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Final Report for Interim Removal Activities at the Former Fire Training Area (HAA-01) Hunter Army Airfield, Savannah, Georgia

3d Inf Div (Mech)

August 2004

Submitted to:
U.S. Army Corps of Engineers
Savannah District
Contract No. DACA01-03-D-0010
Delivery Order No. CV01

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Prepared for
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ACRONYMS AND ABBREVIATIONS

%	percent
%D	percent difference
AST	aboveground storage tank
BFB	bromofluorobenzene
bgs	below ground surface
CCAL	continuing calibration
CCB	continuing calibration blank
CSR	compliance status report
D	diluted sample
DFTPP	decafluorotriphenylphosphine
ER	equipment rinseate
ESE	Environmental Science and Engineering
FB	field blank
ft	foot/feet
FTA	Fire Training Area
GFAA	graphite furnace atomic absorption
HAAF	Hunter Army Airfield
ICB	initial calibration blank
ICL	instrument calibration limits
IDW	investigative derived waste
IS	internal standard
IWQS	In-stream Water Quality Standard (Georgia)
J	estimated due to quality control criteria
LCS	laboratory control samples
MCL	maximum contaminant level
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MS	matrix spike
MSD	matrix spike duplicate
msl	mean sea level
NL	not listed
PCB	polychlorinated biphenyl
ppm	parts per million
PVC	polyvinyl chloride
QC	quality control
R	rejected
RPD	relative percent difference
RRF	relative response factor
RSD	relative standard deviation
SDG	sample delivery group
STEP	Solutions To Environmental Problems, Inc.
SVOCs	semivolatile organic compounds
TB	trip blank
U	not detected
USACE	U.S. Army Corps of Engineers
VOCs	volatile organic compounds

EXECUTIVE SUMMARY

Solutions To Environmental Problems, Inc., (STEP), under contract with the U. S. Army Corps of Engineers, Savannah District, has completed the interim removal action at the former Fire Training Area (FTA), Hunter Army Airfield (HAAF), Savannah, Georgia. HAAF is located in Chatham County, Georgia, within the southwest portion of the city of Savannah.

The former FTA is located in the northwest portion of HAAF in an area approximately 800 ft northwest of the control tower. The site, an approximately 2 acre grassy area, contained a 6,400-ft^2 concrete fire training pad and an 18,000-gallon aboveground storage tank (AST). The pad was covered with sand and gravel and surrounded with a concrete curb. The fire training pad held a simulated aircraft, constructed from a steel tank, which was used for training activities (LAW, May 2002). The AST was located approximately 112 ft due north of the fire training pad and was surrounded by an earthen berm approximately 2.5-ft high. Fuel was transferred to the fire training pad via an underground line that was approximately 142-ft long.

In March 1987, the U.S. Army Environmental Hygiene Agency conducted a preliminary contamination assessment that consisted of drilling and sampling the soil surrounding the fire training pad. Metals, polynuclear aromatic hydrocarbons, and phthalates were detected in the surrounding soil.

From 1990 to 1992, Environmental Science and Engineering (ESE) installed nine groundwater monitoring wells, sampled soil at six soil borings, and collected seven sediment samples to further define soil and groundwater contamination. The ESE investigation revealed that surface soils and drainage ditch sediment were impacted by volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs), and the groundwater was impacted by VOCs; however, the investigation did not fully define the extent of contamination in the soils. The results of ESE assessment are reported in *Final Significance of Contamination Report: Hunter Army Airfield Fire Training Area, Fort Stewart, Savannah Georgia* (ESE, June 1993).

In December of 1995, LAW installed four monitoring wells and 17 soil borings, and collected groundwater and soil samples. The analytical results of the soil samples confirmed the presence of VOCs and SVOCs, and delineated the extent of soil contamination. Although groundwater contamination was vertically delineated to approximately 35 ft below ground surface, the horizontal extent was not fully determined. Free product was also found in monitoring well HMW-7 (LAW, May 2002).

From November 1997 to March 1998, Omega Environmental Services and Geosciences, Inc. conducted soil remediation activities at the former FTA. The simulated aircraft structure, AST, underground fuel transmission line, concrete pad, and contaminated soil were removed. Results from the confirmatory soil samples, however, showed that soil contamination remained. Detailed information is presented in *Soil Remedial Action Report* (Omega, December 1998).

Following the soil remediation, Fort Stewart began free product recovery by activating a belt-skimmer at monitoring well HMW-7. Approximately 3 gallons of free product were removed between February 1999 and October 1999. In December 1999, six product delineation points were installed around HMW-7. The points were periodically measured for the presence of free product from December 1999 until March 2000; however, free product was not encountered in any of the points.

From July 1999 to January 2000, LAW conducted an additional investigation of the soil and groundwater contamination at the FTA in order to obtain data for a compliance status report (CSR). The investigative activities included installing soil borings and groundwater monitoring wells, conducting soil and groundwater sampling, and performing a human and ecological exposure assessment. Results showed that the extent of VOCs and SVOCs in the soil and the extent of VOCs in groundwater were not completely determined. In addition, polychlorinated biphenyls (PCBs) and pesticides were found in soil, SVOCs and metals were found in groundwater, and the extent of these contaminants was determined (LAW, May 2002).

Field investigations for *Revised Final Compliance Status Report, Former Fire Training Area (HSI Site Number 10395) at Hunter Army Airfield, Georgia* (LAW, May 2002) were completed in October and November 2001. These investigations included installing soil borings and groundwater monitoring wells; conducting soil, groundwater, and surface water sampling; and conducting a soil background study of metals. The revised final CSR stated that the extent of VOCs, SVOCs, pesticides, PCBs, and metals in the surface and subsurface soils was delineated, and the extent of SVOCs and metals in the groundwater was also delineated. VOCs in the groundwater to the north of the former fire training pad were not delineated. Sampling results showed that the soil and groundwater at the former FTA were not in compliance with Types 1 through 4 Risk Reduction Standards. During the ecological preliminary risk evaluation, no unacceptable risks to wildlife receptors were identified from contamination in groundwater and soil at the site.

STEP conducted interim removal activities from November 17, 2003, through December 04, 2003. Field activities conducted consisted of the following:

- removing monitoring well HMW-7 and the free product skimmer installed in HMW-7,
- excavating an area 15-ft wide by 15-ft long by 8-ft deep around well HMW-7,
- installing a new monitoring well with a pre-pack screen near the location of HMW-7,
- installing a new monitoring well downgradient of HMW-7,
- collecting soil samples from the excavation at HMW-7 for VOCs analyses,
- developing the newly installed downgradient well and collecting groundwater samples from the well for VOCs analyses, and
- sampling and disposing of the investigative derived waste that was generated.

STEP removed the free product skimmer system, and then began excavation to remove the soil and monitoring well HMW-7. Excavation activities continued to a depth of 8 ft bgs and encompassed a 15-ft x 15-ft area. Soil samples were collected from each of the walls and the bottom center of the excavation. The samples were packaged, shipped to the laboratory, and analyzed for VOCs in accordance with the Work Plan. After the soil samples were collected, a free product recovery well, designated as HMW-24, was installed in the pit excavation.

A new groundwater monitoring well, designated as HMW-23, was installed downgradient from the excavation. STEP developed monitoring well HMW-23 on December 2, 2003 and collected a groundwater sample and a QC sample duplicate from the well on December 4, 2003. The laboratory did not analyze the quality control duplicate sample in accordance with contractual requirements; therefore, the well was resampled on March 2, 2004. The groundwater samples were analyzed for target compound list VOC constituents.

The analytical data were validated and, overall, were of good quality and all measurements required to satisfy the project quality control objectives (precision, accuracy, representativeness, comparability, and completeness) were met. Analytical results reported detections of 12 VOC constituents in the soil. The analytes detected were carbon disulfide, acetone, methylene chloride, 2-butanone, benzene, toluene, tetrachloroethene, ethylbenzene, isopropylbenzene, xylene, cyclohexane, and methylcyclohexane. Laboratory analyses of the groundwater sample and sample duplicate reported benzene concentrations that were in excess of both the federal and Georgia maximum contaminant levels (MCLs) as well as the Georgia In-Stream Water Quality Standard (IWQS). The parameter vinyl chloride reported a concentration greater than the federal and Georgia MCLs, but the detected concentration did not exceed the Georgia IWQS.

1. INTRODUCTION

Solutions To Environmental Problems, Inc. (STEP), under contract with the U. S. Army Corps of Engineers (USACE), Savannah District, has completed the interim removal action at the former Fire Training Area (FTA), Hunter Army Airfield (HAAF), Savannah, Georgia. This work was accomplished in accordance with *Final Work Plan Addendum to the Revised Final Compliance Status Report Investigation for Interim Removal Activities at the Former Fire Training Area (HAA-01), Hunter Army Airfield, Savannah, Georgia* (STEP, September 2003), hereinafter referred to as the Work Plan.

2. SITE BACKGROUND

HAAF is located in Chatham County, Georgia, within the southwest portion of the city of Savannah. The installation is bounded to the north by the city of Savannah, to the east and south by residential and light commercial areas, and to the west by the Little Ogeechee River. Presently, HAAF serves as an aircraft support base for the U.S. Coast Guard and the U.S. Army military post, Fort Stewart, located 50 miles to the west.

3. SITE DESCRIPTION

This section provides a site-specific description and results of previous investigations.

3.1 FIRE TRAINING AREA SITE DESCRIPTION

The former FTA is located in the northwest portion of HAAF in an area approximately 800 ft northwest of the control tower as shown in Figure 3-1. The site, an approximately 2 acre grassy area, contained a 6,400-ft^2 concrete fire training pad and an 18,000-gallon aboveground storage tank (AST). The pad was covered with sand and gravel and surrounded with a concrete curb. The fire training pad held a simulated aircraft, constructed from a steel tank, which was used for training activities (LAW, May 2002). Fuels used in training exercises at the FTA were stored in an 18,000-gallon capacity steel AST located approximately 112 feet due north of the fire training pad. The AST was surrounded by an earthen berm approximately 2.5 ft high. Fuel was transferred to the fire training pad via a 142-ft long underground line.

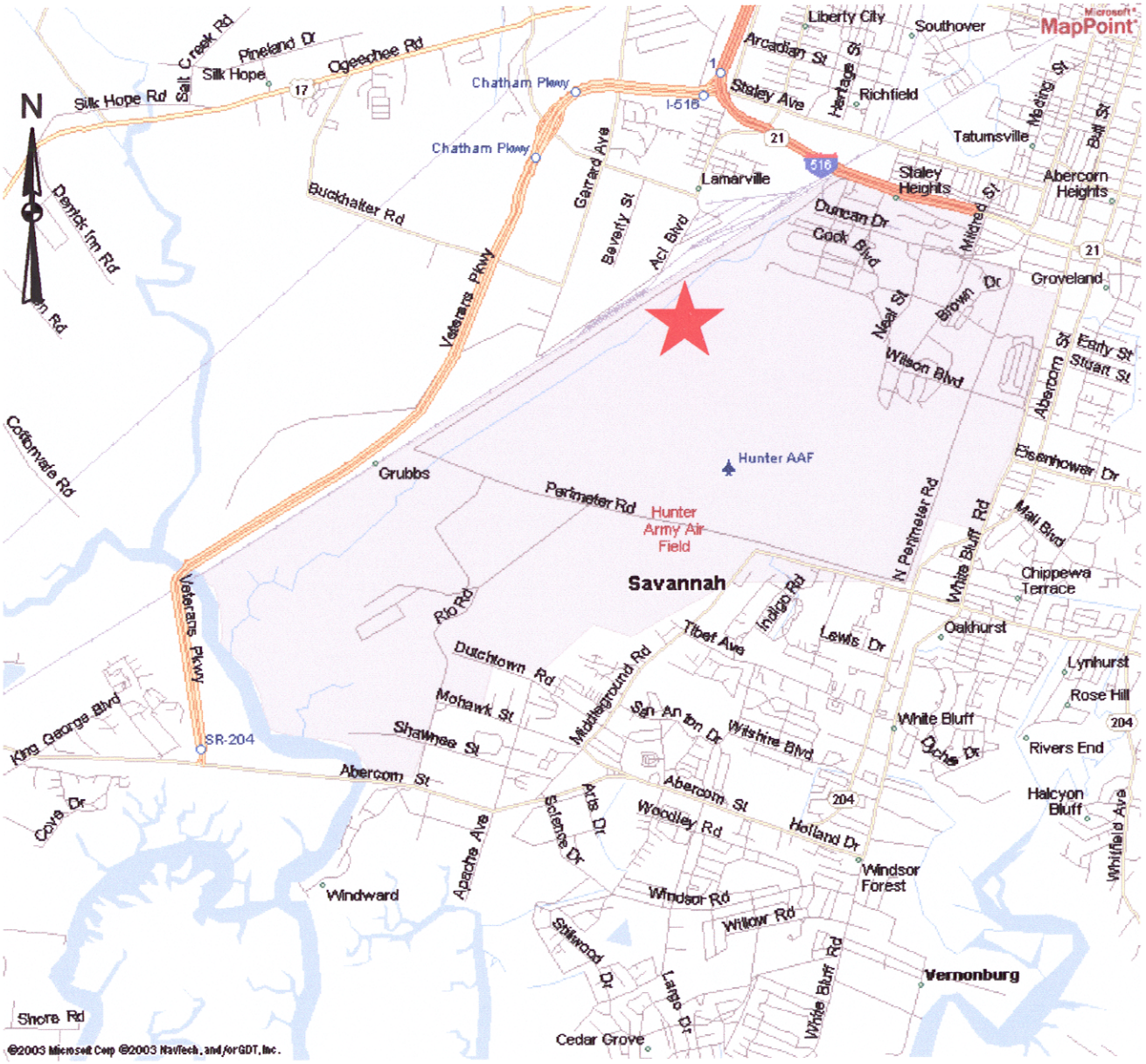

Figure 3-1 114-113-002 haaf fire.apr 08/15/03

LEGEND

★ Former Fire Training Area

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Job Title: Fire Training
Hunter Army Airfield
Savannah, Georgia

Figure 3-1 Site Location Map

The former FTA is bounded on the northwest and south by drainage ditches, on the east by the airfield pavement, and on the southwest by wooded land. Topographic relief in the vicinity of the site is approximately 21 feet. Elevations at the site range from 35 feet above mean sea level (msl) to 14 feet above msl (ESE, June 1993). The topography at the site slopes gently west toward the Springfield canal, which flows southwest before emptying into the Little Ogeechee River floodplain.

3.2 PREVIOUS INVESTIGATIONS

In March 1987, the U.S. Army Environmental Hygiene Agency conducted a preliminary contamination assessment that consisted of drilling and sampling the soil surrounding the fire training pad. Metals, polynuclear aromatic hydrocarbons, and phthalates were detected in the surrounding soil.

From 1990 to 1992, Environmental Science and Engineering (ESE) installed nine groundwater monitoring wells, sampled soil at six soil borings, and collected seven sediment samples to further define soil and groundwater contamination. The ESE investigation revealed that the surface soils and drainage ditch sediment were impacted by volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs), and the groundwater was impacted by VOCs. The investigation did not fully define the extent of contamination in the soils. The results of ESE assessment are reported in *Final Significance of Contamination Report, Hunter Army Airfield Fire Training Area, Fort Stewart, Georgia* (ESE, June 1993).

In December of 1995, LAW installed four monitoring wells and 17 soil borings, and collected groundwater and soil samples. The analytical results of the soil samples confirmed the presence of VOCs and SVOCs, and delineated the extent of soil contamination. Although groundwater contamination was vertically delineated to approximately 35 feet below ground surface (bgs), the horizontal extent was not fully determined. Additionally, free product was found in monitoring well HMW-7 (LAW, May 2002).

From November 1997 to March 1998, Omega Environmental Services and Geosciences, Inc. conducted soil remediation activities at the former FTA. The simulated aircraft structure, AST, underground fuel transmission line, concrete pad, and contaminated soil were removed. Results from the confirmatory soil samples however, showed that soil contamination remained. Detailed information is presented in *Soil Remedial Action Report* (Omega, December 1998).

Following the soil remediation, Fort Stewart began free product recovery by activating a belt-skimmer at monitoring well HMW-7, and approximately 3 gallons of free product were removed between February 1999 and October 1999. In December 1999, six product delineation points were installed around HMW-7. The points were periodically measured for the presence of free product from December 1999 until March 2000; however, free product was not encountered in any of the points.

From July 1999 to January 2000, LAW conducted an additional investigation of soil and groundwater contamination at the FTA in order to obtain data for a compliance status report (CSR). The investigative activities included installing soil borings and groundwater monitoring wells, conducting soil and groundwater sampling, and performing a human and ecological exposure assessment. Results showed that the extent of VOCs and SVOCs in the soil and the extent of VOCs in groundwater were not completely identified. In addition, polychlorinated biphenyls (PCBs) and pesticides were found in soil, and SVOCs and metals were found in groundwater, and the extent of these contaminants was determined.

Field investigations for *Revised Final Compliance Status Report, Former Fire Training Area (HSI Site Number 10395) at Hunter Army Airfield, Georgia* (LAW, May 2002) were completed in October and November 2001. These investigations included installing soil borings and groundwater monitoring wells, conducting soil, groundwater, and surface water sampling, and performing a soil background study of metals. The revised final CSR stated that the extent of VOCs, SVOCs, pesticides, PCBs, and metals in the surface and subsurface soils was delineated. The extent of SVOCs and metals in the groundwater was also delineated. VOCs in the groundwater to the north of the former fire training pad were not delineated. Results showed that the soil and groundwater at the former FTA were not in compliance with Types 1 through 4 Risk Reduction Standards. During the ecological preliminary risk evaluation, no unacceptable risks to wildlife receptors were identified from contamination in groundwater and soil at the site.

4. INTERIM REMOVAL ACTIVITIES

STEP conducted interim removal activities from November 17, 2003, through December 4, 2003. The interim removal activities conducted are described in the following list and are shown on Figure 4-1.

- Removing monitoring well HMW-7 and the free product skimmer installed in HMW-7
- Excavating a 15-ft wide by 15-ft long by 8-ft deep area around well HMW-7
- Installing a new monitoring well with pre-pack screen (HMW-24) near the site of HMW-7

North

HMW-21
HMW-14R
HMW-22
HMW-14
HMW-20
HMW-15
HMW-13
HMW-8
HMW-9
Fuel Tanks
HMW-1
HMW-2
HMW-3
HMW-4
Fuel
Fuel Tank
(New Down Gradient Well)
HMW-10
HMW-23
HMW-24
HMW-7
HMW-19
HMW-16
HMW-11
HMW-6
HMW-5
HMW-17
HMW-18
HMW-12
SD
SS
E
T

Legend:

- New Monitoring Well
- HMW-2 — Existing Monitoring Well
- HMW-7 — Abandoned Monitoring Well
- Tree Line
- SS — Sanitary Sewer
- SD — Storm Drain
- T — Telephone
- E — Electric
- Fuel Line

15' x 15' Excavation
HMW-24 (Free Product Recovery Well)
HMW-7 (Well Removed)

Detail
Not to Scale

100' 0 100'
SCALE: 1" = 100'

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Source: USACE
Job Title: Former Fire Training Area
Hunter Army Airfield
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Prepared For: USACE
Savannah District

Figure 4-1 IRA at Former Fire Training Area

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- Installing a new monitoring well (HMW-23) downgradient of HMW-7
- Collecting soil samples from the excavation at HMW-7
- Developing the newly installed downgradient well and collecting groundwater samples from the well
- Sampling and disposing investigative derived waste (IDW)

All activities were conducted in accordance with the approved Work Plan.

4.1 REMOVAL OF THE FREE PRODUCT BELT SKIMMER

Before dismantling the belt skimmer system, the free product recovery system was switched on and the system was confirmed to be operable. The belt skimmer system operated when activated. Once the utilities clearance was obtained with an underground electrical line marked on the ground, the electrical power was disconnected at its source, the power at the skimmer system was confirmed to be off, and the belt skimmer and its associated equipment components were manually removed from monitoring well HMW-7. The free product belt skimmer system, consisting of an electrical control panel, a down-hole skimmer belt with weight, two 55-gallon drums with secondary containment, and associated piping/tubing, was taken to the Directorate of Public Works office for storage.

4.2 MONITORING WELL REMOVAL, SOIL REMOVAL, AND INSTALLATION OF THE EXCAVATION PIT RECOVERY WELL

After the belt skimmer system was removed, excavation to remove the soil and monitoring well HMW-7 began. STEP personnel used a backhoe to conduct the soil excavation and well removal. Excavation around monitoring well HMW-7 began by removing the surface soil to a depth of 2 ft. Field screening of the excavated material was conducted using a photoionization detector to field screen the soil as it was removed. The field screening was used in conjunction with visual and olfactory indicators to identify petroleum contamination. Excavated material within 2 ft of ground surface did not exhibit indications of any petroleum contamination; therefore, this material was piled next to the excavation and used in backfill and site restoration.

Excavation activities continued to a depth of 8 ft bgs and encompassed a 15-ft by 15-ft area. Figure 4-1 shows the location of the excavation. Excavated material from 2 ft to 8 ft bgs was placed inside roll-off containers that were lined with plastic sheeting pending characterization to determine disposal

requirements. The demolished monitoring well, including the gravel pad, protective casing, and bollards were considered petroleum-contaminated non-hazardous construction debris and were placed in roll-off containers. The four temporary piezometers that were around the recovery well (HMW-7) were removed and placed with the debris from monitoring well HMW-7. The debris and excavated soil were disposed at the Savannah Regional Landfill.

Once the excavation had reached the dimensions required in the Work Plan, soil samples were collected from each of the walls and the bottom center of the excavation. The samples were collected using EnCore™ samplers from the bucket of the backhoe. The samples were labeled, placed on ice, and packaged for shipment to the laboratory for VOCs analysis. Table 4-1 lists the samples collected from the excavation.

Table 4-1 Soil Sample Locations

Sample Number	Date	Time	Location	Depth (ft bgs)	Field Screening (ppm)
FTA-01	11/18/03	1022	Bottom Middle	8	15
FTA-02	11/18/03	1027	Middle North Wall	4	0
FTA-02D	11/18/03	1027	Middle North Wall	4	0
FTA-03	11/18/03	1034	Middle West Wall	5	0
FTA-04	11/18/03	1040	Middle South Wall	5	10
FTA-05	11/18/03	1045	Middle East Wall	4	10
FTA-05MSD	11/18/03	1045	Middle East Wall	4	10

Note: Sample FTA-02D was a QC sample duplicate of sample FTA-02.
bgs = below ground surface
ft = foot/feet
ppm = parts per million

A free product recovery well, designated as HMW-24, was installed in the pit excavation at the location shown on Figure 4-1. The recovery well was constructed of a 4-inch diameter, polyvinyl chloride (PVC) 5-ft pre-packed well screen, with a bottom end-cap and 4-inch diameter PVC riser. The well was assembled and then placed upright inside the excavation. Following well placement, the bucket of the backhoe was used to backfill the excavation with gravel around the recovery well to 1.5 ft above the top of the well screen. The remaining 1.5-ft deep pit was then backfilled with stockpiled soil. The recovery well was completed with a protective surface casing with locking cap, concrete pad, and bollards around the pad to provide protection to the well. The area around the recovery well was restored to match the surrounding terrain, seeded with grasses, and mulched.

4.3 INSTALLATION OF DOWNGRADIENT MONITORING WELL

A monitoring well, designated as HMW-23, was installed downgradient from the excavation within 25 feet of the excavation's edge at the location shown on Figure 4-1. Conventional drilling techniques using hollow-stem augers were used to drill to a total depth of 15 ft and the monitoring well was installed. The well was constructed of 2-inch diameter, 10-ft long, factory-slotted PVC well screen and 2-inch diameter PVC riser. Placement of the monitoring well and well construction materials was accomplished by installing the well through the hollow stem augers with sand and bentonite tremied into the borehole around the well. A soil boring log and well completion diagram are included in Appendix I. The well was completed with a protective surface casing with locking cap, concrete pad, and bollards around the pad to provide protection to the well. The area around the well was restored to match the surrounding terrain, seeded with grasses, and mulched.

4.4 SOIL AND GROUNDWATER SAMPLING

4.4.1 Fire Training Area Soil Sampling

As discussed previously, STEP collected confirmatory soil samples from the excavation at the FTA. The samples were collected using EnCore™ samplers (Method 5035) and analyzed for VOCs (Method 8260B). Five soil samples along with a quality control (QC) sample duplicate were collected from the excavated area at the FTA. The samples were collected, labeled, packaged, and shipped to the laboratory in accordance with the Work Plan.

4.4.2 Fire Training Area Groundwater Sampling

STEP developed monitoring well HMW-23 on December 2, 2003. Development activities consisted of surging and pumping with a pneumatic development pump, which continued until the pH, conductivity, temperature, and turbidly had stabilized. A groundwater sample and a QC sample duplicate were collected from monitoring well HMW-23 on December 4, 2003. Before the groundwater samples were collected, the monitoring well was purged of three well volumes and allowed to recharge to ensure fresh groundwater had entered the well. A grab sample was collected using a disposable bailer lowered into the well. The samples were placed in laboratory preserved containers, labeled, packaged, and shipped to the laboratory for analysis of VOCs (Method 8260B) in accordance with the approved Work Plan. The

laboratory analyzed the primary sample in accordance with standard practices and contractual requirements. The quality control duplicate sample, however, was not analyzed in accordance with contractual requirements. The laboratory's initial analysis was diluted, based on the primary sample results rather than basing dilution on initial analysis of the duplicate. After discussions with the Savannah USACE, it was decided to resample the well. Groundwater monitoring well HMW-23 was resampled on March 2, 2004. This sampling was conducted in the same manner as described for the December 4, 2003 sampling. The laboratory analytical data for both sampling events were validated and are included in Appendix III; however, the data from the December 2003 groundwater sampling were not included in the results discussed in Section 6 and Section 7 of this report.

4.5 DISPOSAL OF INVESTIGATIVE DERIVED WASTE

All IDW was disposed of properly and in accordance with state and federal regulations. The soil IDW was stored in three, plastic-lined roll-off containers at the site. The containers were flagged with construction flagging, and each container was properly labeled. A composite sample was taken from each container and analyzed for hazardous waste constituents. It was determined the soil was not hazardous; therefore, the containers were manifested by HAAF personnel, transported to the Savannah Regional Landfill, and disposed. The liquid and water IDW was stored in a drum and properly labeled. The liquid was determined to be acceptable for disposal as non-hazardous. It was then manifested by HAAF personnel, transported by Moran Environmental, and disposed at the WRI facility in Jacksonville, Florida.

5. DATA VALIDATION

5.1 INTRODUCTION

The data validation of four water and six soil samples from the FTA at HAAF, Savannah, Georgia, was completed in March, 2004. Level III data validation was performed on 100 percent of the environmental samples collected during the remedial investigation activities. Compu Chem of Cary, North Carolina, produced all the analytical data. Samples were analyzed for VOCs using method SW-846 8260B.

The number of samples and sample delivery groups (SDGs) varied according to media as follows:

Analyte Group	Number of Samples	Number of SDGs
Volatile Organics-water	4	2
Volatile Organics-soils	6	1

The validated analytical Form 1s for the soil samples are in Appendix II and the Form 1s for the groundwater samples are in Appendix III.

5.2 PROCEDURES

The sample data were validated following the logic identified in *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (EPA, October 1999).

The data validation qualifiers applied by the reviewer were recorded in a column adjacent and to the right of the laboratory results. A data validation reason code was also added to each of the reviewer's qualifiers to provide the user with a means to identify which results were qualified and the reason for the qualifiers. Data qualifiers and data validation reason codes are defined in Section 5.5.

5.3 SUMMARY OF DATA VALIDATION FINDINGS

This data validation report reflects the data validation findings for samples associated with the former FTA at HAAF. Overall the data was of good quality and all measurements required to satisfy the project QC objectives (precision, accuracy, representativeness, comparability, and completeness) were met. Each of these measures and specific data qualifications are discussed below.

Precision: Precision is a measure of the agreement between duplicate sample measurements of the same quantity and is reflected in the relative percent difference (RPD) between spikes and the RPD for the field duplicate analysis. The overall project QC objective for precision is 90 percent or greater, and the measurement for the FTA is 91.8 percent (see the field duplicate discussion in Section 5.4.1).

Accuracy: Accuracy is measured by the results from the recovery of known amounts of compounds or elements from laboratory control samples (LCS), matrix spikes (MS), and surrogate recoveries. The overall measure of accuracy for the site was calculated by comparing the number of spike recoveries that exceeded the laboratory limits by the total number of LCSs, MSs, and surrogate spikes. Accuracy was measured at 93.7 percent.

Representativeness: The measures of representativeness – sample handling, analytical blank analysis, field blanks – were met for all sites. Designated analytical protocols were followed. Holding times were met. Overall, no major problems were identified resulting from analytical failure.

Comparability: All data were analyzed using appropriate approved methods of analysis. All data results were reported correctly and in standard units

Completeness: Completeness is the amount of valid data compared to the planned amount and is expressed as a percent of the usable data points divided by the total number of analytes for each parameter analyzed. Out of a total of 500 data points, five were rejected, resulting in a completeness of 99.0 percent.

Several sample results for the organic compounds were assigned "J" qualifiers by the laboratory, which is standard practice for these methods, because they were quantitated between the method detection limit and the reporting limit. Due to the uncertainty associated with this region of quantitation, the "J" qualifiers assigned by the laboratory were retained by the validation reviewer to indicate an estimated quantity.

Data validation summaries, which function as worksheets for the validation task, are included for each parameter in each data package. The following section highlights the key findings of the data validation for each analysis.

5.4 ANALYSIS-SPECIFIC DATA VALIDATION SUMMARIES

5.4.1 Volatile Organics by SW-846 8260B

Overall, the data are of good quality and are usable as reported by the laboratory with the exceptions noted below. The data were qualified as follows:

Holding Times/Sample Condition. The cooler temperatures at which the samples were received were recorded at 3^{o} C, which is within the QC criteria of 4^{o} +/- 2^{o} C. No qualifiers were required.

Initial Calibration and Continuing Calibration. All initial and continuing calibrations (CCAL) associated with the project samples met QC criteria, with the following exceptions:

- Low relative response factors (<0.05) resulted in "R" qualifiers for nondetects and "J" for detects.

SDG	Samples Affected	Analyte / Analytes	Validation Qualifier
1720	All samples	acetone, 2-butanone	R
2375	04062G01	acetone	R
2375	04062G01,04062G02	2-butanone	J

- The following had CCAL percent differences (%D) that exceeded the QC limit and were qualified as "UJ."

SDG	Samples Affected	Analyte / Analytes	Validation Qualifier
1559	FTA-02RE, FTA-02DRE, FTA-04RE FTA-05RE	dichlorodifluoromethane	UJ
1559	FTA-01, FTA-03	chloroethane, acetone, 2-butanone, tetrachloroethene	UJ/J
1720	03338U01, 03338U01D	dichlorodifluoromethane	UJ

Blanks. Carbon disulfide, acetone, and toluene were found in the trip blank and/or equipment rinseate associated with SDG 2375. Carbon disulfide was qualified as "U" in both samples, acetone as "U" in 04062G02, and toluene as "U" in 04062G01.

Surrogate Recoveries. In SDG 1559 high surrogate recoveries for samples FTA-02RE and FTA-03 resulted in a "J" qualifier for all detects. In SDG 2375 a low recovery for the 1,2-dichloroethane-d4 surrogate for sample 04062G02 resulted in a "J" qualifier for all detects and "UJ" for all nondetects.

Matrix Spike/Matrix Spike Duplicate. The results for MS/matrix spike duplicate (MSD) performed for SDG 1720 were within the QC limits. The MS/MSD for SDG 1559 was analyzed outside the holding time, and the laboratory noted an instrument failure during the analysis. No results were reported for MS/MSD.

Laboratory Control Sample. LCS analyses were performed, and all QC criteria were met.

Field Duplicates. For the water samples in SDG 1720, the field duplicate was analyzed at a 25x dilution. Apparently, this occurred because the original sample had a result for benzene that exceeded the instrument calibration limit, and a dilution was done to quantify the result. Instead of analyzing the duplicate at a 1x dilution, the lab believed that a 25x analysis was appropriate due to the high levels of benzene. The reviewer compared the results of the two dilutions in order to calculate the RPD between

the sample results and thus qualify the compounds based on RPDs that exceeded the QC limits. The reviewer believes that if the lab had run the duplicate at a 1x dilution, since only benzene required a dilution, more RPDs would have been within the QC limits. The RPD results from SDG1720 were not used to calculate the level of precision.

In SDG 2375 all compounds except carbon disulfide met the RPD levels established for the project. No qualifiers were added to the carbon disulfide results since the compound was present in the associated equipment rinseate blank and was qualified as "U" on that basis.

SDG	Samples Affected	Analyte/Analytes	Validation Qualifier
1559	FTA-02 and FTA-02DRE	acetone, benzene, ethylbenzene, isopropyl benzene, xylene. cyclohexane, toluene, methylcyclohexane	J
1720	03339U01D	o-xylene, methylcyclohexane, chlorobenzene, ethylbenzene, m,p-xylene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichlorobenzene, 1,2,4-trichlorobenzene, total xylene trichloroethene, 1,1-dichloroethene, 1,1,2-trichloro-1,2,2trifluoromethane, chloroform, carbon tetrachloride, carbon disulfide, styrene, and cis-1,2-dichloroethene	J

Internal Standards. Low internal standard (IS) area count recoveries for samples in SDG 1559 resulted in "UJ/J" for the following:

SDG	Samples Affected	Analyte/Analytes	Internal Standard	Validation Qualifier
1559	FTA-01	All compounds	All three ISs	UJ/J
1559	FTA-02RE	All compounds	IS 3	UJ/J
1559	FTA-03	All compounds	All 3 ISs	UJ/J

Quantitation. A number of compounds (total xylene, cyclohexane, and methylcyclohexane) in sample FTA-02RE, SDG 1559, exceeded the instrument calibration limits (ICLs). No dilution was analyzed, so the original results were accepted and qualified as "J." In SDG 1720, benzene in sample 03338U01 exceeded ICL and required a dilution. The dilution result was accepted. In SDG 2375 benzene, ethylbenzene, isopropylbenzene, and cyclohexane exceeded ICLs in both samples and required dilutions. The dilution results were accepted for both samples.

The results that were quantified between the method detection limit and the required detection limit were designated as "J," or estimated, by the laboratory. This qualifier was carried over by the reviewer.

5.5 DATA QUALIFIER DEFINITIONS

Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit or the reported analyte value was not detected above 5x or 10x the level reported in laboratory or field blanks.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Table 5-1 Data Validation Reason Codes

Reason Code	Definition
01	Sample received outside of 4+/-2 degrees Celsius
01A	Improper sample preservation
02	Holding time exceeded
02A	Extraction
02B	Analysis
03	Instrument performance – outside criteria
03A	BFB
03B	DFTPP
03C	DDT and/or Endrin % breakdown exceeds criteria
03D	Retention time windows
03E	Resolution
04	Initial calibration results outside specified criteria
04A	Compound mean RRF QC criteria not met
04B	Individual % RSD criteria not met
04C	Correlation coefficient >0.995
05	Continuing calibration results outside specified criteria
05A	Compound mean RRF QC criteria not met
05B	Compound %D QC criteria not met
06	Result qualified as a result of the 5x/10x blank correction
06A	Method or preparation blank
06B	ICB or CCB
06C	ER
06D	TB
06E	FB
07	Surrogate recoveries outside control limits
07A	Sample
07B	Associated method blank or LCS
08	MS/MSD/Duplicate results outside criteria
08A	MS and/or MSD recovery not within control limits (accuracy)

Table 5-1 Data Validation Reason Codes (continued)

Reason Code	Definition
08B	% RPD outside acceptance criteria (precision)
09	Post digestion spike outside criteria (GFAA)
10	Internal standards outside specified control limits
10A	Recovery
10B	Retention time
11	Laboratory control sample recoveries outside specified limits
11A	Recovery
11B	% RPD (if run in duplicate)
12	Interference check standard
13	Serial dilution
14	Tentatively identified compounds
15	Quantitation
16	Multiple results available; alternate analysis preferred
17	Field duplicate RPD criteria is exceeded
18	Percent difference between original and second column exceeds QC criteria
19	Professional judgment was used to qualify the data
20	Pesticide clean-up checks
21	Target compound identification
22	Radiological calibration
23	Radiological quantitation
24	Reported result and/or lab qualifier revised to reflect validation findings

% = percent
%D = percent difference
BFB = bromofluorobenzene
CCB = continuing calibration blank
DFTPP = decafluorotriphenylphosphine
ER = equipment rinseate
FB = field blank
GFAA = graphite furnace atomic absorption
ICB = initial calibration blank
LCS = laboratory control sample
MS = matrix spike
MSD = matrix spike duplicate
QC = quality control
RPD = relative percent difference
RRF = relative response factor
RSD = relative standard deviation
TB = trip blank

6. ANALYTICAL RESULTS OF SAMPLING

6.1 SOIL SAMPLING RESULTS

The analytical results for the soil samples collected from the excavation at FTA are shown in Table 6-1; validated analytical laboratory data sheets (Form 1s) and chain-of-custody forms are provided in Appendix II.

Table 6-1 Soil Analytical Detected Results

Analyte	Sample Number					
	FTA-01	FTA-02	FTA-02D	FTA-03	FTA-04	FTA-05
2-butanone	U	U	0.005J	U	0.005J	0.006J
Acetone	U	0.136J	0.033J	0.042J	0.03	0.039
Benzene	0.014J	0.036J	0.002J	0.031J	0.0007J	U
Carbon disulfide	U	U	U	0.014J	0.003J	0.003J
Cyclohexane	U	0.76J	0.01J	0.067J	0.005J	U
Ethylbenzene	0.004J	0.33J	0.011J	0.11J	0.005J	U
Isopropylbenzene	U	0.260J	0.006J	0.026J	0.006	U
Methylcyclohexane	U	1.590J	0.027J	0.093J	0.007	U
Methylene chloride	U	0.003J	0.001J	U	0.002J	0.002J
Tetrachloroethene	0.002J	U	U	0.001J	U	U
Toluene	U	0.003J	0.0009J	U	0.0007J	0.0008J
Xylene	0.032J	1.36J	0.068J	0.650J	0.035	U

Note: Sample FTA-02D is a QC sample duplicate of sample FTA-02.
Units are milligrams per kilogram (mg/kg).
J = estimated due to quality control criteria
U = not detected

6.2 GROUNDWATER ANALYTICAL RESULTS

As discussed previously, the groundwater samples obtained in December 2003, although validated and presented in Appendix III, were not used. The analytical results for the samples obtained on March 2, 2004, are shown in Table 6-2. Validated analytical laboratory sheets (Form 1s) and chain-of-custody forms are provided in Appendix III.

Table 6-2 Groundwater Analytical Results

Analyte	Sample Number		Federal & Georgia Drinking Water MCL (mg/L)	Georgia IWQS (mg/L)
	04062G01 (mg/L)	04062G02 (mg/L)		
1,2-Dichlorobenzene	0.00075	0.00077J	0.6	17.0
1,2-Dichloropropane	0.0012	0.0012J	0.005	0.039
1,4-Dichlorobenzene	0.00013J	0.00012J	0.075	2.6
2-butanone	0.0018J	0.0012J	NL	NL
Benzene	**0.96D**	**1.3D**	0.005	0.071
Chlorobenzene	0.00042J	0.0004J	0.1	21.0
cis-1,2-Dichloroethene	0.00016J	0.00016J	0.07	NL
Cyclohexane	0.026DJ	0.031D	NL	NL
Ethylbenzene	0.026DJ	0.032D	0.7	29.0
Isopropylbenzene	0.036D	0.039D	NL	NL
Methylcyclohexane	0.0067	0.0066J	NL	NL
Toluene	U	0.0008J	1.0	200.0
Trichloroethene	U	U	0.005	0.081
Vinyl chloride	**0.002**	**0.0021**	0.002	0.525

Note: Sample 04062G02 is a QC sample duplicate of sample 04062G01.
Bold value is greater than the federal and Georgia MCL.
Shaded value is greater than the Georgia IWQS.
D = diluted sample
IWQS = in-stream water quality standard
J = estimated value due to quality control criteria
MCL = maximum contaminant level
mg/L = milligrams per liter
NL = not listed
U = not detected

As the table indicates, benzene reported concentrations that were in excess of both the federal and Georgia MCL and the Georgia In-Stream Water Quality Standard (IWQS). The parameter vinyl chloride reported a concentration equal to or greater than the federal and Georgia MCL, but the reported concentration did not exceed the Georgia IWQS. The parameters 2-butanone, isopropyl benzene, cyclohexane, and methylcyclohexane did not have an MCL or Georgia IWQS for comparison.

7. CONCLUSIONS

As stated previously, once the excavation reached the limits required in the Work Plan, a soil sample was collected from each of the walls and the bottom-center along with a duplicate sample of the middle north wall. The samples were collected using EnCore™ samplers from the bucket of the backhoe. The samples were analyzed for TCL VOCs, and analytical results revealed detections of 12 VOC constituents

in the soil. The analytes detected were carbon disulfide, acetone, methylene chloride, 2-butanone, benzene, toluene, tetrachloroethene, ethylbenzene, isopropylbenzene, xylene, cyclohexane, and methylcyclohexane.

A groundwater sample was obtained from the new groundwater monitoring well (HMW-23) and analyzed for TCL VOC constituents. Laboratory analyses of the sample and sample duplicate reported benzene concentrations that were in excess of both the federal and Georgia MCL and the Georgia IWQS. The parameter vinyl chloride reported a concentration greater than the federal and Georgia MCL, but the reported concentration did not exceed the Georgia IWQS.

8. REFERENCES

LAW, May 2002. *Revised Final Compliance Status Report, Former Fire Training Area (HSI Site Number 10395) at Hunter Army Airfield, Georgia*.

ESE (Environmental Science and Engineering), June 1993. Final Significance of Contamination Report: Hunter Army Airfield Fire Training Area, Fort Stewart, Savannah, Georgia.

ESE, Inc., May 1994. *Closure Plan for Hunter Army Airfield Fire Training Area*.

EPA (U.S. Environmental Protection Agency), October 1999. *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review.*

Omega (Omega Environmental Services and Geosciences, Inc.), December 1998. *Soil Remedial Action Report*.

STEP (Solutions To Environmental Problems, Inc.), September 2003. *Final Work Plan Addendum to the Revised Final Compliance Status Report Investigation for Interim Removal Activities at the Former Fire Training Area (HAA-01), Hunter Army Airfield, Savannah, Georgia*.

APPENDIX I

Soil Boring Log and Well Installation Diagram

BORING LOG

BORING/WELL NO.:	INSTALLATION: Ft. STEWART	SITE: HARF
PROJECT NO.:	CLIENT/PROJECT: USACE	
CONTRACTOR: STEP INC	DRILLING CONTRACTOR:	
DRILLER:	BOREHOLE DIAMETER(S): 6 1/4"	
START - DATE: 11/18/03 TIME: 07:42	END - DATE: 11/18/03 TIME: 08:15	
DRILLING METHOD/RIG TYPE:	COORDINATES: N E	
LOGGED BY: BURKE ARTHUR	E-LOG (Y / N) FROM TO	PROTECTION LEVEL: D

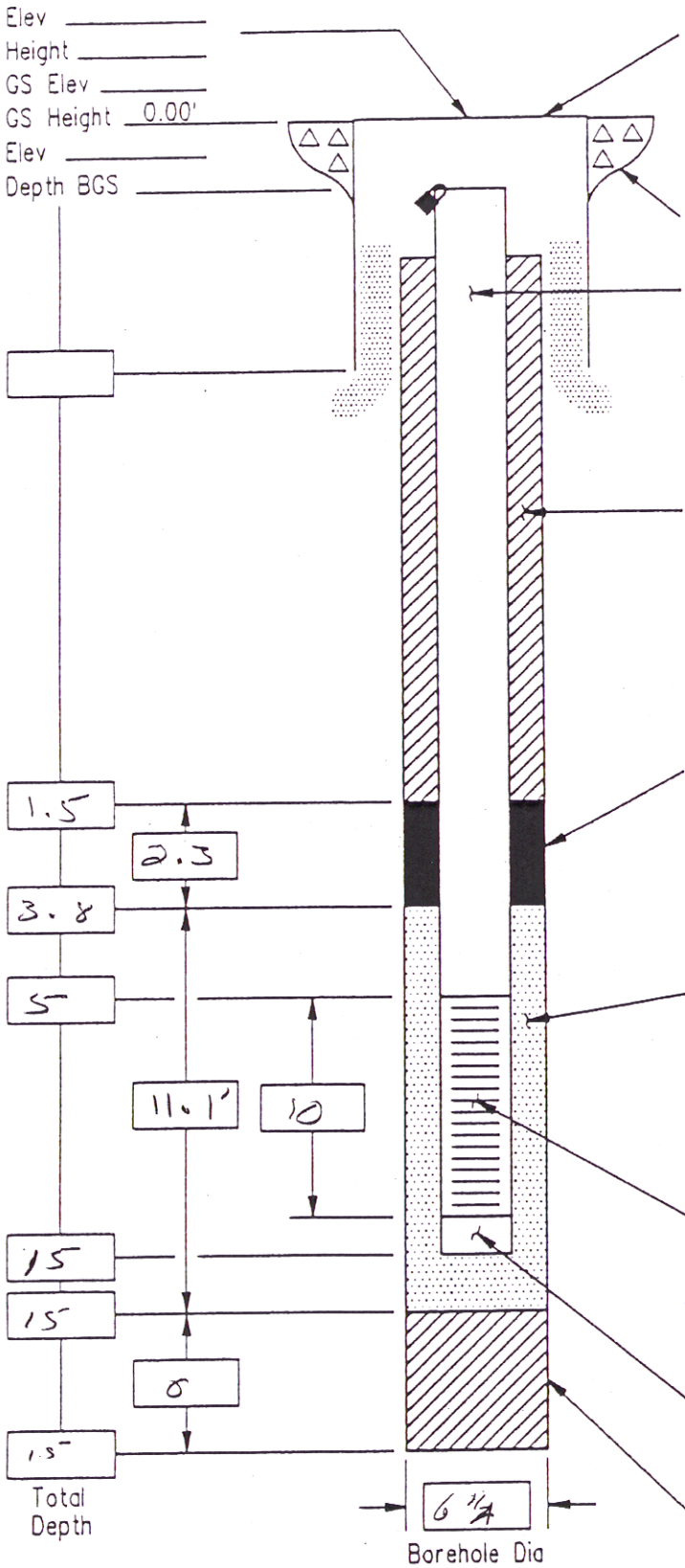
Depth (ft)	Sample	Sample No.	Off-site Lab (Y/N)	On-Site Lab (Y/N)	OVA Reading (ppm)	Headspace (ppm)	Recovery (ft/ft)	Lithologic Description	USCS	Blows/6 inch	Stratigraphic Log	Well Construction Data	Water Depth & Remarks	GS Elev. (ft)
5						0 PPM		DARK (BLACK) SAND MATERIAL	SA				Bentonite Seal 1.5' - 3.5'	
						0 PPM		Light TAN SAND H_2O AT 7'	SA				H_2O	
10						0 PPM		GRAY (GREENISH) SAND wet	SA					
15														

A B C D E F G H I J K L M N O

U = Thin Wall Tube
S = Split Spoon (tube)
C = Cuttings
R = Rock Coring _____
O = Other _____
OVA Instrument (Make/Model): _____
On-Site G/C (Make/Model): _____
G/C Operator: _____
Notes: _____

MONITORING WELL CONSTRUCTION LOG - Standard Flush Mount

WELL NO.:	INSTALLATION: Ft. STEWART	SITE: HAAP
PROJECT NO.:	CLIENT/PROJECT: USACE	
CONTRACTOR: STEP Inc	DRILLING CONTRACTOR: A & E	
START - DATE: 11/18/04 TIME: 08:15	END - DATE: 11/18/04 TIME: 09:45	
BUILT BY:	WELL COORDINATES: N	E



PROTECTIVE CSG
Material / Type
Diameter
Watertight O-Ring ☐ Yes ☐ No
Breathes with Vadose Zone ☐ Yes ☐ No

SURFACE PAD
Composition & Size 2'x2'x 4"

RISER PIPE
Type sch 40 pvc
Diameter 2"
Total Length (TOC to TOS)
Ventilated Cap ☐ Yes ☐ No
O-Rings For Threads ☐ Yes ☐ No

GROUT
Composition & Amount
Tremied ☐ Yes ☐ No
Interval BGS
CENTRALIZERS ☐ Yes ☐ No
Depth(s)

SEAL
Type Bentonite
Source Wyoming
Setup/Hydration Time 30 min
Volume Fluid Added 5 gal
Tremied ☐ Yes ☐ No

FILTER PACK
Type QUARTZ SAND
Amount Used 6 BAGS
Tremied ☒ Yes ☐ No
Source FLORIDA
Gr Size Dist 20/40

SCREEN
Type sch 40 PVC
Diameter 2"
Slot Size 0.10
Interval BGS 5-15'

SUMP
Interval BGS
Type of Bottom Cap

BACKFILL PLUG
Material
Setup/Hydration Time
Tremied ☐ Yes ☐ No

APPENDIX II

Soil Samples

Analytical Form 1s
and
Chain-of-Custody

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FTA-01

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155901

Sample wt/vol: 4.91(g/mL) G Lab File ID: 155901B52

Level: (low/med) LOW Date Received: 11/19/03

% Moisture: not dec. 14.5 Date Analyzed: 11/25/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual
75-71-8	Dichlorodifluoromethane	5	U	UJ 10a
74-87-3	Chloromethane	5	U	
75-01-4	Vinyl Chloride	5	U	
74-83-9	Bromomethane	5	U	
75-00-3	Chloroethane	5	U	UJ 5b,10a
75-69-4	Trichlorofluoromethane	5	U	UJ 10a
75-35-4	1,1-Dichloroethene	5	U	
75-15-0	Carbon disulfide	5	U	
76-13-1	1,1,2-trichloro-1,2,2-triflu	5	U	
67-64-1	Acetone	13	U	UJ 5b,10a
75-09-2	Methylene Chloride	5	U	UJ 10a
156-60-5	trans-1,2-Dichloroethene	5	U	
1634-04-4	Methyl-tert-butyl ether	5	U	
75-34-3	1,1-Dichloroethane	5	U	
156-59-2	cis-1,2-Dichloroethene	5	U	
78-93-3	2-butanone	13	U	UJ 5b,10a
67-66-3	Chloroform	5	U	UJ 10a
71-55-6	1,1,1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	
71-43-2	Benzene	14 ~~22~~		J 10a
107-06-2	1,2-Dichloroethane	5	U	UJ 10a
79-01-6	Trichloroethene	5	U	
78-87-5	1,2-Dichloropropane	5	U	
75-27-4	Bromodichloromethane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
108-10-1	4-Methyl-2-pentanone	13	U	
108-88-3	Toluene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
127-18-4	Tetrachloroethene	2 ~~2~~	J	J 5b,10a
591-78-6	2-hexanone	13	U	UJ 10a
124-48-1	Dibromochloromethane	5	U	
106-93-4	1,2-Dibromoethane	5	U	

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FTA-01

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155901

Sample wt/vol: 4.91(g/mL) G Lab File ID: 155901B52

Level: (low/med) LOW Date Received: 11/19/03

% Moisture: not dec. 14.5 Date Analyzed: 11/25/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual
108-90-7	Chlorobenzene	5	U	UJ 10a
100-41-4	Ethylbenzene	4 8	J	J
100-42-5	Styrene	5	U	UJ
75-25-2	Bromoform	5	U	
98-82-8	Isopropyl Benzene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
541-73-1	1,3-Dichlorobenzene	5	U	
106-46-7	1,4-Dichlorobenzene	5	U	
95-50-1	1,2-Dichlorobenzene	5	U	
96-12-8	1,2-Dibromo-3-Chloropropane	5	U	
120-82-1	1,2,4-Trichlorobenzene	5	U	
1330-20-7	Xylene (total)	32 ~~27~~	J	J
79-20-9	Methyl acetate	5	U	UJ
110-82-7	Cyclohexane	5	U	
108-87-2	Methylcyclohexane	5	U	

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FTA-01RE

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155901

Sample wt/vol: 5.20(g/mL) G Lab File ID: 155901RA52

Level: (low/med) LOW Date Received: 11/19/03

% Moisture: not dec. 14.5 Date Analyzed: 11/28/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
75-15-0	Carbon disulfide	5	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5	U
67-64-1	Acetone	12	U
75-09-2	Methylene Chloride	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl-tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
78-93-3	2-butanone	12	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	12	
107-06-2	1,2-Dichloroethane	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	12	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-hexanone	12	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U

Rev Qual R 14

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FTA-01RE

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155901

Sample wt/vol: 5.20(g/mL) G Lab File ID: 155901RA52

Level: (low/med) LOW Date Received: 11/19/03

% Moisture: not dec. 14.5 Date Analyzed: 11/28/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	2	J
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropyl Benzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-Chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
1330-20-7	Xylene (total)	23	
79-20-9	Methyl acetate	5	U
110-82-7	Cyclohexane	5	U
108-87-2	Methylcyclohexane	5	U

Rev Qual
R 16

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FTA-02

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155902

Sample wt/vol: 4.46(g/mL) G Lab File ID: 155902B52

Level: (low/med) LOW Date Received: 11/19/03

% Moisture: not dec. 12.0 JTD Date Analyzed: 11/25/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	6	U
74-87-3	Chloromethane	6	U
75-01-4	Vinyl Chloride	6	U
74-83-9	Bromomethane	6	U
75-00-3	Chloroethane	6	U
75-69-4	Trichlorofluoromethane	6	U
75-35-4	1,1-Dichloroethene	6	U
75-15-0	Carbon disulfide	6	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	6	U
67-64-1	Acetone	74	
75-09-2	Methylene Chloride	6	U
156-60-5	trans-1,2-Dichloroethene	6	U
1634-04-4	Methyl-tert-butyl ether	6	U
75-34-3	1,1-Dichloroethane	6	U
156-59-2	cis-1,2-Dichloroethene	6	U
78-93-3	2-butanone	14	U
67-66-3	Chloroform	6	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon Tetrachloride	6	U
71-43-2	Benzene	13	
107-06-2	1,2-Dichloroethane	6	U
79-01-6	Trichloroethene	6	U
78-87-5	1,2-Dichloropropane	6	U
75-27-4	Bromodichloromethane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
108-10-1	4-Methyl-2-pentanone	14	U
108-88-3	Toluene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
79-00-5	1,1,2-Trichloroethane	6	U
127-18-4	Tetrachloroethene	2	J
591-78-6	2-hexanone	14	U
124-48-1	Dibromochloromethane	6	U
106-93-4	1,2-Dibromoethane	6	U

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FORM 1
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CLIENT SAMPLE NO.

FTA-02

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155902

Sample wt/vol: 4.46(g/mL) G Lab File ID: 155902B52

Level: (low/med) LOW Date Received: 11/19/03

% Moisture: not dec. 12.0 JR Date Analyzed: 11/25/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	31	
100-42-5	Styrene	6	U
75-25-2	Bromoform	6	U
98-82-8	Isopropyl Benzene	11	
79-34-5	1,1,2,2-Tetrachloroethane	6	U
541-73-1	1,3-Dichlorobenzene	6	U
106-46-7	1,4-Dichlorobenzene	6	U
95-50-1	1,2-Dichlorobenzene	6	U
96-12-8	1,2-Dibromo-3-Chloropropane	6	U
120-82-1	1,2,4-Trichlorobenzene	6	U
1330-20-7	Xylene (total)	190	
79-20-9	Methyl acetate	6	U
110-82-7	Cyclohexane	100	
108-87-2	Methylcyclohexane	170	

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FORM 1
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CLIENT SAMPLE NO.

FTA-02RE

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155902

Sample wt/vol: 2.75(g/mL) G Lab File ID: 155902RA52

Level: (low/med) LOW Date Received: 11/19/03

% Moisture: not dec. 12.0 JTR Date Analyzed: 11/28/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Raw Qual
75-71-8	Dichlorodifluoromethane	9	U	UJ 5b
74-87-3	Chloromethane	9	U	U
75-01-4	Vinyl Chloride	9	U	
74-83-9	Bromomethane	9	U	
75-00-3	Chloroethane	9	U	
75-69-4	Trichlorofluoromethane	9	U	
75-35-4	1,1-Dichloroethene	9	U	
75-15-0	Carbon disulfide	9	U	
76-13-1	1,1,2-trichloro-1,2,2-triflu	9	U	
67-64-1	Acetone	136 ~~120~~	J	J 7a,17
75-09-2	Methylene Chloride	3	J	J 7a
156-60-5	trans-1,2-Dichloroethene	9	U	U
1634-04-4	Methyl-tert-butyl ether	9	U	
75-34-3	1,1-Dichloroethane	9	U	
156-59-2	cis-1,2-Dichloroethene	9	U	
78-93-3	2-butanone	23	U	
67-66-3	Chloroform	9	U	
71-55-6	1,1,1-Trichloroethane	9	U	
56-23-5	Carbon Tetrachloride	9	U	
71-43-2	Benzene	36 ~~32~~		J 7a,17
107-06-2	1,2-Dichloroethane	9	U	U
79-01-6	Trichloroethene	9	U	
78-87-5	1,2-Dichloropropane	9	U	
75-27-4	Bromodichloromethane	9	U	
10061-01-5	cis-1,3-Dichloropropene	9	U	
108-10-1	4-Methyl-2-pentanone	23	U	
108-88-3	Toluene	3	J	J 7a,17
10061-02-6	trans-1,3-Dichloropropene	9	U	U
79-00-5	1,1,2-Trichloroethane	9	U	
127-18-4	Tetrachloroethene	9	U	
591-78-6	2-hexanone	23	U	
124-48-1	Dibromochloromethane	9	U	
106-93-4	1,2-Dibromoethane	9	U	

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FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FTA-02RE

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155902

Sample wt/vol: 2.75(g/mL) G Lab File ID: 155902RA52

Level: (low/med) LOW Date Received: 11/19/03

% Moisture: not dec. 12.0 JAK Date Analyzed: 11/28/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual
108-90-7	Chlorobenzene	9	U	U
100-41-4	Ethylbenzene	330 ~~290~~		J 7a, 17
100-42-5	Styrene	9	U	U
75-25-2	Bromoform	9	U	U
98-82-8	Isopropyl Benzene	260 ~~230~~		J 7a, 17
79-34-5	1,1,2,2-Tetrachloroethane	9	U	UJ 10a
541-73-1	1,3-Dichlorobenzene	9	U	
106-46-7	1,4-Dichlorobenzene	9	U	
95-50-1	1,2-Dichlorobenzene	9	U	
96-12-8	1,2-Dibromo-3-Chloropropane	9	U	
120-82-1	1,2,4-Trichlorobenzene	9	U	↓ 10a
1330-20-7	Xylene (total)	1360 ~~1200~~	E	J 7a, 7a, 16, 17
79-20-9	Methyl acetate	9	U	UJ 10a
110-82-7	Cyclohexane	760 ~~670~~	E	J 10a 7a, 16, 17
108-87-2	Methylcyclohexane	~~930~~ ~~1400~~ 1590	E	J 10a, 7a, 16, 17

FORM 1
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CLIENT SAMPLE NO.

FTA-02D

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155903

Sample wt/vol: 4.75(g/mL) G Lab File ID: 155903B52

Level: (low/med) LOW Date Received: 11/19/03

% Moisture: not dec. 12.0 Date Analyzed: 11/25/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
75-15-0	Carbon disulfide	5	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5	U
67-64-1	Acetone	22	
75-09-2	Methylene Chloride	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl-tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
78-93-3	2-butanone	13	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	3	J
107-06-2	1,2-Dichloroethane	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
127-18-4	Tetrachloroethene	1	J
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U

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CLIENT SAMPLE NO.

FTA-02D

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155903

Sample wt/vol: 4.75(g/mL) G Lab File ID: 155903B52

Level: (low/med) LOW Date Received: 11/19/03

% Moisture: not dec. 12.0 JR Date Analyzed: 11/25/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	12	
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropyl Benzene	4	J
79-34-5	1,1,2,2-Tetrachloroethane	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-Chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
1330-20-7	Xylene (total)	66	
79-20-9	Methyl acetate	5	U
110-82-7	Cyclohexane	13	
108-87-2	Methylcyclohexane	24	

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FORM 1
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CLIENT SAMPLE NO.

FTA-02DRE

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155903

Sample wt/vol: 4.44(g/mL) G Lab File ID: 155903RA52

Level: (low/med) LOW Date Received: 11/19/03

% Moisture: not dec. 12.0 STR Date Analyzed: 11/28/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rv2nd
75-71-8	Dichlorodifluoromethane	6	U	UJ 5b
74-87-3	Chloromethane	6	U	
75-01-4	Vinyl Chloride	6	U	
74-83-9	Bromomethane	6	U	
75-00-3	Chloroethane	6	U	
75-69-4	Trichlorofluoromethane	6	U	
75-35-4	1,1-Dichloroethene	6	U	
75-15-0	Carbon disulfide	6	U	
76-13-1	1,1,2-trichloro-1,2,2-triflu	6	U	
67-64-1	Acetone	33 ~~28~~		J 17
75-09-2	Methylene Chloride	1	J	
156-60-5	trans-1,2-Dichloroethene	6	U	
1634-04-4	Methyl-tert-butyl ether	6	U	
75-34-3	1,1-Dichloroethane	6	U	
156-59-2	cis-1,2-Dichloroethene	6	U	
78-93-3	2-butanone	5 ~~4~~	J	
67-66-3	Chloroform	6	U	
71-55-6	1,1,1-Trichloroethane	6	U	
56-23-5	Carbon Tetrachloride	6	U	
71-43-2	Benzene	2	J	17
107-06-2	1,2-Dichloroethane	6	U	
79-01-6	Trichloroethene	6	U	
78-87-5	1,2-Dichloropropane	6	U	
75-27-4	Bromodichloromethane	6	U	
10061-01-5	cis-1,3-Dichloropropene	6	U	
108-10-1	4-Methyl-2-pentanone	14	U	
108-88-3	Toluene	0.9 ~~0.8~~	J	17
10061-02-6	trans-1,3-Dichloropropene	6	U	
79-00-5	1,1,2-Trichloroethane	6	U	
127-18-4	Tetrachloroethene	6	U	
591-78-6	2-hexanone	14	U	
124-48-1	Dibromochloromethane	6	U	
106-93-4	1,2-Dibromoethane	6	U	

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CLIENT SAMPLE NO.

FTA-02DRF

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155903

Sample wt/vol: 4.44(g/mL) G Lab File ID: 155903RA52

Level: (low/med) LOW Date Received: 11/19/03

% Moisture: not dec. 12.0 Date Analyzed: 11/28/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev 2nd
108-90-7	Chlorobenzene	6	U	U
100-41-4	Ethylbenzene	11 ~~20~~		17
100-42-5	Styrene	6	U	U
75-25-2	Bromoform	6	U	U
98-82-8	Isopropyl Benzene	6 ~~8~~	J	17
79-34-5	1,1,2,2-Tetrachloroethane	6	U	U
541-73-1	1,3-Dichlorobenzene	6	U	U
106-46-7	1,4-Dichlorobenzene	6	U	U
95-50-1	1,2-Dichlorobenzene	6	U	U
96-12-8	1,2-Dibromo-3-Chloropropane	6	U	U
120-82-1	1,2,4-Trichlorobenzene	6	U	U
1330-20-7	Xylene (total)	68 ~~60~~		17
79-20-9	Methyl acetate	6	U	U
110-82-7	Cyclohexane	10 ~~9~~		17
108-87-2	Methylcyclohexane	27 ~~24~~		17

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CLIENT SAMPLE NO.

FTA-03

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155904

Sample wt/vol: 4.84(g/mL) G Lab File ID: 155904B52

Level: (low/med) LOW Date Received: 11/19/03

% Moisture: not dec. 15.8 Date Analyzed: 11/25/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Reviewer
75-71-8	Dichlorodifluoromethane	5	U	UJ 10a
74-87-3	Chloromethane	5	U	
75-01-4	Vinyl Chloride	5	U	
74-83-9	Bromomethane	5	U	
75-00-3	Chloroethane	5	U	,5b
75-69-4	Trichlorofluoromethane	5	U	
75-35-4	1,1-Dichloroethene	5	U	
75-15-0	Carbon disulfide	14 ~~22~~		J 7a,10a
76-13-1	1,1,2-trichloro-1,2,2-triflu	5	U	
67-64-1	Acetone	42 ~~25~~		J 5b,7a,10a
75-09-2	Methylene Chloride	5	U	UJ 10a
156-60-5	trans-1,2-Dichloroethene	5	U	
1634-04-4	Methyl-tert-butyl ether	5	U	
75-34-3	1,1-Dichloroethane	5	U	
156-59-2	cis-1,2-Dichloroethene	5	U	,5b
78-93-3	2-butanone	13	U	
67-66-3	Chloroform	5	U	
71-55-6	1,1,1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	
71-43-2	Benzene	31 ~~28~~		J 7a,10a
107-06-2	1,2-Dichloroethane	5	U	UJ 10a
79-01-6	Trichloroethene	5	U	
78-87-5	1,2-Dichloropropane	5	U	
75-27-4	Bromodichloromethane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
108-10-1	4-Methyl-2-pentanone	13	U	
108-88-3	Toluene	5	U	
10061-02-6	trans-1,3-Dichloropropene	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
127-18-4	Tetrachloroethene	1.0 ~~0.8~~	J	J 5b,7a,10a
591-78-6	2-hexanone	13	U	UJ 10a
124-48-1	Dibromochloromethane	5	U	
106-93-4	1,2-Dibromoethane	5	U	

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CLIENT SAMPLE NO.

FTA-03

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155904

Sample wt/vol: 4.84(g/mL) G Lab File ID: 155904B52

Level: (low/med) LOW Date Received: 11/19/03

% Moisture: not dec. 15.8 JK Date Analyzed: 11/25/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual
108-90-7	Chlorobenzene	5	U	UJ 10a
100-41-4	Ethylbenzene	110 ~~93~~		J 7a,10a
100-42-5	Styrene	5	U	UJ 10a
75-25-2	Bromoform	5	U	UJ 10a
98-82-8	Isopropyl Benzene	26 ~~22~~		J 7a,10a
79-34-5	1,1,2,2-Tetrachloroethane	5	U	UJ 10a
541-73-1	1,3-Dichlorobenzene	5	U	
106-46-7	1,4-Dichlorobenzene	5	U	
95-50-1	1,2-Dichlorobenzene	5	U	
96-12-8	1,2-Dibromo-3-Chloropropane	5	U	
120-82-1	1,2,4-Trichlorobenzene	5	U	
1330-20-7	Xylene (total)	650 ~~550~~		J 7a,10a
79-20-9	Methyl acetate	5	U	UJ 10a
110-82-7	Cyclohexane	67 ~~56~~		J 7a,10a
108-87-2	Methylcyclohexane	93 ~~78~~		J 7a,10a

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FTA-03DL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155904

Sample wt/vol: 4.45(g/mL) G Lab File ID: 155904DA52

Level: (low/med) MED Date Received: 11/19/03

% Moisture: not dec. 15.8 AR Date Analyzed: 11/28/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:(5000)(ul) Soil Aliquot Volume: 100(ul)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	280	U
74-87-3	Chloromethane	280	U
75-01-4	Vinyl Chloride	280	U
74-83-9	Bromomethane	280	U
75-00-3	Chloroethane	280	U
75-69-4	Trichlorofluoromethane	280	U
75-35-4	1,1-Dichloroethene	280	U
75-15-0	Carbon disulfide	100	DJ
76-13-1	1,1,2-trichloro-1,2,2-triflu	280	U
67-64-1	Acetone	700	U
75-09-2	Methylene Chloride	280	U
156-60-5	trans-1,2-Dichloroethene	280	U
1634-04-4	Methyl-tert-butyl ether	280	U
75-34-3	1,1-Dichloroethane	280	U
156-59-2	cis-1,2-Dichloroethene	280	U
78-93-3	2-butanone	700	U
67-66-3	Chloroform	280	U
71-55-6	1,1,1-Trichloroethane	280	U
56-23-5	Carbon Tetrachloride	280	U
71-43-2	Benzene	280	U
107-06-2	1,2-Dichloroethane	280	U
79-01-6	Trichloroethene	280	U
78-87-5	1,2-Dichloropropane	280	U
75-27-4	Bromodichloromethane	280	U
10061-01-5	cis-1,3-Dichloropropene	280	U
108-10-1	4-Methyl-2-pentanone	700	U
108-88-3	Toluene	280	U
10061-02-6	trans-1,3-Dichloropropene	280	U
79-00-5	1,1,2-Trichloroethane	280	U
127-18-4	Tetrachloroethene	280	U
591-78-6	2-hexanone	700	U
124-48-1	Dibromochloromethane	280	U
106-93-4	1,2-Dibromoethane	280	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FTA-03DL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155904

Sample wt/vol: 4.45(g/mL) G Lab File ID: 155904DA52

Level: (low/med) MED Date Received: 11/19/03

% Moisture: not dec. 15.8 Date Analyzed: 11/28/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (5000)(ul) Soil Aliquot Volume: 100(ul)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-90-7	Chlorobenzene	280	U
100-41-4	Ethylbenzene	69	DJ
100-42-5	Styrene	280	U
75-25-2	Bromoform	280	U
98-82-8	Isopropyl Benzene	280	U
79-34-5	1,1,2,2-Tetrachloroethane	280	U
541-73-1	1,3-Dichlorobenzene	280	U
106-46-7	1,4-Dichlorobenzene	280	U
95-50-1	1,2-Dichlorobenzene	280	U
96-12-8	1,2-Dibromo-3-Chloropropane	280	U
120-82-1	1,2,4-Trichlorobenzene	280	U
1330-20-7	Xylene (total)	400	D
79-20-9	Methyl acetate	280	U
110-82-7	Cyclohexane	280	U
108-87-2	Methylcyclohexane	280	U

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CLIENT SAMPLE NO.

FTA-04

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155905

Sample wt/vol: 5.02(g/mL) G Lab File ID: 155905B52

Level: (low/med) LOW Date Received: 11/19/03

% Moisture: not dec. _____ Date Analyzed: 11/25/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
75-15-0	Carbon disulfide	5	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	5	U
67-64-1	Acetone	12	U
75-09-2	Methylene Chloride	5	U
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl-tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
78-93-3	2-butanone	12	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	2	J
107-06-2	1,2-Dichloroethane	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	12	U
108-88-3	Toluene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-hexanone	12	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U

Rev Qual
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FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FTA-04

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155905

Sample wt/vol: 5.02(g/mL) G Lab File ID: 155905B52

Level: (low/med) LOW Date Received: 11/19/03

% Moisture: not dec. _____ Date Analyzed: 11/25/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropyl Benzene	5	J
79-34-5	1,1,2,2-Tetrachloroethane	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-Chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
1330-20-7	Xylene (total)	50	
79-20-9	Methyl acetate	5	U
110-82-7	Cyclohexane	5	U
108-87-2	Methylcyclohexane	5	U

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FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FTA-04RE

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155905

Sample wt/vol: 4.91(g/mL) G Lab File ID: 155905RA52

Level: (low/med) LOW Date Received: 11/19/03

% Moisture: not dec. _____ Date Analyzed: 11/28/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	5	U
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	5	U
75-00-3	Chloroethane	5	U
75-69-4	Trichlorofluoromethane	5	U
75-35-4	1,1-Dichloroethene	5	U
75-15-0	Carbon disulfide	3	J
76-13-1	1,1,2-trichloro-1,2,2-triflu	5	U
67-64-1	Acetone	30	
75-09-2	Methylene Chloride	2	J
156-60-5	trans-1,2-Dichloroethene	5	U
1634-04-4	Methyl-tert-butyl ether	5	U
75-34-3	1,1-Dichloroethane	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
78-93-3	2-butanone	5	J
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	0.7	J
107-06-2	1,2-Dichloroethane	5	U
79-01-6	Trichloroethene	5	U
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	0.7	J
10061-02-6	trans-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
127-18-4	Tetrachloroethene	5	U
591-78-6	2-hexanone	13	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U

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FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FTA-04RE

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155905

Sample wt/vol: 4.91(g/mL) G Lab File ID: 155905RA52

Level: (low/med) LOW Date Received: 11/19/03

% Moisture: not dec. _____ Date Analyzed: 11/28/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual
108-90-7	Chlorobenzene	5	U	U
100-41-4	Ethylbenzene	5	J	J
100-42-5	Styrene	5	U	U
75-25-2	Bromoform	5	U	U
98-82-8	Isopropyl Benzene	6		
79-34-5	1,1,2,2-Tetrachloroethane	5	U	U
541-73-1	1,3-Dichlorobenzene	5	U	U
106-46-7	1,4-Dichlorobenzene	5	U	U
95-50-1	1,2-Dichlorobenzene	5	U	U
96-12-8	1,2-Dibromo-3-Chloropropane	5	U	U
120-82-1	1,2,4-Trichlorobenzene	5	U	U
1330-20-7	Xylene (total)	35		
79-20-9	Methyl acetate	5	U	UJ
110-82-7	Cyclohexane	5	J	
108-87-2	Methylcyclohexane	7		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FTA-05

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155906

Sample wt/vol: 5.13(g/mL) G Lab File ID: 155906B52

Level: (low/med) LOW Date Received: 11/19/03

% Moisture: not dec. _____ Date Analyzed: 11/25/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rev Qual
75-71-8	Dichlorodifluoromethane	5	U	R 16
74-87-3	Chloromethane	5	U	
75-01-4	Vinyl Chloride	5	U	
74-83-9	Bromomethane	5	U	
75-00-3	Chloroethane	5	U	
75-69-4	Trichlorofluoromethane	5	U	
75-35-4	1,1-Dichloroethene	5	U	
75-15-0	Carbon disulfide	9		
76-13-1	1,1,2-trichloro-1,2,2-triflu	5	U	
67-64-1	Acetone	36		
75-09-2	Methylene Chloride	2	J	
156-60-5	trans-1,2-Dichloroethene	5	U	
1634-04-4	Methyl-tert-butyl ether	5	U	
75-34-3	1,1-Dichloroethane	5	U	
156-59-2	cis-1,2-Dichloroethene	5	U	
78-93-3	2-butanone	12	U	
67-66-3	Chloroform	5	U	
71-55-6	1,1,1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	
71-43-2	Benzene	5	U	
107-06-2	1,2-Dichloroethane	5	U	
79-01-6	Trichloroethene	5	U	
78-87-5	1,2-Dichloropropane	5	U	
75-27-4	Bromodichloromethane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
108-10-1	4-Methyl-2-pentanone	12	U	
108-88-3	Toluene	0.7	J	
10061-02-6	trans-1,3-Dichloropropene	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
127-18-4	Tetrachloroethene	5	U	
591-78-6	2-hexanone	12	U	
124-48-1	Dibromochloromethane	5	U	
106-93-4	1,2-Dibromoethane	5	U	

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FTA-05

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155906

Sample wt/vol: 5.13(g/mL) G Lab File ID: 155906B52

Level: (low/med) LOW Date Received: 11/19/03

% Moisture: not dec. _____ Date Analyzed: 11/25/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropyl Benzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-Chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
1330-20-7	Xylene (total)	15	U
79-20-9	Methyl acetate	5	U
110-82-7	Cyclohexane	5	U
108-87-2	Methylcyclohexane	5	U

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FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FTA-05RE

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155906

Sample wt/vol: 4.93(g/mL) G Lab File ID: 155906RA52

Level: (low/med) LOW Date Received: 11/19/03

% Moisture: not dec. _____ Date Analyzed: 11/28/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q
75-71-8	Dichlorodifluoromethane		5	U
74-87-3	Chloromethane		5	U
75-01-4	Vinyl Chloride		5	U
74-83-9	Bromomethane		5	U
75-00-3	Chloroethane		5	U
75-69-4	Trichlorofluoromethane		5	U
75-35-4	1,1-Dichloroethene		5	U
75-15-0	Carbon disulfide		3	J
76-13-1	1,1,2-trichloro-1,2,2-triflu		5	U
67-64-1	Acetone		39	
75-09-2	Methylene Chloride		2	J
156-60-5	trans-1,2-Dichloroethene		5	U
1634-04-4	Methyl-tert-butyl ether		5	U
75-34-3	1,1-Dichloroethane		5	U
156-59-2	cis-1,2-Dichloroethene		5	U
78-93-3	2-butanone		6	J
67-66-3	Chloroform		5	U
71-55-6	1,1,1-Trichloroethane		5	U
56-23-5	Carbon Tetrachloride		5	U
71-43-2	Benzene		5	U
107-06-2	1,2-Dichloroethane		5	U
79-01-6	Trichloroethene		5	U
78-87-5	1,2-Dichloropropane		5	U
75-27-4	Bromodichloromethane		5	U
10061-01-5	cis-1,3-Dichloropropene		5	U
108-10-1	4-Methyl-2-pentanone		13	U
108-88-3	Toluene		0.8	J
10061-02-6	trans-1,3-Dichloropropene		5	U
79-00-5	1,1,2-Trichloroethane		5	U
127-18-4	Tetrachloroethene		5	U
591-78-6	2-hexanone		13	U
124-48-1	Dibromochloromethane		5	U
106-93-4	1,2-Dibromoethane		5	U

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FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FTA-05RE

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1559

Matrix: (soil/water) SOIL Lab Sample ID: 155906

Sample wt/vol: 4.93(g/mL) G Lab File ID: 155906RA52

Level: (low/med) LOW Date Received: 11/19/03

% Moisture: not dec. _____ Date Analyzed: 11/28/03

GC Column: EQUITY624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropyl Benzene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
96-12-8	1,2-Dibromo-3-Chloropropane	5	U
120-82-1	1,2,4-Trichlorobenzene	5	U
1330-20-7	Xylene (total)	15	U
79-20-9	Methyl acetate	5	U
110-82-7	Cyclohexane	5	U
108-87-2	Methylcyclohexane	5	U

Rev Jnl

4

CHAIN-OF-CUSTODY RECORD

No. 72811

CompuChem
a division of Liberty Analytical Corp.
501 Madison Avenue
Cary, NC 27513
1-800-833-5097

Project Name: HUNTER ARMY AIRFIELD FTA	Client Address: STEP Inc 1006 Floyd Culler Ct OAK RIDGE, TN 37830	Point-of-Contact: DOUG HAWN
Carrier: UPS		Telephone No.: 865-481-7837
Airbill No.:		Sampling complete? (Y) or N (see Note 1)
Sampler Name: Jeff Williams	Sampler Signature: Jeff Williams	Project-specific (PS) or Batch (B) QC ? ____

BOX #1: 1. Surface Water; 2. Ground Water; 3. Leachate; 4. Rinsate; 5. Soil / Sediment / Sludge; 6. Trip Blank; 7. Oil; 8. Waste; 9. Other____

BOX #2: A. HCl + Ice; B. HNO3 + Ice; C. NaOH + Ice; D. H2SO4 + Ice; E. Unpreserved; F. Ice Only; G. Other____; H. NaHSO4 + Ice; I. ZnAc+NaOH + Ice

BOX #3: F. Filtered; U. Unfiltered

Box #4: H. High; M. Medium; L. Low

Box #5: C. CLP 3/90; S. SW-846; W. CWA 600-series; O. Other____; T. TCLP

Sample ID (9 characters maximum)	Date: Year: 2003	Time	Box #1 Matrix	Box #2 Preservative	Box #3 Filtered / Unfiltered	Box #4 Expected Conc.	Box #5 Method	No. of Bottles	Use for Lab QC (MS or DUP)	VOA	SVOC	Pesticide	PCB	Herbicide	Metals / Mercury	Cyanide	TOC / TOX	O&G / TPH	Remarks / Comments (see Notes 2 & 3)
FTA-01	11/18	10:22	5	F	U	L	S	3		X									CALL DOUG
FTA-02	11/18	10:27	5	F	U	L	S	3		X									HAWN
FTA-02D	11/18	10:27	5	F	U	L	S	3	DUP	X									UPON Receipt
FTA-03	11/18	10:34	5	F	U	L	S	3		X									
FTA-04	11/18	10:40	5	F	U	L	S	3		X									
FTA-05	11/18	10:45	5	F	U	L	S	3		X									
FTA-05MSD	11/18	10:45	5	F	U	L	S	3	MS	X									
TRIP BLANK	4AB		6	A		L	S	1		X									
	/	:																	
	/	:																	

Clients Special Instructions: LEVEL 3 DATA PACKAGE

Temperature 3.7 °C

Lab: Received In Good Condition? Y or N **Describe Problems, if any:**

#1 Relinquished By: (Sig) Jeff Williams Date: 11/18/03	#2 Relinquished By: (Sig) Date:	#3 Relinquished By: (Sig) Date:
Company Name: STEP INC Time: 16:30	Company Name: Time:	Company Name: Time:
#1 Received By: (Sig) Lorene Bixby Date: 11-19-03	#2 Received By: (Sig) Date:	#3 Received By: (Sig) Date:
Company Name: CompuChem Time: 9:30	Company Name: Time:	Company Name: Time:

Note (1): If "N" lab will hold samples to await remainder of project-maximizing batch size and minimizing QC ratio; if "Y" lab will begin processing batches now.
Note (2): Samples stored 60 days after date report mailed at no extra charge.
Note (3): All lab copies of data destroyed after three years.

APPENDIX III

Groundwater Samples

Analytical Form 1s
and
Chain-of-Custody

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

03338U01

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1720

Matrix: (soil/water) WATER Lab Sample ID: 172001

Sample wt/vol: 25 (g/ml) ML Lab File ID: 172001B73

Level: (low/med) LOW Date Received: 12/06/03

% Moisture: not dec. _____ Date Analyzed: 12/09/03

GC Column: ZB-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	ReQual
75-71-8	Dichlorodifluoromethane	0.074	J	J
74-87-3	Chloromethane	0.5	U	U
75-01-4	Vinyl Chloride	1.4		
74-83-9	Bromomethane	0.5	U	UJ 5b,4b
75-00-3	Chloroethane	0.5	U	U
75-69-4	Trichlorofluoromethane	0.5	U	U
75-35-4	1,1-Dichloroethene	0.5	U	U
75-15-0	Carbon disulfide	0.6		
76-13-1	1,1,2-trichloro-1,2,2-triflu	0.5	U	U
67-64-1	Acetone	2.5	U	R 4a,5a
79-20-9	Methyl acetate	0.5	U	U
75-09-2	Methylene Chloride	0.5	U	U
156-60-5	trans-1,2-Dichloroethene	0.5	U	U
1634-04-4	Methyl-tert-butyl ether	1.3		
75-34-3	1,1-Dichloroethane	0.5	U	U
156-59-2	cis-1,2-Dichloroethene	0.41	J	J
78-93-3	2-butanone	2.5	U	R 4a,5a
67-66-3	Chloroform	0.5	U	U
71-55-6	1,1,1-Trichloroethane	0.5	U	U
56-23-5	Carbon Tetrachloride	0.5	U	U
71-43-2	Benzene	260	E	R 16
107-06-2	1,2-Dichloroethane	0.5	U	U
79-01-6	Trichloroethene	0.5	U	U
78-87-5	1,2-Dichloropropane	0.71		
75-27-4	Bromodichloromethane	0.5	U	U
10061-01-5	cis-1,3-Dichloropropene	0.5	U	U
108-10-1	4-Methyl-2-pentanone	2.5	U	U
108-88-3	Toluene	0.57		
10061-02-6	trans-1,3-Dichloropropene	0.5	U	U
79-00-5	1,1,2-Trichloroethane	0.5	U	U
127-18-4	Tetrachloroethene	0.14	J	J
591-78-6	2-hexanone	2.5	U	U
124-48-1	Dibromochloromethane	0.5	U	U

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

03338U01

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1720

Matrix: (soil/water) WATER Lab Sample ID: 172001

Sample wt/vol: 25 (g/ml) ML Lab File ID: 172001B73

Level: (low/med) LOW Date Received: 12/06/03

% Moisture: not dec. _____ Date Analyzed: 12/09/03

GC Column: ZB-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	Rev 2 nd
106-93-4	1,2-Dibromoethane	0.5	U	U
108-90-7	Chlorobenzene	0.33	J	J
100-41-4	Ethylbenzene	13	B	
108-38-3	m,p-Xylene	4.2	B	
95-47-6	o-Xylene	0.55	B	
100-42-5	Styrene	0.5	U	U
75-25-2	Bromoform	0.5	U	U
98-82-8	Isopropyl Benzene	22		
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	U
541-73-1	1,3-Dichlorobenzene	0.5	U	U
106-46-7	1,4-Dichlorobenzene	0.087	J	J
95-50-1	1,2-Dichlorobenzene	0.38	J	J
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	UJ 5b
120-82-1	1,2,4-Trichlorobenzene	0.5	U	U
1330-20-7	Xylene (total)	4.9	B	
110-82-7	Cyclohexane	10		
108-87-2	Methylcyclohexane	6.4		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

03338U01DL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1720

Matrix: (soil/water) WATER Lab Sample ID: 172001

Sample wt/vol: 25 (g/ml) ML Lab File ID: 172001DA73

Level: (low/med) LOW Date Received: 12/06/03

% Moisture: not dec. _____ Date Analyzed: 12/10/03

GC Column: ZB-624 ID: 0.32 (mm) Dilution Factor: 25.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	47	D
74-87-3	Chloromethane	13	U
75-01-4	Vinyl Chloride	8.1	DJ
74-83-9	Bromomethane	13	U
75-00-3	Chloroethane	13	U
75-69-4	Trichlorofluoromethane	21	D
75-35-4	1,1-Dichloroethene	11	DJ
75-15-0	Carbon disulfide	17	D
76-13-1	1,1,2-trichloro-1,2,2-triflu	46	D
67-64-1	Acetone	63	U
79-20-9	Methyl acetate	13	U
75-09-2	Methylene Chloride	13	U
156-60-5	trans-1,2-Dichloroethene	11	DJ
1634-04-4	Methyl-tert-butyl ether	13	U
75-34-3	1,1-Dichloroethane	13	U
156-59-2	cis-1,2-Dichloroethene	2.7	DJB
78-93-3	2-butanone	63	U
67-66-3	Chloroform	0.88	DJ
71-55-6	1,1,1-Trichloroethane	13	U
56-23-5	Carbon Tetrachloride	6.6	DJ
71-43-2	Benzene	470	D
107-06-2	1,2-Dichloroethane	13	U
79-01-6	Trichloroethene	16	D
78-87-5	1,2-Dichloropropane	1.4	DJ
75-27-4	Bromodichloromethane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
108-10-1	4-Methyl-2-pentanone	63	U
108-88-3	Toluene	8	DJB
10061-02-6	trans-1,3-Dichloropropene	13	U
79-00-5	1,1,2-Trichloroethane	13	U
127-18-4	Tetrachloroethene	47	D
591-78-6	2-hexanone	63	U
124-48-1	Dibromochloromethane	13	U

Rev 2nd

R 16

R 16

R 16

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

03338U01DL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1720

Matrix: (soil/water) WATER Lab Sample ID: 172001

Sample wt/vol: 25 (g/ml) ML Lab File ID: 172001DA73

Level: (low/med) LOW Date Received: 12/06/03

% Moisture: not dec. _____ Date Analyzed: 12/10/03

GC Column: ZB-624 ID: 0.32 (mm) Dilution Factor: 25.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
106-93-4	1,2-Dibromoethane	13	U
108-90-7	Chlorobenzene	8.3	DJ
100-41-4	Ethylbenzene	27	DB
108-38-3	m,p-Xylene	49	DB
95-47-6	o-Xylene	9.5	DJB
100-42-5	Styrene	8	DJB
75-25-2	Bromoform	13	U
98-82-8	Isopropyl Benzene	32	D
79-34-5	1,1,2,2-Tetrachloroethane	13	U
541-73-1	1,3-Dichlorobenzene	22	D
106-46-7	1,4-Dichlorobenzene	23	DB
95-50-1	1,2-Dichlorobenzene	9.8	DJ
96-12-8	1,2-Dibromo-3-Chloropropane	13	U
120-82-1	1,2,4-Trichlorobenzene	28	DB
1330-20-7	Xylene (total)	61	DB
110-82-7	Cyclohexane	24	D
108-87-2	Methylcyclohexane	41	D

ReQual
R 16

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

03338U01D

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1720

Matrix: (soil/water) WATER Lab Sample ID: 172001

Sample wt/vol: 25 (g/ml) ML Lab File ID: 172002A73

Level: (low/med) LOW Date Received: 12/06/03

% Moisture: not dec. _____ Date Analyzed: 12/10/03

GC Column: ZB-624 ID: 0.32 (mm) Dilution Factor: 25.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	Rev Qual
75-71-8	Dichlorodifluoromethane	58	U	
74-87-3	Chloromethane	3.7	J	
75-01-4	Vinyl Chloride	10	J	
74-83-9	Bromomethane	13	U	
75-00-3	Chloroethane	13	U	
75-69-4	Trichlorofluoromethane	34	U	
75-35-4	1,1-Dichloroethene	19	U	17
75-15-0	Carbon disulfide	28	U	17
76-13-1	1,1,2-trichloro-1,2,2-triflu	84	U	17
67-64-1	Acetone	63	U	4a,5a
79-20-9	Methyl acetate	13	U	
75-09-2	Methylene Chloride	13	U	
156-60-5	trans-1,2-Dichloroethene	18	U	
1634-04-4	Methyl-tert-butyl ether	2.1	J	
75-34-3	1,1-Dichloroethane	13	U	
156-59-2	cis-1,2-Dichloroethene	4.6	JB	17
78-93-3	2-butanone	63	U	4a,5a
67-66-3	Chloroform	1.7	J	17
71-55-6	1,1,1-Trichloroethane	13	U	
56-23-5	Carbon Tetrachloride	11	J	17
71-43-2	Benzene	460	U	
107-06-2	1,2-Dichloroethane	13	U	
79-01-6	Trichloroethene	27	U	17
78-87-5	1,2-Dichloropropane	2	J	
75-27-4	Bromodichloromethane	13	U	
10061-01-5	cis-1,3-Dichloropropene	2.6	J	
108-10-1	4-Methyl-2-pentanone	63	U	
108-88-3	Toluene	13	B	
10061-02-6	trans-1,3-Dichloropropene	4	J	
79-00-5	1,1,2-Trichloroethane	13	U	
127-18-4	Tetrachloroethene	78	U	
591-78-6	2-hexanone	63	U	
124-48-1	Dibromochloromethane	13	U	

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

03338U01D

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 1720

Matrix: (soil/water) WATER Lab Sample ID: 172001

Sample wt/vol: 25 (g/ml) ML Lab File ID: 172002A73

Level: (low/med) LOW Date Received: 12/06/03

% Moisture: not dec. _____ Date Analyzed: 12/10/03

GC Column: ZB-624 ID: 0.32 (mm) Dilution Factor: 25.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	ReviewQual
106-93-4	1,2-Dibromoethane	13	U	
108-90-7	Chlorobenzene	15		
100-41-4	Ethylbenzene	52	B	
108-38-3	m,p-Xylene	140	B	
95-47-6	o-Xylene	24	B	
100-42-5	Styrene	14	B	
75-25-2	Bromoform	13	U	
98-82-8	Isopropyl Benzene	40		
79-34-5	1,1,2,2-Tetrachloroethane	13	U	
541-73-1	1,3-Dichlorobenzene	40		
106-46-7	1,4-Dichlorobenzene	42	B	
95-50-1	1,2-Dichlorobenzene	18		
96-12-8	1,2-Dibromo-3-Chloropropane	13	U	
120-82-1	1,2,4-Trichlorobenzene	53	B	
1330-20-7	Xylene (total)	170	B	
110-82-7	Cyclohexane	36		
108-87-2	Methylcyclohexane	75		

CHAIN-OF-CUSTODY RECORD

No. 71046

CompuChem
a division of Liberty Analytical Corp.
501 Madison Avenue
Cary, NC 27513
1-800-833-5097

Project Name : Fire Training Area	Client Address : STEP, Inc.	Point-of-Contact : Doug Hamm
Carrier : UPS	1006 Floyd Culler Ct.	Telephone No. : 865 481 7837
Airbill No. :	Oak Ridge, TN 37830	Sampling complete? Y or N (see Note 1)
Sampler Name : Doug Hamm	Sampler Signature : Doug Hamm	Project-specific (PS) or Batch (B) QC ? PS

BOX #1	BOX #2	BOX #3	Box #4	Box #5
1. Surface Water	A. HCl + Ice	F. Filtered	H. High	C. CLP 3/90
2. Ground Water	B. HNO3 + Ice	U. Unfiltered	M. Medium	S. SW-846
3. Leachate	C. NaOH + Ice		L. Low	W. CWA 600-series
4. Rinsate	D. H2SO4 + Ice			O. Other
5. Soil / Sediment / Sludge	E. Unpreserved			T. TCLP
6. Trip Blank	F. Ice Only			
7. Oil	G. Other			
8. Waste	H. NaHSO4 + Ice			
9. Other	I. ZnAc+NaOH + Ice			

Sample ID (9 characters maximum)	Date:Year: 2003	Time	Box #1 Matrix	Box #2 Preservative	Box #3 Filtered / Unfiltered	Box #4 Expected Conc.	Box #5 Method	No. of Bottles	Use for Lab QC (MS or DUP)	VOA	SVOC	Pesticide	PCB	Herbicide	Metals / Mercury	Cyanide	TOC / TOX	O&G / TPH	Remarks / Comments (see Notes 2 & 3)
033380101	12/04	17:10	2	A	U	L	S	3		X									
033380101D	12/04	17:10	2	A	U	L	S	3		X									
033380101M	12/04	17:10	9	A	U	L	S	3	MS/D	X									
	/	:																	
	/	:																	
	/	:																	
	/	:																	
	/	:																	
	/	:																	
	/	:																	

Clients Special Instructions: Temperature 2.1 °C

Lab: Received in Good Condition? Y or N **Describe Problems, if any:**

#1 Relinquished By: (Sig) Doug Hamm	Date: 12-5-03	#2 Relinquished By: (Sig)	Date:	#3 Relinquished By: (Sig)	Date:
Company Name: STEP, Inc.	Time: 1030	Company Name:	Time:	Company Name:	Time:
#1 Received By: (Sig) E. Sabillon	Date: 12/5/03	#2 Received By: (Sig)	Date:	#3 Received By: (Sig)	Date:
Company Name: CompuChem	Time: 1005	Company Name:	Time:	Company Name:	Time:

Note (1): If "N" lab will hold samples to await remainder of project-maximizing batch size and minimizing QC ratio; if "Y" lab will begin processing batches now.
Note (2): Samples stored 60 days after date report mailed at no extra charge. Note (3): All lab copies of data destroyed after three years.

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

04062G01

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2375

Matrix: (soil/water) WATER Lab Sample ID: 237501

Sample wt/vol: 25 (g/ml) ML Lab File ID: 237501A73

Level: (low/med) LOW Date Received: 03/03/04

% Moisture: not dec. _____ Date Analyzed: 03/03/04

GC Column: ZB-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	Rev Qual
75-71-8	Dichlorodifluoromethane	0.5	U	U
74-87-3	Chloromethane	0.5	U	U
75-01-4	Vinyl Chloride	2		
74-83-9	Bromomethane	0.5	U	U
75-00-3	Chloroethane	0.5	U	
75-69-4	Trichlorofluoromethane	0.5	U	
75-35-4	1,1-Dichloroethene	0.5	U	
75-15-0	Carbon disulfide	0.62		6C
76-13-1	1,1,2-trichloro-1,2,2-triflu	0.5	U	U
67-64-1	Acetone	2.5	U	R 4a, 5a
79-20-9	Methyl acetate	0.5	U	U
75-09-2	Methylene Chloride	0.5	U	
156-60-5	trans-1,2-Dichloroethene	0.5	U	
1634-04-4	Methyl-tert-butyl ether	0.5	U	
75-34-3	1,1-Dichloroethane	0.5	U	
156-59-2	cis-1,2-Dichloroethene	0.16	J	J
78-93-3	2-butanone	1.8	J	J 5a
67-66-3	Chloroform	0.5	U	U
71-55-6	1,1,1-Trichloroethane	0.5	U	
56-23-5	Carbon Tetrachloride	0.5	U	
71-43-2	Benzene	430	E	R 16
107-06-2	1,2-Dichloroethane	0.5	U	U
79-01-6	Trichloroethene	0.5	U	U
78-87-5	1,2-Dichloropropane	1.2		
75-27-4	Bromodichloromethane	0.5	U	U
10061-01-5	cis-1,3-Dichloropropene	0.5	U	
108-10-1	4-Methyl-2-pentanone	2.5	U	U
108-88-3	Toluene	0.76		6C
10061-02-6	trans-1,3-Dichloropropene	0.5	U	U
79-00-5	1,1,2-Trichloroethane	0.5	U	
127-18-4	Tetrachloroethene	0.5	U	
591-78-6	2-hexanone	2.5	U	
124-48-1	Dibromochloromethane	0.5	U	

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

04062G01

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2375

Matrix: (soil/water) WATER Lab Sample ID: 237501

Sample wt/vol: 25 (g/ml) ML Lab File ID: 237501A73

Level: (low/med) LOW Date Received: 03/03/04

% Moisture: not dec. _____ Date Analyzed: 03/03/04

GC Column: ZB-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	Rev Qual
106-93-4	1,2-Dibromoethane	0.5	U	U
108-90-7	Chlorobenzene	0.42	J	J
100-41-4	Ethylbenzene	33	E	R 16
108-38-3	m,p-Xylene	1	U	U
95-47-6	o-Xylene	0.5	U	U
100-42-5	Styrene	0.5	U	U
75-25-2	Bromoform	0.5	U	U
98-82-8	Isopropyl Benzene	46	E	R 16
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	U
541-73-1	1,3-Dichlorobenzene	0.5	U	U
106-46-7	1,4-Dichlorobenzene	0.13	J	J
95-50-1	1,2-Dichlorobenzene	0.75		
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	U
120-82-1	1,2,4-Trichlorobenzene	0.5	U	U
1330-20-7	Xylene (total)	0.5	U	U
110-82-7	Cyclohexane	35	E	R 16
108-87-2	Methylcyclohexane	6.7		

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

04062G01DL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2375

Matrix: (soil/water) WATER Lab Sample ID: 237501

Sample wt/vol: 25 (g/ml) ML Lab File ID: 237501D2A73

Level: (low/med) LOW Date Received: 03/03/04

% Moisture: not dec. _____ Date Analyzed: 03/03/04

GC Column: ZB-624 ID: 0.32 (mm) Dilution Factor: 62.5

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	ReviewQual
106-93-4	1,2-Dibromoethane	31	U	R 16
108-90-7	Chlorobenzene	31	U	R 16
100-41-4	Ethylbenzene	26	DJ	J
108-38-3	m,p-Xylene	63	U	R 16
95-47-6	o-Xylene	31	U	
100-42-5	Styrene	31	U	
75-25-2	Bromoform	31	U	R 16
98-82-8	Isopropyl Benzene	36	D	
79-34-5	1,1,2,2-Tetrachloroethane	31	U	R 16
541-73-1	1,3-Dichlorobenzene	31	U	
106-46-7	1,4-Dichlorobenzene	31	U	
95-50-1	1,2-Dichlorobenzene	31	U	
96-12-8	1,2-Dibromo-3-Chloropropane	31	U	
120-82-1	1,2,4-Trichlorobenzene	31	U	
1330-20-7	Xylene (total)	31	U	R 16
110-82-7	Cyclohexane	26	DJ	J
108-87-2	Methylcyclohexane	31	U	R 16

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

04062G01DL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2375

Matrix: (soil/water) WATER Lab Sample ID: 237501

Sample wt/vol: 25 (g/ml) ML Lab File ID: 237501D2A73

Level: (low/med) LOW Date Received: 03/03/04

% Moisture: not dec. _____ Date Analyzed: 03/03/04

GC Column: ZB-624 ID: 0.32 (mm) Dilution Factor: 62.5

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
75-71-8	Dichlorodifluoromethane	31	U
74-87-3	Chloromethane	31	U
75-01-4	Vinyl Chloride	31	U
74-83-9	Bromomethane	31	U
75-00-3	Chloroethane	31	U
75-69-4	Trichlorofluoromethane	31	U
75-35-4	1,1-Dichloroethene	31	U
75-15-0	Carbon disulfide	31	U
76-13-1	1,1,2-trichloro-1,2,2-triflu	31	U
67-64-1	Acetone	160	U
79-20-9	Methyl acetate	31	U
75-09-2	Methylene Chloride	31	U
156-60-5	trans-1,2-Dichloroethene	31	U
1634-04-4	Methyl-tert-butyl ether	31	U
75-34-3	1,1-Dichloroethane	31	U
156-59-2	cis-1,2-Dichloroethene	31	U
78-93-3	2-butanone	53	DJ
67-66-3	Chloroform	31	U
71-55-6	1,1,1-Trichloroethane	31	U
56-23-5	Carbon Tetrachloride	31	U
71-43-2	Benzene	960	D
107-06-2	1,2-Dichloroethane	31	U
79-01-6	Trichloroethene	31	U
78-87-5	1,2-Dichloropropane	31	U
75-27-4	Bromodichloromethane	31	U
10061-01-5	cis-1,3-Dichloropropene	31	U
108-10-1	4-Methyl-2-pentanone	160	U
108-88-3	Toluene	31	U
10061-02-6	trans-1,3-Dichloropropene	31	U
79-00-5	1,1,2-Trichloroethane	31	U
127-18-4	Tetrachloroethene	31	U
591-78-6	2-hexanone	160	U
124-48-1	Dibromochloromethane	31	U

Rev Qual
R 16
R 16
R 16

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

04062G02

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2375

Matrix: (soil/water) WATER Lab Sample ID: 237502

Sample wt/vol: 25 (g/ml) ML Lab File ID: 237502A73

Level: (low/med) LOW Date Received: 03/03/04

% Moisture: not dec. _____ Date Analyzed: 03/03/04

GC Column: ZB-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	Rev Qual
75-71-8	Dichlorodifluoromethane	0.5	U	UJ 7a
74-87-3	Chloromethane	0.5	U	UJ
75-01-4	Vinyl Chloride	2.1		J
74-83-9	Bromomethane	0.5	U	UJ
75-00-3	Chloroethane	0.5	U	
75-69-4	Trichlorofluoromethane	0.5	U	
75-35-4	1,1-Dichloroethene	0.5	U	
75-15-0	Carbon disulfide	~~0.5~~ 0.22	J	UJ 6C
76-13-1	1,1,2-trichloro-1,2,2-triflu	0.5	U	UJ 7a
67-64-1	Acetone	2.7		J 6C
79-20-9	Methyl acetate	0.5	U	UJ 7a
75-09-2	Methylene Chloride	0.5	U	
156-60-5	trans-1,2-Dichloroethene	0.5	U	
1634-04-4	Methyl-tert-butyl ether	0.5	U	
75-34-3	1,1-Dichloroethane	0.5	U	
156-59-2	cis-1,2-Dichloroethene	0.16	J	J 5a
78-93-3	2-butanone	1.2	J	J 7a
67-66-3	Chloroform	0.5	U	
71-55-6	1,1,1-Trichloroethane	0.5	U	
56-23-5	Carbon Tetrachloride	0.5	U	
71-43-2	Benzene	410	E	R 1c
107-06-2	1,2-Dichloroethane	0.5	U	UJ 7a
79-01-6	Trichloroethene	0.5	U	UJ
78-87-5	1,2-Dichloropropane	1.2		J
75-27-4	Bromodichloromethane	0.5	U	UJ
10061-01-5	cis-1,3-Dichloropropene	0.5	U	
108-10-1	4-Methyl-2-pentanone	2.5	U	
108-88-3	Toluene	0.8		J
10061-02-6	trans-1,3-Dichloropropene	0.5	U	UJ
79-00-5	1,1,2-Trichloroethane	0.5	U	
127-18-4	Tetrachloroethene	0.5	U	
591-78-6	2-hexanone	2.5	U	
124-48-1	Dibromochloromethane	0.5	U	

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

04062G02

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2375

Matrix: (soil/water) WATER Lab Sample ID: 237502

Sample wt/vol: 25 (g/ml) ML Lab File ID: 237502A73

Level: (low/med) LOW Date Received: 03/03/04

% Moisture: not dec. _____ Date Analyzed: 03/03/04

GC Column: ZB-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	Rev Qual	
106-93-4	1,2-Dibromoethane	0.5	U	UJ	7a
108-90-7	Chlorobenzene	0.4	J	J	7a
100-41-4	Ethylbenzene	33	E	R	16
108-38-3	m,p-Xylene	1	U	UJ	7a
95-47-6	o-Xylene	0.5	U	↓	↓
100-42-5	Styrene	0.5	U		
75-25-2	Bromoform	0.5	U	↓	↓
98-82-8	Isopropyl Benzene	47	E	R	16
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	UJ	7a
541-73-1	1,3-Dichlorobenzene	0.5	U	UJ	
106-46-7	1,4-Dichlorobenzene	0.12	J	J	
95-50-1	1,2-Dichlorobenzene	0.77		J	
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	UJ	
120-82-1	1,2,4-Trichlorobenzene	0.5	U	↓	↓
1330-20-7	Xylene (total)	0.5	U		
110-82-7	Cyclohexane	36	E	R	16
108-87-2	Methylcyclohexane	6.6		J	7a

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

04062G02 DL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2375

Matrix: (soil/water) WATER Lab Sample ID: 237502

Sample wt/vol: 25 (g/ml) ML Lab File ID: 237502D273

Level: (low/med) LOW Date Received: 03/03/04

% Moisture: not dec. _____ Date Analyzed: 03/04/04

GC Column: ZB-624 ID: 0.32 (mm) Dilution Factor: 62.5

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	Rev Qual
75-71-8	Dichlorodifluoromethane	31	U	R 16
74-87-3	Chloromethane	31	U	
75-01-4	Vinyl Chloride	31	U	
74-83-9	Bromomethane	31	U	
75-00-3	Chloroethane	31	U	
75-69-4	Trichlorofluoromethane	31	U	
75-35-4	1,1-Dichloroethene	31	U	
75-15-0	Carbon disulfide	31	U	
76-13-1	1,1,2-trichloro-1,2,2-triflu	31	U	
67-64-1	Acetone	160	U	
79-20-9	Methyl acetate	31	U	
75-09-2	Methylene Chloride	31	U	
156-60-5	trans-1,2-Dichloroethene	31	U	
1634-04-4	Methyl-tert-butyl ether	31	U	
75-34-3	1,1-Dichloroethane	31	U	
156-59-2	cis-1,2-Dichloroethene	31	U	
78-93-3	2-butanone	160	U	
67-66-3	Chloroform	31	U	
71-55-6	1,1,1-Trichloroethane	31	U	
56-23-5	Carbon Tetrachloride	31	U	R 16
71-43-2	Benzene	1300		
107-06-2	1,2-Dichloroethane	31	U	R 16
79-01-6	Trichloroethene	31	U	
78-87-5	1,2-Dichloropropane	31	U	
75-27-4	Bromodichloromethane	31	U	
10061-01-5	cis-1,3-Dichloropropene	31	U	
108-10-1	4-Methyl-2-pentanone	160	U	
108-88-3	Toluene	31	U	
10061-02-6	trans-1,3-Dichloropropene	31	U	
79-00-5	1,1,2-Trichloroethane	31	U	
127-18-4	Tetrachloroethene	31	U	
591-78-6	2-hexanone	160	U	
124-48-1	Dibromochloromethane	31	U	

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

04062G02 DL

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: 2375

Matrix: (soil/water) WATER Lab Sample ID: 237502

Sample wt/vol: 25 (g/ml) ML Lab File ID: 237502D273

Level: (low/med) LOW Date Received: 03/03/04

% Moisture: not dec. _____ Date Analyzed: 03/04/04

GC Column: ZB-624 ID: 0.32 (mm) Dilution Factor: 62.5

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	Rev Qual
106-93-4	1,2-Dibromoethane	31	U	R 16
108-90-7	Chlorobenzene	31	U	R 16
100-41-4	Ethylbenzene	32		
108-38-3	m,p-Xylene	63	U	R 16
95-47-6	o-Xylene	31	U	
100-42-5	Styrene	31	U	
75-25-2	Bromoform	31	U	
98-82-8	Isopropyl Benzene	39		
79-34-5	1,1,2,2-Tetrachloroethane	31	U	R 16
541-73-1	1,3-Dichlorobenzene	31	U	
106-46-7	1,4-Dichlorobenzene	31	U	
95-50-1	1,2-Dichlorobenzene	31	U	
96-12-8	1,2-Dibromo-3-Chloropropane	31	U	
120-82-1	1,2,4-Trichlorobenzene	31	U	
1330-20-7	Xylene (total)	31	U	
110-82-7	Cyclohexane	31		
108-87-2	Methylcyclohexane	31	U	R 16

CompuChem
a division of Liberty Analytical Corp.

CHAIN OF CUSTODY

501 Madison Ave.
Cary, NC 27513
Phone: 919-379-4100 Fax 919-379-4040

Page 1 of 1

Courier
Airbill No.
Sampling Complete? Y or N

00060

Client/Reporting Information	Project Information
Company Name: STEP, Inc.	Project Name: FTA
Address: 1006 Floyd Culler Ct.	Sampling Location: ~~Foot St~~ HAAF
City: Oak Ridge State: TN Zip: 37830	Turnaround time: Next-DAY
Project Contact: Doug Hawn	Batch QC or Project Specific? If Specific, which Sample ID? 040626G01M
Phone #: 865 481-7837 ext 264	Are aqueous samples field filtered for metals? Y or N: N
Sampler's Name: Doug Hawn	Are high concentrations expected? Y or N? If yes, which ID(s)? Y, All

Requested Analysis (include method and bottle type): TCL VOCs

Matrices: GW - Ground water; WW - Waste water; SW - Surface water; SO - Soil/Sediment; TB - Trip Blank; RI - Rinsate; WP - Wipe; O - Other

CompuChem No (Lab Use)	Field ID	Collection Date	Collection Time	Matrix	# of bottles	Number of Preserved Bottles: HCl	NaOH	NHO3	H2SO4	MEOH	Other	pH / Sample Info (Lab Use)
237501	040626G01	3/2/04	0900	GW	3	✓						
237502	040626G02	3/2/04	0900	GW	3	✓						
237501	040626G01M	3/2/04	0900	GW	3	✓						
237503	040RS01	3/2/04	0930	RI	3	✓						
237504	TB01	LAB	LAB	TB	2	✓						

Lab Use Only

Sample Unpacked By: Marlene J. Smyth
Sample Order Entry By: Marlene J. Smyth
Samples Received in Good Condition? (Y) or N
If no, explain:

Cyanide samples checked for sulfide & chlorine? Y or (NA)
625 & Phenol samples checked for chlorine? Y or (NA)
608 samples checked for pH between 5.0-9.0? Y or (NA)

Comments

Sample Custody

Relinquished by: Doug Hawn	Date/Time: 3/2/04, 1600	Received by: Marlene J. Smyth	Date/Time: 3/3/04 / 7:15AM
Relinquished by:	Date/Time:	Received by:	Date/Time:

Subcontact? Y or N If yes, where?
Custody Seal(s) intact? (Y) or N
On Ice? (Y) or N
Cooler Temp: 3.7 °C

Samples stored 60 days after date report mailed at no extra charge.

White & Yellow copy to lab - Pink copy for customer

APPENDIX IV

Waste Manifest

0416

Atlantic waste services

NON-HAZARDOUS WASTE MANIFEST

GENERATOR

Generator Name: Hunter Army Airfield (FTP) (HAA-01) US EPA ID#: GA4210022733

Billing Address: STEP INC

Site Address: 1006 Floyd Culler Court Oakridge Tennessee 37830

County of Origin: Chatham Phone: 865-481-7837

Description of Waste	Total Quantity	Profile Number	Unit of Measure	Container Type
Contaminated Soil	20 yds	33602	yd	Roll-off

Special Handling Instructions

I hereby certify that the above described materials are non-hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.

Angi Eason — Generator Authorized Agent Name

Angi Eason — Signature

1-22-04 — Date Shipped

TRANSPORTER

Transporter Name: L Logan Atlantic Waste DOT#: 995413

Address: Port Wentworth Ga. Truck Number: 15

L Logan — Name of Authorized Agent

L Logan — Signature

1-22-04 — Date Delivered

DISPOSAL FACILITY

Site Name: SRL

Address: 84 Clifton Blvd. Ft Wentworth Ga 31407

I hereby acknowledge receipt of the above described materials.

Kathi Jones — Name of Authorized Agent

Kathi Jones — Signature

1/22/04 — Date Received

White - Original Yellow - Transporter Pink - Disposal Facility Gold - Customer

Atlantic
waste services
964-2000

Date 1-22

Time In

Time Out 30-81

Customer Name Step Inc.

Location Hunter

Type Service: Circle Below

Delivery   Swap Out   Relocate   (End of Service)

Landfill Location SRL   Weight 23.4

Customer Signature

Driver Signature C. Cooper

SR - Savannah Regional Landfill
S[illegible] Clifton Blvd.
Port Wentworth, GA 31408
Mon-Fri 7AM-5PM Sat 7AM-12PM

Ticket: 215436
Date: 01/22/2004
Time: 12:44 - 13:15

Customer 7[illegible] / ATLANTIC WASTE SERVICES -   Carrier: 77 / ATLANTIC WASTE
Truck [illegible]30
Trailer:
Origin: SA / SAVANNAH
Profile: NA / NON APP   PO: 0416

Gross: 78660 Lbs PB
Tare: 31860 Lbs PT
Net: 46800 Lbs

Comment: #33602   Haul Cust: 0000000

Wastes & Services	Quantity
CON-DIRT-T / CONTAMINATED DIRT	23.4 Tons

Weighmaster: KATHY JONES [signature]   Driver: [signature]

0416

0417

Atlantic
waste services

NON-HAZARDOUS WASTE MANIFEST

GENERATOR

Generator Name: Hunter Army Airfield (FTP-HAA-01) US EPA ID#: GA4210022733

Billing Address: STEP, INC

Site Address: 1006 Floyd Culler Court, Oakridge, Tennessee 37830

County of Origin: Chatham Phone: 865-481-7837

Description of Waste	Total Quantity	Profile Number	Unit of Measure	Container Type
Contaminated Soil	20 yds	33602	yd	Roll-off

Special Handling Instructions

#30.75

I hereby certify that the above described materials are non-hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.

Argi Eason — Generator Authorized Agent Name

Argi Eason — Signature

1-22-04 — Date Shipped

TRANSPORTER

Transporter Name: ATLANTIC WASTE DOT#: 995413 GA

Address: PINE MEADOW RD Truck Number: 17

Michael Sullivan — Name of Authorized Agent

M. Sullivan — Signature

1-22-04 — Date Delivered

DISPOSAL FACILITY

Site Name: SRL

Address: 84 Clifton Blvd. Pt. Wentworth GA 3147

I hereby acknowledge receipt of the above described materials.

Kathi — Name of Authorized Agent

Kathi Jones — Signature

1/22/04 — Date Received

White - Original Yellow - Transporter Pink - Disposal Facility Gold - Customer

#3 Step INC.
EOS

RS - Savannah Regional Landfill
84 Clifton Blvd.
Port Wentworth, GA 31408
Mon-Fri 7AM-5PM Sat 7AM-12PM

Ticket: 215517
Date: 01/22/2004
Time: 13:34

Customer: 72 / ATLANTIC WASTE SERVICES - Carrier: 72 / ATLANTIC WASTE
Truck: 17-30
Trailer:
Origin: SA / SAVANNAH
Profile: NA / NON APP
Vehicle Type: RO / ROLL OFF
Comment: H33502

PO: 0417

Gross: 84900 Lbs KB
Tare: 32540 Lbs PT
Net: 52360 Lbs

Wastes & Services	Quantity
CONT-DIRT / T-CONTAMINATED DIRT	26.18 Tons

Weighmaster: KATHI JONES

Driver:

#3 (#2)

Atlantic Waste Services
964-2000

Date 0122
Time In
Time Out 30-75
Customer Name Step INC.
Location (HAAF)
Type Service: Circle Below
Delivery Swap Out Relocate End of Service (circled)
Landfill Location REPUBLIC Weight 26.18
Customer Signature
Driver Signature

#0417

0418

Atlantic
waste services

NON-HAZARDOUS WASTE MANIFEST

GENERATOR

Generator Name: Hunter Army Airfield (FTP-HAA-01) US EPA ID#: GA4210022733

Billing Address: STEP, INC.

Site Address: 1006 Floyd Culler Court, Oakridge, Tennessee 37830

County of Origin: Chatham Phone: 865-481-7837

Description of Waste	Total Quantity	Profile Number	Unit of Measure	Container Type
Contaminated Soil	15 ~~20~~ yds	33602	yd	Roll-off

Special Handling Instructions

I hereby certify that the above described materials are non-hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.

Angi Eason — Generator Authorized Agent Name

Angi Eason — Signature

1-23-04 — Date Shipped

TRANSPORTER

Transporter Name: Atlantic Waste DOT#: 195413

Address: 125 B Pine Meadow Rd Truck Number: 14

CURT A. DAVIS — Name of Authorized Agent

Curt A. Davis — Signature

1/23/04 — Date Delivered

DISPOSAL FACILITY

Site Name: SRL

Address: 84 Clifton Blvd. Pt Wentworth, GA 31407

I hereby acknowledge receipt of the above described materials.

Name of Authorized Agent

Signature

Date Received 1/23/04

White - Original Yellow - Transporter Pink - Disposal Facility Gold - Customer

Atlantic
waste services
964-2000

Date 1/23/04
Time In ______
Time Out ______

Customer Name Step Inc.

Location H. A. A. F.

Type Service: Circle Below 3046

Delivery Swap Out Relocate **End of Service** (circled)

Landfill Location SRLF Weight 20.03

Customer Signature ______

Driver Signature [signature]

S - Savannah Regional Landfill
4 Clifton Blvd.
ort Wentworth, GA 31408
on-Fri 7AM-5PM Sat 7AM-12PM

Ticket: 215604
Date: 01/23/2004
Time: 12:26

stomer: 72 / ATLANTIC WASTE SERVICES - Carrier: 72 / ATLANTIC WASTE
Truck: 14-30
railer:
Origin: HUN / HUNTER
rofile: NA / NON APP

PO: 0418

Gross: 73120 Lbs PR
Tare: 33060 Lbs PT
Net: 40060 Lbs

omment: #33602

Haul Cust: 0000009

Wastes & Services	Quantity
CONT-DIRT / T-CONTAMINATED DIRT	20.03 Tons

eighmaster: [signature] KATHI JONES

Driver: [signature]

#0418

0419

Atlantic
waste services

NON-HAZARDOUS WASTE MANIFEST

GENERATOR

Generator Name: HUNTER ARMY AIRFIELD US EPA ID#: GA 4210022733

Billing Address: STEP Inc. 1006 Floyd Miller Ct. Oak Ridge, TN 37830

Site Address: FIRE TRAINING AREA

County of Origin: CHATHAM Phone: 865-481-7837

Description of Waste	Total Quantity	Profile Number	Unit of Measure	Container Type
CONTAMINATED SOIL	X5YDS	3360R	YD.	ROLL-OFF

Special Handling Instructions

I hereby certify that the above described materials are non-hazardous wastes as defined by 40 CFR Part 261 or any applicable state law, have been fully and accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.

Angi Eason Angi Eason 1-23-04
Generator Authorized Agent Name Signature Date Shipped

TRANSPORTER

Transporter Name: ATLANTIC WASTE DOT#: 795413

Address: 853 PINE MEADOW Rd Truck Number: 15

Clevan Cooper C. Cooper
Name of Authorized Agent Signature Date Delivered

DISPOSAL FACILITY

Site Name: SCA

Address: 84 Clifton Blvd Pt Wentworth GA 31407

I hereby acknowledge receipt of the above described materials.

Name of Authorized Agent Signature Date Received 1/23/03

White - Original Yellow - Transporter Pink - Disposal Facility Gold - Customer

Atlantic
waste services
964-2000

Date 1-23

Time In 30

Time Out 30-225

Customer Name Step Inc

Location HAAF

Type Service: Circle Below

Delivery Swap Out Relocate (End of Service)

Landfill Location SRL Weight 6.57

Customer Signature

Driver Signature C. Logan

RS - Savannah Regional Landfill
84 Clifton Blvd.
Port Wentworth, GA 31408
Mon-Fri 7AM-5PM Sat 7AM-12PM

Ticket: 215731
Date: 01/23/2004
Time: 14:52 - 14:56

Customer: 72 / ATLANTIC WASTE SERVICES - Carrier: 72 / ATLANTIC WASTE
Truck: 15-30
Trailer:
Origin: SA / SAVANNAH
Profile: NA / NON APP

Gross: 45000 Lbs KB
Tare: 31860 Lbs PT
Net: 13140 Lbs

PO: 0419

Comment: #33602

Haul Cust: 0000000

Wastes & Services	Quantity
CONT-DIRT / T-CONTAMINATED DIRT	6.57 Tons

Weighmaster: KATHI JONES

Driver: C. Logan

#0419