
Container ID:
Analyst: JDH

Analytical Batch: XMS4621
Analytical Method: 8270D SIMS
Analysis Date/Time: 07/18/08 18:08
Dilution Factor: 100
Prep Batch: XXX19540
Prep Method: SW3550C
Prep Date/Time: 06/23/08 13:30
Initial Prep Wt./Vol.: 22.734 g
Prep Extract Vol.: 1 mL
Container ID:
Analyst: JDH

The Environmental Company, Inc. (TEC) Print Date: 7/21/2008

Client Sample ID: **RHTK17-1**
SGS Ref. #: 1082739001
Project ID: 9121 Red Hill BFSF
Matrix: Soil/Solid (dry weight)
Percent Solids: 89.2

All Dates/Times are Alaska Local Time
Collection Date/Time: 06/10/08 14:05
Receipt Date/Time: 06/12/08 11:27

Solids

Parameter	Result	PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Total Solids	89.2			%	1	SPT7676		

Batch Information

Analytical Batch: SPT7676
Analytical Method: SM20 2540G
Analysis Date/Time: 06/18/08 11:55
Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL
Container ID:1082739001-B
Analyst: JLK

The Environmental Company, Inc. (TEC) Print Date: 7/21/2008

Client Sample ID: **TB01**
SGS Ref. #: 1082739003
Project ID: 9121 Red Hill BFSF
Matrix: Water (Surface, Eff., Ground)

All Dates/Times are Alaska Local Time
Collection Date/Time: 06/10/08 08:05
Receipt Date/Time: 06/12/08 11:27

Volatile Fuels Department

Parameter	Result	PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Gasoline Range Organics	ND	100	10.0	ug/L	1	VFC9029	VXX18305	
Benzene	ND	0.500	0.150	ug/L	1	VFC9029	VXX18305	
Toluene	ND	2.00	0.620	ug/L	1	VFC9029	VXX18305	
Ethylbenzene	ND	2.00	0.620	ug/L	1	VFC9029	VXX18305	
o-Xylene	ND	2.00	0.620	ug/L	1	VFC9029	VXX18305	
P & M -Xylene	ND	2.00	0.620	ug/L	1	VFC9029	VXX18305	
4-Bromofluorobenzene <surr>	93.3	50-150		%	1	VFC9029	VXX18305	
1,4-Difluorobenzene <surr>	88.7	88-105		%	1	VFC9029	VXX18305	

Batch Information

Analytical Batch: VFC9029
Analytical Method: SW8015C
Analysis Date/Time: 06/24/08 10:44
Dilution Factor: 1
Prep Batch: VXX18305
Prep Method: SW5030B
Prep Date/Time: 06/24/08 09:00
Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1082739003-A
Analyst: HM

Analytical Batch: VFC9029
Analytical Method: SW8021B
Analysis Date/Time: 06/24/08 10:44
Dilution Factor: 1
Prep Batch: VXX18305
Prep Method: SW5030B
Prep Date/Time: 06/24/08 09:00
Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1082739003-A
Analyst: HM

SGS Ref.#	835914	Method Blank	**Printed Date/Time**	07/21/2008 16:22
Client Name	The Environmental Company, Inc. (TEC)		**Prep Batch**	
Project Name/#	9121 Red Hill BFSF		**Method**	
Matrix	Soil/Solid (dry weight)		**Date**	

QC results affect the following production samples:

1082739001

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Solids					
Total Solids	100			%	06/18/08
Batch SPT7676					
Method SM20 2540G					
Instrument					

SGS Ref.#	837228 Method Blank	**Printed Date/Time**	07/21/2008 16:22
Client Name	The Environmental Company, Inc. (TEC)	**Prep Batch**	XXX19540
Project Name/#	9121 Red Hill BFSF	**Method**	SW3550C
Matrix	Soil/Solid (dry weight)	**Date**	06/23/2008

QC results affect the following production samples:

1082739001

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Polynuclear Aromatics GC/MS					
Acenaphthylene	ND	4.94	1.48	ug/Kg	07/08/08
Acenaphthene	ND	4.94	1.48	ug/Kg	07/08/08
Fluorene	ND	4.94	1.48	ug/Kg	07/08/08
Phenanthrene	ND	4.94	1.48	ug/Kg	07/08/08
Anthracene	ND	4.94	1.48	ug/Kg	07/08/08
Fluoranthene	ND	4.94	1.48	ug/Kg	07/08/08
Pyrene	ND	4.94	1.48	ug/Kg	07/08/08
Benzo(a)Anthracene	ND	4.94	1.48	ug/Kg	07/08/08
Chrysene	ND	4.94	1.48	ug/Kg	07/08/08
Benzo[b]Fluoranthene	ND	4.94	1.48	ug/Kg	07/08/08
Benzo[k]fluoranthene	ND	4.94	1.48	ug/Kg	07/08/08
Benzo[a]pyrene	ND	4.94	1.48	ug/Kg	07/08/08
Indeno[1,2,3-c,d] pyrene	ND	4.94	1.48	ug/Kg	07/08/08
Dibenzo[a,h]anthracene	ND	4.94	1.48	ug/Kg	07/08/08
Benzo[g,h,i]perylene	ND	4.94	1.48	ug/Kg	07/08/08
Naphthalene	ND	4.94	1.48	ug/Kg	07/08/08
1-Methylnaphthalene	ND	4.94	1.48	ug/Kg	07/08/08
2-Methylnaphthalene	ND	4.94	1.48	ug/Kg	07/08/08
Surrogates					
Terphenyl-d14 <surr>	58.1	30-125		%	07/08/08

Batch XMS4602
Method 8270D SIMS
Instrument HP 5890 Series II MS2 SVOA

SGS Ref.#	837470 Method Blank	**Printed Date/Time**	07/21/2008 16:22
Client Name	The Environmental Company, Inc. (TEC)	**Prep Batch**	VXX18296
Project Name/#	9121 Red Hill BFSF	**Method**	SW5035A
Matrix	Soil/Solid (dry weight)	**Date**	06/24/2008

QC results affect the following production samples:

1082739001

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Volatile Fuels Department					
Gasoline Range Organics	ND	2500	500	ug/Kg	06/24/08
Surrogates					
4-Bromofluorobenzene <surr>	94.8	60-120		%	06/24/08
Batch VFC9022					
Method SW8015C					
Instrument HP 5890 Series II PID+HECD VBA					
Benzene	ND	12.5	4.00	ug/Kg	06/24/08
Toluene	ND	50.0	15.0	ug/Kg	06/24/08
Ethylbenzene	ND	50.0	15.0	ug/Kg	06/24/08
o-Xylene	ND	50.0	15.0	ug/Kg	06/24/08
P & M -Xylene	ND	50.0	15.0	ug/Kg	06/24/08
Surrogates					
1,4-Difluorobenzene <surr>	91.4	85-110		%	06/24/08
Batch VFC9022					
Method SW8021B					
Instrument HP 5890 Series II PID+HECD VBA					

SGS Ref.#	837656	Method Blank	**Printed Date/Time**		07/21/2008 16:22
Client Name	The Environmental Company, Inc. (TEC)		**Prep**	**Batch**	XXX19550
Project Name/#	9121 Red Hill BFSF			**Method**	SW3550C
Matrix	Soil/Solid (dry weight)			**Date**	06/25/2008

QC results affect the following production samples:

1082739001

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Semivolatile Organic Fuels Department					
Diesel Range Organics	6.12 J	9.95	3.08	mg/Kg	06/26/08
Surrogates					
5a Androstane <surr>	75.1	60-120		%	06/26/08

Batch XFC8010
Method SW8015C
Instrument HP 5890 Series II FID SV A R

SGS Ref.#	837928 Method Blank	**Printed Date/Time**	07/21/2008 16:22
Client Name	The Environmental Company, Inc. (TEC)	**Prep Batch**	VXX18305
Project Name/#	9121 Red Hill BFSF	**Method**	SW5030B
Matrix	Water (Surface, Eff., Ground)	**Date**	06/24/2008

QC results affect the following production samples:

1082739003

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Volatile Fuels Department					
Gasoline Range Organics	ND	100	10.0	ug/L	06/24/08
Surrogates					
4-Bromofluorobenzene <surr>	90.9	50-150		%	06/24/08
Batch VFC9029					
Method SW8015C					
Instrument HP 5890 Series II PID+FID VCA					
Benzene	ND	0.500	0.150	ug/L	06/24/08
Toluene	ND	2.00	0.620	ug/L	06/24/08
Ethylbenzene	ND	2.00	0.620	ug/L	06/24/08
o-Xylene	ND	2.00	0.620	ug/L	06/24/08
P & M -Xylene	ND	2.00	0.620	ug/L	06/24/08
Surrogates					
1,4-Difluorobenzene <surr>	91	88-105		%	06/24/08
Batch VFC9029					
Method SW8021B					
Instrument HP 5890 Series II PID+FID VCA					

SGS Ref.#	835915 Duplicate	**Printed Date/Time**	07/21/2008 16:22
Client Name	The Environmental Company, Inc. (TEC)	**Prep Batch**	
Project Name/#	9121 Red Hill BFSF	**Method**	
Original	1082604001	**Date**	
Matrix	Soil/Solid (dry weight)		

QC results affect the following production samples:

1082739001

Parameter	Original Result	QC Result	Units	RPD	RPD Limits	Analysis Date
Solids						
Total Solids	76.3	78.7	%	3	(< 15)	06/18/2008

Batch SPT7676
Method SM20 2540G
Instrument

SGS

SGS Ref.#	838156 Duplicate	**Printed Date/Time**	07/21/2008 16:22
Client Name	The Environmental Company, Inc. (TEC)	**Prep Batch**	
Project Name/#	9121 Red Hill BFSF	**Method**	
Original		**Date**	
Matrix	Water (Surface, Eff., Ground)		

QC results affect the following production samples:

1082739001

Parameter	Original Result	QC Result	Units	RPD	RPD Limits	Analysis Date
Oils Laboratory						
Ignitability Seta Flash		GT200	degrees F			06/26/2008

Batch FHV4987
Method SW1020A
Instrument Seta-Flash Flsh Pnt Tester

SGS Ref.#	838157 Duplicate	**Printed Date/Time**	07/21/2008 16:22
Client Name	The Environmental Company, Inc. (TEC)	**Prep Batch**	
Project Name/#	9121 Red Hill BFSF	**Method**	
Original		**Date**	
Matrix	Soil/Solid (dry weight)		

QC results affect the following production samples:

1082739001

Parameter	Original Result	QC Result	Units	RPD	RPD Limits	Analysis Date
Oils Laboratory						
Ignitability Seta Flash		GT200	degrees F			06/26/2008

Batch FHV4987
Method SW1020A
Instrument Seta-Flash Flsh Pnt Tester

SGS

SGS Ref.#	837229	Lab Control Sample	**Printed Date/Time**	07/21/2008	16:22
			Prep Batch	XXX19540	
Client Name	The Environmental Company, Inc. (TEC)		**Method**	SW3550C	
Project Name/#	9121 Red Hill BFSF		**Date**	06/23/2008	
Matrix	Soil/Solid (dry weight)				

QC results affect the following production samples:

1082739001

Parameter		QC Results	Pct Recov		LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Polynuclear Aromatics GC/MS									
Acenaphthylene	LCS	13.5	61		(45-102)			22.2 ug/Kg	07/08/2008
Acenaphthene	LCS	10.8	49		(45-99)			22.2 ug/Kg	07/08/2008
Fluorene	LCS	12.2	55		(50-107)			22.2 ug/Kg	07/08/2008
Phenanthrene	LCS	12.3	56		(50-110)			22.2 ug/Kg	07/08/2008
Anthracene	LCS	12.6	57		(28-103)			22.2 ug/Kg	07/08/2008
Fluoranthene	LCS	11.5	52	*	(55-115)			22.2 ug/Kg	07/08/2008
Pyrene	LCS	10.5	47		(45-120)			22.2 ug/Kg	07/08/2008
Benzo(a)Anthracene	LCS	15.1	68		(40-110)			22.2 ug/Kg	07/08/2008
Chrysene	LCS	11.2	51	*	(55-110)			22.2 ug/Kg	07/08/2008
Benzo[b]Fluoranthene	LCS	14.2	64		(45-115)			22.2 ug/Kg	07/08/2008
Benzo[k]fluoranthene	LCS	13.9	63		(45-120)			22.2 ug/Kg	07/08/2008
Benzo[a]pyrene	LCS	12.3	55		(10-102)			22.2 ug/Kg	07/08/2008
Indeno[1,2,3-c,d] pyrene	LCS	18.2	82		(40-120)			22.2 ug/Kg	07/08/2008
Dibenzo[a,h]anthracene	LCS	19.6	88		(40-125)			22.2 ug/Kg	07/08/2008
Benzo[g,h,i]perylene	LCS	16.2	73		(40-118)			22.2 ug/Kg	07/08/2008
Naphthalene	LCS	10.5	48		(40-92)			22.2 ug/Kg	07/08/2008
1-Methylnaphthalene	LCS	10.5	47		(30-97)			22.2 ug/Kg	07/08/2008
2-Methylnaphthalene	LCS	10.6	48		(45-96)			22.2 ug/Kg	07/08/2008
Surrogates									
Terphenyl-d14 <surr>	LCS		59		(30-125)				07/08/2008

SGS Ref.#	837229 Lab Control Sample		**Printed Date/Time**	07/21/2008	16:22
			Prep Batch	XXX19540	
Client Name	The Environmental Company, Inc. (TEC)		**Method**	SW3550C	
Project Name/#	9121 Red Hill BFSF		**Date**	06/23/2008	
Matrix	Soil/Solid (dry weight)				

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

Polynuclear Aromatics GC/MS

Batch	XMS4602
Method	8270D SIMS
Instrument	HP 5890 Series II MS2 SVOA

SGS

SGS Ref.#	837471	Lab Control Sample	**Printed Date/Time**	07/21/2008	16:22
	837472	Lab Control Sample Duplicate	**Prep Batch**	VXX18296	
Client Name	The Environmental Company, Inc. (TEC)		**Method**	SW5035A	
Project Name/#	9121 Red Hill BFSF		**Date**	06/24/2008	
Matrix	Soil/Solid (dry weight)				

QC results affect the following production samples:

1082739001

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Fuels Department								
Benzene	LCS	1360	109	(80-125)			1250 ug/Kg	06/24/2008
	LCSD	1360	109		0	(< 20)	1250 ug/Kg	06/24/2008
Toluene	LCS	1310	105	(85-120)			1250 ug/Kg	06/24/2008
	LCSD	1320	106		1	(< 20)	1250 ug/Kg	06/24/2008
Ethylbenzene	LCS	1330	106	(85-125)			1250 ug/Kg	06/24/2008
	LCSD	1340	108		1	(< 20)	1250 ug/Kg	06/24/2008
o-Xylene	LCS	1310	105	(85-125)			1250 ug/Kg	06/24/2008
	LCSD	1320	106		1	(< 20)	1250 ug/Kg	06/24/2008
P & M -Xylene	LCS	2760	110	(85-125)			2500 ug/Kg	06/24/2008
	LCSD	2790	112		1	(< 20)	2500 ug/Kg	06/24/2008
Surrogates								
1,4-Difluorobenzene <surr>	LCS		98	(85-110)				06/24/2008
	LCSD		98		0			06/24/2008

Batch	VFC9022
Method	SW8021B
Instrument	HP 5890 Series II PID+HECD VBA

SGS Ref.#	837473	Lab Control Sample	**Printed Date/Time**	07/21/2008	16:22
	837474	Lab Control Sample Duplicate	**Prep Batch**	VXX18296	
Client Name	The Environmental Company, Inc. (TEC)		**Method**	SW5035A	
Project Name/#	9121 Red Hill BFSF		**Date**	06/24/2008	
Matrix	Soil/Solid (dry weight)				

QC results affect the following production samples:

1082739001

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Fuels Department								
Gasoline Range Organics	LCS	11400	102	(75-115)			11300 ug/Kg	06/24/2008
	LCSD	11000	98		4	(< 20)	11300 ug/Kg	06/24/2008
Surrogates								
4-Bromofluorobenzene <surr>	LCS		96	(50-150)				06/24/2008
	LCSD		99		3			06/24/2008

Batch VFC9022
Method SW8015C
Instrument HP 5890 Series II PID+HECD VBA

SGS Ref.#	837916	Lab Control Sample	**Printed Date/Time**	07/21/2008	16:22
			Prep Batch	XXX19550	
Client Name	The Environmental Company, Inc. (TEC)		**Method**	SW3550C	
Project Name/#	9121 Red Hill BFSF		**Date**	06/25/2008	
Matrix	Soil/Solid (dry weight)				

QC results affect the following production samples:

1082739001

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Semivolatile Organic Fuels Department								
Diesel Range Organics	LCS	133	80	(75-125)			166 mg/Kg	06/26/2008
Surrogates								
5a Androstane <surr>	LCS		90	(60-120)				06/26/2008

Batch XFC8010
Method SW8015C
Instrument HP 5890 Series II FID SV A R

SGS

SGS Ref.#	837929	Lab Control Sample	**Printed Date/Time**	07/21/2008	16:22
	837930	Lab Control Sample Duplicate	**Prep Batch**	VXX18305	
Client Name	The Environmental Company, Inc. (TEC)		**Method**	SW5030B	
Project Name/#	9121 Red Hill BFSF		**Date**	06/24/2008	
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

1082739003

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Fuels Department								
Benzene	LCS	88.3	88	(80-120)			100 ug/L	06/24/2008
	LCSD	87.9	88		0	(< 20)	100 ug/L	06/24/2008
Toluene	LCS	90.9	91	(80-120)			100 ug/L	06/24/2008
	LCSD	90.7	91		0	(< 20)	100 ug/L	06/24/2008
Ethylbenzene	LCS	94.0	94	(87-125)			100 ug/L	06/24/2008
	LCSD	93.6	94		0	(< 20)	100 ug/L	06/24/2008
o-Xylene	LCS	93.0	93	(85-120)			100 ug/L	06/24/2008
	LCSD	92.8	93		0	(< 20)	100 ug/L	06/24/2008
P & M -Xylene	LCS	185	93	(87-125)			200 ug/L	06/24/2008
	LCSD	185	93		0	(< 20)	200 ug/L	06/24/2008
Surrogates								
1,4-Difluorobenzene <surr>	LCS		99	(88-105)				06/24/2008
	LCSD		98		0			06/24/2008

Batch VFC9029
Method SW8021B
Instrument HP 5890 Series II PID+FID VCA

SGS Ref.#	837931	Lab Control Sample	**Printed Date/Time**	07/21/2008	16:22
	837932	Lab Control Sample Duplicate	**Prep Batch**	VXX18305	
Client Name	The Environmental Company, Inc. (TEC)		**Method**	SW5030B	
Project Name/#	9121 Red Hill BFSF		**Date**	06/24/2008	
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

1082739003

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Fuels Department								
Gasoline Range Organics	LCS	206	103	(79-108)			200 ug/L	06/24/2008
	LCSD	199	100		3	(< 20)	200 ug/L	06/24/2008
Surrogates								
4-Bromofluorobenzene <surr>	LCS		93	(50-150)				06/24/2008
	LCSD		94		2			06/24/2008

Batch VFC9029
Method SW8015C
Instrument HP 5890 Series II PID+FID VCA

SGS Ref.#	838082	Lab Control Sample	**Printed Date/Time**	07/21/2008 16:22
			Prep Batch	
Client Name	The Environmental Company, Inc. (TEC)		**Method**	
Project Name/#	9121 Red Hill BFSF		**Date**	
Matrix	Other Liquids			

QC results affect the following production samples:

1082739001

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Oils Laboratory								
Ignitability Seta Flash	LCS	79.0	101	(98.5-101.5)			78 degrees	06/26/2008

Batch FHV4987
Method SW1020A
Instrument Seta-Flash Flsh Pnt Tester

SGS Ref.#	837230	Matrix Spike	**Printed Date/Time**	07/21/2008 16:22
	837231	Matrix Spike Duplicate	**Prep Batch**	XXX19540
			Method	Sonication Extraction Soil 8270
			Date	06/23/2008
Original	1082602003			
Matrix	Soil/Solid (dry weight)			

QC results affect the following production samples:

1082739001

Parameter	Qualifiers		Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount		Analysis Date
Polynuclear Aromatics GC/MS											
Acenaphthylene		MS	ND	25.4	110*	(45-102)			23.2	ug/Kg	07/08/2008
		MSD		21.2	93		18	(< 30)	22.9	ug/Kg	07/08/2008
Acenaphthene		MS	ND	28.4	123*	(45-99)			23.2	ug/Kg	07/08/2008
		MSD		23.2	101*		20	(< 30)	22.9	ug/Kg	07/08/2008
Fluorene		MS	ND	27.9	120*	(50-107)			23.2	ug/Kg	07/08/2008
		MSD		23.8	104		16	(< 30)	22.9	ug/Kg	07/08/2008
Phenanthrene		MS	7.15	36.2	125*	(50-110)			23.2	ug/Kg	07/08/2008
		MSD		31.8	107		13	(< 30)	22.9	ug/Kg	07/08/2008
Anthracene		MS	4.61 J	18.3	59	(28-103)			23.2	ug/Kg	07/08/2008
		MSD		17.2	55		6	(< 30)	22.9	ug/Kg	07/08/2008
Fluoranthene		MS	49.4	109	257*	(55-115)			23.2	ug/Kg	07/08/2008
		MSD		90.9	181*		18	(< 30)	22.9	ug/Kg	07/08/2008
Pyrene		MS	49.1	98.6	214*	(45-120)			23.2	ug/Kg	07/08/2008
		MSD		83.0	148*		17	(< 30)	22.9	ug/Kg	07/08/2008
Benzo(a)Anthracene		MS	23.9	58.2	148*	(40-110)			23.2	ug/Kg	07/08/2008
		MSD		50.2	114*		15	(< 30)	22.9	ug/Kg	07/08/2008
Chrysene		MS	25.7	74.3	210*	(55-110)			23.2	ug/Kg	07/08/2008
		MSD		60.6	152*		20	(< 30)	22.9	ug/Kg	07/08/2008
Benzo[b]Fluoranthene		MS	28.6	92.9	278*	(45-115)			23.2	ug/Kg	07/08/2008
		MSD		75.3	204*		21	(< 30)	22.9	ug/Kg	07/08/2008
Benzo[k]fluoranthene		MS	13.8	50.4	158*	(45-120)			23.2	ug/Kg	07/08/2008
		MSD		39.2	111		25	(< 30)	22.9	ug/Kg	07/08/2008
Benzo[a]pyrene		MS	19.8	59.1	170*	(10-102)			23.2	ug/Kg	07/08/2008
		MSD		48.4	124*		20	(< 30)	22.9	ug/Kg	07/08/2008
Indeno[1,2,3-c,d] pyrene		MS	16.6	56.0	170*	(40-120)			23.2	ug/Kg	07/08/2008
		MSD		47.9	136*		16	(< 30)	22.9	ug/Kg	07/08/2008
Dibenzo[a,h]anthracene		MS	ND	31.8	137*	(40-125)			23.2	ug/Kg	07/08/2008
		MSD		28.7	125		10	(< 30)	22.9	ug/Kg	07/08/2008
Benzo[g,h,i]perylene		MS	15.2	52.8	162*	(40-118)			23.2	ug/Kg	07/08/2008
		MSD		45.0	130*		16	(< 30)	22.9	ug/Kg	07/08/2008
Naphthalene		MS	ND	23.0	99*	(40-92)			23.2	ug/Kg	07/08/2008
		MSD		17.9	78		25	(< 30)	22.9	ug/Kg	07/08/2008
1-Methylnaphthalene		MS	ND	28.2	122*	(30-97)			23.2	ug/Kg	07/08/2008
		MSD		21.4	93		27	(< 30)	22.9	ug/Kg	07/08/2008
2-Methylnaphthalene		MS	ND	14.4	62	(45-96)			23.2	ug/Kg	07/08/2008
		MSD		12.9	56		11	(< 30)	22.9	ug/Kg	07/08/2008

Surrogates

SGS Ref.#	837230	Matrix Spike	**Printed Date/Time**		07/21/2008 16:22
	837231	Matrix Spike Duplicate	**Prep**	**Batch**	XXX19540
				Method	Sonication Extraction Soil 8270
				Date	06/23/2008
Original	1082602003				
Matrix	Soil/Solid (dry weight)				

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Polynuclear Aromatics GC/MS									
Terphenyl-d14 <surr>	MS		13.4	58	(30-125)				07/08/2008
	MSD		13.0	57		3			07/08/2008

Batch	XMS4602
Method	8270D SIMS
Instrument	HP 5890 Series II MS2 SVOA

SGS

SGS Ref.#	837477	Matrix Spike	**Printed Date/Time**		07/21/2008 16:22
	837478	Matrix Spike Duplicate	**Prep**	**Batch**	VXX18296
				Method	GRO Extraction (S)
				Date	06/24/2008

Original 1082739001
Matrix Soil/Solid (dry weight)

QC results affect the following production samples:
1082739001

Parameter	Qualifiers		Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount		Analysis Date
Volatile Fuels Department											
Benzene		MS	ND	1300	54*	(80-125)			2433	ug/Kg	06/24/2008
		MSD		1244	51*		4	(< 20)	2433	ug/Kg	06/24/2008
Toluene		MS	49.2 J	3969	161*	(85-120)			2433	ug/Kg	06/24/2008
		MSD		3991	162*		1	(< 20)	2433	ug/Kg	06/24/2008
Ethylbenzene		MS	296	985	27*	(85-125)			2433	ug/Kg	06/24/2008
		MSD		998	27*		1	(< 20)	2433	ug/Kg	06/24/2008
o-Xylene		MS	1270	3565	88	(85-125)			2433	ug/Kg	06/24/2008
		MSD		3655	92		2	(< 20)	2433	ug/Kg	06/24/2008
P & M -Xylene		MS	2250	4675	44*	(85-125)			4865	ug/Kg	06/24/2008
		MSD		4742	46*		1	(< 20)	4865	ug/Kg	06/24/2008
Surrogates											
1,4-Difluorobenzene <surr>		MS		2321	96	(85-110)					06/24/2008
		MSD		2321	96		0				06/24/2008

Batch VFC9022
Method SW8021B
Instrument HP 5890 Series II PID+HECD VBA

SGS

SGS Ref.#	837479	Matrix Spike	**Printed Date/Time**		07/21/2008 16:22
	837480	Matrix Spike Duplicate	**Prep**	**Batch**	VXX18296
				Method	GRO Extraction (S)
				Date	06/24/2008
Original	1082739001				
Matrix	Soil/Solid (dry weight)				

QC results affect the following production samples:

1082739001

Parameter	Qualifiers		Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount		Analysis Date
Volatile Fuels Department											
Gasoline Range Organics		MS	111000	152466	126*	(75-115)			21861	ug/Kg	06/24/2008
		MSD		155830	140*		2	(< 20)	21861	ug/Kg	06/24/2008
Surrogates											
4-Bromofluorobenzene <surr>		MS		14574	684*	(50-150)					06/24/2008
		MSD		14798	694*		2				06/24/2008

Batch VFC9022
Method SW8015C
Instrument HP 5890 Series II PID+HECD VBA

1082739

Hager, Barbara (Anchorage)

From: MacMillan, Shawn N. [SNMacMillan@tecinc.com]
Sent: Wednesday, June 18, 2008 2:01 PM
To: Hager, Barbara (Anchorage)
Subject: COC Correction
Attachments: RHTK17 6-10-08.xls

Barbra,
I realized that the COC I sent last week is incorrect. The sample dates should all read as 6/10/08. I have attached the corrected COC. We shipped another sample this morning, you should receive it tomorrow. Please continue to hold sample RHTK17-2 until further notice. The hold time for DRO and PAH is 14 days so we have until the 24th to analyze the sample, correct? If you have any questions please let me know.
Thanks,

Shawn MacMillan
TEC Inc.
1001 Bishop St. Suite 1400
ASB Tower
Honolulu, Hi. 96813
808.528.1445

Hager, Barbara (Anchorage)

From: Hart, Jeff [jshart@tecinc.com]
Sent: Friday, June 27, 2008 12:26 PM
To: Hager, Barbara (Anchorage)
Subject: RE: 1082739 9121 Red Hill BFSF

Please proceed.

TEC Inc.

Jeff S. Hart, R.G.
Principal, Senior Project Manager
1001 Bishop Street, Suite 1400
ASB Tower
Honolulu, Hawaii 96813
Telephone (808) 528-1445
Facsimile (808) 528-0768

From: Hager, Barbara (Anchorage) [mailto:Barbara.Hager@sgs.com]
Sent: Friday, June 27, 2008 10:10 AM
To: Hart, Jeff
Cc: Homestead, Charles (Anchorage)
Subject: 1082739 9121 Red Hill BFSF

Jeff
Due to lab error this sample was extract 1 day outside the 14 day holding time.
Please let me know if you would like to proceed with analysis.
Thanks
Barbara

Barbara A. Hager
SGS Environmental Services Inc.
Alaska Division Project Manager
200 West Potter Drive
Anchorage, Alaska 99518
Phone: (907) 562-2343
Direct: (907) 550-3211
Fax: (907) 561-5301

SGS 1082739

CHAIN OF CUSTODY RECORD
SGS Environmental Services Inc.

Locations Nationwide
Alaska Hawaii
Maryland Louisiana
New Jersey West Virginia
North Carolina
www.us.sgs.com

CLIENT: TEC INC.

CONTACT: Jeff Hart PHONE NO: 808.528.1445

PROJECT: 9121 SITE/PWSID#: Red Hill BFSF

REPORTS TO: Jeff Hart email jshart@tecinc.com
cc snmacmillan@tecinc.com

INVOICE TO: TEC INC QUOTE #:
P.O. NUMBER:

SGS Reference #:

page _____ of _____

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	# CONTAINERS	Preserv. Used	SAMPLE TYPE C = COMP G = GRAB	VOC's (8260) HCL	TPH-GRO (BTEX, 8015B) MeOH	TPH-DRO (8015B)	PAH's (8270-SIM)	Flash point							REMARKS
	RHTK17-1	6/10/2008	1405	Soil	4				X	X	X	X							
	RHTK17-2	6/10/2008	1355	Soil	2					X	X								See special instructions
	TB01	6/10/2008	0805	WQ	2			X											

Collected/Relinquished By: (1)	Date 6/11/2008	Time 930	Received By:
Relinquished By: (2)	Date	Time	Received By: CUSTODY RECORD
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received For Laboratory By:

Shipping Carrier: Samples Received Cold? YES NO
Shipping Ticket No: Temperature °C:
Special Deliverable Requirements: Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Requested Turnaround Time and-or Special Instructions:

Only run PAH sample for RHTK17-2 if TPH-DRO is detected.

☐ 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

SGS 1082739

CHAIN OF CUSTODY RECORD
SGS Environmental Services Inc.

Locations Nationwide
Alaska Hawaii
Maryland Louisiana
New Jersey West Virginia
North Carolina
www.us.sgs.com

CLIENT: TEC INC.

CONTACT: **Jeff Hart** PHONE NO: 808.528.1445

PROJECT: **9121** SITE/PWSID#: Red Hill BFSF

REPORTS TO: Jeff Hart email jshart@tecinc.com
cc snmacmillan@tecinc.com

INVOICE TO: TEC INC QUOTE #:
P.O. NUMBER:

SGS Reference #:

page 1 of 1

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	# CONTAINERS	Preserv. Used	SAMPLE TYPE C=COMP G=GRAB	VOC's (8260) HCL	TPH-GRO (BTEX, 8015B) MeOH	TPH-DRO (8015B)	PAH's (8270-SIM)	Flash point	REMARKS
(1) A-D	RHTK17-1	6/10/2008	1405	Soil	4		C		X	X	X	X	
(2) A,B	RHTK17-2	6/11/2008	1355	Soil	2		G			X	X		See special instructions
(3) A-C	TB01	6/12/2008	0805	WQ	2			X					

Collected/Relinquished By: (1)	Date 6/11/2008	Time 930	Received By:	Shipping Carrier:	Samples Received Cold? YES NO Temperature °C: 200 TB= 1.9 c= 2.4
Relinquished By: (2)	Date	Time	Received By:	Shipping Ticket No:	
Relinquished By: (3)	Date	Time	Received By:	Special Deliverable Requirements:	Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT
Relinquished By: (4)	Date 6/12/08	Time 1127	Received For Laboratory By:	Requested Turnaround Time and-or Special Instructions: **Only run PAH sample for RHTK17-2 if TPH-DRO is detected.**	

- ☐ 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) 845-22
- ☐ 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

SGS 1082739

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Locations Nationwide
Alaska Hawaii
Maryland Louisiana
New Jersey West Virginia
North Carolina
www.us.sgs.com

CLIENT: TEC INC.

CONTACT: **Jeff Hart** PHONE NO: 808.528.1445

PROJECT: **9121** SITE/PWSID#: Red Hill BFSF

REPORTS TO: Jeff Hart email jshart@tecinc.com
cc snmacmillan@tecinc.com

INVOICE TO: TEC INC QUOTE #:
P.O. NUMBER:

SGS Reference #:

page 1 of 1

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	# CONTAINERS	Preserv. Used	SAMPLE TYPE C = COMP G = GRAB	VOC's (8260) HCL	TPH-GRO (BTEX, 8015B) MeOH	TPH-DRO (8015B)	PAH's (8270-SIM)	Flash point	REMARKS
①A-D	RHTK17-1	6/10/2008	1405	Soil	4		C		X	X	X	X	
②A,B	RHTK17-2	6/11/2008	1355	Soil	2		G			X	X		See special instructions
③A-C	TB01	6/12/2008	0805	WQ	2			X					

Collected/Relinquished By: (1)	Date 6/11/2008	Time 930	Received By:
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date 6/12/08	Time 1127	Received For Laboratory By:

Shipping Carrier:
Shipping Ticket No:
Samples Received Cold? YES NO
Temperature °C:
Special Deliverable Requirements:
Chain of Custody Seal: (Circle)
INTACT BROKEN ABSENT

Requested Turnaround Time and-or Special Instructions:
Only run PAH sample for RHTK17-2 if TPH-DRO is detected.

☐ 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
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☐ 5500 Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1557

1082739

SGS

SAMPLE RECEIPT FORM

SGS WO#:

Yes	No	NA		
___	✓	___	Are samples **RUSH**, priority or *w/in 72 hrs* of **hold time**?	**TAT (circle one):** Standard -or- Rush
___	___	✓	If yes, have you done *e-mail ALERT notification*?	**Received Date:** 6/12/08
___	✓	___	Are samples *within 24 hrs.* of **hold time** or **due date**?	**Received Time:** 1127
___	___	✓	If yes, have you also *spoken with* supervisor?	Is **date/time conversion** necessary? NO
___	___	✓	Archiving bottles (if req'd): Are they properly marked?	# of hours to AK Local Time: ___
___	✓	___	Are there any **problems**? PM Notified? ___	**Thermometer ID:** 700
___	___	✓	Were samples preserved correctly and pH verified?	

Cooler ID	Temp Blank	Cooler Temp
1	1.9 °C	2.4 °C
	°C	°C
	°C	°C
	°C	°C
	°C	°C
	°C	°C

Note: Temperature readings include thermometer correction factors

		✓	If this is for PWS, provide **PWSID.** ___	**Delivery method** (circle all that apply): Client / Alert Courier / UPS / FedEx / USPS / DHL / AA Goldstreak / NAC / ERA / PenAir / Carlile/ Lynden / SGS / Other: ___
___	✓	___	Will courier charges apply? Method of payment? ___	**Airbill #** ___
✓	___	___	Data package required? (Level: 1 / 2 / 3 / 4) *Notes*: ___	Additional Sample Remarks: *(√if applicable)*
___	✓	___	Is this a DoD project? (USACE, Navy, AFCEE)	___ Extra Sample Volume?
				___ Limited Sample Volume?
				___ MeOH field preserved for volatiles?
				___ Field-filtered for dissolved ___
				___ Lab-filtered for dissolved ___
				___ Ref Lab required? ___
				___ Foreign Soil?

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

Yes	No	
___	___	Is received temperature 4 ± 2°C? Exceptions: ___ Samples/Analyses Affected: ___
___	___	If temperature(s) <0 °C, were containers ice-free? N/A *Notify PM immediately of any ice in samples.*
___	___	Was there an airbill? *(Note # above in the right hand column)*
___	___	Was cooler sealed with custody seals? # / where: ___
___	___	Were seal(s) intact upon arrival?
___	___	Was there a COC with cooler?
___	___	Was COC sealed in plastic bag & taped inside lid of cooler?
___	___	Was the COC filled out properly?
___	___	Did the COC indicate USACE / Navy / AFCEE project?
___	___	Did the COC and samples correspond?
___	___	Were all sample packed to prevent breakage? Packing material: ___
___	___	Were all samples unbroken and clearly labeled?
___	___	Were all samples sealed in separate plastic bags?
___	___	Were all VOCs free of headspace and/or MeOH preserved?
___	___	Were correct container / sample sizes submitted?
___	___	Is sample condition good?
___	___	Was copy of CoC, SRF, and custody seals given to PM to fax?

This section must be filled if problems are found.

Yes ✓ No ___ Was client notified of problems?

Individual contacted: Jeff

Via: Phone / Fax / Email (circle one)

Date/Time: 6.13.08

Reason for contact: Water trip blank submitted with soil samples. Client would like trip blank analyzed. 6/13 bah

Change Order Required? no

SGS Contact: bah

Notes: per client sample #2 (RHTK17-2) is on hold. 6/13 bah

Completed by (sign): ___ **(print):** Joe Rud.

Login proof (check one): waived ___ required ___ performed by: ___

1082739

SGS

SAMPLE RECEIPT FORM (page 2)

SGS WO#:

#	Container ID	Matrix	Test	QC	TB	Container Volume: 1 L	500 mL	250 mL	125 mL	60 mL	40 mL	8oz (250 mL)	4oz (125 mL)	Other	Container Type: AG	CG	HDPE	Nalgene	Cubie	Coli	Septa	Other	Preservative: None	HCl	HNO_3	H_2SO_4	MeOH	$Na_2S_2O_3$	NaOH	Other
1	A	2	GRO/Btex										1		✓						✓						✓			
	B	↓	TPH-DRO, PAH Flash										1		✓								✓							
	CD	↓	extra volume										2		✓								✓							
2	A	2	DRO/PAH-H/LD										1		✓								✓							
	B	2	extra Volume										1		✓								✓							
3	A-C	1	~~GRO/Btex~~ JJP VOC		✓						3				✓						✓			✓						
Bottle Totals											3		6																	

Completed by: _____ Date: 6/13/08

Form # F004r16 revised 03/10/08

From: Origin ID: HIKA (808)528-1445
Shawn MacMillan
TEC Inc.
1001 Bishop St. #1400
American Savings Bank Tower
Honolulu, HI 96813

FedEx Express

CLS 126787/21/24

Ship Date: 11JUN08
ActWgt: 35 LB
System#: 1774997/INET8010
Account#: S *********

Delivery Address Bar Code

SHIP TO: 907.562.2324 **BILL THIRD PARTY**

SAMPLE RECEIVING
SGS Environmental Services
200 W Potter Dr

Anchorage, AK 995181605

Ref # JOB # 9121
Invoice #
PO #
Dept #

1082739

TRK# 0201 7993 3799 3150

THU - 12JUN AM
PRIORITY OVERNIGHT
DSR

99518
AK-US
ANC

WU CYMA

SGS Environmental Services
Alaska Division
Level II Laboratory Data Report

Project:	9121 Red Hill BFSF
Client:	The Environmental Company, Inc. (TEC)
SGS Work Order:	1082865

Released by:

Contents:

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: 7/21/2008

Client Name: The Environmental Company, Inc. (TEC)
Project Name: 9121 Red Hill BFSF
Workorder No.: 1082865

Sample Comments

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

Lab Sample ID	Sample Type	Client Sample ID
1082865001	PS	RHTK17-3
	AK101/8021B - BFB (surrogate) recovery does not meet QC goals (biased high) due to hydrocarbon interference. 8015C DRO - The pattern is consistent with a weathered middle distillate. 8015C - DRO MB result is greater than one-half the PQL, but less than PQL.	
837477	MS	RHTK17-1(1082739001MS)
	AK101/8015C - MS recovery does not meet QC goals (biased high) due to hydrocarbon interference. The associated LCS/LCSD meet all QC goals.	
837478	MSD	RHTK17-1(1082739001MSD)
	AK101/8015C - MSD recovery does not meet QC goals (biased high) due to hydrocarbon interference. The associated LCS/LCSD meet all QC goals.	
837479	MS	RHTK17-1(1082739001MS)
	AK101/8015C - MS recovery does not meet QC goals (biased high) due to matrix interference. The associated LCS/LCSD meet all QC goals.	
837480	MSD	RHTK17-1(1082739001MSD)
	AK101/8015C - MSD recovery does not meet QC goals (biased high) due to matrix interference. The associated LCS/LCSD meet all QC goals.	
837656	MB	MB for HBN 201919 [XXX/19550]
	8015C - DRO MB result is greater than one-half the PQL, but less than PQL.	
842288	CCV	CCV for HBN 202908 [XMS/4616]
	8270D SIMS - CCV recoveries do not meet QC criteria for indeno(1,2,3-c,d) pyrene and dibenzo(a,h)anthracene (biased high). The analytes are not detected above the PQL in the associated samples.	
842707	CCV	CCV for HBN 202984 [XMS/4621]
	8270D SIMS - CCV recovery for dibenzo(a,h)anthracene does not meet QC criteria (biased high). The analyte does not read above the PQL in the associated samples.	

Laboratory Analytical Report

Client: **The Environmental Company, Inc.**
1001 Bishop Street Ste 1400
ASB Tower
Honolulu, HI 96813

Attn: **Jeff Hart**
T: (808)528-1445 F:(808)528-0768
jshart@tecinc.com

Project: **9121 Red Hill BFSF**

Workorder No.: **1082865**

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.

Barbara Hager

Barbara.Hager@sgs.com

Project Manager

Print Date: 7/21/2008

Enclosed are the analytical results associated with this workorder.

As required by the state of Alaska and the USEPA, a formal Quality Assurance/Quality Control Program is maintained by SGS. A copy of our Quality Assurance Plan (QAP), which outlines this program is available at your request.

The laboratory certification numbers are AK971-05 (DW), UST-005 (CS) and AK00971 (Micro) for ADEC and 001992 for NELAP (RCRA methods: 1020A, 1311, 6010B, 7470A,7471A,9040B,9045C, 9056, 9060, 9065, 8015B, 8021B, 8081A/8082, 8260B, 8270C).

Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP, the National Environmental Laboratory Accreditation Program and, when applicable, other regulatory authorities.

If you have any questions regarding this report or if we can be of any assistance, please contact your SGS Project Manager at 907-562-2343.

The following descriptors may be found on your report which will serve to further qualify the data.

MDL	Method Detection Limit
PQL	Practical Quantitation Limit (reporting limit).
CL	Control Limit
U	Indicates the analyte was analyzed for but not detected.
F	Indicates value that is greater than or equal to the MDL.
J	The quantitation is an estimation.
ND	Indicates the analyte is not detected
B	Indicates the analyte is found in a blank associated with the sample.
*	The analyte has exceeded allowable regulatory or control limits.
D	The analyte concentration is the result of dilution.
GT	Greater Than
LT	Less Than
Q	QC parameter out of acceptance range.
M	A matrix effect was present.
E	The analyte result is above the calibrated range.
R	Rejected
DF	Analytical Dilution Factor
JL	The analyte was positively identified, but the quantitation is a low estimation.
<Surr>	Surrogate QC spiked standard
<Surr/IS>	Surrogate / Internal Standard QC spiked standard
QC	Quality Control
QA	Quality Assurance
MB	Method Blank
LCS (D)	Laboratory Control Sample (Duplicate)
MS(D)	Matrix Spike (Duplicate)
BMS(D)	Site Specific Matrix Spike
RPD	Relative Percent Difference
ICV	Initial Calibration Verification
CCV	Continuous Calibration Verification
MSA	Method of Standard Addition

Notes: Soil samples are reported on a dry weight basis unless otherwise specified

All DRO/RRO analysese are integrated per SOP.

SAMPLE SUMMARY

Print Date: 7/21/2008

Client Name: The Environmental Company, Inc. (TEC)
Project Name: 9121 Red Hill BFSF
Workorder No.: 1082865

Analytical Methods

Method Description	Analytical Method
8270 PAH SIM Semi-Volatiles GC/MS	8270D SIMS
DRO by 8015B (S)	SW8015C
GRO/BTEX (W)	SW8015C
GRO/BTEX (W)	SW8021B
Ignitability Seta Flash	SW1020A
Percent Solids SM2540G	SM20 2540G

Sample ID Cross Reference

Lab Sample ID	Client Sample ID
1082865001	RHTK17-3
1082865002	TB01

The Environmental Company, Inc. (TEC) Print Date: 7/21/2008

Client Sample ID: **RHTK17-3**
SGS Ref. #: 1082865001
Project ID: 9121 Red Hill BFSF
Matrix: Soil/Solid (dry weight)
Percent Solids: 86.7

All Dates/Times are Alaska Local Time
Collection Date/Time: 06/17/08 11:05
Receipt Date/Time: 06/19/08 11:20

Oils Laboratory

Parameter	Result	PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Ignitability Seta Flash	GT200	70.0	70.0	degrees F	1	FHV4987		

Batch Information

Analytical Batch: FHV4987
Analytical Method: SW1020A
Analysis Date/Time: 06/26/08 13:10
Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL
Container ID:1082865001-C
Analyst: FWY

The Environmental Company, Inc. (TEC) Print Date: 7/21/2008

Client Sample ID: **RHTK17-3**
SGS Ref. #: 1082865001
Project ID: 9121 Red Hill BFSF
Matrix: Soil/Solid (dry weight)
Percent Solids: 86.7

All Dates/Times are Alaska Local Time
Collection Date/Time: 06/17/08 11:05
Receipt Date/Time: 06/19/08 11:20

Volatile Fuels Department

Parameter	Result		PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Gasoline Range Organics	110000		3390	678	ug/Kg	1	VFC9022	VXX18296	
Benzene	ND		16.9	5.42	ug/Kg	1	VFC9022	VXX18296	
Toluene	ND		67.8	20.3	ug/Kg	1	VFC9022	VXX18296	
Ethylbenzene	90.0		67.8	20.3	ug/Kg	1	VFC9022	VXX18296	
o-Xylene	1270		67.8	20.3	ug/Kg	1	VFC9022	VXX18296	
P & M -Xylene	1950		67.8	20.3	ug/Kg	1	VFC9022	VXX18296	
4-Bromofluorobenzene <surr>	856	*	60-120		%	1	VFC9022	VXX18296	
1,4-Difluorobenzene <surr>	89.9		85-110		%	1	VFC9022	VXX18296	

Batch Information

Analytical Batch: VFC9022
Analytical Method: SW8015C
Analysis Date/Time: 06/24/08 12:36
Dilution Factor: 1
Prep Batch: VXX18296
Prep Method: SW5035A
Prep Date/Time: 06/17/08 11:05
Initial Prep Wt./Vol.: 45.945 g
Prep Extract Vol.: 31.13 mL
Container ID:1082865001-A
Analyst: HM

Analytical Batch: VFC9022
Analytical Method: SW8021B
Analysis Date/Time: 06/24/08 12:36
Dilution Factor: 1
Prep Batch: VXX18296
Prep Method: SW5035A
Prep Date/Time: 06/17/08 11:05
Initial Prep Wt./Vol.: 45.945 g
Prep Extract Vol.: 31.13 mL
Container ID:1082865001-A
Analyst: HM

The Environmental Company, Inc. (TEC) Print Date: 7/21/2008

Client Sample ID: **RHTK17-3**
SGS Ref. #: 1082865001
Project ID: 9121 Red Hill BFSF
Matrix: Soil/Solid (dry weight)
Percent Solids: 86.7

All Dates/Times are Alaska Local Time
Collection Date/Time: 06/17/08 11:05
Receipt Date/Time: 06/19/08 11:20

Semivolatile Organic Fuels Department

Parameter	Result	PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Diesel Range Organics	5670	115	35.7	mg/Kg	10	XFC8010	XXX19550	
5a Androstane <surr>	83	50-150		%	10	XFC8010	XXX19550	

Batch Information

Analytical Batch: XFC8010
Analytical Method: SW8015C
Analysis Date/Time: 06/26/08 15:05
Dilution Factor: 10

Prep Batch: XXX19550
Prep Method: SW3550C
Prep Date/Time: 06/25/08 11:00

Initial Prep Wt./Vol.: 30.072 g
Prep Extract Vol.: 1 mL
Container ID:1082865001-B
Analyst: HKG

The Environmental Company, Inc. (TEC) Print Date: 7/21/2008

Client Sample ID: **RHTK17-3**
SGS Ref. #: 1082865001
Project ID: 9121 Red Hill BFSF
Matrix: Soil/Solid (dry weight)
Percent Solids: 86.7

All Dates/Times are Alaska Local Time
Collection Date/Time: 06/17/08 11:05
Receipt Date/Time: 06/19/08 11:20

Polynuclear Aromatics GC/MS

Parameter	Result	PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Acenaphthylene	ND	28.5	8.56	ug/Kg	5	XMS4616	XXX19571	
Acenaphthene	154	28.5	8.56	ug/Kg	5	XMS4616	XXX19571	
Fluorene	156	28.5	8.56	ug/Kg	5	XMS4616	XXX19571	
Phenanthrene	23.0 J	28.5	8.56	ug/Kg	5	XMS4616	XXX19571	
Anthracene	ND	28.5	8.56	ug/Kg	5	XMS4616	XXX19571	
Fluoranthene	ND	28.5	8.56	ug/Kg	5	XMS4616	XXX19571	
Pyrene	ND	28.5	8.56	ug/Kg	5	XMS4616	XXX19571	
Benzo(a)Anthracene	ND	28.5	8.56	ug/Kg	5	XMS4616	XXX19571	
Chrysene	ND	28.5	8.56	ug/Kg	5	XMS4616	XXX19571	
Benzo[b]Fluoranthene	ND	28.5	8.56	ug/Kg	5	XMS4616	XXX19571	
Benzo[k]fluoranthene	ND	28.5	8.56	ug/Kg	5	XMS4616	XXX19571	
Benzo[a]pyrene	ND	28.5	8.56	ug/Kg	5	XMS4616	XXX19571	
Indeno[1,2,3-c,d] pyrene	ND	28.5	8.56	ug/Kg	5	XMS4616	XXX19571	
Dibenzo[a,h]anthracene	ND	28.5	8.56	ug/Kg	5	XMS4616	XXX19571	
Benzo[g,h,i]perylene	ND	28.5	8.56	ug/Kg	5	XMS4616	XXX19571	
Naphthalene	3300	571	171	ug/Kg	100	XMS4621	XXX19571	
1-Methylnaphthalene	6850	571	171	ug/Kg	100	XMS4621	XXX19571	
2-Methylnaphthalene	7290	571	171	ug/Kg	100	XMS4621	XXX19571	
Terphenyl-d14 <surr>	92.4	30-125		%	5	XMS4616	XXX19571	

Batch Information

Analytical Batch: XMS4616
Analytical Method: 8270D SIMS
Analysis Date/Time: 07/17/08 13:45
Dilution Factor: 5
Prep Batch: XXX19571
Prep Method: SW3550C
Prep Date/Time: 07/01/08 16:50
Initial Prep Wt./Vol.: 22.745 g
Prep Extract Vol.: 1 mL
Container ID:1082865001-B
Analyst: JDH

Analytical Batch: XMS4621
Analytical Method: 8270D SIMS
Analysis Date/Time: 07/18/08 17:35
Dilution Factor: 100
Prep Batch: XXX19571
Prep Method: SW3550C
Prep Date/Time: 07/01/08 16:50
Initial Prep Wt./Vol.: 22.745 g
Prep Extract Vol.: 1 mL
Container ID:
Analyst: JDH

The Environmental Company, Inc. (TEC) Print Date: 7/21/2008

Client Sample ID: **RHTK17-3**
SGS Ref. #: 1082865001
Project ID: 9121 Red Hill BFSF
Matrix: Soil/Solid (dry weight)
Percent Solids: 86.7

All Dates/Times are Alaska Local Time
Collection Date/Time: 06/17/08 11:05
Receipt Date/Time: 06/19/08 11:20

Solids

Parameter	Result	PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Total Solids	86.7			%	1	SPT7683		

Batch Information

Analytical Batch: SPT7683
Analytical Method: SM20 2540G
Analysis Date/Time: 06/21/08 15:25
Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL
Container ID:1082865001-B
Analyst: BJS

The Environmental Company, Inc. (TEC) Print Date: 7/21/2008

Client Sample ID: **TB01**
SGS Ref. #: 1082865002
Project ID: 9121 Red Hill BFSF
Matrix: Soil/Solid (dry weight)
Percent Solids: 100

All Dates/Times are Alaska Local Time
Collection Date/Time: 06/17/08 08:05
Receipt Date/Time: 06/19/08 11:20

Volatile Fuels Department

Parameter	Result	PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Gasoline Range Organics	1770 J	2640	527	ug/Kg	1	VFC9022	VXX18296	
Benzene	ND	13.2	4.22	ug/Kg	1	VFC9022	VXX18296	
Toluene	ND	52.7	15.8	ug/Kg	1	VFC9022	VXX18296	
Ethylbenzene	ND	52.7	15.8	ug/Kg	1	VFC9022	VXX18296	
o-Xylene	ND	52.7	15.8	ug/Kg	1	VFC9022	VXX18296	
P & M -Xylene	ND	52.7	15.8	ug/Kg	1	VFC9022	VXX18296	
4-Bromofluorobenzene <surr>	91	60-120		%	1	VFC9022	VXX18296	
1,4-Difluorobenzene <surr>	90	85-110		%	1	VFC9022	VXX18296	

Batch Information

Analytical Batch: VFC9022
Analytical Method: SW8015C
Analysis Date/Time: 06/24/08 15:32
Dilution Factor: 1
Prep Batch: VXX18296
Prep Method: SW5035A
Prep Date/Time: 06/17/08 08:05
Initial Prep Wt./Vol.: 47.4 g
Prep Extract Vol.: 25 mL
Container ID:1082865002-A
Analyst: HM

Analytical Batch: VFC9022
Analytical Method: SW8021B
Analysis Date/Time: 06/24/08 15:32
Dilution Factor: 1
Prep Batch: VXX18296
Prep Method: SW5035A
Prep Date/Time: 06/17/08 08:05
Initial Prep Wt./Vol.: 47.4 g
Prep Extract Vol.: 25 mL
Container ID:1082865002-A
Analyst: HM

The Environmental Company, Inc. (TEC) Print Date: 7/21/2008

Client Sample ID: **TB01**
SGS Ref. #: 1082865002
Project ID: 9121 Red Hill BFSF
Matrix: Soil/Solid (dry weight)
Percent Solids: 100

All Dates/Times are Alaska Local Time
Collection Date/Time: 06/17/08 08:05
Receipt Date/Time: 06/19/08 11:20

Solids

Parameter	Result	PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Total Solids	100			%	1	SPT7686		

Batch Information

Analytical Batch: SPT7686
Analytical Method: SM20 2540G
Analysis Date/Time: 06/23/08 19:25
Dilution Factor: 1

Initial Prep Wt./Vol.: 1 mL
Container ID:1082865002-A
Analyst: KDC

SGS Ref.#	836870	Method Blank	**Printed Date/Time**	07/21/2008 16:25
Client Name	The Environmental Company, Inc. (TEC)		**Prep Batch**	
Project Name/#	9121 Red Hill BFSF		**Method**	
Matrix	Soil/Solid (dry weight)		**Date**	

QC results affect the following production samples:

1082865001

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Solids					
Total Solids	100			%	06/21/08
Batch SPT7683					
Method SM20 2540G					
Instrument					

SGS Ref.#	837318	Method Blank	**Printed Date/Time**	07/21/2008 16:25
Client Name	The Environmental Company, Inc. (TEC)		**Prep Batch**	
Project Name/#	9121 Red Hill BFSF		**Method**	
Matrix	Soil/Solid (dry weight)		**Date**	

QC results affect the following production samples:

1082865002

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Solids					
Total Solids	100			%	06/23/08
Batch SPT7686					
Method SM20 2540G					
Instrument					

SGS Ref.#	837470 Method Blank	**Printed Date/Time**	07/21/2008 16:25
Client Name	The Environmental Company, Inc. (TEC)	**Prep Batch**	VXX18296
Project Name/#	9121 Red Hill BFSF	**Method**	SW5035A
Matrix	Soil/Solid (dry weight)	**Date**	06/24/2008

QC results affect the following production samples:

1082865001, 1082865002

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Volatile Fuels Department					
Gasoline Range Organics	ND	2500	500	ug/Kg	06/24/08
Surrogates					
4-Bromofluorobenzene <surr>	94.8	60-120		%	06/24/08
Batch VFC9022					
Method SW8015C					
Instrument HP 5890 Series II PID+HECD VBA					
Benzene	ND	12.5	4.00	ug/Kg	06/24/08
Toluene	ND	50.0	15.0	ug/Kg	06/24/08
Ethylbenzene	ND	50.0	15.0	ug/Kg	06/24/08
o-Xylene	ND	50.0	15.0	ug/Kg	06/24/08
P & M -Xylene	ND	50.0	15.0	ug/Kg	06/24/08
Surrogates					
1,4-Difluorobenzene <surr>	91.4	85-110		%	06/24/08
Batch VFC9022					
Method SW8021B					
Instrument HP 5890 Series II PID+HECD VBA					

SGS Ref.#	837656	Method Blank	**Printed Date/Time**		07/21/2008 16:25
Client Name	The Environmental Company, Inc. (TEC)		**Prep**	**Batch**	XXX19550
Project Name/#	9121 Red Hill BFSF			**Method**	SW3550C
Matrix	Soil/Solid (dry weight)			**Date**	06/25/2008

QC results affect the following production samples:

1082865001

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Semivolatile Organic Fuels Department					
Diesel Range Organics	6.12 J	9.95	3.08	mg/Kg	06/26/08
Surrogates					
5a Androstane <surr>	75.1	60-120		%	06/26/08

Batch XFC8010
Method SW8015C
Instrument HP 5890 Series II FID SV A R

SGS Ref.#	839060 Method Blank	**Printed Date/Time**	07/21/2008 16:25
Client Name	The Environmental Company, Inc. (TEC)	**Prep Batch**	XXX19571
Project Name/#	9121 Red Hill BFSF	**Method**	SW3550C
Matrix	Soil/Solid (dry weight)	**Date**	07/01/2008

QC results affect the following production samples:

1082865001

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Polynuclear Aromatics GC/MS					
Acenaphthylene	ND	4.94	1.48	ug/Kg	07/15/08
Acenaphthene	ND	4.94	1.48	ug/Kg	07/15/08
Fluorene	ND	4.94	1.48	ug/Kg	07/15/08
Phenanthrene	ND	4.94	1.48	ug/Kg	07/15/08
Anthracene	ND	4.94	1.48	ug/Kg	07/15/08
Fluoranthene	ND	4.94	1.48	ug/Kg	07/15/08
Pyrene	ND	4.94	1.48	ug/Kg	07/15/08
Benzo(a)Anthracene	ND	4.94	1.48	ug/Kg	07/15/08
Chrysene	ND	4.94	1.48	ug/Kg	07/15/08
Benzo[b]Fluoranthene	ND	4.94	1.48	ug/Kg	07/15/08
Benzo[k]fluoranthene	ND	4.94	1.48	ug/Kg	07/15/08
Benzo[a]pyrene	ND	4.94	1.48	ug/Kg	07/15/08
Indeno[1,2,3-c,d] pyrene	ND	4.94	1.48	ug/Kg	07/15/08
Dibenzo[a,h]anthracene	ND	4.94	1.48	ug/Kg	07/15/08
Benzo[g,h,i]perylene	ND	4.94	1.48	ug/Kg	07/15/08
Naphthalene	ND	4.94	1.48	ug/Kg	07/15/08
1-Methylnaphthalene	ND	4.94	1.48	ug/Kg	07/15/08
2-Methylnaphthalene	ND	4.94	1.48	ug/Kg	07/15/08
Surrogates					
Terphenyl-d14 <surr>	90.4	30-125		%	07/15/08

Batch XMS4613
Method 8270D SIMS
Instrument HP 5890 Series II MS2 SVOA

SGS Ref.#	836871 Duplicate	**Printed Date/Time**	07/21/2008 16:25
Client Name	The Environmental Company, Inc. (TEC)	**Prep Batch**	
Project Name/#	9121 Red Hill BFSF	**Method**	
Original	1082869002	**Date**	
Matrix	Soil/Solid (dry weight)		

QC results affect the following production samples:

1082865001

Parameter	Original Result	QC Result	Units	RPD	RPD Limits	Analysis Date
Solids						
Total Solids	87.8	87.8	%	0	(< 15)	06/21/2008

Batch SPT7683
Method SM20 2540G
Instrument

SGS Ref.#	837319	Duplicate	**Printed Date/Time**	07/21/2008 16:25
Client Name	The Environmental Company, Inc. (TEC)		**Prep Batch**	
Project Name/#	9121 Red Hill BFSF		**Method**	
Original	1082834017		**Date**	
Matrix	Soil/Solid (dry weight)			

QC results affect the following production samples:

1082865002

Parameter	Original Result	QC Result	Units	RPD	RPD Limits	Analysis Date
Solids						
Total Solids	84.6	84.4	%	0	(< 15)	06/23/2008

Batch SPT7686
Method SM20 2540G
Instrument

SGS Ref.#	838156	Duplicate	**Printed Date/Time**	07/21/2008	16:25
Client Name	The Environmental Company, Inc. (TEC)		**Prep Batch**		
Project Name/#	9121 Red Hill BFSF		**Method**		
Original			**Date**		
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

1082865001

Parameter	Original Result	QC Result	Units	RPD	RPD Limits	Analysis Date
Oils Laboratory						
Ignitability Seta Flash		GT200	degrees F			06/26/2008

Batch FHV4987
Method SW1020A
Instrument Seta-Flash Flsh Pnt Tester

SGS Ref.#	838157	Duplicate	**Printed Date/Time**	07/21/2008 16:25
Client Name	The Environmental Company, Inc. (TEC)		**Prep Batch**	
Project Name/#	9121 Red Hill BFSF		**Method**	
Original			**Date**	
Matrix	Soil/Solid (dry weight)			

QC results affect the following production samples:

1082865001

Parameter	Original Result	QC Result	Units	RPD	RPD Limits	Analysis Date
Oils Laboratory						
Ignitability Seta Flash		GT200	degrees F			06/26/2008

Batch FHV4987
Method SW1020A
Instrument Seta-Flash Flsh Pnt Tester

SGS

SGS Ref.#	837471	Lab Control Sample	**Printed Date/Time**	07/21/2008	16:25
	837472	Lab Control Sample Duplicate	**Prep Batch**	VXX18296	
Client Name	The Environmental Company, Inc. (TEC)		**Method**	SW5035A	
Project Name/#	9121 Red Hill BFSF		**Date**	06/24/2008	
Matrix	Soil/Solid (dry weight)				

QC results affect the following production samples:

1082865001, 1082865002

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Fuels Department								
Benzene	LCS	1360	109	(80-125)			1250 ug/Kg	06/24/2008
	LCSD	1360	109		0	(< 20)	1250 ug/Kg	06/24/2008
Toluene	LCS	1310	105	(85-120)			1250 ug/Kg	06/24/2008
	LCSD	1320	106		1	(< 20)	1250 ug/Kg	06/24/2008
Ethylbenzene	LCS	1330	106	(85-125)			1250 ug/Kg	06/24/2008
	LCSD	1340	108		1	(< 20)	1250 ug/Kg	06/24/2008
o-Xylene	LCS	1310	105	(85-125)			1250 ug/Kg	06/24/2008
	LCSD	1320	106		1	(< 20)	1250 ug/Kg	06/24/2008
P & M -Xylene	LCS	2760	110	(85-125)			2500 ug/Kg	06/24/2008
	LCSD	2790	112		1	(< 20)	2500 ug/Kg	06/24/2008
Surrogates								
1,4-Difluorobenzene <surr>	LCS		98	(85-110)				06/24/2008
	LCSD		98		0			06/24/2008

Batch	VFC9022
Method	SW8021B
Instrument	HP 5890 Series II PID+HECD VBA

SGS Ref.#	837473	Lab Control Sample	**Printed Date/Time**	07/21/2008	16:25
	837474	Lab Control Sample Duplicate	**Prep Batch**	VXX18296	
Client Name	The Environmental Company, Inc. (TEC)		**Method**	SW5035A	
Project Name/#	9121 Red Hill BFSF		**Date**	06/24/2008	
Matrix	Soil/Solid (dry weight)				

QC results affect the following production samples:

1082865001, 1082865002

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Fuels Department								
Gasoline Range Organics	LCS	11400	102	(75-115)			11300 ug/Kg	06/24/2008
	LCSD	11000	98		4	(< 20)	11300 ug/Kg	06/24/2008
Surrogates								
4-Bromofluorobenzene <surr>	LCS		96	(50-150)				06/24/2008
	LCSD		99		3			06/24/2008

Batch VFC9022
Method SW8015C
Instrument HP 5890 Series II PID+HECD VBA

SGS Ref.#	837916	Lab Control Sample	**Printed Date/Time**	07/21/2008	16:25
			Prep Batch	XXX19550	
Client Name	The Environmental Company, Inc. (TEC)		**Method**	SW3550C	
Project Name/#	9121 Red Hill BFSF		**Date**	06/25/2008	
Matrix	Soil/Solid (dry weight)				

QC results affect the following production samples:

1082865001

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Semivolatile Organic Fuels Department								
Diesel Range Organics	LCS	133	80	(75-125)			166 mg/Kg	06/26/2008
Surrogates								
5a Androstane <surr>	LCS		90	(60-120)				06/26/2008

Batch XFC8010
Method SW8015C
Instrument HP 5890 Series II FID SV A R

SGS Ref.#	838082	Lab Control Sample	**Printed Date/Time**	07/21/2008 16:25
			Prep Batch	
Client Name	The Environmental Company, Inc. (TEC)		**Method**	
Project Name/#	9121 Red Hill BFSF		**Date**	
Matrix	Other Liquids			

QC results affect the following production samples:

1082865001

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Oils Laboratory								
Ignitability Seta Flash	LCS	79.0	101	(98.5-101.5)			78 degrees	06/26/2008

Batch FHV4987
Method SW1020A
Instrument Seta-Flash Flsh Pnt Tester

SGS Ref.#	839061	Lab Control Sample	**Printed Date/Time**	07/21/2008	16:25
			Prep Batch	XXX19571	
Client Name	The Environmental Company, Inc. (TEC)		**Method**	SW3550C	
Project Name/#	9121 Red Hill BFSF		**Date**	07/01/2008	
Matrix	Soil/Solid (dry weight)				

QC results affect the following production samples:

1082865001

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

Polynuclear Aromatics GC/MS

SGS

SGS Ref.#	839061	Lab Control Sample	**Printed Date/Time**	07/21/2008	16:25
			Prep Batch	XXX19571	
Client Name	The Environmental Company, Inc. (TEC)		**Method**	SW3550C	
Project Name/#	9121 Red Hill BFSF		**Date**	07/01/2008	
Matrix	Soil/Solid (dry weight)				

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Polynuclear Aromatics GC/MS								
Acenaphthylene	LCS	15.6	71	(45-102)			22 ug/Kg	07/15/2008
Acenaphthene	LCS	15.4	70	(45-99)			22 ug/Kg	07/15/2008
Fluorene	LCS	16.1	73	(50-107)			22 ug/Kg	07/15/2008
Phenanthrene	LCS	17.8	81	(50-110)			22 ug/Kg	07/15/2008
Anthracene	LCS	12.9	59	(28-103)			22 ug/Kg	07/15/2008
Fluoranthene	LCS	19.4	88	(55-115)			22 ug/Kg	07/15/2008
Pyrene	LCS	18.5	84	(45-120)			22 ug/Kg	07/15/2008
Benzo(a)Anthracene	LCS	17.1	77	(40-110)			22 ug/Kg	07/15/2008
Chrysene	LCS	17.3	78	(55-110)			22 ug/Kg	07/15/2008
Benzo[b]Fluoranthene	LCS	16.3	74	(45-115)			22 ug/Kg	07/15/2008
Benzo[k]fluoranthene	LCS	15.8	72	(45-120)			22 ug/Kg	07/15/2008
Benzo[a]pyrene	LCS	8.01	36	(10-102)			22 ug/Kg	07/15/2008
Indeno[1,2,3-c,d] pyrene	LCS	10.4	47	(40-120)			22 ug/Kg	07/15/2008
Dibenzo[a,h]anthracene	LCS	10.3	47	(40-125)			22 ug/Kg	07/15/2008
Benzo[g,h,i]perylene	LCS	10.5	48	(40-118)			22 ug/Kg	07/15/2008
Naphthalene	LCS	15.2	69	(40-92)			22 ug/Kg	07/15/2008
1-Methylnaphthalene	LCS	14.9	67	(30-97)			22 ug/Kg	07/15/2008
2-Methylnaphthalene	LCS	14.8	67	(45-96)			22 ug/Kg	07/15/2008
Surrogates								
Terphenyl-d14 <surr>	LCS		90	(30-125)				07/15/2008

SGS Ref.#	839061 Lab Control Sample	**Printed Date/Time**		07/21/2008	16:25
		Prep	**Batch**	XXX19571	
Client Name	The Environmental Company, Inc. (TEC)		**Method**	SW3550C	
Project Name/#	9121 Red Hill BFSF		**Date**	07/01/2008	
Matrix	Soil/Solid (dry weight)				

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

Polynuclear Aromatics GC/MS

Batch	XMS4613
Method	8270D SIMS
Instrument	HP 5890 Series II MS2 SVOA

SGS

SGS Ref.#	837477	Matrix Spike	**Printed Date/Time**		07/21/2008 16:25
	837478	Matrix Spike Duplicate	**Prep**	**Batch**	VXX18296
				Method	GRO Extraction (S)
				Date	06/24/2008

Original 1082739001
Matrix Soil/Solid (dry weight)

QC results affect the following production samples:
1082865001, 1082865002

Parameter	Qualifiers		Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount		Analysis Date
Volatile Fuels Department											
Benzene		MS	ND	1300	54*	(80-125)			2433	ug/Kg	06/24/2008
		MSD		1244	51*		4	(< 20)	2433	ug/Kg	06/24/2008
Toluene		MS	49.2 J	3969	161*	(85-120)			2433	ug/Kg	06/24/2008
		MSD		3991	162*		1	(< 20)	2433	ug/Kg	06/24/2008
Ethylbenzene		MS	296	985	27*	(85-125)			2433	ug/Kg	06/24/2008
		MSD		998	27*		1	(< 20)	2433	ug/Kg	06/24/2008
o-Xylene		MS	1270	3565	88	(85-125)			2433	ug/Kg	06/24/2008
		MSD		3655	92		2	(< 20)	2433	ug/Kg	06/24/2008
P & M -Xylene		MS	2250	4675	44*	(85-125)			4865	ug/Kg	06/24/2008
		MSD		4742	46*		1	(< 20)	4865	ug/Kg	06/24/2008
Surrogates											
1,4-Difluorobenzene <surr>		MS		2321	96	(85-110)					06/24/2008
		MSD		2321	96		0				06/24/2008

Batch VFC9022
Method SW8021B
Instrument HP 5890 Series II PID+HECD VBA

SGS Ref.#	837479	Matrix Spike	**Printed Date/Time**	07/21/2008 16:25
	837480	Matrix Spike Duplicate	**Prep Batch**	VXX18296
			Method	GRO Extraction (S)
			Date	06/24/2008

Original 1082739001
Matrix Soil/Solid (dry weight)

QC results affect the following production samples:
1082865001, 1082865002

Parameter	Qualifiers		Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount		Analysis Date
Volatile Fuels Department											
Gasoline Range Organics		MS	111000	152466	126*	(75-115)			21861	ug/Kg	06/24/2008
		MSD		155830	140*		2	(< 20)	21861	ug/Kg	06/24/2008
Surrogates											
4-Bromofluorobenzene <surr>		MS		14574	684*	(50-150)					06/24/2008
		MSD		14798	694*		2				06/24/2008

Batch VFC9022
Method SW8015C
Instrument HP 5890 Series II PID+HECD VBA

SGS

SGS Ref.#	839062	Matrix Spike	**Printed Date/Time**		07/21/2008 16:25
	839063	Matrix Spike Duplicate	**Prep**	**Batch**	XXX19571
				Method	Sonication Extraction Soil 8270
				Date	07/01/2008
Original	1082633021				
Matrix	Soil/Solid (dry weight)				

QC results affect the following production samples:

1082865001

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

Polynuclear Aromatics GC/MS

SGS

SGS Ref.#	839062	Matrix Spike	**Printed Date/Time**	07/21/2008 16:25
	839063	Matrix Spike Duplicate	**Prep Batch**	XXX19571
			Method	Sonication Extraction Soil 8270
			Date	07/01/2008
Original	1082633021			
Matrix	Soil/Solid (dry weight)			

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Polynuclear Aromatics GC/MS									
Acenaphthylene	MS	ND	16.8	74	(45-102)			22.8 ug/Kg	07/16/2008
	MSD		17.1	75		2	(< 30)	22.8 ug/Kg	07/16/2008
Acenaphthene	MS	ND	16.3	72	(45-99)			22.8 ug/Kg	07/16/2008
	MSD		16.6	73		2	(< 30)	22.8 ug/Kg	07/16/2008
Fluorene	MS	ND	17.0	75	(50-107)			22.8 ug/Kg	07/16/2008
	MSD		17.5	77		3	(< 30)	22.8 ug/Kg	07/16/2008
Phenanthrene	MS	ND	17.6	78	(50-110)			22.8 ug/Kg	07/16/2008
	MSD		18.1	80		3	(< 30)	22.8 ug/Kg	07/16/2008
Anthracene	MS	ND	18.0	79	(28-103)			22.8 ug/Kg	07/16/2008
	MSD		18.5	81		3	(< 30)	22.8 ug/Kg	07/16/2008
Fluoranthene	MS	ND	18.8	83	(55-115)			22.8 ug/Kg	07/16/2008
	MSD		19.4	85		3	(< 30)	22.8 ug/Kg	07/16/2008
Pyrene	MS	ND	18.4	81	(45-120)			22.8 ug/Kg	07/16/2008
	MSD		18.9	83		3	(< 30)	22.8 ug/Kg	07/16/2008
Benzo(a)Anthracene	MS	ND	18.5	82	(40-110)			22.8 ug/Kg	07/16/2008
	MSD		19.1	83		2	(< 30)	22.8 ug/Kg	07/16/2008
Chrysene	MS	ND	17.6	77	(55-110)			22.8 ug/Kg	07/16/2008
	MSD		18.0	79		2	(< 30)	22.8 ug/Kg	07/16/2008
Benzo[b]Fluoranthene	MS	ND	18.0	80	(45-115)			22.8 ug/Kg	07/16/2008
	MSD		18.8	83		4	(< 30)	22.8 ug/Kg	07/16/2008
Benzo[k]fluoranthene	MS	ND	17.6	77	(45-120)			22.8 ug/Kg	07/16/2008
	MSD		17.4	77		1	(< 30)	22.8 ug/Kg	07/16/2008
Benzo[a]pyrene	MS	ND	17.0	75	(10-102)			22.8 ug/Kg	07/16/2008
	MSD		17.1	75		1	(< 30)	22.8 ug/Kg	07/16/2008
Indeno[1,2,3-c,d] pyrene	MS	ND	13.0	57	(40-120)			22.8 ug/Kg	07/16/2008
	MSD		13.0	57		0	(< 30)	22.8 ug/Kg	07/16/2008
Dibenzo[a,h]anthracene	MS	ND	12.9	57	(40-125)			22.8 ug/Kg	07/16/2008
	MSD		12.9	57		0	(< 30)	22.8 ug/Kg	07/16/2008
Benzo[g,h,i]perylene	MS	ND	13.4	59	(40-118)			22.8 ug/Kg	07/16/2008
	MSD		13.6	60		1	(< 30)	22.8 ug/Kg	07/16/2008
Naphthalene	MS	ND	15.3	67	(40-92)			22.8 ug/Kg	07/16/2008
	MSD		15.2	67		1	(< 30)	22.8 ug/Kg	07/16/2008
1-Methylnaphthalene	MS	ND	15.7	69	(30-97)			22.8 ug/Kg	07/16/2008
	MSD		16.0	70		2	(< 30)	22.8 ug/Kg	07/16/2008
2-Methylnaphthalene	MS	ND	15.2	67	(45-96)			22.8 ug/Kg	07/16/2008
	MSD		15.3	67		0	(< 30)	22.8 ug/Kg	07/16/2008
Surrogates									
Terphenyl-d14 <surr>	MS		18.9	83	(30-125)				07/16/2008
	MSD		19.6	86		3			07/16/2008

SGS Ref.#	839062	Matrix Spike	**Printed Date/Time**		07/21/2008 16:25
	839063	Matrix Spike Duplicate	**Prep**	**Batch**	XXX19571
				Method	Sonication Extraction Soil 8270
				Date	07/01/2008
Original	1082633021				
Matrix	Soil/Solid (dry weight)				

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

Polynuclear Aromatics GC/MS

Batch	XMS4613
Method	8270D SIMS
Instrument	HP 5890 Series II MS2 SVOA

SGS 1082865

CHAIN OF CUSTODY RECORD
SGS Environmental Services Inc.

Locations Nationwide

Alaska	Louisiana
Maryland	West Virginia
New Jersey	North Carolina

www.us.sgs.com

CLIENT: TEC INC.

CONTACT: **Jeff Hart** PHONE NO: 808.528.1445

PROJECT: **9121** SITE/PWSID#: Red Hill BFSF

REPORTS TO: Jeff Hart email jshart@tecinc.com
cc snmacmillan@tecinc.com

INVOICE TO: TEC INC QUOTE #:
P.O. NUMBER:

SGS Reference #:

page 1 of 1

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	# CONTAINERS	Preserv. Used / SAMPLE TYPE C = COMP G = GRAB	TPH-GRO (BTEX, 8015B) MeOH	TPH-DRO (8015B)	PAH's (8270-SIM)	Flash point								REMARKS
①A-D	**RHTK17-3**	**6/17/2008**	**1105**	**Soil**	**4**	**G**	X	X	X	X								
②A	**TB01**	**6/17/2008**	**0805**	**Soil**	**1**		X											

Collected/Relinquished By: (1)	Date 6/18/2008	Time 0945	Received By:	Shipping Carrier: / Shipping Ticket No:
Relinquished By: (2)	Date	Time	Received By:	Special Deliverable Requirements:
Relinquished By: (3)	Date	Time	Received By:	Requested Turnaround Time and-or Special Instructions:
Relinquished By: (4)	Date 6/19/08	Time 1120	Received For Laboratory By:	

Samples Received Cold? YES NO
Temperature °C: TOA TB = 0.9 C = 2.3

Chain of Custody Seal: (Circle)
(INTACT) BROKEN ABSENT

- ☐ 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
- ☐ 5500 Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1557
- ☐ 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

SGS 1082865

CHAIN OF CUSTODY RECORD
SGS Environmental Services Inc.

Locations Nationwide
Alaska Louisiana
Maryland West Virginia
New Jersey North Carolina

www.us.sgs.com

CLIENT: TEC INC.

CONTACT: **Jeff Hart** PHONE NO: 808.528.1445

PROJECT: **9121** SITE/PWSID#: Red Hill BFSF

REPORTS TO: Jeff Hart email jshart@tecinc.com
cc snmacmillan@tecinc.com

INVOICE TO: TEC INC QUOTE #:
P.O. NUMBER:

SGS Reference #:

page 1 of 1

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	# CONTAINERS	Preserv. Used / SAMPLE TYPE C = COMP G = GRAB	MeOH / TPH-GRO (BTEX, 8015B)	TPH-DRO (8015B)	PAH's (8270-SIM)	Flash point								REMARKS
(1) A-D	RHTK17-3	6/17/2008	1105	Soil	4	G	X	X	X	X								
(2) A	TB01	6/17/2008	0805	Soil	1		X											

Collected/Relinquished By: (1)	Date 6/18/2008	Time 0945	Received By:	Shipping Carrier: / Shipping Ticket No: — Samples Received Cold? YES NO / Temperature °C:
Relinquished By: (2)	Date	Time	Received By:	Special Deliverable Requirements: — Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT
Relinquished By: (3)	Date	Time	Received By:	Requested Turnaround Time and-or Special Instructions:
Relinquished By: (4)	Date 6/19/08	Time 1120	Received For Laboratory By:	

- 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
- 5500 Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1557
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- 1258 Greenbrier Street **Charleston, WV 25311** Tel: (304) 346-0725 Fax: (304) 346-0761

1082865

SGS

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 (if req'd): Are they properly marked?
	✓		Are there any **problems**? PM Notified?
		✓	Were samples preserved correctly and pH verified?
		✓	If this is for PWS, provide **PWSID.**
	✓		Will courier charges apply? Method of payment?
	✓		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: 6/19/08

Received Time: 1120

Is **date/time conversion** necessary? NO

# of hours to AK Local Time: ——

Thermometer ID: ~~6000~~ 70D

Cooler ID	Temp Blank	Cooler Temp
1	0.9 °C	9.3 °C
	°C	°C
	°C	°C
	°C	°C
	°C	°C

Note: Temperature readings include thermometer correction factors

Delivery method (circle all that apply): Client / Alert Courier / UPS / (FedEx) / USPS / DHL / AA Goldstreak / NAC / ERA / PenAir / Carlile/ Lynden / SGS / Other:

Airbill # 7910 8908 7191

Additional Sample Remarks: (*√ if applicable*)

- ___ Extra Sample Volume?
- ___ Limited Sample Volume?
- ___ MeOH field preserved for volatiles?
- ___ Field-filtered for dissolved ___
- ___ Lab-filtered for dissolved ___
- ___ Ref Lab required? ___
- ___ Foreign Soil?

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

Yes	No	
	✓	Is received temperature 4 ± 2°C?
		Exceptions: Ice Temps — Samples/Analyses Affected:
	✓	If temperature(s) <0 °C, were containers ice-free? N/A *Notify PM immediately of any ice in samples.*
✓		Was there an airbill? *(Note # above in the right hand column)*
✓		Was cooler sealed with custody seals? # / where: 1, on the front
✓		Were seal(s) intact upon arrival?
✓		Was there a COC with cooler?
✓		Was COC sealed in plastic bag & taped inside lid of cooler?
✓		Was the COC filled out properly?
	✓	Did the COC indicate USACE / Navy / AFCEE project?
✓		Did the COC and samples correspond?
✓		Were all sample packed to prevent breakage? Packing material: Bubble wrap
✓		Were all samples unbroken and clearly labeled?
✓		Were all samples sealed in separate plastic bags?
✓	~~✗~~	Were all VOCs free of headspace and/or MeOH preserved?
✓		Were correct container / sample sizes submitted?
✓		Is sample condition good?
✓		Was copy of CoC, SRF, and custody seals given to PM to fax?

This section must be filled if problems are found.

Yes	No	
		Was client notified of problems?

Individual contacted:

Via: Phone / Fax / Email (*circle one*)

Date/Time:

Reason for contact:

Change Order Required?

SGS Contact:

Notes:

Completed by (sign): [signature] **(print):** Joe R.

Login proof (check one): waived ___ required ___ performed by:

Form # F004r17 revised 04/11/08

1082865

SGS

SAMPLE RECEIPT FORM (page 2) SGS WO#:

						Container Volume								Container Type								Preservative							
#	Container ID	Matrix	Test	QC	TB	1 L	500 mL	250 mL	125 mL	60 mL	40 mL	8oz (250 mL)	4oz (125 mL)	Other	AG	CG	HDPE	Nalgene	Cubie	Coli	Septa	Other	None	HCl	HNO_3	H_2SO_4	MeOH	$Na_2S_2O_3$	NaOH	Other
1	A	2	GRO/Btex										1		✓						✓							✓			
	B	2	DRO/PAH										1		✓								✓								
	C	2	Flash										1		✓								✓								
	D	2	extra Vol										1		✓								✓								
2	A	A	GRO/Btex										1		✓						✓							✓			

Bottle Totals								5	

Completed by: Jon Dell Date: 6/19/08

Form # F004r16 revised 03/10/08

SGS Environmental

CUSTODY SEAL

Signature: _____ Date/Time: 6/12/08 0945

1082865

From: Origin ID: HIKA (808)528-1445
Shawn MacMillan
TEC Inc.
1001 Bishop St. #1400
American Savings Bank Tower
Honolulu, HI 96813

FedEx Express

CLS053008/21/24

Ship Date: 18JUN08
ActWgt: 30 LB
System#: 1774997/INET8061
Account#: S *********

Delivery Address Bar Code

SHIP TO: 907.562.2343 **BILL THIRD PARTY**

SAMPLE RECEIVING
SGS Environmental Services
200 W POTTER DR

ANCHORAGE, AK 995181605

Ref # P# 9121
Invoice #
PO #
Dept #

TRK# 0201 7910 8908 7191

THU - 19JUN **AM**
PRIORITY OVERNIGHT
DSR

99518
AK-US
ANC

WU CYMA

1082865

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic valueof the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $500, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.