Document
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FORMER LAREDO AIR FORCE BASE

LAREDO, TEXAS

Final

Site Investigation Report

Sanitary Landfill

Prepared by

U.S. Army Corps of Engineers

Tulsa District

March 1998

02660

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List of Acronyms

ASTM - American Society for Testing and Materials
Decon - Decontamination
DQO - Data Quality Objectives
EB - Equipment Blank
ECD - Electron Capture Detector
EM - Electromagnetic
EPA - U.S. Environmental Protection Agency
FID - Flame Ionization Detector
FUDS - Formerly Used Defense Sites
GC/MS - Gas Chromatography/Mass Spectroscopy
GIS - Geographical Information Survey
GPS - Global Positioning System
HHMSSL - Human Health Media Specific Screening Levels
IDM - Investigative Derived Material
IDW - Investigated Derived Wastes
IIDER - Ingestion, Inhalation, Dermal Exposure Routes
LAFB - Laredo Air Force Base
MCL - Maximum Contaminant Level
MDL - Method Detection Limit
MRD - Missouri River Division (U.S. Army Corps of Engineers)
MSD - Matrix Spike Duplicate
NDE - Not Deep Enough
PCB - Polychlorinated Biphenol
PPE - Personal Protective Equipment
RCRA - Resource Conservation Recovery Act
SB - Soil Boring
SCAPS - Site Characterization and Analysis Penetrometer System
SD - Sediment Sample
SG - Soil Gas
SVOC - Semi-Volatile Organic Compounds
TCD - Thermal Conductivity Detector
TIC - Tentatively Identified Compound
TNRCC - Texas Natural Resource Conservation Commission
TPH - Total Petroleum Hydrocarbons
QA - Quality Assurance
QC - Quality Control
USACE - U.S. Army Corps of Engineers
VOC - Volatile Organic Compounds
WES - Waterways Experiment Station (U.S. Army Corps of Engineers)

1.0 EXECUTIVE SUMMARY

This document was prepared by the Tulsa District U.S. Army Corps of Engineers (USACE) to present the finding of the site investigation completed for the Sanitary Landfill located at the former Laredo Air Force Base (LAFB). Investigation at this former base is being conducted through the Defense Environmental Restoration Program for Formerly Used Defense Sites (FUDS).

The former LAFB is located in Laredo, Texas. It was used as a military base from 1942-1975. In 1975, the former base lands were either deeded or sold to other federal, state and county agencies, or private firms. The remainder of the Base was deeded to the City of Laredo.

USACE obtained historical air photos of the former base, and an area to the west and northwest of the airport runway was suspected of being used as a landfill. This suspected area presently has a residential neighborhood, public school, and commercial property located on it. Field investigations of the site were proposed to determine if any constituents of concern exist in this area. This report summarizes the investigations that were conducted.

To thoroughly investigate the site and address public concern, the following investigations were conducted. The investigation included conducting a series of traditional and experimental geophysical investigations in May 1997, the completion of a soil gas survey, and the collection and analyses of sediment, soil, and groundwater samples in July 1997.

A traditional electromagnetic (EM) 31 unit and an experimental EM 61 unit were used to conduct the geophysical investigation. The EM 31 did not provide any data at depths greater than 2-4 feet. The EM 61 unit provided useful information. This equipment identified anomalies that corresponded to known landfill trenches and it identified anomalies that are thought to be trenches that had not been identified prior to this investigation. Soil gas survey information collected around the newly identified trenches did not detect any volatile organic compounds (VOCs) or methane.

A total of 299 soil gas samples were collected at the site from depths of 3 foot and 7 foot below ground surface (bgs). All samples were analyzed off-site on a gas chromatograph equipped with a mass spectrometer (GC/MS) for volatiles using the EPA Method 8260. The samples collected at a 3' depth were also analyzed for methane by gas chromatograph equipped with a thermal conductivity detector (GC/TCD).

The soil gas survey was conducted to enhance the soil and groundwater data collected using traditional collection methods. In the residential area, none of the analytes tested were present in any of the soil gas samples collected. In a commercially zoned lot in the northwestern portion of the site, chlorobenzene and methane were detected in two samples. The chlorobenzene concentration was below the EPA Region 6 Human Health Media Specific Screening Level (HHMSSL) concentration, and the elevated methane concentrations probably originated from the poor drainage and organic decomposition at the sample location. There is no distribution of these contaminants at the site and analytical results do not indicate that a release has occurred.

Four sediment and forty-eight soil samples (at 20 locations) were collected and analyzed for VOCs, SVOCs, pesticides, PCBs, herbicides and metals. Although several analytes were detected either above sample quantitation limits for organics or above the EPA Region 6 Regional Background concentrations for metals, there is no pattern of contaminant distribution at this site. Additionally, the analytical results are generally within the EPA Region 6 HHMSSL concentrations that are protective of human health. Based on a review of the sediment and soil data, the analytical results do not indicate a release of hazardous constituents from site-related activities at the former sanitary landfill.

Static groundwater level measurements were taken prior to sampling and prior to abandonment of each groundwater location. Groundwater is approximately 8.5 feet below ground surface (bgs), and generally flows in a west-southwest direction.

Fifty-nine groundwater samples were analyzed for VOCs in the field using a Viking Portable GC/MS. None of the field groundwater samples analyzed contained concentrations of VOCs above 60 ppb. In addition to this field analysis, groundwater samples were analyzed in the

laboratory for VOC (60 samples), SVOC (15 samples), pesticides (12 samples), PCBs (12 samples), herbicides (12 samples), and metals (31 samples).

Analytical results for VOCs, SVOCs, pesticides, PCBS, and herbicides either did not detect any analyte in concentrations above the sample quantitation limit or had detectable concentrations below the EPA Region 6 Drinking Water MCL concentrations. Although some groundwater samples detected metal concentrations exceeding the EPA Region 6 MCL concentration, the comparison of this data to a drinking water MCL standard is a very conservative analysis, since the groundwater in the area is not used as a drinking water source. The comparison of soil data to the groundwater data suggests that the elevated concentrations of metals found in the groundwater are not a result of any of the analytes detected in the soil. The soil and groundwater data do not indicate a release has occurred because there is no distribution of contaminants. A background study for this site has not been performed; however, the results appear to be indicative of naturally occurring conditions of groundwater in the area.

The site has been extensively investigated using an EM and soil gas survey along with the collection and analysis of sediment, soil and groundwater samples. Although several analytes were detected above the EPA Region 6 HHMSSL, evaluation of the analytical results indicate there is no pattern of contaminant distribution within the soil gas, sediment, soil or groundwater at the site. Additionally, the analytical results are generally within the EPA Region 6 HHMSSL concentrations that are protective of human health. Review of all data at the site does not indicate that a release of contaminates has occurred from the activities at the former LAFB, and it appears that the trenches were used as a sanitary landfill by the former base. Evaluation of all data indicates no further action is required at the site.

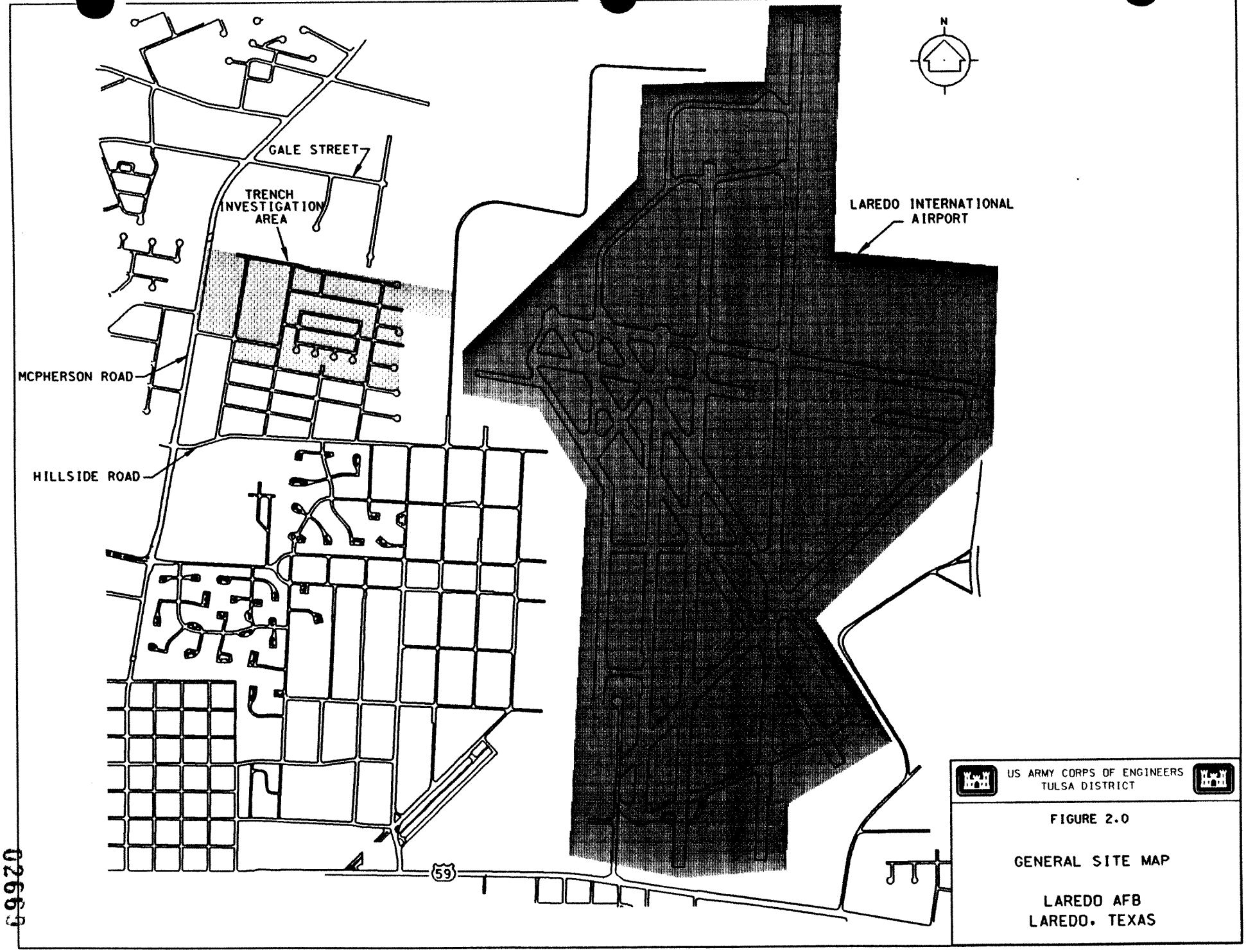
2.0 INTRODUCTION

The former LAFB is located in Laredo, Texas. It was used as a military base from 1942-1975. In 1975, the former base lands were either deeded or sold to other federal, state and county agencies, or private firms. The remainder of the Base was deeded to the City of Laredo. This Site Investigation at this former base is being conducted through the Defense Environmental Restoration Program for FUDS.

USACE obtained historical air photos of the former base, and an area to the west and northwest of the airport runway was suspected of being used as a landfill. This suspected area presently has a residential neighborhood, public school, and commercial property located on it. Field investigations of the site were proposed to determine if any constituents of concern exist in this area. This report summarizes the investigations that were conducted.

This site investigation was conducted with the objective of determining if constituents of potential concern exist in the soil gas, sediment, soil, and groundwater around the historical landfill trenches. The first investigation conducted by the USACE consisted of conducting a geophysical survey using EM equipment to locate the landfill trenches. A soil gas survey was conducted by a USACE contractor, Target Environmental Services, to determine if any constituent of concern exist in the soil gas around the landfill trenches. Another USACE investigation collected sediment, soil, and groundwater samples at selected locations. Sediment samples were collected from a drainage ditch located in the far northwest corner of the site. The USACE utilized the Site Characterization and Analysis Penetrometer System (SCAPS) to collect subsurface soil and groundwater samples.

Figure 2.0 provides the general location of the sanitary landfill site investigation area in relation to the Laredo International Airport. Because the area of investigation is mostly in a residential neighborhood, sampling locations were chosen based on accessibility, and to minimize the impact to residential property.


N
GALE STREET
TRENCH INVESTIGATION AREA
LAREDO INTERNATIONAL AIRPORT
MCPHERSON ROAD
HILLSIDE ROAD
59
US ARMY CORPS OF ENGINEERS
TULSA DISTRICT
FIGURE 2.0
GENERAL SITE MAP
LAREDO AFB
LAREDO, TEXAS

02669

3.0 GENERAL SITE INFORMATION

3.1 Site History

On 7 May 1942, the U.S. Government acquired 2,085.43 acres for the construction of Laredo Army Air Corps Base (now known as former Laredo Air Force Base). The Government constructed runways and numerous facilities from 1942 to 1974. The Base was initially deactivated on 17 June 1947; however, it was reactivated during the Korean conflict. The former Base was again deactivated on 29 March 1974. Approximately 309 acres were either deeded or sold to other federal, state and county agencies, or private firms. The remainder of the Base was deeded to the City of Laredo.

Historical aerial photographs of the former Laredo Air Force Base show that an area west-northwest of the base was used as a landfill beginning in the mid 1950s, and appears to have been used as a landfill site up until the early 1970s. The landfill was reportedly used as a sanitary landfill for the Former Laredo Air Force Base. After the base was deactivated in 1974, the former base was deeded or sold to other federal, state, county, and private firms. Beginning in the early 1980s, an elementary school (Newman Elementary School) and a housing development was constructed over the locations of the former landfill trenches. In 1988, the engineering firm of Raba-Kistner Consultants, Inc. discovered sanitary refuse in a foundation boring drilled during an investigation for construction of an addition to Newman Elementary School. Recent excavations in the neighborhood for swimming pools and utility connections for new homes show that the refuse consisted of old bottles, cans, clothes, and other similar type sanitary refuse.

3.2 Site Characteristics

3.2.1 Site Location

The site is located in Laredo, Texas, west and northwest of the Laredo International Airport, and the site is located on property that is residentially and commercially zoned.

3.2.2 Soils

The soils within the area are characterized as Catarina-Montell-Jimenez soil association as cracking, crumbly clay soils overlying a stiff caliche soil (Parker, 1996). The cone

penetrometer sensor on the SCAPS used to collect field samples was also used to collect soil classification information. Twelve soil classification pushes were conducted from the ground surface down to the top of groundwater (approximately 8-12 feet). Generally over the area of investigation, soils encountered ranged from clays to silty sands. In the northwest area of investigation where creek sediment samples were collected, soils are classified as moist organic-rich clays. Soils to the east and southeast of the creek area were composed of clays, silts, and sands with clay to silt size particles dominating with low moisture content. In the east half of the area of investigation, streaks of gypsum crystals were encountered in a number of samples.

3.2.3 Topography and Storm Water Drainage

The area of investigation is located within Webb County, Texas. Webb County receives a limited amount of rainfall per year with an average annual precipitation of 20-22 inches (TNRCC, 1993). The countryside around Laredo is characterized by low growing brushy vegetation with small hills. The surface topography consists of many arroyos and dry creek beds gently sloping to the Rio Grande River (Parker, 1996, and Raba-Kistner, 1996). The Rio Grande River lies to the west approximately 2.5 miles from the site. An intermittent stream lies north and adjacent to the area being investigated. The only other major surface water resource in the area is Casa Blanca Lake located to the east of the site approximately 2 miles.

3.2.4 Site Hydrogeology

Generally, shallow groundwater is approximately 8.5 feet bgs, and flows in a west-southwest direction following the general trend of surface topography. Groundwater quality parameters were analyzed for samples collected at a site approximately 1 mile south of this site at a depth of 8 to 9 feet bgs. The groundwater pH ranges from 7.5 to 8, and has an average total dissolved solid concentration of 3000 mg/l. Potable water for the area is obtained through the City of Laredo public water supply system and is collected entirely from the Rio Grande River (Raba-Kistner, 1996).

4.0 FIELD INVESTIGATIONS

This section presents the field operations that were performed during the course of investigations at the former LAFB sanitary landfill site.

4.1 Investigation Objectives

The USACE wanted to conduct a thorough investigation of the site in order to be able to address area resident's concerns expressed during the public meeting held in February 1997. The general hierarchy of the investigation is as follows: the first investigation objective was to determine if an EM survey conducted at the site along the neighborhood city streets could identify anomalies that correspond to the trenches identified on historical air photos. Secondly, a soil gas survey was conducted over the entire area to determine if any soil gas constituents of concern were emanating from the historic trenches. Finally, sediment, soil, and groundwater samples were collected at the site in order to determine if any constituents of potential concern existed at the surface and within the subsurface soil and groundwater.

4.2 Electromagnetic Survey

The USACE obtained non-consecutive year historical air photos from 1952-1995. Photos obtained for 1955, 1959, 1964, and 1970 show trench-like shapes in the area of investigation. Since consecutive year photos were not available, an attempt was made to establish the location of the all landfill trenches using EM survey equipment.

The USACE Waterways Experimental Station (WES) conducted the EM survey of the area. EM survey equipment is used to measure the subsurface material's electrical conductivity and can also locate metallic conductors placed in the subsurface. Subsurface materials such as soil, rock, and fill can be characterized by their electrical properties. Generally, materials placed in a landfill have resistivity values significantly different than the surrounding soil, and therefore, the landfill trenches can be delineated and mapped.

In order to identify the location of the trenches at the site, two types of EM survey equipment were used; one utilized a traditional Geonics EM 31 conductivity meter and the other utilized an experimental Geonics EM 61 conductivity meter. The EM 31 instrument obtains responses

from a depth of 6-12 feet in the subsurface, an interval of substantial interest for buried landfills. The experimental EM 61 equipment was configured to obtain a good response from electrical conductors from a depth of 5-15 feet, and minimize responses from shallower buried city utility lines.

The EM survey area was bound to the west by Cypress Drive, to the north by Los Ebanos Drive, to the south by Hibiscus Lane, and to the east by Cactus Drive. A small area northeast of Cactus Drive was also surveyed to determine if any trenches exist. The EM equipment is sensitive to metal objects, so both types of EM survey equipment were towed through the streets on a plastic trailer 30 feet behind a small all terrain vehicle in the city street right-of-ways. The EM survey equipment was linked to a Global Positioning System (GPS) in order to be able to identify the exact locations of all data obtained with the EM equipment.

The results of the EM Survey are provided in Section 5.0 of this report.

4.3 Soil Gas Survey

A soil gas was completed to compliment and enhance the collection of the soil and groundwater sample collection. Since consecutive year historical air photos were not available for the area, it was not known if all the landfill trenches had been identified. To thoroughly investigate the entire area, the soil gas survey was used as an alternative to collecting soil and groundwater samples over the entire area. Generally, this survey was used to determine if soil gas constituents of potential concern are emanating from the former landfill area.

A USACE contractor, Target Environmental Services, Inc. conducted the soil gas survey. The sample locations were set on a 100-200 feet spacing covering the entire site. Target utilized a map coordinate system to identify the samples they collected. Their sample beginning point (N00E100) centered on the intersection of Cypress Drive and Hibiscus Lane. Once Target completed the sample collection process for the entire area, the USACE surveyed all soil gas sample locations. All subsequent discussions concerning the soil gas survey locations will refer to the USACE survey identification numbers instead of Target's sample identification numbers. The soil gas sample locations are shown on Figure 4.3.

LEGEND

- POWER POLE
- POST
- FLAG POLE
- ANTENNA
- LIGHT POLE
- HAND HOLE
- MANHOLE
- FIRE HYDRANT
- UTILITY BOX
- TRANSFORMER
- MAIL BOX
- SIGN
- UNIDENTIFIED OBJ
- SAT DISH
- TREE
- ×123.4 SPOT ELEVATION
- 123.45 / 104 H/V CONTROL
- MONUMENT
- CURBED ROAD
- STOCK PILE
- CONCRETE
- PAVED DRIVEWAY
- UNPAVED DRIVEWAY
- SIDEWALK
- BUILDING
- FOUNDATION
- FENCE
- WALL
- GUARD RAIL
- CULVERT PIPE
- CONCRETE CHANNEL
- POOL
- TREE LINE
- INDEX CONTOUR
- INTER CONTOUR
- APPROX INTER CON
- SG-098 SOIL GAS SAMPLE LOCATION

DATUM

HORIZONTAL DATUM BASED ON TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NAD83.

VERTICAL DATUM BASED ON NGVD 1929.

LINEAR UNIT IS U.S. SURVEY FOOT.

DISCLAIMER

THIS MAP WAS COMPILED AT A 1 FOOT CONTOUR INTERVAL TO MEET THE ASPRS STANDARDS FOR CLASS 2 MAP.

125 0 125
SCALE IN FEET

APPROX NEG SCALE: 1" = 300'
FLIGHT HEIGHT: 1800' A.M.T.
DATE OF PHOTOGRAPHY: 12-29-96
CONTOUR INTERVAL: 1'

REVISION	DATE	DESCRIPTION	BY

$ THINK VALUE ENGINEERING - IT SAVES MONEY $

AERIAL DATA SERVICE, INC.
TULSA, OKLAHOMA 74116

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CORPS OF ENGINEERS
TULSA, OKLAHOMA

PHOTOGRAMMETRIC MAPPING
FORMER LAREDO AFB
SOIL GAS SURVEY SAMPLE LOCATIONS
FIGURE 4.3
WEBB COUNTY, TEXAS

PHOTOGRAMMETRY

SCALE: AS SHOWN

CONTRACT NUMBER: DACA56-

02674

Soil gas samples were collected at 150 locations using geoprobe type equipment. Soil gas samples were collected at depths of 3 and 7 feet below the ground surface at each soil gas sample location. All samples were analyzed at Target's laboratory in Columbia, Maryland. All samples collected were analyzed using a GC/MS for volatile analytes following EPA Method 8260. In addition, samples collected at the 3-foot depth were also analyzed for methane by using a gas chromatograph equipped with a thermal conductivity detector (GC/TCD). A total of 300 samples should have been analyzed by Target; however, one vial was broken in route to the lab, leaving 299 samples for analysis. All analytical results for the soil gas survey are reported in Section 5.0 of this report. For more detailed information, see Target's Final Report in Appendix A.

4.4 Sediment, Soil and Groundwater Investigation

Sediment, soil and groundwater sample locations were concentrated around the areas where trenches were identified on historical aerial photos. All sediment, subsurface soil and groundwater locations are shown on Figure 4.4. The following discussion provides a description of the collection of the subsurface soil and groundwater samples.

4.4.1 Sediment Investigation

In the northwest corner of the site, four sediment samples were collected from the bottom of the drainage ditch using clean stainless steel hand implements. Table 4.4.5 lists the sediment sample identification numbers, the number of samples collected at each location, and the analytical parameters conducted for each sample. Four samples were analyzed for VOCs, SVOCs, metals, pesticides, PCBs, and herbicides. Additional metals were analyzed using EPA Method 6010 that quantifies the RCRA metals barium, chromium, and silver. These additional analytes were reported by the laboratory and provided to evaluate the potential source in the event that site-related contamination was present. All sediment analytical results are discussed in Section 5.0, and the Chemical Data Quality Report for all samples is provided in Appendix B.

Table 4.4.1 – Sediment Analytical Parameters					
Sediment Location ID #	**VOC EPA Method 8260 B**	**SVOC EPA Method 8270 B**	**Metals EPA Methods 6010 ,7471, 7060,7740**	**Pesticides/ PCBs EPA Method 8080**	**Herbicides EPA Method 8150 or 8151**
SD1	1	1	1	1	1
SD2	1	1	1	1	1
SD3	1	1	1	1	1
SD4	1	1	1	1	1
Total # of Samples analyzed	**4**	**4**	**4**	**4**	**4**

4.4.2 SCAPS Description

The SCAPS was used to collect the subsurface soil and groundwater samples at the site. The SCAPS is mounted in a 20-ton truck equipped with two hydraulic rams capable of exerting 38,000 pounds of force. The system is capable of pushing 1.7-inch (44-mm) diameter rods to approximately 75 feet in geologically suitable materials. The SCAPS was utilized for this project because the volumes of individual soil samples retrieved by SCAPS is smaller than those obtained by conventional drilling methods, resulting in much less investigation derived waste to store and dispose. Additionally, the SCAPS was used because it is a less invasive investigation technique that minimizes disturbance to the area residence private property.

4.4.3 Soil Investigation

Subsurface soil samples were collected using the SCAPS. Eighteen-inch long samples were collected beginning at depths of 2' and 5' bgs, and 2' above either the top of groundwater or push refusal. Samples at each location were not collected for the interval from 0-2' because most of the locations were pushed through asphalt and road subgrade material, and a sample from this interval would not be representative of the site conditions. The top of the

groundwater or depth of refusal was determined with either a cone penetrometer push or water sampling point installation prior to initiation of sampling.

The procedures used in this portion of the investigation are described briefly below;

1. The base of the sampling tool was advanced to the top of the uppermost subsurface sampling interval using the SCAPS unit.
2. The sampling release tool was inserted and engaged the sample tool.
2. The sampling tool (Mostap sampling device) was advanced eighteen (18) inches, then removed.
4. When the sampling tool cleared the ground surface, it was unscrewed from the push pipe and disassembled. The collected soil sample was removed from the split sleeve and placed in a clean, labeled sample container and placed in an ice chest.
5. A clean decontaminated sampling tool was screwed onto the push rods and the next soil sample taken.

The Work Plan specified samples to be collected at three depth intervals for 20 locations for a total of 60 subsurface soil samples. Sixty samples were not collected because soil samples were limited to the depth at which groundwater was encountered and therefore the optimum of three depths intervals were not obtained at all sample locations. In addition, some analytical methods were not conducted because of insufficient soil sample recovery. Sampling intervals were generally obtained at 2.0-3.5 feet, 5.0-6.5 feet, and 8.0-9.5 feet. In addition to the collection of soil samples, the cone penetrometer sensor was used to collect eleven soil classifications to support a detailed soil interpretation.

The subsurface soil locations are shown on Figure 4.4. Table 4.4.3 lists the soil sample identification numbers, the number of samples analyzed for each location, and the analytical parameters conducted for each sample. The soil sample locations are designated as "SB" prior to the sampling number. Forty-eight samples per method were analyzed for VOCs, SVOCs, metals, pesticides, and PCBs, and thirty-nine samples were analyzed for herbicides. In addition to the eight RCRA metals, sixteen metals were included in the sediment and soil analytical parameter list. These additional metals were analyzed using EPA Method 6010 that

LEGEND

- POWER POLE
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- UNPAVED DRIVEWAY
- SIDEWALK
- BUILDING
- FOUNDATION
- FENCE
- WALL
- GUARD RAIL
- CULVERT PIPE
- CONCRETE CHANNEL
- POOL
- TREE LINE
- INDEX CONTOUR
- INTER CONTOUR
- APPROX INTER CON
- SB59 SOIL AND GW SAMPLE LOCATIONS (SURVEYED)
- SEDIMENT SAMPLE (LOCATIONS ARE APPROXIMATE)

DATUM

HORIZONTAL DATUM BASED ON TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NAD83.

VERTICAL DATUM BASED ON NGVD 1929.

LINEAR UNIT IS U.S. SURVEY FOOT.

DISCLAIMER

THIS MAP WAS COMPILED AT A 1 FOOT CONTOUR INTERVAL TO MEET THE ASPRS STANDARDS FOR CLASS 2 MAP.

125 0 125
SCALE IN FEET

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$ THINK VALUE ENGINEERING - IT SAVES MONEY $

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U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
TULSA, OKLAHOMA

DESIGNED BY:
DRAWN BY:
CHECKED BY:
SUBMITTED BY:
CHIEF:

PHOTOGRAMMETRIC MAPPING
FORMER LAREDO AFB

SEDIMENT, SOIL, & GROUNDWATER SAMPLE LOCATIONS
FIGURE 4.4
WEBB COUNTY, TEXAS

PHOTOGRAMMETRY

SCALE: AS SHOWN

CONTRACT NUMBER: DACA56-96-D-0002

02678

quantifies the RCRA metals barium, chromium, and silver. These additional analytes were reported by the laboratory and were provided to thoroughly evaluate the site in the event that site-related contamination was present. All subsurface soil analytical results are discussed in Section 5.0, and the Chemical Data Quality Report is provided in Appendix B.

Table 4.4.3 Soil Analytical Parameters

Soil Location ID	VOC EPA Method 8260 B	SVOC EPA Method 8270 B	Metals EPA Methods 6010 ,7471, 7060,7740	Pesticides/ PCBs EPA Method 8080	Herbicides EPA Method 8150 or 8151
SB1	3	3	3	3	3
SB2	3	3	3	3	1
SB5	3	3	3	3	2
SB6	2	2	2	2	not collected
SB8	1	1	1	1	not collected
SB11	3	3	3	3	not collected
SB14	3	3	3	3	3
SB19	1	1	1	1	1
SB24	3	3	3	3	3
SB28	3	3	3	3	3
SB35	3	3	3	3	3
SB36	1	1	1	1	1
SB37	1	1	1	1	1
SB39	2	2	2	2	2
SB41	Location not accessible				
SB46	2	2	2	2	2
SB47	3	3	3	3	3
SB49	2	2	2	2	2
SB50	3	3	3	3	3
SB55	3	3	3	3	3
SB58	3	3	3	3	3

Table 4.4.3 Soil Analytical Parameters					
Soil Location ID	**VOC EPA Method 8260 B**	**SVOC EPA Method 8270 B**	**Metals EPA Methods 6010 ,7471, 7060,7740**	**Pesticides/ PCBs EPA Method 8080**	**Herbicides EPA Method 8150 or 8151**
Total # of samples analyzed	48	48	48	48	39

4.4.4 Groundwater Investigation

The PowerPunch™, auxiliary groundwater sampling equipment for the SCAPS, was utilized to install temporary monitoring wells and collect groundwater samples. The PowerPunch™ system is a direct push well point system utilizing a stainless steel sacrificial point attached to 3/4" PVC slotted screen and riser sections and a sacrificial annular seal. The screen is encased in the SCAPS push rods while being pushed into the soil/aquifer. After the desired sampling depth is achieved, the push rods, which were used to push the PowerPunch™, were extracted and the PVC screen and riser pipe were left down-hole to act as a temporary sampling well. The annular seal was typically retracted to approximately 6-inches below the ground surface and left in place so that it would act as a temporary surface seal.

PowerPunch™ monitoring wells were attempted at fifty-nine locations in the study area. In-situ ground water samples from the PowerPunch™ locations were collected using Tygon™ tubing in conjunction with a peristaltic pump. The groundwater samples were immediately placed on ice. Groundwater sample analytical results are discussed in Section 5.0.

The top of groundwater was expected to be found at a depth of 8 to 10 feet, therefore a push depth of 20' was expected to result in approximately 10 feet of water, an amount judged to be sufficient to provide the necessary sampling volume. Basically two surface conditions existed for push locations in the study area, asphalt areas and soil covered areas. To prevent damage to the monitoring point equipment in roadways or parking lots where the ground surface was

covered with asphalt and shallow debris was possible, a dummy tip was used to penetrate the upper 2 feet of ground surface prior to utilizing the PowerPunch™ equipment. In soil covered areas, pushes were initiated with the PowerPunch™ equipment.

To abandon the locations, all retrievable casing and screen was pulled and the holes were grouted to the surface using a cement/bentonite mixture. All locations were plugged according to the Texas Natural Resource Conservation Commission plugging requirements. The top 6-inches of push locations that were located on asphalt were filled and packed with an asphalt-patching compound.

Due to the slow recharge rate of some of the sampled well points, insufficient water was recovered at some wells to perform all tests proposed in the workplan. A total of 60 water samples were analyzed for VOCs, 15 water samples were analyzed for SVOCs, 31 water samples were analyzed for metals, 12 water samples were analyzed for pesticides and PCBs, and 12 water samples were analyzed for herbicides. Additional metals were analyzed using EPA Method 6010 that quantifies the RCRA metals barium, chromium, and silver. These additional analytes were reported by the laboratory and were provided to thoroughly evaluate the site in the event that site-related contamination was present. Table 4.4.4 presents the detailed analytical parameters for each groundwater sample. The "W" in sample location identification column corresponds to "SB" on the sample location map (Figure 4.4). For example, W1 was collected at sample location SB1.

At three locations (SB33, SB40, and SB44), subsurface conditions prevented penetration of the PowerPunch™ tool to a depth sufficient to obtain groundwater samples. These locations are designated as 'not deep enough' (NDE) on the table below. Screen or riser pipe was not installed at those locations. Location SB41 was located in the south half of the vacant lot at 1447 Los Ebanos; however, that location was inaccessible because of construction activities on a neighboring lot. All groundwater analytical results are discussed in Section 5.0, and the Chemical Data Quality Report is provided in Appendix B.

Table 4.4.4 Groundwater Analytical Parameters

Sample Location ID	VOC EPA Method 8260 B	SVOC EPA Method 8270 B	Metals EPA Methods 6010 ,7471, 7060,7740	Pesticides/ PCBs EPA Method 8080	Herbicides EPA Method 8150
W1	X	X	X	X	X
W2	X	X	X	X	X
W3	X	X	X	X	X
W4	X	X	X	X	X
W5	X	X	X	X	X
W6	X	X	X	X	X
W7	X				
W8	X				
W9	X				
W10	X	X	X		X
W11	X				
W12	X		X		
W13	X				
W14	X	X	X	X	X
W15	X	X	X	X	X
W16	X		X		
W17	X		X		
W18	X		X		
W19	X		X		
W20	X		X		
W21	X	X	X	X	X
W22	X		X		
W23	X	X	X	X	X
W24	X	X	X		
W25	X		X		
W26	X	X	X		

Table 4.4.4 Groundwater Analytical Parameters

Sample Location ID	VOC EPA Method 8260 B	SVOC EPA Method 8270 B	Metals EPA Methods 6010 ,7471, 7060,7740	Pesticides/ PCBs EPA Method 8080	Herbicides EPA Method 8150
W27	X		X		
W28	X		X		
W29	X				
W30	X	X	X	X	X
W31	X		X		
W32	X		X		
W33	NDE to obtain a sample				
W34	X				
W35	X	X	X	X	
W36	X				
W37	X				
W38	X				
W39	X				
W40	NDE to obtain a sample				
W41	Location not accessible				
W42	X				
W43	X				
W44	NDE to obtain a sample				
W45	X		X		
W46	X				
W47	X				
W48	X				
W49	X		X		
W50	X		X		
W50U	X				
W51	X		X		

Table 4.4.4 Groundwater Analytical Parameters					
Sample Location ID	**VOC EPA Method 8260 B**	**SVOC EPA Method 8270 B**	**Metals EPA Methods 6010 ,7471, 7060,7740**	**Pesticides/ PCBs EPA Method 8080**	**Herbicides EPA Method 8150**
W51U	X				
W52	X				
W53	X				
W54	X				
W54U	X				
W55	X				
W55U	X				
W56	X				
W57	X				
W57U	X				
W58	X				
W59	X				
Total # of samples analyzed	60	15	31	12	12

NDE = not deep enough

4.4.4.1 Field Groundwater Sampling

Fifty-nine groundwater samples were collected and analyzed for volatile organic compounds in the field using a Viking Portable GC/MS. In order to identify constituents of potential concern, the detection limit of the GC/MS was set at 60 parts per billion (ppb), using calibration standards of benzene, toluene, ethyl benzene, m-xylene, trichloroethene and trans-1, 2-dichloroethene. Additional water samples were collected and concurrently sent to the USACE Southwestern Division Laboratory and its USACE Missouri River Division (MRD) validated contract laboratories for the parameters listed in Table 4.4.4 above. The field analytical results using the portable GC/MS are discussed in Section 5.0.

4.4.4.2 Groundwater Elevation and Flow Direction

Fifty-five static water level measurements were taken prior to sampling and prior to abandonment of the locations. All groundwater elevations were plotted on a site map and are discussed in Section 5.0 of this report.

4.5 Investigative Derived Materials

The investigative derived materials (IDM) generated during this investigation included decontamination fluids, field lab wastes, and waste purged groundwater. All IDM was drummed on-site, labeled, and stored at a secure area at the City of Laredo, Wastewater Utility facility. A total of 2 ½ drums (165 gallons) of waste was generated. One composite IDM sample was collected from the drums. One sample per method was analyzed for VOCs, SVOCs, metals, pesticides, PCBs, and herbicides (see Table 4.5). Analytical results for the IDM was labelled "Decon" in the laboratory reports. The 'decon' sample was determined to be hazardous, due to the presence of benzene (.792 mg/l) and trichloroethylene (.875 mg/l). Deposition of field lab GC/MS standards in the IDM drums caused the decon sample to be classified hazardous, and this characteristic was not associated with waste groundwater or decontamination water. On October 22, 1997, Radian International LLC under contract to the U.S. Army Corps of Engineers, Tulsa District, disposed of three drums. The USACE signed as generator on behalf of the Department of Defense. Laidlaw Environmental Services transported the hazardous waste to their disposal facility in San Antonio, Texas. The hazardous waste was accepted by the disposal facility on October 22, 1997. The Chemical Data Quality Report for all analytical results is provided in Appendix B.

Table 4.5 Decon Analytical Parameters

Sample ID #	VOC EPA Method 8260 B	SVOC EPA Method 8270 B	Metals EPA Methods 6010 ,7471, 7060,7740	Pesticides/ PCBs EPA Method 8080	Herbicides EPA Method 8150 or 8151
DECON	1	1	1	1	1

Table 4.5 Decon Analytical Parameters					
Sample ID #	**VOC EPA Method 8260 B**	**SVOC EPA Method 8270 B**	**Metals EPA Methods 6010 ,7471, 7060,7740**	**Pesticides/ PCBs EPA Method 8080**	**Herbicides EPA Method 8150 or 8151**
Total # of Samples analyzed	**1**	**1**	**1**	**1**	**1**

4.6 Surveying

All soil gas and soil boring (soil and groundwater) sampling locations were physically located by Geographical Information Survey (GIS) equipment. The survey meets or exceeds a third order class I survey, with an accuracy of 1 in 10,000. This accuracy equates to approximately 0.1 foot horizontally and vertically. The top of ground elevation and the horizontal location was surveyed for each sample location. The four sediment samples collected in the creek area in the far northwest corner of the site were not surveyed; however, the locations were sited on maps based on discussions with the chemist who collected the samples.

5.0 INVESTIGATION RESULTS

This section provides the results of the field investigations conducted at the site. The tables discussed in the following sections list the analytes that were above the sample quantitation limit only. A complete copy of the lab data is available upon request. The Chemical Data Quality Report for IDM, sediment, soil, and groundwater is provided in Appendix B.

5.1 EM Survey Results

The traditional EM 31 equipment did not provide any information greater than 2-4 feet in depth. Pavement additives such as fly ash may have prevented the equipment from obtaining data from deeper depths; however, the results of the experimental EM 61 equipment provided useful data. The experimental EM 61 identified anomalies corresponding to known landfill trench locations, unknown trench locations, and existing city utility lines. Some of the EM61 anomalies identified were not known prior to the investigation; however, the data appears to represent landfill trenches. Subsurface soil and groundwater samples were focused around known trenches; however, a soil gas survey covered the entire area (see Figure 4.3). VOCs and methane were not detected in the areas where the EM 61 identified new trench locations.

5.2 Soil Gas Survey Results

VOCs and methane were not detected in any of the soil gas samples collected in the residential neighborhood area. Figure 4.3 shows all the soil gas sample locations. Two samples collected on the vacant commercial lot in the westerly portion of the site detected two analytes: chlorobenzene and methane.

Chlorobenzene was detected in sample SG6 (7-foot depth) at a concentration of 8.95 ug/l. No other soil gas samples collected contained any VOC. There are no existing soil gas regulation limits for comparison; however, this concentration is below the Environmental Protection Agency, Region 6, HHMSSL for ambient air of 21 N ug/l (N=non carcinogenic effect).

Methane was detected in two samples, SG6 and SG5. Sample SG6, at the 3-foot depth, contained methane at 1.19%. The deeper sample did not detect any methane. Sample SG5 (3-foot depth), 200 feet east of SG6, contained methane at a concentration of 5.20%. The deeper

sample did not detect any methane. Poor drainage near location SG5 provides continuous moist to wet conditions. Elevated concentrations of methane at these shallow sample locations are thought to be a product of the poor drainage of the area and the degradation of organic matter, and are not related to any activities that occurred at the former LAFB.

5.3 Sediment and Soil Analytical Results

Analytical results of sediment and soil samples were compared to the EPA Region 6 HHMSSL. Residential exposure scenario was considered in all cases. Sediment results were compared to the soil ingestion, inhalation, and dermal exposure route (IIDER). Soil results were initially compared to the soil regional background concentration/range for analytes that are naturally occurring (e.g. metals). In the event that the subsurface soil results were above the soil regional background values, then the soil screening level for transfer from soil to groundwater was also considered.

5.3.1 Sediment Analytical Results

Four sediment samples were obtained from the drainage ditch located on the northwestern portion of the site and analyzed for VOCs, SVOCs, pesticides, PCBs, herbicides, and metals. All VOC, SVOC, PCB, and herbicide results were below the sample quantitation limits. Analytical results for pesticide and metal analytes detected are presented in Table 5.3.1.1 and Table 5.3.1.2, and are discussed below.

5.3.1.1 Sediment - Pesticide Analytical Results

Chlordane was the only pesticide detected and was present in sediment samples SD1, SD2, and SD3 at concentrations of 783 mg/kg, 170 mg/kg, and 81.2 mg/kg, respectively. The chlordane concentration at SD1 (783 mg/kg) exceeded the EPA Region 6 HHMSSL of 340 mg/kg for soil IIDER, residential scenario. In the absence of any other organic contaminants, and since it is a commonly used pesticide, it appears that the presence of chlordane is not indicative of site-related activities. Sediment analytical results for detected pesticide analytes are presented in Table 5.3.1.1

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Table 5.3.1.1 Sediment - Pesticide Analytical Results

Soil Boring	*EPA Region 6	SD1	SD2	SD3	SD4
Sample ID	HHMSSL	S70315-37	S70315-40	S70315-41	S70315-42
Date Sampled	ug/kg	29-Jun-97	29-Jun-97	29-Jun-97	29-Jun-97
	.002 mg/L GW				
Pesticides/PCB (Method 8080) (ug/kg)	0.2 GWP res mg/kg				
Chlordane	340 C	783 0.78	170 0.17	81.2 .0812	<63.8

* EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil (Ingestion, Inhalation, & Dermal Exposure Routes {IIDER}).

Shaded area exceeds EPA Region 6 HHMSSL Soil IIDER

< = analyte not detected based on the sample quantitation limit

5.3.1.2 Sediment - RCRA Metals Analytical Results

The analytical results indicated the presence of arsenic, barium, chromium and lead in all sediment samples. The concentrations of each metal detected were all below the EPA Region 6 HHMSSL for soil IIDER, residential scenario. Cadmium, mercury, selenium, and silver results were below the sample quantitation limit in all sediment samples. Sediment analytical results for metal analytes detected are presented in Table 5.3.1.2.

5.3.1.3 Sediment - Other Metal Analytical Results

Metals analyzed and reported using EPA Method 6010 in addition to the 8 RCRA metals include aluminum, antimony, beryllium, calcium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, sodium, thallium, tin, vanadium, and zinc. Analytical results indicate the presence of these metals in all sediment samples with the exception of antimony and thallium. Metal concentrations detected above the sample quantitation limit were all below the applicable EPA Region 6 HHMSSL for soil IIDER, residential scenario, with the exception of beryllium. The sample quantitation limit for beryllium ranged from 0.41 to 0.46 mg/kg for sediment samples. Beryllium was detected in one sample, SD3 at a concentration of 0.46 mg/kg exceeding the EPA Region 6 HHMSSL of 0.14 mg/kg. The 0.46 mg/kg

Table 5.3.1.2 Sediment - Metal Analytical Results

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Soil Boring	*EPA Region 6	SD1	SD2	SD3	SD4
Sample No.	HHMSSL	S70315-37	S70315-40	S70315-41	S70315-42
Analyte Date Sampled	mg/kg	6/29/97	6/29/97	6/29/97	6/29/97
Total Metals (mg/kg)	GWP/as				
Arsenic	22 N	(0.567) 2.02	(0.614) 2.29	(0.548) 3.06	(0.577) 2.74
Barium	5300 N	(1.42) 50.9	(1.53) 84.9	(1.37) 86.1	(1.44) 98.0
Cadmium	38 N	<0.71	<0.77	<0.68	<0.72
Chromium	31 C	(0.71) 4.02	(0.77) 5.53	(0.68) 6.31	(0.72) 4.49
Lead	400 N	(0.708) 7.54	(0.767) 7.62	(0.685) 7.74	(0.722) 6.44
Mercury	23 N	<0.170	<0.184	<0.164	<0.173
Selenium	380 N	<1.42	<1.53	<1.37	<1.44
Silver	380 N	<0.71	<0.77	<0.68	<0.72
Aluminum	77,000 N	(14.2) 4580	(15.3) 6660	(13.7) 8230	(14.4) 5490
Antimony	31 N	<7.08	<7.67	<6.85	<7.22
Beryllium	0.14 C	<0.42	<0.46	(0.41) 0.46	<0.43
Calcium	n/a	(70.8) 13900	(76.7) 14300	(68.5) 20200	(72.2) 31500
Cobalt	4700 N	(1.42) 2.89	(1.53) 3.23	(1.37) 3.27	(1.44) 2.59
Copper	n/a	(1.42) 3.49	(1.53) 6.18	(1.37) 6.18	(1.44) 4.29
Iron	23,000 N	(14.2) 5860	(15.3) 7190	(13.7) 7770	(14.4) 5790
Magnesium	n/a	(142) 1500	(153) 1950	(137) 2520	(144) 1710
Manganese	380 N	(1.42) 57.6	(1.53) 175	(1.37) 121	(1.44) 130
Nickel	1500 N	(1.42) 4.41	(1.53) 5.10	(1.37) 5.91	(1.44) 4.14
Potassium	n/a	(142) 1220	(153) 1650	(137) 1990	(144) 1280
Sodium	n/a	(142) 443	(153) 505	(137) 727	(144) 433
Thallium	n/a	<1.4	<1.5	<1.4	<1.4
Tin	46,000 N	(1.00) 1.37	(1.00) 1.50	(1.00) 1.56	(1.00) 1.17
Vanadium	540 N	(1.42) 9.44	(1.53) 12.8	(1.37) 14.5	(1.44) 12.1
Zinc	23,000 N	(2.83) 23.6	(3.07) 34.2	(2.74) 30.7	(2.89) 26.6

* EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil (Ingestion, Inhalation, & Dermal Exposure Routes {IIDER})

Shaded area = exceeds EPA Region 6 HHMSSL, Soil IIDER

< = contaminant not detected based on the sample quantitation limit

Values within parentheses are sample quantitation limit

concentration was slightly above the detection limit and may not be truly representative of contamination. However, the concentration is significantly below the EPA 6 Regional Soil Background range of 0.5 to 2.0 mg/kg.

5.3.2 Soil Analytical Results

The SCAPs was used to collect soil samples at 20 locations. Soil sample locations were selected based on the proximity near the suspected landfill trenches. The Work Plan specified that samples would be obtained at three depth intervals for each soil location. However, the depth of the soil sample was limited to the depth at which groundwater was encountered and therefore the optimum of three depth intervals was not obtained at all sample locations. Sampling intervals were generally obtained at 2.0-3.5 feet, 5.0-6.5 feet, and 8.0-9.5 feet. Analytical parameters included VOCs, SVOCs, pesticides, PCBs, herbicides, and metals.

5.3.2.1 Soil - VOC Analytical Results

Forty-eight soil samples at 20 locations were analyzed for VOCs using EPA Method 8260. VOC analytical results detected in the soil are presented in Table 5.3.2.1. Low concentrations of volatile organics were detected in several soil samples. The occurrences of VOCs were primarily limited to the western portion of the site (currently non-residential) except for one sample location.

VOCs were detected in soil sampled from SB1, SB2, SB8, and SB28. Seven VOC analytes were detected above the sample quantitation limits.

Acetone was detected from two soil samples obtained from SB2 (5.0-6.5 feet) and SB2 (6.5-8.3 feet) in concentrations of 176 and 204 ug/kg, respectively. Acetone concentrations were significantly below the EPA Region 6 HHMSSL Soil to Groundwater Transfer concentration of 8,000 ug/kg.

Carbon disulfide was detected from only one soil sample, SB1 (5.0-6.6ft), at a concentration of 7.39 ug/kg. This concentration is significantly below the EPA Region 6 HHMSSL Soil to Groundwater Transfer concentration of 14,000 ug/kg.

1,2 dichloropropane was detected in only one soil sample, SB8, at 26.7 ug/kg. This slightly exceeds the EPA Region 6 HHMSSL Soil to Groundwater concentration of 20 ug/kg.

Ethylbenzene was detected in only one soil sample, SB2 (5.0-6.5 feet) at 22.8 ug/kg. Ethylbenzene was not detected from SB2 samples at the 2.0-3.5 feet and 6.5-8.3 feet intervals. This concentration is significantly less than the EPA Region 6 HHMSSL Soil to Groundwater Transfer concentration of 5,000 ug/kg.

1,3,5 trimethylbenzene was detected from one sample, SB28 (8.0-9.5 feet) at a low concentration of 12.6 ug/kg, which is significantly less than EPA Region 6 HHMSSL of 260 ug/kg. 1,3,5 trimethylbenzene was not detected from soil sampled at the 2.0-3.5 feet and 5.0-6.5 feet intervals at location SB28.

1,2,4 trimethylbenzene was detected from two soil samples, SB2 (5.0-6.5 feet) and SB28 (8.0-9.5 feet) at concentrations of 21.3 ug/kg and 29.5 ug/kg, respectively. There is no EPA Region 6 HHMSSL for 1,2,4 trimethylbenzene for comparison.

Xylene was detected in one sample, SB2 (5.0-6.5 feet) at low concentrations significantly below the EPA Region 6 HHMSSL. The m,p xylene isomer was present at 97.1 ug/kg and o-xylene isomer was present at 44.9 ug/kg. The concentrations of m,p xylene and o-xylene were significantly less than the EPA Region 6 HHMSSL at 220,000 ug/kg and 150,000 ug/kg, respectively.

The soil data indicates that there is not a significant distribution of VOCs at the site; however, all of the detections of VOCs in the soils, except one sample, were localized in the non-residential vacant lot area in the western portion of the site. The majority of the detected VOCs were identified in sample SB2 at the 5.0-6.5 depth interval. Where VOCs were detected, only one sample slightly exceeded the EPA Region 6 HHMSSL Soil to Groundwater Transfer concentration.

Table 5.3.2.1 Soil - VOC, SVOC, Pesticide, and Herbicide Analytical Results

Soil Boring	*EPA Region 6	SB1	SB1	SB1
Sample ID	HHMSSL	S70315-27	S70315-28	S70315-29
Date Sampled	Soil to GW	28-Jun-97	28-Jun-97	28-Jun-97
Sample Depth Interval	ug/kg	2.0-3.5	5.0-6.6	8.0-9.2
Herbicides (Method 8151) (ug/kg)				
Dalapon	NA	<224	<242	<234
Pesticides/PCB (Method 8080) (ug/kg)				
Chlordane	2,000 E	<10.5	<11.4	<11.0
4,4'-DDD	700 E	<8.25	<8.93	<8.62
4,4'-DDE	500 E	<3.00	<3.25	<3.13
Volatile Organics (Method 8260) (ug/kg)				
Acetone	8,000 E	<22.4	<24.2	<23.4
Carbon disulfide	14,000 E	<5.60	7.39	<5.85
1,4-Dichlorobenzene	1,000 E	<5.60	<6.06	<5.85
1,2-Dichloropropane	20 E	<5.60	<6.06	<5.85
Ethylbenzene	5,000 E	<5.60	<6.06	<5.85
1,3,5-Trimethylbenzene	260 M	<5.60	<6.06	<5.85
1,2,4-Trimethylbenzene	NA	<5.60	<6.06	<5.85
m,p-Xylene	m-240,000 M ,p-220,000 M	<5.60	<6.06	<5.85
o-Xylene	150,000 M	<5.60	<6.06	<5.85
Semi-Volatile Organics (Method 8270B) (mg/kg)	**mg/kg**			
Bis(2-ethylhexyl)phthalate	11 E	<0.370	<4.00	<0.386
Butyl benzyl phthalate	68 E	<0.370	<4.00	<0.386
1,4-Dichlorobenzene	1	<0.370	<4.00	<0.386
Diethyl phthalate	110 E	<0.370	<4.00	<0.386
4-Methylphenol	NA	<0.370	<4.00	<0.386

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil to Ground Water (StoGW)
Shaded area = concentration exceeds StoGW value
NA=not available, or analyte not sampled
< = analyte not detected based on sample quantitation limit

Table 5.3.2.1 Soil - VOC, SVOC, Pesticide, and Herbicide Analytical Results

Soil Boring	*EPA Region 6	SB2	SB2	SB2
Sample ID	HHMSSL	S70315-30	S70315-31	S70315-32
Date Sampled	Soil to GW	28-Jun-97	28-Jun-97	28-Jun-97
Sample Depth Interval	ug/kg	2.0-3.5	5.0-6.5	6.5-8.3
Herbicides (Method 8151) (ug/kg)				
Dalapon	NA	<227	NA	NA
Pesticides/PCB (Method 8080) (ug/kg)				
Chlordane	2,000 E	<10.6	<21.6	<22.1
4,4'-DDD	700 E	<8.35	<17.0	<17.3
4,4'-DDE	500 E	<3.04	<6.18	<6.30
Volatile Organics (Method 8260) (ug/kg)				
Acetone	8,000 E	<22.7	176	204
Carbon disulfide	14,000 E	<5.66	<5.76	<6.00
1,4-Dichlorobenzene	1,000 E	<5.66	<5.76	<6.00
1,2-Dichloropropane	20 E	<5.66	<5.76	<6.00
Ethylbenzene	5,000 E	<5.66	22.8	<6.00
1,3,5-Trimethylbenzene	260 M	<5.66	<5.76	<6.00
1,2,4-Trimethylbenzene	NA	<5.66	21.3	<6.00
m,p-Xylene	m-240,000 M ,p-220,000 M	<5.66	97.1	<6.00
o-Xylene	150,000 M	<5.66	44.9	<6.00
Semi-Volatile Organics (Method 8270B) (mg/kg)	**mg/kg**			
Bis(2-ethylhexyl)phthalate	11 E	<0.374	8.38	<0.791
Butyl benzyl phthalate	68 E	<0.374	1.51	<0 791
1,4-Dichlorobenzene	1	<0.374	0.402	<0.791
Diethyl phthalate	110 E	<0.374	<0.380	<0.791
4-Methylphenol	NA	1.45	2.02	<0.791

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil to Ground Water (StoGW)
Shaded area = concentration exceeds StoGW value
NA=not available, or analyte not sampled
< = analyte not detected based on sample quantitation limit

Table 5.3.2.1 Soil - VOC, SVOC, Pesticide, and Herbicide Analytical Results

Soil Boring	*EPA Region 6	SB5	SB5	SB5
Sample ID	HHMSSL	S70315-34	S70315-35	S70315-36
Date Sampled	Soil to GW	28-Jun-97	28-Jun-97	28-Jun-97
Sample Depth Interval	ug/kg	2.0-3.7	5.0-6.1	10.0-11.7
Herbicides (Method 8151) (ug/kg)				
Dalapon	NA	NA	255	<234
Pesticides/PCB (Method 8080) (ug/kg)				
Chlordane	2,000 E	14.8	819	<11.0
4,4'-DDD	700 E	<8.05	<173	<8.63
4,4'-DDE	500 E	<2.93	<62.9	<3.14
Volatile Organics (Method 8260) (ug/kg)				
Acetone	8,000 E	<21.9	<23.8	<23.4
Carbon disulfide	14,000 E	<5.48	<5.94	<5.85
1,4-Dichlorobenzene	1,000 E	<5.48	<5.94	<5.85
1,2-Dichloropropane	20 E	<5.48	<5.94	<5.85
Ethylbenzene	5,000 E	<5.48	<5.94	<5.85
1,3,5-Trimethylbenzene	260 M	<5.48	<5.94	<5.85
1,2,4-Trimethylbenzene	NA	<5.48	<5.94	<5.85
m,p-Xylene	m-240,000 M ,p-220,000 M	<5.48	<5.94	<5.85
o-Xylene	150,000 M	<5.48	<5.94	<5.85
Semi-Volatile Organics (Method 8270B) (mg/kg)	**mg/kg**			
Bis(2-ethylhexyl)phthalate	11 E	<0.361	<0.392	<0.386
Butyl benzyl phthalate	68 E	<0.361	<0.392	<0.386
1,4-Dichlorobenzene	1	<0.361	<0.392	<0.386
Diethyl phthalate	110 E	<0.361	<0.392	<0.386
4-Methylphenol	NA	<0.361	<0.392	<0.386

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil to Ground Water (StoGW)
Shaded area = concentration exceeds StoGW value
NA=not available, or analyte not sampled
< = analyte not detected based on sample quantitation limit

Table 5.3.2.1 Soil - VOC, SVOC, Pesticide, and Herbicide Analytical Results

Soil Boring	*EPA Region 6	SB6	SB6	SB8
Sample ID	HHMSSL	S70315-24	S70315-25	S70315-26
Date Sampled	Soil to GW	28-Jun-97	28-Jun-97	28-Jun-97
Sample Depth Interval	ug/kg	2.0-3.5	5.0-6.5	2.0-3.5
Herbicides (Method 8151) (ug/kg)				
Dalapon	NA	NA	NA	NA
Pesticides/PCB (Method 8080) (ug/kg)				
Chlordane	2,000 E	<10.1	<11.3	<11.4
4,4'-DDD	700 E	<7.94	<8.85	<8.99
4,4'-DDE	500 E	<2.89	<3.22	<3.27
Volatile Organics (Method 8260) (ug/kg)				
Acetone	8,000 E	<21.6	<24.0	<24.4
Carbon disulfide	14,000 E	<5.39	<6.00	<6.10
1,4-Dichlorobenzene	1,000 E	<5.39	<6.00	<6.10
1,2-Dichloropropane	20 E	<5.39	<6.00	26.7
Ethylbenzene	5,000 E	<5.39	<6.00	<6.10
1,3,5-Trimethylbenzene	260 M	<5.39	<6.00	<6.10
1,2,4-Trimethylbenzene	NA	<5.39	<6.00	<6.10
m,p-Xylene	m-240,000 M ,p-220,000 M	<5.39	<6.00	<6.10
o-Xylene	150,000 M	<5.39	<6.00	<6.10
Semi-Volatile Organics (Method 8270B) (mg/kg)	**mg/kg**			
Bis(2-ethylhexyl)phthalate	11 E	<0.356	<0.396	<0.402
Butyl benzyl phthalate	68 E	<0.356	<0.396	<0.402
1,4-Dichlorobenzene	1	<0.356	<0.396	<0.402
Diethyl phthalate	110 E	<0.356	<0.396	<0.402
4-Methylphenol	NA	<0.356	<0.396	<0.402

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil to Ground Water (StoGW)
Shaded area = concentration exceeds StoGW value
NA=not available, or analyte not sampled
< = analyte not detected based on sample quantitation limit

Table 5.3.2.1 Soil - VOC, SVOC, Pesticide, and Herbicide Analytical Results

Soil Boring	*EPA Region 6	SB11	SB11	SB11
Sample ID	HHMSSL	S70315-21	S70315-22	S70315-23
Date Sampled	Soil to GW	28-Jun-97	28-Jun-97	28-Jun-97
Sample Depth Interval	ug/kg	2.0-3.5	5.0-6.5	8.0-9.5
Herbicides (Method 8151) (ug/kg)				
Dalapon	NA	NA	NA	NA
Pesticides/PCB (Method 8080) (ug/kg)				
Chlordane	2,000 E	<11.0	<11.0	<11.1
4,4'-DDD	700 E	<8.66	<8.67	<8.69
4,4'-DDE	500 E	<3.15	<3.15	<3.16
Volatile Organics (Method 8260) (ug/kg)				
Acetone	8,000 E	<23.5	<23.5	<23.6
Carbon disulfide	14,000 E	<5.88	<5.88	<5.90
1,4-Dichlorobenzene	1,000 E	<5.88	<5.88	<5.90
1,2-Dichloropropane	20 E	<5.88	<5.88	<5.90
Ethylbenzene	5,000 E	<5.88	<5.88	<5.90
1,3,5-Trimethylbenzene	260 M	<5.88	<5.88	<5.90
1,2,4-Trimethylbenzene	NA	<5.88	<5.88	<5.90
m,p-Xylene	m-240,000 M ,p-220,000 M	<5.88	<5.88	<5.90
o-Xylene	150,000 M	<5.88	<5.88	<5.90
Semi-Volatile Organics (Method 8270B) (mg/kg)	**mg/kg**			
Bis(2-ethylhexyl)phthalate	11 E	<0.388	<0.388	<0.389
Butyl benzyl phthalate	68 E	<0.388	<0.388	<0.389
1,4-Dichlorobenzene	1	<0.388	<0.388	<0.389
Diethyl phthalate	110 E	<0.388	<0.388	<0.389
4-Methylphenol	NA	<0.388	<0.388	<0.389

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil to Ground Water (StoGW)
Shaded area = concentration exceeds StoGW value
NA=not available, or analyte not sampled
< = analyte not detected based on sample quantitation limit

Table 5.3.2.1 Soil - VOC, SVOC, Pesticide, and Herbicide Analytical Results

Soil Boring	*EPA Region 6	SB14	SB14	SB14	SB19
Sample ID	HHMSSL	S70317-11	S70317-12	S70317-13	S70315-20
Date Sampled	Soil to GW	1-Jul-97	1-Jul-97	1-Jul-97	28-Jun-97
Sample Depth Interval	ug/kg	2.0-3.5	5.0-6.5	6.5-8.0	2.5-4.0
Herbicides (Method 8151) (ug/kg)					
Dalapon	NA	<293	<231	<235	290
Pesticides/PCB (Method 8080) (ug/kg)					
Chlordane	2,000 E	<13.6	<10.7	<11.0	<11.0
4,4'-DDD	700 E	<10.7	<8.37	<8.65	<8.65
4,4'-DDE	500 E	<3.89	<3.04	<3.15	<3.15
Volatile Organics (Method 8260) (ug/kg)					
Acetone	8,000 E	<29.3	<23.1	<23.5	<23.5
Carbon disulfide	14,000 E	<7.33	<5.77	<5.87	<5.87
1,4-Dichlorobenzene	1,000 E	<7.33	<5.77	<5.87	<5.87
1,2-Dichloropropane	20 E	<7.33	<5.77	<5.87	<5.87
Ethylbenzene	5,000 E	<7.33	<5.77	<5.87	<5.87
1,3,5-Trimethylbenzene	260 M	<7.33	<5.77	<5.87	<5.87
1,2,4-Trimethylbenzene	NA	<7.33	<5.77	<5.87	<5.87
m,p-Xylene	m-240,000 M ,p-220,000 M	<7.33	<5.77	<5.87	<5.87
o-Xylene	150,000 M	<7.33	<5.77	<5.87	<5.87
Semi-Volatile Organics (Method 8270B) (mg/kg)	**mg/kg**				
Bis(2-ethylhexyl)phthalate	11 E	<0.484	<0.381	<0.384	<0.387
Butyl benzyl phthalate	68 E	<0.484	<0.381	<0.384	<0.387
1,4-Dichlorobenzene	1	<0.484	<0.381	<0.384	<0.387
Diethyl phthalate	110 E	<0.484	<0.381	<0.384	<0.387
4-Methylphenol	NA	<0.484	<0.381	<0.384	<0.387

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil to Ground Water (StoGW)
Shaded area = concentration exceeds StoGW value
NA=not available, or analyte not sampled
< = analyte not detected based on sample quantitation limit

Table 5.3.2.1 Soil - VOC, SVOC, Pesticide, and Herbicide Analytical Results

Soil Boring	*EPA Region 6	SB24	SB24	SB24
Sample ID	HHMSSL	S70317-14	S70317-15	S70317-16
Date Sampled	Soil to GW	1-Jul-97	1-Jul-97	1-Jul-97
Sample Depth Interval	ug/kg	2.0-3.5	5.0-6.5	6.5-8.0
Herbicides (Method 8151) (ug/kg)				
Dalapon	NA	<224	<250	<244
Pesticides/PCB (Method 8080) (ug/kg)				
Chlordane	2,000 E	16.3	<11.6	<11.2
4,4'-DDD	700 E	<8.19	<9.14	<8.81
4,4'-DDE	500 E	7.8	<3.33	<3.20
Volatile Organics (Method 8260) (ug/kg)				
Acetone	8,000 E	<22.4	<25.0	<24.4
Carbon disulfide	14,000 E	<5.61	<6.25	<6.11
1,4-Dichlorobenzene	1,000 E	<5.61	<6.25	<6.11
1,2-Dichloropropane	20 E	<5.61	<6.25	<6.11
Ethylbenzene	5,000 E	<5.61	<6.25	<6.11
1,3,5-Trimethylbenzene	260 M	<5.61	<6.25	<6.11
1,2,4-Trimethylbenzene	NA	<5.61	<6.25	<6.11
m,p-Xylene	m-240,000 M ,p-220,000 M	<5.61	<6.25	<6.11
o-Xylene	150,000 M	<5.61	<6.25	<6.11
Semi-Volatile Organics (Method 8270B) (mg/kg)	**mg/kg**			
Bis(2-ethylhexyl)phthalate	11 E	<0.370	<0.413	<0.403
Butyl benzyl phthalate	68 E	<0.370	<0.413	<0.403
1,4-Dichlorobenzene	1	<0.370	<0.413	<0.403
Diethyl phthalate	110 E	<0.370	<0.413	<0.403
4-Methylphenol	NA	<0.370	<0.413	<0.403

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil to Ground Water (StoGW)
Shaded area = concentration exceeds StoGW value
NA=not available, or analyte not sampled
< = analyte not detected based on sample quantitation limit

Table 5.3.2.1 Soil - VOC, SVOC, Pesticide, and Herbicide Analytical Results

Soil Boring	*EPA Region 6	SB28	SB28	SB28
Sample ID	HHMSSL	S70317-17	S70317-18	S70317-19
Date Sampled	Soil to GW	1-Jul-97	1-Jul-97	1-Jul-97
Sample Depth Interval	ug/kg	2.0-3.5	5.0-6.5	8.0-9.5
Herbicides (Method 8151) (ug/kg)				
Dalapon	NA	<238	<244	<242
Pesticides/PCB (Method 8080) (ug/kg)				
Chlordane	2,000 E	<11.1	<11.4	<11.4
4,4'-DDD	700 E	<8.73	<8.96	<8.95
4,4'-DDE	500 E	<3.17	<3.26	<3.26
Volatile Organics (Method 8260) (ug/kg)				
Acetone	8,000 E	<23.8	<24.4	<24.2
Carbon disulfide	14,000 E	<5.94	<6.10	<6.04
1,4-Dichlorobenzene	1,000 E	<5.94	<6.10	<6.04
1,2-Dichloropropane	20 E	<5.94	<6.10	<6.04
Ethylbenzene	5,000 E	<5.94	<6.10	<6.04
1,3,5-Trimethylbenzene	260 M	<5.94	<6.10	12.6
1,2,4-Trimethylbenzene	NA	<5.94	<6.10	29.5
m,p-Xylene	m-240,000 M ,p-220,000 M	<5.94	<6.10	<6.04
o-Xylene	150,000 M	<5.94	<6.10	<6.04
Semi-Volatile Organics (Method 8270B) (mg/kg)	**mg/kg**			
Bis(2-ethylhexyl)phthalate	11 E	<0.400	<0.406	<0.407
Butyl benzyl phthalate	68 E	<0.400	<0.406	<0.407
1,4-Dichlorobenzene	1	<0.400	<0.406	<0.407
Diethyl phthalate	110 E	<0.400	<0.406	<0.407
4-Methylphenol	NA	<0.400	<0.406	<0.407

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil to Ground Water (StoGW)
Shaded area = concentration exceeds StoGW value
NA=not available, or analyte not sampled
< = analyte not detected based on sample quantitation limit

Table 5.3.2.1 Soil - VOC, SVOC, Pesticide, and Herbicide Analytical Results

Soil Boring	*EPA Region 6	SB35	SB35	SB35	SB36
Sample ID	HHMSSL	S70317-20	S70317-21	S70317-22	S70326-16
Date Sampled	Soil to GW	1-Jul-97	1-Jul-97	1-Jul-97	11-Jul-97
Sample Depth Interval	ug/kg	2.0-3.5	5.0-6.5	8.5-10.0	2.0-3.5
Herbicides (Method 8151) (ug/kg)					
Dalapon	NA	<242	<245	<248	<232
Pesticides/PCB (Method 8080) (ug/kg)					
Chlordane	2,000 E	<11.5	<11.7	<11.4	<10.9
4,4'-DDD	700 E	<9.02	<9.16	<8.98	<8.56
4,4'-DDE	500 E	<3.28	<3.33	<3.26	<3.11
Volatile Organics (Method 8260) (ug/kg)					
Acetone	8,000 E	<24.2	<24.5	<24.8	<23.2
Carbon disulfide	14,000 E	<6.04	<6.13	<6.21	<5.81
1,4-Dichlorobenzene	1,000 E	<6.04	<6.13	<6.21	<5.81
1,2-Dichloropropane	20 E	<6.04	<6.13	<6.21	<5.81
Ethylbenzene	5,000 E	<6.04	<6.13	<6.21	<5.81
1,3,5-Trimethylbenzene	260 M	<6.04	<6.13	<6.21	<5.81
1,2,4-Trimethylbenzene	NA	<6.04	<6.13	<6.21	<5.81
m,p-Xylene	m-240,000 M ,p-220,000 M	<6.04	<6.13	<6.21	<5.81
o-Xylene	150,000 M	<6.04	<6.13	<6.21	<5.81
Semi-Volatile Organics (Method 8270B) (mg/kg)	mg/kg				
Bis(2-ethylhexyl)phthalate	11 E	<0.399	<0.405	<0.410	<0.379
Butyl benzyl phthalate	68 E	<0.399	<0.405	<0.410	<0.379
1,4-Dichlorobenzene	1	<0.399	<0.405	<0.410	<0.379
Diethyl phthalate	110 E	<0.399	<0.405	<0.410	<0.379
4-Methylphenol	NA	<0.399	<0.405	<0.410	<0.379

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil to Ground Water (StoGW)
Shaded area = concentration exceeds StoGW value
NA=not available, or analyte not sampled
< = analyte not detected based on sample quantitation limit

Table 5.3.2.1 Soil - VOC, SVOC, Pesticide, and Herbicide Analytical Results

Soil Boring	*EPA Region 6	SB37	SB39	SB39
Sample ID	HHMSSL	S70317-24	S70326-13	S70326-14
Date Sampled	Soil to GW	30-Jun-97	11-Jul-97	11-Jul-97
Sample Depth Interval	ug/kg	2.0-3.5	2.0-3.5	5.0-6.5
Herbicides (Method 8151) (ug/kg)				
Dalapon	NA	<221	<238	<234
Pesticides/PCB (Method 8080) (ug/kg)				
Chlordane	2,000 E	<10.5	<11.1	<11.0
4,4'-DDD	700 E	<8.27	<8.75	<8.64
4,4'-DDE	500 E	<3.01	<3.18	<3.14
Volatile Organics (Method 8260) (ug/kg)				
Acetone	8,000 E	<22.1	<23.8	<23.4
Carbon disulfide	14,000 E	<5.54	<5.94	<5.86
1,4-Dichlorobenzene	1,000 E	<5.54	<5.94	<5.86
1,2-Dichloropropane	20 E	<5.54	<5.94	<5.86
Ethylbenzene	5,000 E	<5.54	<5.94	<5.86
1,3,5-Trimethylbenzene	260 M	<5.54	<5.94	<5.86
1,2,4-Trimethylbenzene	NA	<5.54	<5.94	<5.86
m,p-Xylene	m-240,000 M ,p-220,000 M	<5.54	<5.94	<5.86
o-Xylene	150,000 M	<5.54	<5.94	<5.86
Semi-Volatile Organics (Method 8270B) (mg/kg)	**mg/kg**			
Bis(2-ethylhexyl)phthalate	11 E	<0.365	<0.392	<0.376
Butyl benzyl phthalate	68 E	<0.365	<0.392	<0.376
1,4-Dichlorobenzene	1	<0.365	<0.392	<0.376
Diethyl phthalate	110 E	<0.365	<0.392	1.03
4-Methylphenol	NA	<0.365	<0.392	<0.376

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil to Ground Water (StoGW)
Shaded area = concentration exceeds StoGW value
NA=not available, or analyte not sampled
< = analyte not detected based on sample quantitation limit

Table 5.3.2.1 Soil - VOC, SVOC, Pesticide, and Herbicide Analytical Results

Soil Boring	*EPA Region 6	SB46	SB46
Sample ID	HHMSSL	S70326-11	S70326-12
Date Sampled	Soil to GW	11-Jul-97	11-Jul-97
Sample Depth Interval	ug/kg	2.0-3.5	5.0-6.5
Herbicides (Method 8151) (ug/kg)			
Dalapon	NA	<246	<254
Pesticides/PCB (Method 8080) (ug/kg)			
Chlordane	2,000 E	<11.5	<11.9
4,4'-DDD	700 E	<9.05	<9.36
4,4'-DDE	500 E	<3.29	<3.41
Volatile Organics (Method 8260) (ug/kg)			
Acetone	8,000 E	<24.6	<25.4
Carbon disulfide	14,000 E	<6.14	<6.35
1,4-Dichlorobenzene	1,000 E	<6.14	<6.35
1,2-Dichloropropane	20 E	<6.14	<6.35
Ethylbenzene	5,000 E	<6.14	<6.35
1,3,5-Trimethylbenzene	260 M	<6.14	<6.35
1,2,4-Trimethylbenzene	NA	<6.14	<6.35
m,p-Xylene	m-240,000 M ,p-220,000 M	<6.14	<6.35
o-Xylene	150,000 M	<6.14	<6.35
Semi-Volatile Organics (Method 8270B) (mg/kg)	**mg/kg**		
Bis(2-ethylhexyl)phthalate	11 E	<0.403	<0.418
Butyl benzyl phthalate	68 E	<0.403	<0.418
1,4-Dichlorobenzene	1	<0.403	<0.418
Diethyl phthalate	110 E	<0.403	<0.418
4-Methylphenol	NA	<0.403	<0.418

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil to Ground Water (StoGW)
Shaded area = concentration exceeds StoGW value
NA=not available, or analyte not sampled
< = analyte not detected based on sample quantitation limit

Table 5.3.2.1 Soil - VOC, SVOC, Pesticide, and Herbicide Analytical Results

Soil Boring	*EPA Region 6	SB47	SB47	SB47
Sample ID	HHMSSL	S70326-7	S70326-8	S70326-9
Date Sampled	Soil to GW	11-Jul-97	11-Jul-97	11-Jul-97
Sample Depth Interval	ug/kg	2.0-3.5	5.0-6.5	7.8-9.3
Herbicides (Method 8151) (ug/kg)				
Dalapon	NA	<232	<233	<237
Pesticides/PCB (Method 8080) (ug/kg)				
Chlordane	2,000 E	<10.9	<10.9	<11.1
4,4'-DDD	700 E	<8.56	<8.58	<8.72
4,4'-DDE	500 E	<3.11	<3.12	<3.17
Volatile Organics (Method 8260) (ug/kg)				
Acetone	8,000 E	<23.2	<23.3	<23.7
Carbon disulfide	14,000 E	<5.81	<5.82	<5.92
1,4-Dichlorobenzene	1,000 E	<5.81	<5.82	<5.92
1,2-Dichloropropane	20 E	<5.81	<5.82	<5.92
Ethylbenzene	5,000 E	<5.81	<5.82	<5.92
1,3,5-Trimethylbenzene	260 M	<5.81	<5.82	<5.92
1,2,4-Trimethylbenzene	NA	<5.81	<5.82	<5.92
m,p-Xylene	m-240,000 M ,p-220,000 M	<5.81	<5.82	<5.92
o-Xylene	150,000 M	<5.81	<5.82	<5.92
Semi-Volatile Organics (Method 8270B) (mg/kg)	**mg/kg**			
Bis(2-ethylhexyl)phthalate	11 E	<0.379	<0.380	<0.391
Butyl benzyl phthalate	68 E	<0.379	<0.380	<0.391
1,4-Dichlorobenzene	1	<0.379	<0.380	<0.391
Diethyl phthalate	110 E	<0.379	<0.380	<0.391
4-Methylphenol	NA	<0.379	<0.380	<0.391

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil to Ground Water (StoGW)
Shaded area = concentration exceeds StoGW value
NA=not available, or analyte not sampled
< = analyte not detected based on sample quantitation limit

Table 5.3.2.1 Soil - VOC, SVOC, Pesticide, and Herbicide Analytical Results

Soil Boring	*EPA Region 6	SB49	SB49
Sample ID	HHMSSL	S70317-25	S70317-26
Date Sampled	Soil to GW	30-Jun-97	30-Jun-97
Sample Depth Interval	ug/kg	2.0-3.5	5.0-6.5
Herbicides (Method 8151) (ug/kg)			
Dalapon	NA	<235	<236
Pesticides/PCB (Method 8080) (ug/kg)			
Chlordane	2,000 E	<11.0	<11.1
4,4'-DDD	700 E	<8.68	<8.69
4,4'-DDE	500 E	<3.15	<3.16
Volatile Organics (Method 8260) (ug/kg)			
Acetone	8,000 E	<23.5	<23.6
Carbon disulfide	14,000 E	<5.87	<5.91
1,4-Dichlorobenzene	1,000 E	<5.87	<5.91
1,2-Dichloropropane	20 E	<5.87	<5.91
Ethylbenzene	5,000 E	<5.87	<5.91
1,3,5-Trimethylbenzene	260 M	<5.87	<5.91
1,2,4-Trimethylbenzene	NA	<5.87	<5.91
m,p-Xylene	m-240,000 M ,p-220,000 M	<5.87	<5.91
o-Xylene	150,000 M	<5.87	<5.91
Semi-Volatile Organics (Method 8270B) (mg/kg)	**mg/kg**		
Bis(2-ethylhexyl)phthalate	11 E	<0.387	<0.390
Butyl benzyl phthalate	68 E	<0.387	<0.390
1,4-Dichlorobenzene	1	<0.387	<0.390
Diethyl phthalate	110 E	<0.387	1.03
4-Methylphenol	NA	<0.387	<0.390

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil to Ground Water (StoGW)
Shaded area = concentration exceeds StoGW value
NA=not available, or analyte not sampled
< = analyte not detected based on sample quantitation limit

Table 5.3.2.1 Soil - VOC, SVOC, Pesticide, and Herbicide Analytical Results

Soil Boring	*EPA Region 6	SB50	SB50	SB50
Sample ID	HHMSSL	S70317-27	S70317-28	S70317-29
Date Sampled	Soil to GW	30-Jun-97	30-Jun-97	30-Jun-97
Sample Depth Interval	ug/kg	2.0-3.5	5.0-6.5	7.5-9.0
Herbicides (Method 8151) (ug/kg)				
Dalapon	NA	<229	<236	<238
Pesticides/PCB (Method 8080) (ug/kg)				
Chlordane	2,000 E	<10.6	<11.3	<11.0
4,4'-DDD	700 E	<8.36	<8.84	<8.67
4,4'-DDE	500 E	<3.04	<3.22	<3.15
Volatile Organics (Method 8260) (ug/kg)				
Acetone	8,000 E	<22.9	<23.6	<23.8
Carbon disulfide	14,000 E	<5.73	<5.90	<5.96
1,4-Dichlorobenzene	1,000 E	<5.73	<5.90	<5.96
1,2-Dichloropropane	20 E	<5.73	<5.90	<5.96
Ethylbenzene	5,000 E	<5.73	<5.90	<5.96
1,3,5-Trimethylbenzene	260 M	<5.73	<5.90	<5.96
1,2,4-Trimethylbenzene	NA	<5.73	<5.90	<5.96
m,p-Xylene	m-240,000 M ,p-220,000 M	<5.73	<5.90	<5.96
o-Xylene	150,000 M	<5.73	<5.90	<5.96
Semi-Volatile Organics (Method 8270B) (mg/kg)	mg/kg			
Bis(2-ethylhexyl)phthalate	11 E	<0.378	<0.390	<0.390
Butyl benzyl phthalate	68 E	<0.378	<0.390	<0.390
1,4-Dichlorobenzene	1	<0.378	<0.390	<0.390
Diethyl phthalate	110 E	<0.378	<0.390	<0.390
4-Methylphenol	NA	<0.378	<0.390	<0.390

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil to Ground Water (StoGW)
Shaded area = concentration exceeds StoGW value
NA=not available, or analyte not sampled
< = analyte not detected based on sample quantitation limit

Table 5.3.2.1 Soil - VOC, SVOC, Pesticide, and Herbicide Analytical Results

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Soil Boring	*EPA Region 6	SB55	SB55	SB55
Sample ID	HHMSSL	S70326-1	S70326-2	S70326-3
Date Sampled	Soil to GW	11-Jul-97	11-Jul-97	11-Jul-97
Sample Depth Interval	ug/kg	2.0-3.5	5.0-6.5	7.0-8.5
Herbicides (Method 8151) (ug/kg)				
Dalapon	NA	<232	<238	<240
Pesticides/PCB (Method 8080) (ug/kg)				
Chlordane	2,000 E	<10.9	<11.2	<11.2
4,4'-DDD	700 E	<8.56	<8.76	<8.83
4,4'-DDE	500 E	<3.11	<3.19	<3.21
Volatile Organics (Method 8260) (ug/kg)				
Acetone	8,000 E	<23.2	<23.8	<24.0
Carbon disulfide	14,000 E	<5.81	<5.95	<5.99
1,4-Dichlorobenzene	1,000 E	<5.81	<5.95	<5.99
1,2-Dichloropropane	20 E	<5.81	<5.95	<5.99
Ethylbenzene	5,000 E	<5.81	<5.95	<5.99
1,3,5-Trimethylbenzene	260 M	<5.81	<5.95	<5.99
1,2,4-Trimethylbenzene	NA	<5.81	<5.95	<5.99
m,p-Xylene	m-240,000 M ,p-220,000 M	<5.81	<5.95	<5.99
o-Xylene	150,000 M	<5.81	<5.95	<5.99
Semi-Volatile Organics (Method 8270B) (mg/kg)	mg/kg			
Bis(2-ethylhexyl)phthalate	11 E	<0.383	<0.392	<0.392
Butyl benzyl phthalate	68 E	<0.383	<0.392	<0.392
1,4-Dichlorobenzene	1	<0.383	<0.392	<0.392
Diethyl phthalate	110 E	<0.383	<0.392	<0.392
4-Methylphenol	NA	<0.383	<0.392	<0.392

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil to Ground Water (StoGW)
Shaded area = concentration exceeds StoGW value
NA=not available, or analyte not sampled
< = analyte not detected based on sample quantitation limit

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Table 5.3.2.1 Soil - VOC, SVOC, Pesticide, and Herbicide Analytical Results

Soil Boring	*EPA Region 6	SB58	SB58	SB58
Sample ID	HHMSSL	S70326-4	S70326-5	S70326-6
Date Sampled	Soil to GW	11-Jul-97	11-Jul-97	11-Jul-97
Sample Depth Interval	ug/kg	2.0-3.5	5.0-6.5	6.5-8.0
Herbicides (Method 8151) (ug/kg)				
Dalapon	NA	<232	<233	<235
Pesticides/PCB (Method 8080) (ug/kg)				
Chlordane	2,000 E	<10.9	<10.9	<11.0
4,4'-DDD	700 E	<8.56	<8.59	<8.67
4,4'-DDE	500 E	<3.11	<3.12	<3.15
Volatile Organics (Method 8260) (ug/kg)				
Acetone	8,000 E	<23.2	<23.3	<23.5
Carbon disulfide	14,000 E	<5.81	<5.83	<5.88
1,4-Dichlorobenzene	1,000 E	<5.81	<5.83	<5.88
1,2-Dichloropropane	20 E	<5.81	<5.83	<5.88
Ethylbenzene	5,000 E	<5.81	<5.83	<5.88
1,3,5-Trimethylbenzene	260 M	<5.81	<5.83	<5.88
1,2,4-Trimethylbenzene	NA	<5.81	<5.83	<5.88
m,p-Xylene	m-240,000 M ,p-220,000 M	<5.81	<5.83	<5.88
o-Xylene	150,000 M	<5.81	<5.83	<5.88
Semi-Volatile Organics (Method 8270B) (mg/kg)	**mg/kg**			
Bis(2-ethylhexyl)phthalate	11 E	<0.383	<0.385	<0.387
Butyl benzyl phthalate	68 E	<0.383	<0.385	<0.387
1,4-Dichlorobenzene	1	<0.383	<0.385	<0.387
Diethyl phthalate	110 E	<0.383	<0.385	<0.387
4-Methylphenol	NA	<0.383	<0.385	<0.387

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil to Ground Water (StoGW)
Shaded area = concentration exceeds StoGW value
NA=not available, or analyte not sampled
< = analyte not detected based on sample quantitation limit

5.3.2.2 Soil - SVOC Analytical Results

Forty-eight soil samples within 20 locations were analyzed for SVOCs using EPA Method 8270B. Soil analytical results are provided in Table 5.3.2.1. Low concentrations of SVOCs were detected at three locations: SB2, SB39, and SB49. The semivolatile organic analytes detected include bis(2-ethylhexyl)phthalate, butyl benzyl phthalate, diethyl phthalate, and 4-methyphenol.

Bis(2-ethylhexyl)phthalate and butyl benzyl phthalate were detected in SB2 (5.0-6.5 feet) at 8.38 and 1.51 mg/kg, respectively. Diethyl phthalate was detected in SB39 and SB49 at 1.03 mg/kg. The concentration of phthalates are low and significantly below the corresponding EPA Region 6 HHMSSL.

Analytical results indicated the presence of 4-methylphenol in concentrations of 1.45 mg/kg and 2.02 mg/kg at SB2 (2.0-3.5 feet) and SB2 (5.0-6.5 feet). There is no established EPA Region 6 HHMSSL for 4-methylphenol. However, the 4-methyphenol concentrations were within five times the sample quantitation limit and do not appear to be representative of site contamination.

5.3.2.3 Soil - Pesticide/PCB Analytical Results

Forty-eight soil samples within 20 locations were analyzed for pesticides and PCBs using EPA Method 8080. The soil analytical results for pesticides and PCBs are provided in Table 5.3.2.1. Pesticides were detected at two soil locations, SB5 and SB24. Analytical results indicate the presence of chlordane at 14.8 ug/kg and 819 ug/kg at SB5 (2.0-3.7 feet) and SB5 (5.0-6.1 feet), respectively. Chlordane was also present at 16.3 ug/kg in SB24 (2.0-3.5 feet). The concentration of chlordane at 5.0-6.5 feet and 6.5-8.0 feet depths sampled from SB24 were both non-detect. 4,4'DDE was detected at SB24 (2.0-3.5ft) at a low concentration of 7.8 ug/kg. The pesticide concentrations detected in soil were significantly below the corresponding EPA Region 6 HHMSSL for chlordane (2,000 ug/kg) and 4,4'DDE (500 ug/kg). Chlordane is a common pesticide that has probably been used for insect control in the area.

No PCBs were detected in any of the soil samples.

5.3.2.4 Soil – Herbicide Analytical Results

Thirty-nine soil samples within 17 locations were analyzed for herbicides using EPA Method 8151. Table 5.3.2.1 provides soil herbicide analytical results. Dalapon was detected in two soil samples at 255 ug/kg and 290 ug/kg from SB5 (5.0-6.1 feet) and SB19(2.5-4.0 feet), respectively. These concentrations were only slightly above the sample quantitation limit. There is no EPA Region 6 HHMSSL Soil to Groundwater Transfer concentration for comparison. Dalapon is a common herbicide that has probably been used for weed control in the area.

5.3.2.5 Soil - RCRA Metal Analytical Results

Forty-eight soil samples within the 20 locations were analyzed for the eight RCRA metals that included arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. The metal analytes detected are listed in Table 5.3.2.5.

The analytical results corresponding to each soil sample indicated that concentrations of arsenic, chromium, and silver were all within the EPA Region 6 HHMSSL Soil Regional Background Concentration Range.

Barium was detected in all samples and the concentrations ranged from 4.8 mg/kg at SB28 (8.0-9.5 feet) to 1150 mg/kg at SB14 (5.0-6.5 feet). Only one sample, SB14 (5.0-6.5 feet), exceeded the HHMSSL Regional Background concentration of 430 mg/kg, and the draft Soil to Groundwater Transfer concentration of 32 mg/kg.

Cadmium was detected in only one soil sample, SB46 (5.0-6.5 feet) at a concentration of 1.39 mg/kg which slightly exceeded the EPA Region 6 HHMSSL Soil Background range of 0.01 to 1.0 mg/kg. The detected soil concentration does not exceed the draft EPA Soil to Groundwater Transfer concentration of 6 mg/kg. The analytical results of the remaining 47

Table 5.3.2.5 Soil - Metal Analytical Results

GWP-Res TNRCC

Background 30 TRC 35

Soil Boring	*EPA Region 6	SB1 (2.0)	SB1 (5.0)	SB1 (8.0)	
Sample No.	HHMSSL	S70315-27	S70315-28	S70315-29	
Analyte Date Sampled	mg/kg	6/28/97	6/28/97	6/28/97	
Total Metals (mg/kg)					
Arsenic	1.1-16.7 5	(0.896) 4.07	(0.970) 2.76	(0.936) 2.56	5.9
Barium	430 200	(1.12) 111	(1.21) 82.2	(1.17) 21.4	300
Cadmium	0.01-1.0 0.5	<0.56	<0.61	<0.58	
Chromium	38 NL	(0.56) 9.99	(0.61) 6.26	(0.58) 6.31	30
Lead	10.0-18.0 1.5	(0.560) 1500	(0.606) 7.85	(0.585) 11.0	15
Mercury	0.1 0.2	<0.134	<0.145	<0.140	0.04
Selenium	0.2 5	<1.12	<1.21	<1.17	0.3
Silver	0.01-5 18.3	<0.56	<0.61	<0.58	
Aluminum	45,000 NL	(11.2) 7210	(12.1) 8040	(11.7) 5350	30,000 mg/kg
Antimony	n/a 0.6	<5.60	<6.06	<5.85	1
Beryllium	0.5-2 0.4	(0.34) 0.35	(0.36) 0.42	<0.35	1.5
Calcium	n/a NL	(56.0) 19300	(60.6) 22600	(58.5) 41100	
Cobalt	8 NL	(1.12) 6.52	(1.21) 2.53	(1.17) 2.07	7
Copper	20 NL	(1.12) 7.79	(1.21) 4.79	(1.17) 3.04	15
Iron	n/a NL	(11.2) 13300	(12.1) 8240	(11.7) 5610	15,000
Magnesium	n/a NL	(112) 1780	(121) 1930	(117) 1930	
Manganese	389-850 NL	(1.12) 240	(1.21) 206	(1.17) 96.3	300
Nickel	16 10	(1.12) 10.2	(1.21) 4.75	(1.17) 4.29	10
Potassium	n/a NL	(112) 1450	(242) 2100	(117) 1330	
Sodium	n/a NL	(112) 957	(121) 547	(117) 384	
Thallium	n/a NL	<1.1	<1.2	<1.2	3
Tin	122 NL	(1.00) 2.19	(1.00) 1.18	(1.00) 1.07	0.9
Vanadium	66 NL	(1.12) 18.1	(1.21) 12.2	(1.17) 12.2	50
Zinc	22-50 NL	(2.24) 139	(2.42) 22.5	(2.34) 14.7	30

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil Regional Background Conc./Range
Shaded Area = Exceeds EPA HHMSSL
< = Contaminant not detected
Values within ( ) are sample quantitation limits

Table 5.3.2.5 Soil - Metal Analytical Results

Soil Boring	*EPA Region 6	SB2 (2.0)	SB2 (5.0)	SB2 (6.0)
Sample No.	HHMSSL	S70315-30	S70315-31	S70315-32
Analyte Date Sampled	mg/kg	6/28/97	6/28/97	6/28/97
Total Metals (mg/kg)				
Arsenic	1.1-16.7	(0.960) 2.76	(0.922) 3.12	(2.40) 4.75
Barium	430	(1.13) 68.2	(1.15) 102	(1.20) 159
Cadmium	0.01-1.0	<0.57	<0.58	<0.60
Chromium	38	(0.57) 6.10	(0.58) 4.42	(0.60) 5.35
Lead	10.0-18.0	(0.566) 6.41	(0.576) 7.23	(0.600) 5.99
Mercury	0.1	<0.136	(0.138) 0.354	<0.144
Selenium	0.2	<1.13	<1.15	<1.20
Silver	0.01-5	<0.57	<0.58	<0.60
Aluminum	45,000	(11.3) 8090	(11.5) 4810	(12.0) 5170
Antimony	n/a	<5.66	<5.76	<6.00
Beryllium	0.5-2	(0.34) 0.40	<0.35	<0.36
Calcium	n/a	(56.6) 10700	(57.6) 16500	(60.0) 28800
Cobalt	8	(1.13) 2.79	(1.15) 2.14	(1.20) 2.61
Copper	20	(1.13) 4.77	(1.15) 6.51	(1.20) 4.09
Iron	n/a	(11.3) 7700	(11.5) 6640	(12.0) 5590
Magnesium	n/a	(113) 2250	(115) 1440	(120) 1610
Manganese	389-850	(1.13)201	(1.15) 89.1	(1.20) 68.5
Nickel	16	(1.13) 5.25	(1.15) 3.95	(1.20) 4.87
Potassium	n/a	(227) 2020	(115) 1120	(120) 1270
Sodium	n/a	<2270	(115) 831	(120) 1040
Thallium	n/a	<1.1	<1.2	<1.2
Tin	122	(1.00) 1.54	(1.00) 1.55	(1.00) 1.18
Vanadium	66	(1.13) 12.3	(1.15) 12.2	(1.20) 14.2
Zinc	22-50	(2.27) 20.5	(2.30) 28.2	(2.40) 17.6

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil Regional Background Conc./Range
Shaded Area = Exceeds EPA HHMSSL
< = Contaminant not detected
Values within ( ) are sample quantitation limits

Table 5.3.2.5 Soil - Metal Analytical Results

change

Soil Boring	*EPA Region 6	SB5 (2.0)	SB5 (5.0)	SB5 (10.0)
Sample No.	HHMSSL	S70315-34	S70315-35	S70315-36
Analyte Date Sampled	mg/kg	6/28/97	6/28/97	6/28/97
Total Metals (mg/kg)				
Arsenic	1.1-16.7	(2.19) 3.03	(2.38)6.15	(2.34)3.47
Barium	430	(1.10) 60.8	(1.19)73.6	(1.17)36.7
Cadmium	0.01-1.0	<0.55	<0.59	<0.59
Chromium	38	(0.55) 6.14	(0.59)7.04	(0.59) 4.28
Lead	10.0-18.0	(0.548)6.85	(0.594)21.3	(0.585) 4.53
Mercury	0.1	<0.131	<0.143	<0.140
Selenium	0.2	<1.10	<1.19	<1.17
Silver	0.01-5	<0.55	<0.59	<0.59
Aluminum	45,000	(11.0) 7800	(11.9)6490	(11.7)6170
Antimony	n/a	<5.48	<5.94	<5.85
Beryllium	0.5-2	(0.33) 0.44	(0.36)0.37	(0.35)0.35
Calcium	n/a	(54.8) 10700	(59.4)14800	(58.5) 34700
Cobalt	8	(1.10) 3.24	(1.19)3.16	(1.17) 2.05
Copper	20	(1.10) 4.88	(1.19)6.63	(1.17) 3.41
Iron	n/a	(11.0) 7340	(11.9)8500	(11.7) 5590
Magnesium	n/a	(110)1770	(119)1760	(117) 1930
Manganese	389-850	(1.10)112	(1.19)91.7	(1.17) 53.5
Nickel	16	(1.10)5.35	(1.19)5.63	(1.17) 3.98
Potassium	n/a	(2190)2230	<2380	(117) 1260
Sodium	n/a	(110)837	(119)565	(117) 962
Thallium	n/a	<1.1	<1.2	<1.2
Tin	122	(1.00)1.52	(1.00)1.69	(1.00) 1.07
Vanadium	66	(1.10)13.6	(1.19)12.7	(1.17) 14.7
Zinc	22-50	(2.19)20.7	(2.38)62.0	(2.34) 14.1

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil Regional Background Conc./Range
Shaded Area = Exceeds EPA HHMSSL
< = Contaminant not detected
Values within ( ) are sample quantitation limits

Table 5.3.2.5 Soil - Metal Analytical Results

Soil Boring	*EPA Region 6	SB6 (2.0)	SB6 (5.0)	SB8 (2.0)
Sample No.	HHMSSL	S70315-24	S70315-25	S70315-26
Analyte Date Sampled	mg/kg	6/28/97	6/28/97	6/28/97
Total Metals (mg/kg)				
Arsenic	1.1-16.7	(2.16) 6.94	(0.980) 3.15	(2.44) 3.16
Barium	430	(1.08) 117	(1.20) 68.8	(1.22) 68.0
Cadmium	0.01-1.0	<0.54	<0.60	<0.61
Chromium	38	(0.54) 3.99	(0.60) 6.35	(0.61) 8.82
Lead	10.0-18.0	(0.539) 4.66	(0.600) 7.15	(0.610) 7.47
Mercury	0.1	<0.129	<0.144	<0.146
Selenium	0.2	<1.08	<1.20	<1.22
Silver	0.01-5	<0.54	<0.60	<0.61
Aluminum	45,000	(10.8) 5130	(12.0) 7700	(12.2) 9110
Antimony	n/a	<5.39	<6.0	<6.10
Beryllium	0.5-2	<0.32	(0.36) 0.43	(0.37) 0.56
Calcium	n/a	(53.9) 38100	(60.0) 21900	(61.0) 13100
Cobalt	8	(1.08) 2.14	(1.20) 3.38	(1.22) 5.25
Copper	20	(1.08) 2.62	(1.20) 4.75	(1.22) 5.85
Iron	n/a	(10.8) 5870	(12.0) 8040	(12.2) 10700
Magnesium	n/a	(108) 1910	(120) 1890	(122) 2860
Manganese	389-850	(1.08) 104	(1.20) 113	(1.22) 162
Nickel	16	(1.08) 3.92	(1.20) 5.85	(1.22) 9.28
Potassium	n/a	(108) 1400	(240) 1960	(244) 20900
Sodium	n/a	(108) 1030	(120) 190	(122) 960
Thallium	n/a	<1.1	<1.2	<1.2
Tin	122	(1.00) 1.03	(1.00) 1.32	(1.00) 1.52
Vanadium	66	(1.08) 13.1	(1.20) 14.7	(1.22) 17.8
Zinc	22-50	(2.16) 14.0	(2.40) 24.3	(2.44) 37.6

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil Regional Background Conc./Range
Shaded Area = Exceeds EPA HHMSSL
< = Contaminant not detected
Values within ( ) are sample quantitation limits

Table 5.3.2.5 Soil - Metal Analytical Results

Soil Boring	*EPA Region 6	SB11 (2.0)	SB11 (5.0)	SB11 (8.0)
Sample No.	HHMSSL	S70315-21	S70315-22	S70315-23
Analyte Date Sampled	mg/kg	6/26/97	6/26/97	6/26/97
Total Metals (mg/kg)				
Arsenic	1.1-16.7	(2.35) 2.54	(2.35) 4.67	(2.36) 3.82
Barium	430	(1.18) 40.2	(1.18) 114	(1.18) 14.3
Cadmium	0.01-1.0	<0.59	<0.59	<0.59
Chromium	38	(0.59) 7.27	(0.59) 6.37	(0.59) 6.86
Lead	10.0-18.0	(0.588) 7.60	(0.588) 6.62	(0.590) 5.90
Mercury	0.1	<0.141	<0.141	<0.142
Selenium	0.2	<1.18	<1.18	<1.18
Silver	0.01-5	<0.59	<0.59	<0.59
Aluminum	45,000	(11.8) 10000	(11.8) 8230	(11.8) 8790
Antimony	n/a	<5.88	<5.88	<5.90
Beryllium	0.5-2	(0.35) 0.53	(0.35) 0.44	(0.35) 0.44
Calcium	n/a	(58.8) 4600	(58.8) 8170	(59.0) 22800
Cobalt	8	(1.18) 3.79	(1.18) 3.33	(1.18) 2.85
Copper	20	(1.18) 6.66	(1.18) 4.19	(1.18) 3.74
Iron	n/a	(11.8) 9000	(11.8) 8590	(11.8) 8100
Magnesium	n/a	(118) 2550	(118) 2250	(118) 2690
Manganese	389-850	(1.18) 174	(1.18) 146	(1.18) 101
Nickel	16	(1.18) 6.44	(1.18) 5.68	(1.18) 4.95
Potassium	n/a	(2350) 2810	(235) 1980	(236) 1950
Sodium	n/a	(2350) 3030	(2350) 3270	(2360) 2730
Thallium	n/a	<1.2	<1.2	<1.2
Tin	122	(1.00) 1.51	(1.00) 1.52	(1.00) 1.24
Vanadium	66	(1.18) 12.0	(1.18) 18.0	(1.18) 15.0
Zinc	22-50	(2.35) 30.2	(2.35) 21.9	(2.36) 20.4

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil Regional Background Conc./Range
Shaded Area = Exceeds EPA HHMSSL
< = Contaminant not detected
Values within ( ) are sample quantitation limits

Table 5.3.2.5 Soil - Metal Analytical Results

Soil Boring	*EPA Region 6	SB14 (2.0)	SB14 (5.0)	SB14 (6.5)
Sample No.	HHMSSL	S70317-11	S70317-12	S70317-13
Analyte Date Sampled	mg/kg	7/1/97	7/1/97	7/1/97
Total Metals (mg/kg)				
Arsenic	1.1-16.7	(0.733) 3.45	(0.577) 1.64	(0.587) 1.61
Barium	430	(1.5) 63.1	(1.2) 1150	(1.2) 59.0
Cadmium	0.01-1.0	<0.73	<0.58	<0.59
Chromium	38	(0.7) 10.2	(0.6) 4.6	(0.6) 6.4
Lead	10.0-18.0	(0.73) 9.91	(0.58) 5.76	(0.59) 6.29
Mercury	0.1	<0.176	<0.139	<0.141
Selenium	0.2	<0.73	<0.58	<0.59
Silver	0.01-5	<0.73	<0.58	<0.59
Aluminum	45,000	(14.7) 11800	(11.5) 5210	(11.7) 7590
Antimony	n/a	<7.3	<5.8	<5.9
Beryllium	0.5-2	(0.44) 0.63	<0.35	(0.35) 0.37
Calcium	n/a	(73) 16500	(1440) 68800	(1470) 71700
Cobalt	8	(1.5) 4.8	(1.2) 3.4	(1.2) 3.4
Copper	20	(1.47) 6.15	(1.15) 2.80	(1.17) 2.95
Iron	n/a	(14.7) 13200	(11.5) 7350	(11.7) 9630
Magnesium	n/a	(73.3) 2990	(57.7) 2220	(58.7) 2450
Manganese	389-850	(1.5) 167	(1.2) 111	(1.2) 104
Nickel	16	(1.5) 10.0	(1.2) 5.3	(1.2) 21.8
Potassium	n/a	(147) 2620	(115) 1060	(117) 1510
Sodium	n/a	(147) 290	(115) 321	(117) 263
Thallium	n/a	<1.47	<1.15	<1.17
Tin	122	(1.5) 2.2	<1.2	(1.2) 1.2
Vanadium	66	(1.5) 20.6	(1.2) 17.6	(1.2) 17.2)
Zinc	22-50	(4.40) 39.1	(3.46) 18.6	(3.52) 24.2)

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil Regional Background Conc./Range
Shaded Area = Exceeds EPA HHMSSL
< = Contaminant not detected
Values within ( ) are sample quantitation limits

Table 5.3.2.5 Soil - Metal Analytical Results

Soil Boring	*EPA Region 6	SB19 (2.0)	SB24 (2.0)	SB24 (5.0)	SB24 (6.0)
Sample No.	HHMSSL	S70315-20	S70317-14	S70317-15	S70317-16
Analyte Date Sampled	mg/kg	6/28/97	7/1/97	7/1/97	7/1/97
Total Metals (mg/kg)					
Arsenic	1.1-16.7	(2.35) 3.11	(0.561) 3.20	(0.625) 3.37	(0.611) 3.46
Barium	430	(1.17) 77.2	(1.1) 89.3	(1.3) 120	(1.2) 75.1
Cadmium	0.01-1.0	<0.59	<0.56	<0.63	<0.61
Chromium	38	(0.59) 9.40	(0.6) 8.6	(0.6) 9.7	(0.6) 6.5
Lead	10.0-18.0	(0.587) 8.13	(0.56) 28.3	(0.63) 7.49	(0.61) 6.30
Mercury	0.1	<0.141	<0.135	<0.150	<0.147
Selenium	0.2	<1.17	<0.56	<0.63	<0.61
Silver	0.01-5	<0.59	<0.56	<0.63	<0.61
Aluminum	45,000	(11.7) 9790	(11.2) 8320	(12.5) 10600	(12.2) 7240
Antimony	n/a	<5.87	<5.6	<6.3	<6.1
Beryllium	0.5-2	(0.35) 0.58	(0.34) 0.48	(0.38) 0.46	<0.37
Calcium	n/a	(58.7) 9830	(56) 17500	(63) 25000	(1530) 41900
Cobalt	8	(1.17) 5.01	(1.1) 4.5	(1.3) 4.3	(1.2) 3.9
Copper	20	(1.17) 5.13	(1.12) 7.77	(1.25) 6.15	(1.22) 4.49
Iron	n/a	(11.7) 11300	(11.2) 11100	(12.5) 10800	(12.2) 8630
Magnesium	n/a	(117) 2590	(56.1) 2400	(62.5) 4530	(61.1) 2880
Manganese	389-850	(1.17) 141	(1.1) 188	(1.3) 146	(1.2) 125
Nickel	16	(1.17) 8.77	(1.1) 8.3	(1.3) 8.8	(1.2) 7.9
Potassium	n/a	(235) 2130	(112) 1980	(125) 1960	(122) 1530
Sodium	n/a	(117) 1120	(112) 491	(3130) 4510	(3060) 5310
Thallium	n/a	<1.2	<1.12	<1.25	<1.22
Tin	122	(1.00) 1.63	(1.1) 2.4	(1.3) 1.7	(1.2) 1.6
Vanadium	66	(1.17) 19.7	(1.1) 14.7	(1.3) 20.1	(1.2) 13.1
Zinc	22-50	(2.35) 34.9	(3.37) 99.7	(3.75) 37.0	(3.67) 28.0

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil Regional Background Conc./Range
Shaded Area = Exceeds EPA HHMSSL
< = Contaminant not detected
Values within ( ) are sample quantitation limits

Table 5.3.2.5 Soil - Metal Analytical Results

Soil Boring	*EPA Region 6	SB28 (2.0)	SB28 (5.0)	SB28 (8.0)
Sample No.	HHMSSL	S70317-17	S70317-18	S70317-19
Analyte Date Sampled	mg/kg	7/7/97	7/1/97	7/1/97
Total Metals (mg/kg)				
Arsenic	1.1-16.7	(0.594) 2.69	(0.61) 1.52	(0.604) 3.62
Barium	430	(1.2) 117	(1.2) 5.6	(1.2) 4.8
Cadmium	0.01-1.0	<0.59	<0.61	<0.60
Chromium	38	(0.6) 7.5	(0.6) 4.8	(0.6) 5.3
Lead	10.0-18.0	(0.59) 8.16	(0.61) 7.23	(0.60) 5.55
Mercury	0.1	<0.143	<0.146	<0.145
Selenium	0.2	<0.59	<0.61	<0.60
Silver	0.01-5	<0.59	<0.61	<0.60
Aluminum	45,000	(11.9) 7600	(12.2) 4900	(12.1) 3560
Antimony	n/a	<5.9	<6.1	<6.0
Beryllium	0.5-2	(0.36) 0.56	(0.37) 0.40	<0.36
Calcium	n/a	(59) 26900	(1520) 73900	(1510) 88600
Cobalt	8	(1.2) 8.9	(1.2) 5.4	(1.2) 2.3
Copper	20	(1.19) 2.82	(1.22) 1.94	(1.21) 1.62
Iron	n/a	(297) 16300	(12.2) 10300	(302) 17600
Magnesium	n/a	(59.4) 2770	(61) 1800	(60.4) 1000
Manganese	389-850	(1.2) 134	(1.2) 52.7	(1.2) 12.4
Nickel	16	(1.2) 11.4	(1.2) 6.2	(1.2) 4.1
Potassium	n/a	(119) 1280	(122) 848	(121) 516
Sodium	n/a	<2970	<3050	<3020
Thallium	n/a	<1.19	<1.22	<1.21
Tin	122	(1.2) 1.5	(1.2) 1.5	(1.2) 1.3
Vanadium	66	(1.2) 13.6	(1.2) 8.1	(1.2) 9.1
Zinc	22-50	(3.56) 42.3	(3.66) 25.7	(3.62) 31.3

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil Regional Background Conc./Range
Shaded Area = Exceeds EPA HHMSSL
< = Contaminant not detected
Values within ( ) are sample quantitation limits

Table 5.3.2.5 Soil - Metal Analytical Results

change

Soil Boring	*EPA Region 6	SB35 (2.0)	SB35 (5.0)	SB35 (8.0)
Sample No.	HHMSSL	S70317-20	S70317-21	S70317-22
Analyte Date Sampled	mg/kg	7/1/97	7/1/97	6/30/97
Total Metals (mg/kg)				
Arsenic	1.1-16.7	(0.604) 0.685	(0.614) 2.10	(0.621) 2.81
Barium	430	(1.2) 66.9	(1.2) 71.8	(1.2) 9.5
Cadmium	0.01-1.0	<0.60	<0.61	<0.62
Chromium	38	(0.6) 8.2	(0.6) 9.6	(0.6) 8.5
Lead	10.0-18.0	(0.60) 4.93	(0.61) 5.20	(0.62) 6.44
Mercury	0.1	<0.145	<0.147	<0.149
Selenium	0.2	<0.60	<0.61	<0.62
Silver	0.01-5	<0.60	<0.61	<0.62
Aluminum	45,000	(12.1) 4980	(12.3) 6050	(12.4) 7150
Antimony	n/a	<6.0	<6.1	<6.2
Beryllium	0.5-2	<0.36	<0.37	(0.37) 0.63
Calcium	n/a	(60) 2750	(61) 26700	(62) 6280
Cobalt	8	(1.2) 5.1	(1.2) 4.7	(1.2) 12.8
Copper	20	<1.21	<1.23	(1.24) 2.66
Iron	n/a	(12.1) 11600	(307) 15100	(311) 18300
Magnesium	n/a	(60.4) 1680	(61.3) 2000	(62.1) 2390
Manganese	389-850	(1.2) 37.0	(1.2) 203	(1.2) 124
Nickel	16	(1.2) 7.3	(1.2) 9.5	(1.2) 10.4
Potassium	n/a	(121) 1100	(123) 1350	(124) 1250
Sodium	n/a	(121) 128	(123) 284	(124) 1140
Thallium	n/a	<1.21	<1.23	<1.24
Tin	122	(1.2) 1.6	(1.2) 1.5	(1.2) 1.9
Vanadium	66	(1.2) 12.8	(1.2) 16.7	(1.2) 9.6
Zinc	22-50	(3.62) 46.6	(3.68) 41.9	(3.73) 81.1

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil Regional Background Conc./Range
Shaded Area = Exceeds EPA HHMSSL
< = Contaminant not detected
Values within ( ) are sample quantitation limits

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Table 5.3.2.5 Soil - Metal Analytical Results

Soil Boring	*EPA Region 6	SB36 (2.0)	SB37 (2.0)	SB39 (2.0)	SB39 (5.0)
Sample No.	HHMSSL	S70326-16	S70317-24	S70326-13	S70326-14
Analyte Date Sampled	mg/kg	7/11/97	6/30/97	7/11/97	7/11/97
Total Metals (mg/kg)					
Arsenic	1.1-16.7	(2.32) 3.29	(0.554) 2.14	(0.950) 2.58	(2.34) 2.39
Barium	430	(1.16) 113	(1.1) 26.7	(1.19) 281	(1.17) 103
Cadmium	0.01-1.0	<0.58	<0.55	<0.59	<0.59
Chromium	38	(0.58) 8.99	(0.6) 7.4	(0.59) 7.58	(0.59) 10.1
Lead	10.0-18.0	(0.581) 5.25	(0.55) 5.59	(0.594) 4.77	(0.586) 6.31
Mercury	0.1	<0.139	<0.133	<0.143	<0.141
Selenium	0.2	<1.16	<0.55	<1.19	<1.17
Silver	0.01-5	<0.58	<0.55	<0.59	<0.59
Aluminum	45,000	(11.6) 8400	(11.1) 5590	(11.9) 5130	(11.7) 7080
Antimony	n/a	<5.81	<5.5	<5.94	<5.86
Beryllium	0.5-2	(0.35) 0.49	(0.33) 0.42	(0.36) 0.43	(0.35) 0.68
Calcium	n/a	(58.1) 40800	(55) 25400	(59.4) 32200	(58.6) 2100
Cobalt	8	(1.16) 4.82	(1.1) 3.7	(1.19) 5.65	(1.17) 3.74
Copper	20	(1.16) 2.67	(1.11) 1.55	(1.19) 1.26	(1.17) 1.90
Iron	n/a	(11.6) 13600	(277) 14100	(11.9) 13500	(11.7) 17200
Magnesium	n/a	(116) 2360	(55.4) 1940	(119) 1480	(117) 2150
Manganese	389-850	(1.16) 122	(1.1) 60.1	(1.19) 64.2	(1.17) 21.5
Nickel	16	(1.16) 7.49	(1.1) 6.6	(1.19) 6.52	(1.17) 8.78
Potassium	n/a	(116) 2090	(111) 1610	(119) 1820	(117) 1930
Sodium	n/a	<116	(111) 287	(119) 166	(117) 945
Thallium	n/a	<1.2	<1.11	<1.2	<1.2
Tin	122	(1.00) 1.40	(1.1) 1.4	(1.00) 1.35	(1.00) 1.58
Vanadium	66	(1.16) 12.1	(1.1) 9.6	(1.19) 4.60	(1.17) 4.92
Zinc	22-50	(2.32) 33.4	(3.32) 29.7	(2.38) 29.5	(2.34) 57.9

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil Regional Background Conc./Range
Shaded Area = Exceeds EPA HHMSSL
< = Contaminant not detected
Values within ( ) are sample quantitation limits

Table 5.3.2.5 Soil - Metal Analytical Results

Soil Boring	*EPA Region 6	SB46 (2.0)	SB46 (5.0)
Sample No.	HHMSSL	S70326-11	S70326-12
Analyte Date Sampled	mg/kg	7/11/97	7/11/97
Total Metals (mg/kg)			
Arsenic	1.1-16.7	(2.46) 4.50	(2.54) 4.69
Barium	430	(1.23) 52.8	(1.27) 70.4
Cadmium	0.01-1.0	<0.61	(0.64) 1.39
Chromium	38	(0.61) 9.60	(0.64) 12.3
Lead	10.0-18.0	(0.614) 10.9	(0.635) 57.4
Mercury	0.1	<0.147	<0.152
Selenium	0.2	<1.23	<1.27
Silver	0.01-5	<0.61	<0.64
Aluminum	45,000	(12.3) 8990	(12.7) 8250
Antimony	n/a	<6.14	<6.35
Beryllium	0.5-2	(0.37) 0.53	(0.38) 0.45
Calcium	n/a	(61.4) 35200	(63.5) 39700
Cobalt	8	(1.23) 8.19	(1.27) 6.47
Copper	20	(1.23) 4.45	(1.27) 18.5
Iron	n/a	(12.3) 18800	(12.7) 22200
Magnesium	n/a	(123) 2500	(127) 2080
Manganese	389-850	(1.23) 107	(1.27) 160
Nickel	16	(1.23) 9.90	(1.27) 19.1
Potassium	n/a	(123) 1860	(127) 1750
Sodium	n/a	(123) 1840	(127) 1120
Thallium	n/a	<1.2	<1.3
Tin	122	(1.00) 1.74	(1.00) 11.6
Vanadium	66	(1.23) 8.41	(1.27) 4.79
Zinc	22-50	(2.46) 49.1	(2.54) 138

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil Regional Background Conc./Range
Shaded Area = Exceeds EPA HHMSSL
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Table 5.3.2.5 Soil - Metal Analytical Results

Soil Boring	*EPA Region 6	SB47 (2.0)	SB47 (5.0)	SB47 (7.0)
Sample No.	HHMSSL	S70326-7	S70326-8	S70326-10
Analyte Date Sampled	mg/kg	7/11/97	7/11/97	7/11/97
Total Metals (mg/kg)				
Arsenic	1.1-16.7	(2.32) 3.90	(2.33) 4.05	(2.37) 5.00
Barium	430	(1.16) 34.6	(1.16) 9.67	(1.18) 7.34
Cadmium	0.01-1.0	<0.58	<0.58	<0.59
Chromium	38	(0.58) 10.1	(0.58) 9.02	(0.59) 11.1
Lead	10.0-18.0	(0.581) 7.76	(0.582) 7.01	(0.592) 8.09
Mercury	0.1	<0.139	<0.140	<0.142
Selenium	0.2	<1.16	<1.16	<1.18
Silver	0.01-5	<0.58	<0.58	<0.59
Aluminum	45,000	(11.6) 9770	(11.6) 7880	(11.8) 8050
Antimony	n/a	<5.81	<5.82	<5.92
Beryllium	0.5-2	(0.35) 0.69	(0.35) 0.59	(0.36) 0.74
Calcium	n/a	(58.1) 31600	(58.2) 31400	(59.2) 1810
Cobalt	8	(1.16) 6.97	(1.16) 21.9	(1.18) 3.91
Copper	20	(1.16) 4.46	(1.16) 2.94	(1.18) 4.91
Iron	n/a	(11.6) 17100	(11.6) 24600	(11.8) 26100
Magnesium	n/a	(116) 3220	(116) 2720	(118) 2780
Manganese	389-850	(1.16) 113	(1.16) 87.6	(1.18) 17.2
Nickel	16	(1.16) 10.1	(1.16) 15.2	(1.18) 12.3
Potassium	n/a	(116) 1960	(116) 1570	(118) 1760
Sodium	n/a	(116) 200	(116) 648	(118) 2160
Thallium	n/a	<1.2	<1.2	<1.2
Tin	122	(1.00) 1.53	(1.00) 1.56	(1.00) 1.53
Vanadium	66	(1.16) 12.2	(1.16) 5.32	(1.18) 5.29
Zinc	22-50	(2.32) 42.3	(2.33) 84.9	(2.37) 82.2

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil Regional Background Conc./Range
Shaded Area = Exceeds EPA HHMSSL
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Values within ( ) are sample quantitation limits

Table 5.3.2.5 Soil - Metal Analytical Results

Soil Boring	*EPA Region 6	SB49 (2.0)	SB49 (5.0)
Sample No.	HHMSSL	S70317-25	S70317-26
Analyte Date Sampled	mg/kg	6/30/97	6/30/97
Total Metals (mg/kg)			
Arsenic	1.1-16.7	(0.587) 2.57	(0.591) 3.52
Barium	430	(1.2) 64.9	(1.2) 41.9
Cadmium	0.01-1.0	<0.59	<0.59
Chromium	38	(0.6) 9.2	(0.6) 7.0
Lead	10.0-18.0	(0.59) 8.72	(0.59) 7.32
Mercury	0.1	<0.141	(0.142) 0.612
Selenium	0.2	<0.59	<0.59
Silver	0.01-5	<0.59	<0.59
Aluminum	45,000	(11.7) 11200	(11.8) 8000
Antimony	n/a	<5.9	<5.9
Beryllium	0.5-2	(0.35) 0.60	(0.35) 0.45
Calcium	n/a	(59) 17000	(59) 18900
Cobalt	8	(1.2) 4.4	(1.2) 4.1
Copper	20	(1.17) 5.23	(1.18) 4.77
Iron	n/a	(293) 16000	(11.8) 9550
Magnesium	n/a	(58.7) 2970	(59.1) 2070
Manganese	389-850	(1.2) 143	(1.2) 157
Nickel	16	(1.2) 8.4	(1.2) 7.3
Potassium	n/a	(117) 1970	(118) 1420
Sodium	n/a	(117) 437	(118) 1270
Thallium	n/a	<1.17	<1.18
Tin	122	(1.2) 1.8	(1.2) 2.0
Vanadium	66	(1.2) 17.2	(1.2) 14.4
Zinc	22-50	(3.52) 37.6	(3.55) 33.7

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil Regional Background Conc./Range
Shaded Area = Exceeds EPA HHMSSL
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Table 5.3.2.5 Soil - Metal Analytical Results

Soil Boring	*EPA Region 6	SB50 (2.0)	SB50 (5.0)	SB50 (8.0)
Sample No.	HHMSSL	S70317-27	S70317-28	S70317-29
Analyte Date Sampled	mg/kg	6/30/97	6/30/97	6/30/97
Total Metals (mg/kg)				
Arsenic	1.1-16.7	(0.573) 2.75	(0.590) 2.24	(0.596) 2.20
Barium	430	(1.1) 103	(1.2) 69.0	(1.2) 55.7
Cadmium	0.01-1.0	<0.57	<0.59	<0.60
Chromium	38	(0.6) 9.0	(0.6) 8.4	(0.6) 13.7
Lead	10.0-18.0	(0.57) 8.74	(0.59) 7.62	(0.60) 8.40
Mercury	0.1	<0.138	<0.142	<0.143
Selenium	0.2	<0.57	<0.59	<0.60
Silver	0.01-5	<0.57	<0.59	<0.60
Aluminum	45,000	(11.5) 9930	(11.8) 9180	(11.9) 7920
Antimony	n/a	<5.7	<5.9	<6.0
Beryllium	0.5-2	(0.34) 0.57	(0.35) 0.47	(0.36) 0.48
Calcium	n/a	(57) 15300	(59) 13400	(60) 10500
Cobalt	8	(1.1) 5.2	(1.2) 4.9	(1.2) 5.0
Copper	20	(1.15) 4.50	(1.18) 4.32	(1.19) 4.15
Iron	n/a	(287) 11800	(11.8) 11100	(11.9) 11600
Magnesium	n/a	(57.3) 2490	(59) 2350	(59.6) 2270
Manganese	389-850	(1.1) 140	(1.2) 169	(1.2) 164
Nickel	16	(1.1) 8.4	(1.2) 7.6	(1.2) 11.5
Potassium	n/a	(115) 1930	(118) 1710	(119) 1600
Sodium	n/a	(115) 278	(118) 1410	(2980) 3230
Thallium	n/a	<1.15	<1.18	<1.19
Tin	122	(1.1) 1.9	(1.2) 1.7	(1.2) 1.8
Vanadium	66	(1.1) 19.0	(1.2) 17.3	(1.2) 15.8
Zinc	22-50	(3.44) 37.7	(3.54) 30.0	NA

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil Regional Background Conc./Range
Shaded Area = Exceeds EPA HHMSSL
< = Contaminant not detected
Values within ( ) are sample quantitation limits

Table 5.3.2.5 Soil - Metal Analytical Results

Soil Boring	*EPA Region 6	SB55 (2.0)	SB55 (5.0)	SB55 (7.0)
Sample No.	HHMSSL	S70326-1	S70326-2	S70326-3
Analyte Date Sampled	mg/kg	7/11/97	7/11/97	7/11/97
Total Metals (mg/kg)				
Arsenic	1.1-16.7	(2.32) 2.58	(2.38) 4.27	(2.40) 2.69
Barium	430	(1.16) 43.7	(1.19) 27.5	(1.20) 51.1
Cadmium	0.01-1.0	<0.58	<0.59	<0.60
Chromium	38	(0.58) 7.42	(0.59) 6.93	(0.60) 8.09
Lead	10.0-18.0	(0.581) 6.20	(0.595) 5.71	(0.599) 5.80
Mercury	0.1	<0.139	<0.143	<0.144
Selenium	0.2	<1.16	<1.19	<1.20
Silver	0.01-5	<0.58	<0.59	<0.60
Aluminum	45,000	(11.6) 7650	(11.9) 8140	(12.0) 9000
Antimony	n/a	<5.81	<5.95	<5.99
Beryllium	0.5-2	(0.35) 0.64	(0.36) 0.65	(0.36) 0.66
Calcium	n/a	(58.1) 10500	(59.5) 18200	(59.9) 21500
Cobalt	8	(1.16) 4.98	(1.19) 5.17	(1.20) 5.42
Copper	20	(1.16) 3.60	(1.19) 3.82	(1.20) 3.19
Iron	n/a	(11.6) 11100	(11.9) 10300	(12.0) 12000
Magnesium	n/a	(116) 1790	(119) 2070	(120) 1990
Manganese	389-850	(1.16) 139	(1.19) 166	(1.20) 151
Nickel	16	(1.16) 7.56	(1.19) 7.81	(1.20) 8.06
Potassium	n/a	(116) 1390	(119) 1480	(120) 1580
Sodium	n/a	(116) 128	(119) 1030	(120) 3330
Thallium	n/a	<1.2	<1.2	<1.2
Tin	122	(1.00) 1.50	(1.00) 1.95	(1.00) 1.53
Vanadium	66	(1.16) 10.5	(1.19) 12.6	(1.20) 12.1
Zinc	22-50	(2.32) 31.6	(2.38) 28.5	(2.40) 28.1

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< = Contaminant not detected
Values within ( ) are sample quantitation limits

Table 5.3.2.5 Soil - Metal Analytical Results

Soil Boring	*EPA Region 6	SB58 (2.0)	SB58 (5.0)	SB58 (6.5)
Sample No.	HHMSSL	S70326-4	S70326-5	S70326-6
Analyte Date Sampled	mg/kg	7/11/97	7/11/97	7/11/97
Total Metals (mg/kg)				
Arsenic	1.1-16.7	(2.32) 4.61	(2.33) 3.33	(2.35) 3.89
Barium	430	(1.16) 58.7	(1.17) 76.2	(1.18) 200
Cadmium	0.01-1.0	<0.58	<0.58	<0.59
Chromium	38	(0.58) 10.9	(0.58) 8.41	(0.59) 9.35
Lead	10.0-18.0	(0.581) 8.13	(0.583) 5.82	(0.588) 7.81
Mercury	0.1	<0.139	<0.140	<0.141
Selenium	0.2	<1.16	<1.17	<1.18
Silver	0.01-5	<0.58	<0.58	<0.59
Aluminum	45,000	(11.6) 13600	(11.7) 9530	(11.8) 10400
Antimony	n/a	<5.81	<5.83	<5.88
Beryllium	0.5-2	(0.35) 0.78	(0.35) 0.58	(0.35) 0.75
Calcium	n/a	(58.1) 27800	(58.3) 37200	(58.8) 27000
Cobalt	8	(1.16) 6.65	(1.17) 4.50	(1.18) 5.09
Copper	20	(1.16) 5.63	(1.17) 3.14	(1.18) 4.36
Iron	n/a	(11.6) 17700	(11.7) 11800	(11.8) 19400
Magnesium	n/a	(116) 3560	(117) 3000	(118) 3120
Manganese	389-850	(1.16) 292	(1.17) 137	(1.18) 166
Nickel	16	(1.16) 10.3	(1.17) 6.45	(1.18) 8.12
Potassium	n/a	(116) 2480	(117) 1600	(118) 1610
Sodium	n/a	(116) 1610	(117) 2770	(118) 3230
Thallium	n/a	<1.2	<1.2	<1.2
Tin	122	(1.00) 1.69	(1.00) 1.48	(1.00) 1.59
Vanadium	66	(1.16) 19.2	(1.17) 12.4	(1.18) 15.9
Zinc	22-50	(2.32) 43.1	(2.33) 25.5	(2.35) 30.2

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Soil Regional Background Conc./Range
Shaded Area = Exceeds EPA HHMSSL
< = Contaminant not detected
Values within ( ) are sample quantitation limits

samples were all below the sample quantitation limits (ranging from <0.54 mg/kg to <0.73 mg/kg).

Lead was detected in all soil samples ranging from 4.53 mg/kg at SB5 (10.0-11.7 feet) to 1500 mg/kg at SB1 (2.0-3.5 feet). Four of the 48 soil samples exceeded the EPA Region 6 HHMSSL Soil Background range of 10.0-18.0 mg/kg. The EPA has not established a Soil to Groundwater Transfer concentration for lead for comparison. The elevated concentrations are 1500 mg/kg at SB1 (2.0-3.5 feet), 21.3 mg/kg at SB5 (5.0-6.1 feet), 28.3 mg/kg at SB24 (2.0-3.5 feet), and 57.4 mg/kg at SB46 (5.0-6.5 feet).

The distribution of elevated lead concentrations appears to be limited. The elevated concentration of lead at SB1 was limited to the 2.0-3.5 feet depth interval. Lead was detected at 7.85 mg/kg at SB1 (5.0-6.6 feet) and 11.0 mg/kg at SB1 (8.0-9.2 feet) which are within the EPA Region 6 HHMSSL Soil Background range of 10.0 to 18.0 mg/kg. The presence of lead at an adjacent location, SB2, was not detected at elevated concentrations. The average concentration of all 48 samples is 39.87 mg/kg. However, the average concentration when the maximum of 1500 mg/kg is excluded is 8.80 mg/kg which is below the regional background concentration. The presence of lead at elevated concentrations is sporadic and the distribution of lead in soil is not indicative of a release of hazardous constituents from site-related activities.

Mercury was reported in detectable quantities from two soil samples, SB2 (5.0-6.5 feet) at 0.854 mg/kg and SB49 (5.0-6.5 feet) at 0.812 mg/kg. These concentrations exceeded the EPA Region 6 HHMSSL Soil Regional Background concentration of 0.1 mg/kg. The sample quantitation limits were at values greater than the background concentration used for comparison. Due to the low sample volume, the sample quantitation limit ranged from 0.129 mg/kg to 0.173 mg/kg. Although mercury may be present in samples above the EPA Region 6 HHMSSL background concentration, all 48 samples were below the estimated EPA Region 6 HHMSSL for Soil to Groundwater Transfer concentration at 3 mg/kg.

Selenium was not detected in any samples above the sample quantitation limit. Due to the low sample volume, the sample quantitation limits ranging from 0.55 mg/kg to 1.22 mg/kg,

exceeded the EPA Region 6 HHMSSL background concentration of 0.2 mg/kg. However, selenium was below the estimated EPA Region 6 HHMSSL Soil to Groundwater Transfer concentration of 3 mg/kg in all samples.

5.3.2.6 Soil - Other Metal Analytical Results

Metals analyzed and reported using EPA Method 6010 in addition to the 8 RCRA metals include aluminum, antimony, beryllium, calcium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, sodium, thallium, tin, vanadium, and zinc.

Antimony and thallium were not detected in any of the soil samples. The remaining analytes were detected in either all or the majority of soil samples. The only analytes which had sample concentrations exceeding the EPA Region 6 HHMSSL Regional Background Concentration include cobalt, nickel, and zinc.

Cobalt was detected in all soil samples with concentrations ranging from 2.05 mg/kg to 21.9 mg/kg. Although four samples exceeded the regional background concentration of 8 mg/kg, the average cobalt concentration of 4.9 mg/kg was significantly less than the regional background concentration. EPA Region 6 has not established a HHMSSL for Soil to Groundwater Transfer concentration for this analyte.

Nickel was detected in all soil samples with concentrations ranging from 3.92 mg/kg to 21.8 mg/kg. Two soil samples exceeded the regional background concentration of 16 mg/kg. However, the average concentration of 8.16 mg/kg was significantly less than the regional background concentration. The draft EPA Region 6 HHMSSL for Soil to Groundwater Transfer concentration is 21 mg/kg.

Zinc was detected in all samples with concentrations ranging from 14.0 to 139 mg/kg. Eight of forty-seven samples exceeded the EPA Region 6 HHMSSL background range of 22-50 mg/kg. Although eight discrete samples exceeded the range, the average concentration of 40.2 mg/kg was within the regional background range. The draft EPA Region 6 HHMSSL for Soil to Groundwater Transfer concentration is 42,000 mg/kg.

5.4 Groundwater Analytical Results

Detectable concentrations of analytes in the groundwater are listed in tables for each of the following sections. These concentrations were then compared to the EPA Region 6 HHMSSL, Drinking Water Maximum Contaminant Level (MCL). A MCL is the maximum permissible level of contaminant in water that is delivered to any user of a public water system. Since the groundwater in the area is not used as a source of drinking water, the comparison of detected analytes to the MCL is a conservative analysis.

5.4.1. Groundwater - Field Sampling Results

Fifty-nine groundwater samples were analyzed for volatile organic compounds in the field using a Viking Portable GC/MS. The detection limit of the GC/MS was set at 60 ppb, using calibration standards of benzene, toluene, ethyl benzene, m-xylene, trichloroethene and trans-1, 2-dichloroethene. None of the field groundwater samples analyzed contained concentrations of volatile organic compounds above 60 ppb. These results are in excellent agreement with the laboratory results. The results are shown on Table 5.4.1.

Table 5.4.1 Groundwater - Field Analytical Results

Sample ID "W"	Date Analyzed	trans DCE	Benzene	TCE	Toluene	Ethyl Benzene	m-Xylene	Others (TICs)	Possible TIC Compounds
1	27Jun97	<60	<60	<60	<60	<60	<60	<60	
2	28Jun97	<60	<60	<60	<60	<60	<60	<60	
3	28Jun97	<60	<60	<60	<60	<60	<60	<60	
4	28Jun97	<60	<60	<60	<60	<60	<60	<60	
5	28Jun97	<60	<60	<60	<60	<60	<60	2 TICs	cis-DCE, THF
6	28Jun97	<60	<60	<60	<60	<60	<60	1 TIC	
7	28Jun97	<60	<60	<60	<60	<60	<60	<60	
8	30Jun97	<60	<60	<60	<60	<60	<60	<60	
9	01Jul97	<60	<60	<60	<60	<60	<60	<60	
10	01Jul97	<60	<60	<60	<60	<60	<60	1 TIC	Possibly THF
11	01Jul97	<60	<60	<60	<60	<60	<60	<60	

Sample ID "W"	Date Analyzed	trans DCE	Benzene	TCE	Toluene	Ethyl Benzene	m-Xylene	Others (TICs)	Possible TIC Compounds
12	01Jul97	<60	<60	<60	<60	<60	<60	<60	
13	01Jul97	<60	<60	<60	<60	<60	<60	UK	
14	26Jun97	<60	<60	<60	<60	<60	<60	<60	
15	30Jun97	<60	<60	<60	<60	<60	<60	<60	
16	01Jul97	<60	<60	<60	<60	<60	<60	<60	
17	01Jul97	<60	<60	<60	<60	<60	<60	<60	
18	30Jun97	<60	<60	<60	<60	<60	<60	<60	
19	30Jun97	<60	<60	<60	<60	<60	<60	<60	
20	01Jul97	<60	<60	<60	<60	<60	<60	<60	
21	30Jun97	<60	<60	<60	<60	<60	<60	2 TICs	tert-butylated hydroxyl-toluene, & other unknowns
22	30Jun97	<60	<60	<60	<60	<60	<60	UK	
23	01Jul97	<60	<60	<60	<60	<60	<60	<60	
24	01Jul97	<60	<60	<60	<60	<60	<60	<60	
25	30Jun97	<60	<60	<60	<60	<60	<60	<60	
26	30Jun97	<60	<60	<60	<60	<60	<60	<60	
27	30Jun97	<60	<60	<60	<60	<60	<60	<60	
28	01Jul97	<60	<60	<60	<60	<60	<60	<60	
29	10Jul97	<60	<60	<60	<60	<60	<60	<60	
30	26Jun97	<60	<60	<60	<60	<60	<60	UK	
31	30Jun97	<60	<60	<60	<60	<60	<60	<60	
32	30Jun97	<60	<60	<60	<60	<60	<60	<60	
34	26Jun97	<60	<60	<60	<60	<60	<60	<60	
35	26Jun97	<60	<60	<60	<60	<60	<60	<60	
36	10Jul97	<60	<60	<60	<60	<60	<60	<60	
37	26Jun97	<60	<60	<60	<60	<60	<60	<60	
38	10Jul97	<60	<60	<60	<60	<60	<60	<60	

Sample ID "W"	Date Analyzed	trans DCE	Benzene	TCE	Toluene	Ethyl Benzene	m-Xylene	Others (TICs)	Possible TIC Compounds
39	10Jul97	<60	<60	<60	<60	<60	<60	<60	
42	10Jul97	<60	<60	<60	<60	<60	<60	<60	
43	10Jul97	<60	<60	<60	<60	<60	<60	<60	
45	10Jul97	<60	<60	<60	<60	<60	<60	<60	
46	10Jul97	<60	<60	<60	<60	<60	<60	<60	
47	10Jul97	<60	<60	<60	<60	<60	<60	<60	
48	26Jun97	<60	<60	<60	<60	<60	<60	UK	
49	07Jul97	<60	<60	<60	<60	<60	<60	<60	
50	09Jul97	<60	<60	<60	<60	<60	<60	<60	
51	09Jul97	<60	<60	<60	<60	<60	<60	<60	
52	09Jul97	<60	<60	<60	<60	<60	<60	<60	
53	09Jul97	<60	<60	<60	<60	<60	<60	<60	
54	09Jul97	<60	<60	<60	<60	<60	<60	<60	
55	09Jul97	<60	<60	<60	<60	<60	<60	<60	
56	09Jul97	<60	<60	<60	<60	<60	<60	UK	
57	09Jul97	<60	<60	<60	<60	<60	<60	<60	
58	09Jul97	<60	<60	<60	<60	<60	<60	<60	
59	07Jul97	<60	<60	<60	<60	<60	<60	<60	

UK = unknown tentatively identified compound (TIC)

5.4.2. Groundwater - VOC Analytical Results

Sixty groundwater samples were analyzed for VOCs using the EPA Method 8260. The VOC analytical results for the groundwater samples are listed in Table 5.4.2.

Five samples detected 1,4-dichlorobenzene exceeded the detection limit of 5 ug/l at locations SB3 (W3), SB4 (W4), SB5 (W5), SB6 (W6), and SB10 (W10). Detectable concentrations ranged from 9.41 to 20.6 ug/l, with an average concentration of 15.16 ug/l.

Two samples at location SB3 (W3) and SB4 (W4) detected chlorobenzene above the sample quantitation limit of 5 ug/l with concentrations of 9.18 ug/l and 18.2 ug/l, respectively

Table 5.4.2 Groundwater - VOC Analytical Data

Lab ID No.	*EPA Region 6	W1	W2	W3	W4	W5
Sample No.	HHMSSL MCL	S70311-2	S70311-9	S70311-3	S70311-10	S70311-6
Date Sampled	ug/l	26-Jun-97	26-Jun-97	26-Jun-97	26-Jun-97	26-Jun-97
VOCs (Method 8260) (ug/l)						
1,4-Dichlorobenzene	75	< 5	< 5	19.6	20.6	15.3
Chlorobenzene	NA	< 5	< 5	9.18	18.2	< 5
cis-1,2-Dichloroethene	70	< 5	< 5	< 5	< 5	21.3
Ethylbenzene	70	< 5	< 5	< 5	< 5	< 5
m,p-Xylene	10,000 (mixed)	< 5	10.7	< 5	< 5	< 5

Lab ID No.	*EPA Region 6	W6	W7	W8	W9	W10
Sample No.	HHMSSL MCL	S70311-7	S70311-12	S70315-19	S70317-1	S70315-14
Date Sampled	ug/l	26-Jun-97	26-Jun-97	27-Jun-97	30-Jun-97	29-Jun-97
VOCs (Method 8260) (ug/l)						
1,4-Dichlorobenzene	75	9.41	< 5	< 5	< 5	10.9
Chlorobenzene	NA	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	70	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	70	5.34	< 5	< 5	< 5	< 5
m,p-Xylene	10,000 (mixed)	< 5	< 5	< 5	< 5	< 5

Lab ID No.	*EPA Region 6	W11	W12	W13	W14	W15
Sample No.	HHMSSL MCL	S70315-2	S70315-17	S70317-3	S70311-5	S70315-3
Date Sampled	ug/l	27-Jun-97	29-Jun-97	30-Jun-97	26-Jun-97	27-Jun-97
VOCs (Method 8260) (ug/l)						
1,4-Dichlorobenzene	75	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	NA	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	70	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	70	< 5	< 5	< 5	< 5	< 5
m,p-Xylene	10,000 (mixed)	< 5	< 5	< 5	< 5	< 5

Lab ID No.	*EPA Region 6	W16	W17	W18	W19	W20
Sample No.	HHMSSL MCL	S70315-16	S70315-15	S70315-5	S70315-6	S70317-5
Date Sampled	ug/l	29-Jun-97	29-Jun-97	27-Jun-97	27-Jun-97	30-Jun-97
VOCs (Method 8260) (ug/l)						
1,4-Dichlorobenzene	75	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	NA	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	70	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	70	< 5	< 5	< 5	< 5	< 5
m,p-Xylene	10,000 (mixed)	< 5	< 5	< 5	< 5	< 5

Lab ID No.	*EPA Region 6	W21	W22	W23	W24	W25
Sample No.	HHMSSL MCL	S70315-4	S70315-7	S70317-6	S70317-7	S70315-12
Date Sampled	ug/l	27-Jun-97	27-Jun-97	30-Jun-97	30-Jun-97	28-Jun-97
VOCs (Method 8260) (ug/l)						
1,4-Dichlorobenzene	75	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	NA	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	70	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	70	< 5	< 5	< 5	< 5	< 5
m,p-Xylene	10,000 (mixed)	< 5	< 5	< 5	< 5	< 5

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Drinking Water MCLs
< = Analyte not detected based on sample quantitation limit

Table 5.4.2 Groundwater - VOC Analytical Data

Lab ID No.	*EPA Region 6	W26	W27	W28	W29	W30
Sample No.	HHMSSL MCL	S70315-13	S70315-10	S70315-11	S70322-22	S70311-4
Date Sampled	ug/l	28-Jun-97	28-Jun-97	28-Jun-97	10-Jul-97	26-Jun-97
VOCs (Method 8260) (ug/l)						
1,4-Dichlorobenzene	75	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	NA	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	70	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	70	< 5	< 5	< 5	< 5	< 5
m,p-Xylene	10,000 (mixed)	< 5	< 5	< 5	< 5	< 5

Lab ID No.	*EPA Region 6	W31	W32	W34	W35	W36
Sample No.	HHMSSL MCL	S70315-8	S70315-9	S70311-14	S70311-8	S70322-25
Date Sampled	ug/l	27-Jun-97	27-Jun-97	26-Jun-97	26-Jun-97	10-Jul-97
VOCs (Method 8260) (ug/l)						
1,4-Dichlorobenzene	75	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	NA	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	70	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	70	< 5	< 5	< 5	< 5	< 5
m,p-Xylene	10,000 (mixed)	< 5	< 5	< 5	< 5	< 5

Lab ID No.	*EPA Region 6	W37	W38	W39	W42	W43
Sample No.	HHMSSL MCL	S70311-11	S70322-27	S70322-23	S70322-26	S70322-28
Date Sampled	ug/l	26-Jun-97	10-Jul-97	10-Jul-97	10-Jul-97	10-Jul-97
VOCs (Method 8260) (ug/l)						
1,4-Dichlorobenzene	75	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	NA	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	70	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	70	< 5	< 5	< 5	< 5	< 5
m,p-Xylene	10,000 (mixed)	< 5	< 5	< 5	< 5	< 5

Lab ID No.	*EPA Region 6	W45	W46	W47	W48	W49
Sample No.	HHMSSL MCL	S70322-21	S70322-20	S70322-29	S70311-13	S70322-1
Date Sampled	ug/l	9-Jul-97	9-Jul-97	10-Jul-97	26-Jun-97	8-Jul-97
VOCs (Method 8260) (ug/l)						
1,4-Dichlorobenzene	75	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	NA	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	70	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	70	< 5	< 5	< 5	< 5	< 5
m,p-Xylene	10,000 (mixed)	< 5	< 5	< 5	< 5	< 5

Lab ID No.	*EPA Region 6	W50	W50U	W51	W51U	W52
Sample No.	HHMSSL MCL	S70322-3	S70322-2	S70322-5	S70322-4	S70322-18
Date Sampled	ug/l	8-Jul-97	8-Jul-97	8-Jul-97	8-Jul-97	9-Jul-97
VOCs (Method 8260) (ug/l)						
1,4-Dichlorobenzene	75	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	NA	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	70	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	70	< 5	< 5	< 5	< 5	< 5
m,p-Xylene	10,000 (mixed)	< 5	< 5	< 5	< 5	< 5

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Drinking Water MCLs
< = Analyte not detected based on sample quantitation limit

Table 5.4.2 Groundwater - VOC Analytical Data

Lab ID No.	*EPA Region 6	W53	W54	W54U	W55	W55U
Sample No.	HHMSSL MCL	S70322-19	S70322-7	S70322-6	S70322-9	S70322-8
Date Sampled	ug/l	9-Jul-97	8-Jul-97	8-Jul-97	8-Jul-97	8-Jul-97
VOCs (Method 8260) (ug/l)						
1,4-Dichlorobenzene	75	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	NA	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	70	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	70	< 5	< 5	< 5	< 5	< 5
m,p-Xylene	10,000 (mixed)	< 5	< 5	< 5	< 5	< 5

Lab ID No.	*EPA Region 6	W56	W57	W57U	W58	W59
Sample No.	HHMSSL MCL	S70322-17	S70322-12	S70322-11	S70322-16	S70322-13
Date Sampled	ug/l	9-Jul-97	8-Jul-97	8-Jul-97	9-Jul-97	8-Jul-97
VOCs (Method 8260) (ug/l)						
1,4-Dichlorobenzene	75	< 5	< 5	< 5	< 5	< 5
Chlorobenzene	NA	< 5	< 5	< 5	< 5	< 5
cis-1,2-Dichloroethene	70	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	70	< 5	< 5	< 5	< 5	< 5
m,p-Xylene	10,000 (mixed)	< 5	< 5	< 5	< 5	< 5

Lab ID No.	*EPA Region 6
Sample No.	HHMSSL MCL
Date Sampled	ug/l
VOCs (Method 8260) (ug/l)	
1,4-Dichlorobenzene	75
Chlorobenzene	NA
cis-1,2-Dichloroethene	70
Ethylbenzene	70
m,p-Xylene	10,000 (mixed)

Lab ID No.	*EPA Region 6
Sample No.	HHMSSL MCL
Date Sampled	ug/l
VOCs (Method 8260) (ug/l)	
1,4-Dichlorobenzene	75
Chlorobenzene	NA
cis-1,2-Dichloroethene	70
Ethylbenzene	70
m,p-Xylene	10,000 (mixed)

Lab ID No.	*EPA Region 6
Sample No.	HHMSSL MCL
Date Sampled	ug/l
VOCs (Method 8260) (ug/l)	
1,4-Dichlorobenzene	75
Chlorobenzene	NA
cis-1,2-Dichloroethene	70
Ethylbenzene	70
m,p-Xylene	10,000 (mixed)

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Drinking Water MCLs
< = Analyte not detected based on sample quantitation limit

The analytical results for one groundwater sample detected cis-1,2-dichloroethene at location SB5(W5) with a concentration of 21.3 ug/l.

One groundwater sample contained ethylbenzene at a concentration of 5.34 ug/l at location SB6 (W6).

The groundwater sample at location SB2 (W2) detected *m*, and *p* xylene at a concentration of 10.7 ug/l.

All VOC analytical results were compared to the EPA Region 6 Drinking Water MCLs. None of the VOC analytes detected exceeded the MCL concentrations.

5.4.3. Groundwater - SVOC Analytical Results

Fifteen groundwater samples were analyzed for SVOCs using the EPA Method 8270. None of the sample results were detected above the sample quantitation limits for SVOCs.

5.4.4. Groundwater - Herbicide Analytical Results

Twelve water samples were analyzed for herbicides using the EPA Method 8150 or 8151. All herbicide analytical results for the groundwater samples are listed in 5.4.4.

One sample contained 2,4,5-T (2,4,5-trichlorophenoxyacetic acid) at location SB3 (W3) with a concentration of 0.305 ug/l.

Silvex (2,4,5-TP) was detected in sample SB4 (W4) at a concentration of 1.65 ug/l.

Two groundwater samples contained 4-(2,4-dichlorophenoxy)butyric acid (2,4-DB) at locations SB4(W4) and SB5(W5) with concentrations of 1.88 ug/l and 1.41 ug/l, respectively.

Dalapon was detected in two groundwater samples at location SB21 (W21) and SB23 (W23) with concentrations of 5.31 ug/l and 7.59 ug/l, respectively.

Table 5.4.4 Groundwater - Herbicide Analytical Results

Lab ID No.	*EPA Region 6	W1	W2	W3	W4
Sample No.	HHMSL	S70311-2	S70311-9	S70311-3	S70311-10
Date Sampled	MCLs (ug/l)	26-Jun-97	26-Jun-97	26-Jun-97	26-Jun-97
EPA Method 8150 (ug/l)					
2,4,5-T	NA	< 0.2	< 0.2	0.305	< 0.2
2,4,5-TP(Silvex)	NA	< 0.2	< 0.2	< 0.2	1.65
2,4-DB	NA	< 1	< 1	< 1	1.88
Dalapon	200	< 4	< 4	< 4	< 4
Dinoseb	7	< 0.1	< 0.1	0.232	0.141
MCPA	NA	< 100	< 100	598	402

Lab ID No.	*EPA Region 6	W5	W6	W10	W14
Sample No.	HHMSL	S70311-6	S70311-7	S70315-14	S70311-5
Date Sampled	MCLs (ug/l)	26-Jun-97	26-Jun-97	29-Jun-97	26-Jun-97
EPA Method 8150 (ug/l)					
2,4,5-T	NA	< 0.2	< 0.2	< 0.2	< 0.2
2,4,5-TP(Silvex)	NA	< 0.2	< 0.2	< 0.2	< 0.2
2,4-DB	NA	1.41	< 1	< 1	< 1
Dalapon	200	< 4	< 4	< 4	< 4
Dinoseb	7	< 0.1	< 0.1	0.536	< 0.1
MCPA	NA	< 100	< 100	< 100	< 100

Lab ID No.	*EPA Region 6	W15	W21	W23	W30
Sample No.	HHMSL	S70315-3	S70315-4	S70317-6	S70311-4
Date Sampled	MCLs (ug/l)	27-Jun-97	27-Jun-97	30-Jun-97	26-Jun-97
EPA Method 8150 (ug/l)					
2,4,5-T	NA	< 0.2	< 0.2	< 0.2	< 0.2
2,4,5-TP(Silvex)	NA	< 0.2	< 0.2	< 0.2	< 0.2
2,4-DB	NA	< 1	< 1	< 1	< 1
Dalapon	200	< 4	5.31	7.59	< 4
Dinoseb	7	< 0.1	< 0.1	< 0.1	< 0.1
MCPA	NA	< 100	< 100	< 100	< 100

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), MCLs
< = Analyte not detected based on the sample quantitation limit

Dinoseb was detected in three groundwater samples at location SB3 (W3), SB4 (W4), and SB10 (W10) with concentrations ranging from 0.141-0.536 ug/l.

Analytical results for two groundwater samples at location SB3 (W3) and SB4 (W4) contained 2-methyl-4-chlorophenoxyacetic acid (MCPA) at concentrations 598 ug/l and 402 ug/l, respectively.

None of the herbicide analytes detected exceeded the EPA Region 6 Drinking Water MCLs.

5.4.5. Groundwater – Pesticide/PCB Analytical Results

Twelve groundwater samples were analyzed for pesticides using the EPA Method 8080. All of the pesticide analytical results for the groundwater samples are listed in Table 5.4.5.

Only one sample exceeded the lab detection limits for alpha-BHC at location SB4 (W4) with a concentration of 0.0326 ug/l.

Two samples detected Beta-BHC at location SB3 (W3) and SB4 (W4) with concentrations of 0.083 ug/l and 0.132 ug/l, respectively.

Lindane was detected in two groundwater samples exceeding the detection limit at location SB4 (W4) and SB5 (W5) with concentrations of 0.0635 ug/l and 0.044 ug/l, respectively.

One sample exceeded the detection limits for heptachlor at SB4 (W4) with a concentration of 0.0783 ug/l.

None of the pesticide analytes detected in any groundwater sample exceeded the EPA Region 6 Drinking Water MCLs.

5.4.6. Groundwater - Total Metal Analytical Results

Thirty-one groundwater samples were analyzed for metals. They list of metals include As, Al, Sb, Ba, Be, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Ni, Sn, V, Zn, Ca, K, Na, Tl, Se, Ag

Table 5.4.5 Groundwater - Pesticide Analytical Results

Lab ID No.	*EPA Region 6	W1	W2	W3	W4
Sample No.	HHMSSL MCL	S70311-2	S70311-9	S70311-3	S70311-10
Date Sampled	ug/l	26-Jun-97	26-Jun-97	26-Jun-97	26-Jun-97
EPA Method 8080 (ug/l)					
Alpha-BHC	NA	< 0.03	< 0.03	< 0.03	0.0326
Beta-BHC	NA	< 0.06	< 0.06	0.083	0.132
Gamma-BHC(Lindane)	0.2	< 0.04	< 0.04	< 0.04	0.0635
Heptachlor	0.1	< 0.03	< 0.03	< 0.03	0.0783

Lab ID No.	*EPA Region 6	W5	W6	W14	W15
Sample No.	HHMSSL MCL	S70311-6	S70311-7	S70311-5	S70315-3
Date Sampled	ug/l	26-Jun-97	26-Jun-97	26-Jun-97	27-Jun-97
EPA Method 8080 (ug/l)					
Alpha-BHC	NA	< 0.03	< 0.03	< 0.03	< 0.03
Beta-BHC	NA	< 0.06	< 0.06	< 0.06	< 0.06
Gamma-BHC(Lindane)	0.2	0.044	< 0.04	< 0.04	< 0.04
Heptachlor	0.1	< 0.03	< 0.03	< 0.03	< 0.03

Lab ID No.	*EPA Region 6	W21	W23	W30	W35
Sample No.	HHMSSL MCL	S70315-4	S70317-6	S70311-4	S70311-8
Date Sampled	ug/l	27-Jun-97	30-Jun-97	26-Jun-97	26-Jun-97
EPA Method 8080 (ug/l)					
Alpha-BHC	NA	< 0.03	< 0.03	< 0.03	< 0.0354
Beta-BHC	NA	< 0.06	< 0.06	< 0.06	< 0.071
Gamma-BHC(Lindane)	0.2	< 0.04	< 0.04	< 0.04	< 0.0472
Heptachlor	0.1	< 0.03	< 0.03	< 0.03	< 0.0354

*EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL), Drinking Water MCLs
< = Analyte not detected based on sample quantitation limit

using EPA Methods 6010A, 7060, 7421, 7470, and 7740. All metal groundwater analytical results are listed in Table 5.4.6.

5.4.6.1. Groundwater - RCRA 8 Metals

Arsenic was detected in twenty-six samples with a concentration range of 0.0689 mg/l to 0.535 mg/l. The average arsenic concentration was 0.262 mg/l. All twenty-six groundwater samples slightly exceeded the EPA MCL for arsenic of 0.05 mg/l. All soil samples collected at the site were within the EPA Soil Regional Background Concentration Range.

Barium was detected in thirty-one samples with concentrations ranging from 0.0447 mg/l to 5.76 mg/l, with an average concentration of 1.64 mg/l. Ten groundwater samples slightly exceeded the EPA barium MCL of 2 mg/l. Groundwater samples exceeding this limit had concentrations ranging from 2.07 mg/l to 5.76 mg/l, with an average concentration of 3.175 mg/l. Only one soil sample slightly exceeded the EPA HHMSSL Regional Background Concentration Range.

Cadmium was detected in twelve water samples with concentrations ranging from 0.005 mg/l to 0.141 mg/l, with an average concentration of 0.019 mg/l. Eleven groundwater samples slightly exceeded the EPA Region 6 cadmium MCL of 0.005 mg/l. These concentrations range from 0.0054 mg/l to 0.141 mg/l, with an average concentration of 0.01998 mg/l. Only one soil sample slightly exceeded the EPA HHMSSL Regional Background Concentration Range for cadmium.

Chromium was detected in 29 water samples with concentrations ranging from 0.0082 to 1.26 mg/l, with an average concentration of 0.226 mg/l. Nineteen groundwater samples slightly exceeded the EPA MCL for chromium concentration of 0.1 mg/l. These sample concentrations were range from 0.105 mg/l to 1.26 mg/l, with an average concentration of 0.3098 mg/l. All soil samples from the site were below the EPA HHMSSL Regional Background Concentration.

Table 5.4.6 Groundwater -Metal Analytical Results

Client ID	*EPA Region 6	W1	W2	W3	W4
Sample ID	HHMSSL	S70311-2	S70311-9	S70311-3	S70311-10
Date Sampled	MCL	26-Jun-97	26-Jun-97	26-Jun-97	26-Jun-97
Analyte (mg/l) [Method]	mg/l				
Arsenic [7060]	0.05	0.459	0.105	0.402	0.441
Barium [6010A]	2	2.3	3.69	5.76	2.4
Cadmium [6010A]	0.005	0.0057	<0.005	<0.005	<0.005
Chromium [6010A]	0.1	0.191	0.0991	0.141	0.193
Lead [7421]	NA	0.329	0.156	0.157	0.225
Mercury [7470]	0.002	<0.0002	<0.0002	<0.0002	<0.0002
Selenium [7740]	0.05	0.0283	<0.025	0.0065	<0.025
Silver [6010A]	NA	<0.005	<0.005	<0.005	<0.005
Aluminum [6010A]	NA	205	162	137	221
Antimony [6010A]	0.006	<0.05	<0.05	<0.05	<0.05
Beryllium [6010A]	0.004	0.0157	0.009	0.0109	0.0164
Calcium [6010A]	NA	5460	2579	1188	1927
Cobalt [6010A]	NA	0.377	0.116	0.13	0.254
Copper [6010A]	NA	0.169	0.114	0.166	0.196
Iron [6010A]	NA	662	171	394	484
Magnesium [6010A]	NA	376	264	322	180
Manganese [6010A]	NA	54.5	24.9	2.99	16.3
Nickel [6010A]	0.1	0.35	0.149	0.215	0.341
Potassium [6010A]	NA	73.9	42.2	38.5	93.4
Sodium [6010A]	NA	2830	2100	1670	3140
Thallium [6010A]	0.02	<0.01	<0.01	<0.01	<0.01
Tin [6010A]	NA	0.025	<0.01	<0.01	<0.01
Vanadium [6010A]	NA	0.966	0.472	0.881	0.841
Zinc [6010A]	NA	1.14	0.458	0.698	1.21

* EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL) for Drinking Water MCL
Shaded area = analyte exceeds EPA MCL
< = analyte not detected based on sample quantitation limit
NA = not available

Table 5.4.6 Groundwater -Metal Analytical Results

Client ID	*EPA Region 6	W5	W6	W10	W12
Sample ID	HHMSSL	S70311-6	S70311-7	S70315-14	S70315-17
Date Sampled	MCL	26-Jun-97	26-Jun-97	29-Jun-97	29-Jun-97
Analyte (mg/l) [Method]	mg/l				
Arsenic [7060]	0.05	0.131	0.314	0.31	0.329
Barium [6010A]	2	2.18	4.94	1.9	1.45
Cadmium [6010A]	0.005	<0.005	<0.005	0.0054	<0.005
Chromium [6010A]	0.1	0.0737	1.26	0.157	0.201
Lead [7421]	NA	0.112	4.56	0.506	0.449
Mercury [7470]	0.002	<0.0002	0.0002	0.0005	0.0004
Selenium [7740]	0.05	<0.025	<0.025	<0.01	<0.01
Silver [6010A]	NA	<0.005	<0.005	<0.005	<0.005
Aluminum [6010A]	NA	128	401	221	221
Antimony [6010A]	0.006	<0.05	<0.05	<0.05	<0.05
Beryllium [6010A]	0.004	0.0068	0.026	0.0154	0.0184
Calcium [6010A]	NA	2962	1320	3530	2000
Cobalt [6010A]	NA	0.111	0.456	0.245	0.253
Copper [6010A]	NA	0.0832	0.154	0.223	0.203
Iron [6010A]	NA	132	1230	443	670
Magnesium [6010A]	NA	691	206	787	500
Manganese [6010A]	NA	10.6	2.9	16.3	15.3
Nickel [6010A]	0.1	0.128	0.468	0.252	0.3
Potassium [6010A]	NA	36.6	102	70.3	71.6
Sodium [6010A]	NA	3420	825	3470	4010
Thallium [6010A]	0.02	<0.01	<0.01	<0.01	<0.01
Tin [6010A]	NA	<0.01	0.021	<0.01	<0.01
Vanadium [6010A]	NA	0.318	0.423	0.577	0.613
Zinc [6010A]	NA	0.353	4.83	0.777	1.32

* EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL) for Drinking Water MCL
Shaded area = analyte exceeds EPA MCL
< = analyte not detected based on sample quantitation limit
NA = not available

Table 5.4.6 Groundwater -Metal Analytical Results

Client ID	*EPA Region 6	W14	W15	W16	W17
Sample ID	HHMSSL	S70311-5	S70315-3	S70315-16	S70315-15
Date Sampled	MCL	26-Jun-97	27-Jun-97	29-Jun-97	29-Jun-97
Analyte (mg/l) [Method]	mg/l				
Arsenic [7060]	0.05	0.535	0.0689	0.292	0.201
Barium [6010A]	2	1.68	1.75	0.885	1.36
Cadmium [6010A]	0.005	0.0123	0.0123	0.0123	<0.005
Chromium [6010A]	0.1	0.482	0.0921	0.169	0.184
Lead [7421]	NA	0.606	0.0666	0.551	0.191
Mercury [7470]	0.002	0.0004	0.0005	0.001	0.0007
Selenium [7740]	0.05	<0.125	<0.01	<0.01	<0.01
Silver [6010A]	NA	<0.005	<0.005	<0.005	<0.005
Aluminum [6010A]	NA	406	147	204	276
Antimony [6010A]	0.006	<0.05	<0.05	<0.05	<0.05
Beryllium [6010A]	0.004	0.0299	0.0098	0.0211	0.0151
Calcium [6010A]	NA	1103	837	7220	812
Cobalt [6010A]	NA	0.421	0.171	0.211	0.163
Copper [6010A]	NA	0.303	0.12	0.216	0.143
Iron [6010A]	NA	1960	317	607	447
Magnesium [6010A]	NA	1330	1290	356	907
Manganese [6010A]	NA	3.47	8.5	35.7	3.64
Nickel [6010A]	0.1	0.277	0.204	0.306	0.209
Potassium [6010A]	NA	209	61	85.2	93.4
Sodium [6010A]	NA	8940	7410	4190	7930
Thallium [6010A]	0.02	<0.01	<0.01	<0.01	<0.01
Tin [6010A]	NA	0.012	<0.01	0.02	<0.01
Vanadium [6010A]	NA	0.927	0.548	0.476	0.447
Zinc [6010A]	NA	2.36	0.712	0.92	1.03

* EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL) for Drinking Water MCL
Shaded area = analyte exceeds EPA MCL
< = analyte not detected based on sample quantitation limit
NA = not available

Table 5.4.6 Groundwater -Metal Analytical Results

Client ID	*EPA Region 6	W18	W19	W20	W21
Sample ID	HHMSSL	S70315-5	S70315-6	S70317-5	S70315-4
Date Sampled	MCL	27-Jun-97	27-Jun-97	30-Jun-97	27-Jun-97
Analyte (mg/l) [Method]	mg/l				
Arsenic [7060]	0.05	0.0709	<0.025	<0.005	0.394
Barium [6010A]	2	1.34	1.52	0.0447	2.07
Cadmium [6010A]	0.005	<0.005	<0.005	0.005	<0.005
Chromium [6010A]	0.1	0.0787	0.0412	<0.005	0.0677
Lead [7421]	NA	0.122	0.0434	<0.005	0.142
Mercury [7470]	0.002	0.0004	0.0004	<0.0002	0.0003
Selenium [7740]	0.05	<0.01	<0.01	<0.05	<0.01
Silver [6010A]	NA	<0.005	<0.005	<0.005	<0.005
Aluminum [6010A]	NA	119	65.4	16	81.9
Antimony [6010A]	0.006	<0.05	<0.05	<0.05	<0.05
Beryllium [6010A]	0.004	0.0053	0.0034	<0.003	0.0076
Calcium [6010A]	NA	1710	1690	481	790
Cobalt [6010A]	NA	0.0889	0.0622	0.0129	0.13
Copper [6010A]	NA	0.0767	0.0437	0.0189	0.0501
Iron [6010A]	NA	129	98.5	15.7	167
Magnesium [6010A]	NA	786	409	1360	282
Manganese [6010A]	NA	5.9	5.21	1.89	12.3
Nickel [6010A]	0.1	0.133	0.0888	0.0444	0.259
Potassium [6010A]	NA	50	45.2	29	40.2
Sodium [6010A]	NA	5660	4290	10500	2920
Thallium [6010A]	0.02	<0.01	<0.01	<0.01	<0.01
Tin [6010A]	NA	<0.01	<0.01	<0.01	<0.01
Vanadium [6010A]	NA	0.183	0.104	0.0205	0.158
Zinc [6010A]	NA	0.538	0.411	0.097	0.528

* EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL) for Drinking Water MCL
Shaded area = analyte exceeds EPA MCL
< = analyte not detected based on sample quantitation limit
NA = not available

Table 5.4.6 Groundwater -Metal Analytical Results

Client ID	*EPA Region 6	W22	W23	W24	W25
Sample ID	HHMSSL	S70315-7	S70317-6	S70317-7	S70315-12
Date Sampled	MCL	27-Jun-97	30-Jun-97	30-Jun-97	28-Jun-97
Analyte (mg/l) [Method]	mg/l				
Arsenic [7060]	0.05	0.236	0.204	0.0989	0.342
Barium [6010A]	2	2.11	1.1	0.541	1.09
Cadmium [6010A]	0.005	<0.005	0.006	0.006	0.0069
Chromium [6010A]	0.1	0.248	0.232	0.105	0.537
Lead [7421]	NA	0.336	0.453	0.144	0.406
Mercury [7470]	0.002	0.0006	0.0005	0.0006	0.0011
Selenium [7740]	0.05	<0.01	<0.05	<0.25	<0.01
Silver [6010A]	NA	<0.005	<0.005	<0.005	<0.005
Aluminum [6010A]	NA	296	289	139	500
Antimony [6010A]	0.006	<0.05	<0.05	<0.05	<0.05
Beryllium [6010A]	0.004	0.0307	0.024	0.013	0.035
Calcium [6010A]	NA	2260	911	415	3330
Cobalt [6010A]	NA	0.51	0.312	0.285	0.564
Copper [6010A]	NA	0.116	0.191	0.0684	0.227
Iron [6010A]	NA	814	944	595	1580
Magnesium [6010A]	NA	202	890	1840	876
Manganese [6010A]	NA	17.3	5.11	3.85	10.9
Nickel [6010A]	0.1	0.653	0.293	0.254	0.675
Potassium [6010A]	NA	106	127	87	157
Sodium [6010A]	NA	2480	9600	14800	5420
Thallium [6010A]	0.02	<0.01	<0.01	<0.01	<0.01
Tin [6010A]	NA	<0.01	<0.01	<0.01	<0.01
Vanadium [6010A]	NA	0.432	0.433	0.259	0.808
Zinc [6010A]	NA	2.41	2.53	1.72	4.17

* EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL) for Drinking Water MCL
Shaded area = analyte exceeds EPA MCL
< = analyte not detected based on sample quantitation limit
NA = not available

Table 5.4.6 Groundwater -Metal Analytical Results

Client ID	*EPA Region 6	W26	W27	W28	W30
Sample ID	HHMSSL	S70315-13	S70315-10	S70315-11	S70311-4
Date Sampled	MCL	28-Jun-97	28-Jun-97	28-Jun-97	26-Jun-97
Analyte (mg/l) [Method]	mg/l				
Arsenic [7060]	0.05	0.429	0.392	0.16	0.184
Barium [6010A]	2	0.634	0.923	0.613	2.26
Cadmium [6010A]	0.005	<0.005	0.141	0.0103	<0.005
Chromium [6010A]	0.1	0.0962	0.386	0.1	0.187
Lead [7421]	NA	0.16	13.5	0.143	0.432
Mercury [7470]	0.002	0.0049	0.0044	0.0011	<0.0002
Selenium [7740]	0.05	<0.01	<0.01	<0.01	<0.025
Silver [6010A]	NA	<0.005	0.157	<0.005	<0.005
Aluminum [6010A]	NA	130	305	184	191
Antimony [6010A]	0.006	<0.05	<0.05	<0.05	<0.05
Beryllium [6010A]	0.004	0.0305	0.0347	0.0264	0.0162
Calcium [6010A]	NA	312	1250	394	7653.1
Cobalt [6010A]	NA	0.606	0.658	0.9	0.291
Copper [6010A]	NA	0.059	3.09	0.0747	0.127
Iron [6010A]	NA	717	1410	555	611
Magnesium [6010A]	NA	1040	1060	2170	161
Manganese [6010A]	NA	9.9	16.8	24.5	23.2
Nickel [6010A]	0.1	0.493	0.715	0.879	0.307
Potassium [6010A]	NA	111	163	97.4	56.6
Sodium [6010A]	NA	7300	5560	9040	245
Thallium [6010A]	0.02	<0.01	<0.01	<0.01	<0.01
Tin [6010A]	NA	<0.01	1.21	<0.01	0.028
Vanadium [6010A]	NA	0.199	0.469	0.19	0.477
Zinc [6010A]	NA	2.6	9.54	3.25	1.02

* EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL) for Drinking Water MCL
Shaded area = analyte exceeds EPA MCL
< = analyte not detected based on sample quantitation limit
NA = not available

Table 5.4.6 Groundwater -Metal Analytical Results

Client ID	*EPA Region 6	W31	W32	W35	W45
Sample ID	HHMSSL	S70315-8	S70315-9	S70311-8	S70322-21
Date Sampled	MCL	27-Jun-97	27-Jun-97	26-Jun-97	9-Jul-97
Analyte (mg/l) [Method]	mg/l				
Arsenic [7060]	0.05	0.145	0.157	0.31	0.1
Barium [6010A]	2	1.4	0.428	4.04	0.28
Cadmium [6010A]	0.005	<0.005	<0.005	0.0073	<0.005
Chromium [6010A]	0.1	0.248	0.188	0.668	0.11
Lead [7421]	NA	0.176	0.503	0.555	0.0806
Mercury [7470]	0.002	0.0006	0.0021	<0.0002	0.0004
Selenium [7740]	0.05	<0.01	<0.01	<0.025	<0.025
Silver [6010A]	NA	<0.005	<0.005	<0.005	<0.005
Aluminum [6010A]	NA	230	152	554	106
Antimony [6010A]	0.006	<0.05	<0.05	<0.05	<0.05
Beryllium [6010A]	0.004	0.0166	0.0151	0.053	0.0064
Calcium [6010A]	NA	784	3130	1608	978
Cobalt [6010A]	NA	0.255	0.32	1.38	0.185
Copper [6010A]	NA	0.103	0.0723	0.256	0.0382
Iron [6010A]	NA	651	1810	1990	231
Magnesium [6010A]	NA	612	183	323	354
Manganese [6010A]	NA	8.53	282	53.7	7.75
Nickel [6010A]	0.1	0.324	0.437	1.11	0.259
Potassium [6010A]	NA	94.7	98.9	148	41.7
Sodium [6010A]	NA	4220	4150	1590	2710
Thallium [6010A]	0.02	<0.01	<0.01	<0.01	<0.01
Tin [6010A]	NA	<0.01	<0.01	<0.01	0.018
Vanadium [6010A]	NA	0.386	0.253	0.937	0.0857
Zinc [6010A]	NA	2.29	2.43	5.68	0.696

* EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL) for Drinking Water MCL
Shaded area = analyte exceeds EPA MCL
< = analyte not detected based on sample quantitation limit
NA = not available

Table 5.4.6 Groundwater -Metal Analytical Results

Client ID	*EPA Region 6	W49	W50	W51
Sample ID	HHMSSL	S70322-1	S70322-3	S70322-5
Date Sampled	MCL	8-Jul-97	8-Jul-97	8-Jul-97
Analyte (mg/l) [Method]	mg/l			
Arsenic [7060]	0.05	<0.025	<0.025	<0.025
Barium [6010A]	2	0.172	0.0489	0.0479
Cadmium [6010A]	0.005	<0.005	<0.005	<0.005
Chromium [6010A]	0.1	0.022	<0.005	0.0082
Lead [7421]	NA	0.0044	<0.01	<0.01
Mercury [7470]	0.002	<0.0002	<0.0002	<0.0002
Selenium [7740]	0.05	<0.025	<0.025	<0.025
Silver [6010A]	NA	<0.005	<0.005	<0.005
Aluminum [6010A]	NA	20.6	1.94	6.44
Antimony [6010A]	0.006	<0.05	<0.05	<0.05
Beryllium [6010A]	0.004	<0.003	<0.003	<0.003
Calcium [6010A]	NA	1340	1060	562
Cobalt [6010A]	NA	0.0301	0.0429	0.157
Copper [6010A]	NA	<0.01	<0.01	<0.01
Iron [6010A]	NA	37.2	4.13	16.6
Magnesium [6010A]	NA	342	442	1430
Manganese [6010A]	NA	1.17	2.48	5.56
Nickel [6010A]	0.1	0.0269	0.0277	0.102
Potassium [6010A]	NA	13.6	16.5	29.9
Sodium [6010A]	NA	3250	2580	6090
Thallium [6010A]	0.02	<0.01	<0.01	<0.01
Tin [6010A]	NA	<0.01	<0.01	0.01
Vanadium [6010A]	NA	0.0245	<0.01	<0.01
Zinc [6010A]	NA	0.0837	0.0241	0.0241

* EPA Region 6 Human Health Media-Specific Screening Levels (HHMSSL) for Drinking Water MCL
Shaded area = analyte exceeds EPA MCL
< = analyte not detected based on sample quantitation limit
NA = not available

Lead was detected in twenty-eight water samples with concentrations ranging from 0.0044 mg/l to 13.5 mg/l, with an average concentration of 0.90 mg/l. The EPA does not have a MCL for lead, or a soil to groundwater transfer concentration. The EPA does have a proposed action level concentration for lead of .015 mg/l.

Mercury was detected in twenty water samples with concentrations ranging from 0.0002 mg/l to 0.0049 mg/l, with an average concentration of 0.0012 mg/l. Three samples detected mercury in concentrations slightly above the EPA, Region 6 MCL concentration of 0.002 mg/l. The three concentrations were 0.0049 mg/l, 0.0044 mg/l, and 0.0021 mg/l. All soil samples detecting mercury were below the EPA HHMSSL Soil to Groundwater Transfer concentration.

Selenium was detected in two samples with concentrations of 0.0065 (W3) and 0.0283 mg/l (W24). Groundwater sample W24 had an elevated sample quantitation limit because matrix interferences required the sample to be diluted. This raised the sample quantitation limit for selenium to 0.25 mg/l which exceeded the EPA selenium MCL. Selenium was not detected in this sample. It is possible the selenium concentration could be greater than the MCL value, but less than the sample quantitation limit. All soil samples detecting selenium concentrations were below the EPA Soil to Groundwater Transfer concentration.

Silver was detected in one sample with a concentration of 0.157 mg/l. The EPA does not have a MCL for silver; however, the secondary MCL is 0.1 mg/l.

Groundwater concentrations for arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver slightly exceed the EPA MCLs; however, the shallow groundwater is not used as a drinking water source. A background study has not been conducted; however, since these concentrations are low, they are probably characteristic of the shallow groundwater in the area.

5.4.6.2. Groundwater - Other Metals

Metals analyzed and reported using EPA method 6010, in addition to the 8 RCRA metals, include aluminum, antimony, beryllium, calcium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, sodium, thallium, tin, vanadium, and zinc. Antimony and thallium were not detected in any of the groundwater samples, and the remaining analytes were detected in one or more of the groundwater samples. The only analytes that had sample concentrations or sample quantitation limits exceeding the EPA MCL was antimony, beryllium, and nickel.

All groundwater samples analyzed for antimony had a sample quantitation limit (0.05 mg/l) higher than the EPA Region 6 Drinking Water MCL of 0.006 mg/l, because of low sample volume. Antimony was not detected in any of the samples; however, it is possible that some of the samples could have concentrations of antimony between 0.05 mg/l and 0.006 mg/l. If this were the case, these concentrations would slightly exceed the MCL.

The beryllium analytical results for twenty-six groundwater samples slightly exceeded the EPA Region 6 MCL of 0.004 mg/l. For the groundwater samples exceeding the MCL, beryllium concentrations range from 0.0053 to 0.053 mg/l, with an average concentration of 0.0196 mg/l. None of the soil samples detecting beryllium exceeded the EPA Region 6 HHMSSL for Soil Background concentrations or the Soil to Water Transfer concentration.

Nickel analytical results for twenty-seven groundwater samples exceed the EPA Region 6 Drinking Water MCL of 0.1 mg/l. These samples contain nickel concentrations ranging from 0.102 to 1.11 mg/l, with an average concentration of 0.374 mg/l. Only two soil samples exceeded the EPA nickel Soil Regional Background concentration, and only one of these samples barely exceeded the EPA Soil to Water Transfer concentration.

Groundwater metal concentrations of antimony, beryllium, and nickel slightly exceeded the MCL. Comparison of these detected metals to a drinking water MCL is a very conservative analysis, since the groundwater in the area is not used as a drinking water source. Evaluation of the metals detected in the soil and groundwater do not represent that a release has occurred

during site related activities at the former LAFB, and these metal concentrations are probably characteristic of the shallow groundwater in the area.

5.4.7 Groundwater Elevation and Flow Direction

Static groundwater level measurements were taken prior to sampling and prior to abandonment of each groundwater location. Table 5.4.7 provides the ground elevation at the sample location, height of the stick-up, depth to water, and the calculated groundwater elevation for each temporary groundwater monitoring well location. Figure 5.4.7 provides a contoured groundwater elevation map of the site. Generally, the groundwater is approximately 8.5 feet bgs at the site, and it flows in a west-southwest direction.

Table 5.4.7 Groundwater Elevation Data

Soil Boring (SB) Location	Ground Elevation at Location	Stick-up above Ground Level	Depth to Water	Date Water Measured	Calculated Groundwater Elevation
1	452.17	0.6	10.0	26-Jun-97	442.77
2	452.44	0.6	8.6	26-Jun-97	444.44
3	452.62	0.7	11.3	26-Jun-97	442.02
4	452.60	0.6	7.3	26-Jun-97	445.95
5	452.67	0.5	12.2	26-Jun-97	440.97
6	452.57	0.6	6.4	26-Jun-97	446.77
7	452.89	0.6	12.5	26-Jun-87	440.99
8	451.56	0.55	10.9	27-Jun-97	441.26
9	454.53	0.14	10.1	30-Jun-97	444.58
10	453.16	0.5	8.6	29-Jun-97	445.06
11	451.95	0.6	8.0	29-Jun-97	444.55
12	451.42	0.45	7.5	29-Jun-97	444.42
13	451.44	0.22	9.3	30-Jun-97	442.41
14	450.68	0.1	8.4	25-Jun-97	442.38
15	454.35	0.15	9.7	27-Jun-97	444.85
16	453.57	0.55	9.4	29-Jun-97	444.72
17	452.68	0.4	8.0	29-Jun-97	445.08

Soil Boring (SB) Location	Ground Elevation at Location	Stick-up above Ground Level	Depth to Water	Date Water Measured	Calculated Groundwater Elevation
18	454.12	0.1	3.4	27-Jun-97	450.87
19	454.97	0.08	3.9	27-Jun-97	451.15
20	457.00	0.5	10.4	30-Jun-97	447.15
21	454.85	0.1	9.4	27-Jun-97	445.55
22	455.18	0.1	8.0	27-Jun-97	447.28
23	457.17	0.2	8.4	30-Jun-97	449.02
24	457.54	0.1	7.8	30-Jun-97	449.84
25	457.76	0.1	5.6	28-Jun-97	452.31
26	455.95	0.08	5.0	28-Jun-97	451.03
27	457.17	0.1	4.0	28-Jun-97	453.27
28	457.71	0.1	9.8	28-Jun-97	448.01
29	459.07	1.1	5.9	10-Jul-97	454.27
30	463.43	0.06	5.2	25-Jun-97	458.29
31	463.44	0.12	11.1	27-Jun-97	452.51
32	461.23	0.15	9.0	27-Jun-97	452.38
33	469.67	NA	NA	NA	NA
33A	467.99	NA	NA	NA	NA
34	473.02	0.09	8.7	26-Jun-97	464.41
35	467.28	0.09	10.7	25-Jun-97	456.67
36	459.72	0.05	4.3	10-Jul-97	455.47
37	476.27	0.1	13.2	25-Jun-97	463.17
38	450.98	0.06	10.6	10-Jul-97	440.49
39	464.52	0.05	6.1	10-Jul-97	458.52
42	469.40	0.05	7.5	10-Jul-97	462.00
43	466.84	0.05	7.0	10-Jul-97	459.89
44	466.29	NA	NA	NA	NA
45	468.46	0.1	5.9	9-Jul-97	462.64
46	470.11	0.05	6.6	9-Jul-97	463.54
47	476.52	0.07	9.8	10-Jul-97	466.79
48	484.21	0.1	10.6	26-Jun-97	473.71

Soil Boring (SB) Location	Ground Elevation at Location	Stick-up above Ground Level	Depth to Water	Date Water Measured	Calculated Groundwater Elevation
49	471.89	0.07	7.5	8-Jul-97	464.51
50	473.27	0.1	9.3	8-Jul-97	464.12
51	476.01	0.1	11.4	8-Jul-97	464.71
52	477.64	0.6	8.6	9-Jul-97	469.69
53	479.94	0.55	6.8	9-Jul-97	473.69
54	475.85	0.1	10.1	8-Jul-97	465.90
55	477.49	0.1	9.0	8-Jul-97	468.59
56	479.10	0.5	8.5	9-Jul-97	471.15
57	478.17	0.4	12.2	8-Jul-97	466.37
58	479.38	0.1	8.1	9-Jul-97	471.40
59	479.70	0.6	15.2	8-Jul-97	465.10

LEGEND

- POWER POLE
- POST
- FLAG POLE
- ANTENNA
- LIGHT POLE
- HAND HOLE
- MANHOLE
- FIRE HYDRANT
- UTILITY BOX
- TRANSFORMER
- MAIL BOX
- SIGN
- UNIDENTIFIED OBJ
- SAT DISH
- TREE
- H123.4 SPOT ELEVATION
- 104 △123.45 M/V CONTROL
- MONUMENT
- CURBED ROAD
- STOCK PILE
- CONCRETE
- PAVED DRIVEWAY
- UNPAVED DRIVEWAY
- SIDEWALK
- BUILDING
- FOUNDATION
- FENCE
- WALL
- GUARD RAIL
- CULVERT PIPE
- CONCRETE CHANNEL
- POOL
- TREE LINE
- INDEX CONTOUR
- INTER CONTOUR
- APPROX INTER CON
- SB59 SOIL BORING LOCATION
- NDE NOT DEEP ENOUGH

DATUM

HORIZONTAL DATUM BASED ON TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NAD83.
VERTICAL DATUM BASED ON NGVD 1929.
LINEAR UNIT IS U.S. SURVEY FOOT.

DISCLAIMER

THIS MAP WAS COMPILED AT A 1 FOOT CONTOUR INTERVAL TO MEET THE ASPRS STANDARDS FOR CLASS II MAP.

125 0 125
SCALE IN FEET

APPROX NEG SCALE: 1" = 300'
FLIGHT HEIGHT: 1800' A.M.T.
DATE OF PHOTOGRAPHY: 12-29-96
CONTOUR INTERVAL: 1'

REVISION	DATE	DESCRIPTION	BY

$ THINK VALUE ENGINEERING - IT SAVES MONEY $

AERIAL DATA SERVICE, INC.
11227 EAST REVERE PLACE
TULSA, OKLAHOMA 74116

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
TULSA, OKLAHOMA

PHOTOGRAMMETRIC MAPPING
FORMER LAREDO AFB
GROUNDWATER ELEVATION MAP
FIGURE 5.4.7
WEBB COUNTY, TEXAS

PHOTOGRAMMETRY					
COMPILED BY	DATE	CHECKED BY	DATE	SCALE: AS SHOWN	SHEET 01 OF 01
DRAWN BY	JAN 1997	CADD FILE	JAN 1997	DATE:	FILE NAME:
CHECKED BY	JAN 1997	FINAL CHECK	JAN 1997	CONTRACT NUMBER: DACA56-96-D-0002	
APPROVED BY	JAN 1997				

02753

6.0 CONCLUSION

This site investigation was conducted in a City of Laredo neighborhood area that was once part of the former LAFB. An EM and a soil gas survey were conducted along with the collection and analysis of sediment, soil, and groundwater samples.

EM Survey

An EM survey was conducted over the entire site to identify trench locations. The EM survey identified anomalies that corresponded to known landfill trenches and it also identified anomalies characteristic of landfill trenches that had not been identified prior to the investigation.

Soil Gas

The soil gas survey was conducted to enhance the soil and groundwater data collected using the traditional collection methods. In the residential area, none of the analytes tested were present in any of the soil gas samples collected. In a commercially zoned lot in the northwestern portion of the site, chlorobenzene and methane were detected in two samples. The chlorobenzene concentration was below the EPA HHMSSL concentration, and the elevated methane concentrations probably originated from the poor drainage and organic decomposition at the sample location. There is no distribution of these contaminants at the site and analytical results do not indicate that a release has occurred.

Sediment

All VOC, SVOC, PCB, and herbicide analytical results were below the sample quantitation limits. Chlordane was the only pesticide detected in the sediment samples from the drainage ditch area, and only one sample slightly exceeded the EPA Region 6 HHMSSL. Chlordane is a common pesticide used in the area, and in the absence of any other organic contaminants, it appears that the presence of chlordane is not indicative of the former LAFB site-related activities. For all metals, except beryllium, sediment analytical results were either below sample quantitation limits or below the EPA Region 6 HHMSSL IIDER. The one sample containing beryllium was significantly below the EPA Region 6 Regional Soil Background Range.

Soil

Low concentrations of VOCs, SVOCs, and pesticides were detected in several soil samples. The soil data indicates that there is not a significant distribution of these analytes at the site, and the detected concentrations were either significantly below the corresponding EPA Region 6 HHMSSL concentrations or there were no established EPA Region 6 HHMSSL comparison data for the analyte.

No PCBs were detected in any of the soil samples.

Dalapon was the only herbicide detected in two soil samples. These concentrations were only slightly above the sample quantitation limit. There is no corresponding EPA Region 6 HHMSSL Soil to Groundwater transfer concentration for comparison. Dalapon is a common herbicide that may have been used to maintain weeds in the area, and it appears that the presence of dalapon is not indicative of the former LAFB site-related activities.

The only RCRA metals detected above the sample quantitation limit and exceeding the EPA Region 6 Regional Background concentrations were barium, cadmium, lead, and mercury. The distribution of these analytes occurs at varying depths and at limited number of sample locations at the site. Samples detecting cadmium, lead, and mercury either do not exceed the EPA Region 6 Soil to Groundwater Transfer concentration or no transfer concentration exists for comparison. Only one sample out of 48 had an elevated concentration of barium. Other metals detected above the EPA Region 6 Regional Background Soil concentration are cobalt, nickel, and zinc. These analytes are either at or below the estimated EPA Region 6 Soil to Groundwater Transfer concentrations for each analyte. The presence of elevated metal concentrations is sporadic and the distribution in soil is not indicative that a release of hazardous constituents has occurred from former site-related activities. A soil background study has not been conducted; however, it appears that the metal concentrations may be characteristic of the soil in the area.

Groundwater

The groundwater at the site is approximately 8.5 feet bgs, and generally flows in a west-

southwest direction.

Groundwater samples were analyzed for VOCs in the field using a Viking Portable GC/MS, and analytical results did not detect any VOC concentrations above 60 ppb.

Additionally, groundwater samples were sent to a laboratory and analyzed for VOCs, SVOCs, herbicides, pesticides, and PCBs. These results either did not detect any analytes above the sample quantitation limit or had detectable quantities with concentrations below the EPA Region 6 Drinking Water MCL concentrations.

Groundwater concentrations for arsenic, barium, cadmium, chromium, lead, mercury, and selenium slightly exceeded the EPA MCL or proposed action level (for lead). In comparing this information to the soil analytical results collected from the site, it is important to note that all soil samples were either below, within, or had only one sample exceed the EPA HHMSSL Soil Regional Background Concentration Range, or were below the EPA Soil to Groundwater Transfer Concentration. Other metals analyzed that were detected above the sample quantitation limit and exceeded the EPA MCL were beryllium and nickel. In comparing this information to the soil analytical results collected from the site, it is important to note that detected beryllium concentrations in the soil did not exceed the EPA Region 6 HHMSSL Soil Background Concentration, and one sample detecting nickel barely exceeded the EPA Soil to Water Transfer concentration.

Generally, the groundwater metal concentrations slightly exceed the EPA MCL; however, this comparison of detected metals to a drinking water MCL is a very conservative analysis, since the groundwater in the area is not used as a drinking water source. The comparison of soil data to the groundwater data suggests that the elevated concentrations of metals found in the groundwater are not a result of any of the analytes detected in the soil. The soil and groundwater data do not indicate a release has occurred because there is no distribution of contaminants, and elevated concentrations are sporadic. A background study for this site has not been performed; however, the results appear to be indicative of naturally occurring conditions of groundwater in the area.

In conclusion, the site has been extensively investigated using an EM and soil gas survey along with collection and analysis of sediment, soil and groundwater samples. Samples were analyzed for VOCs, SVOCs, pesticides, PCBs, herbicides, and metals. Although several analytes were detected above the EPA Region 6 HHMSSL, evaluation of the analytical results indicate there is no pattern of contaminant distribution within the soil gas, sediment, soil or groundwater at the site. Additionally, the analytical results are generally within the EPA Region 6 HHMSSL concentrations that are protective of human health. Review of all data at the site does not indicate that a release of contaminates has occurred from the activities at the former LAFB, and it appears that the trenches were used as a sanitary landfill by the former base. Evaluation of all data indicates no further action is required at the site.

7.0 REFERENCES

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Texas Natural Resource Conservation Commission, Petroleum Storage Tank Program, *Limited Site Assessment Guidance Document*, PST 92-06, February 1993.

Appendix A

Soil Gas Survey Final Report

Appendix A

SOIL GAS SURVEY

FORMER LAREDO AFB
SANITARY LANDFILL AREA
Laredo, TX

PREPARED FOR

TULSA DISTRICT CORPS OF ENGINEERS
P.O. Box 61
Tulsa, OK 74121-0061

PREPARED BY

TARGET ENVIRONMENTAL SERVICES, INC.
9180 RUMSEY ROAD
COLUMBIA, MARYLAND 21045
(410) 992-6622

July 1997

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EXECUTIVE SUMMARY

From July 8 through July 17, 1997, **TARGET Environmental Services, Inc. (TARGET)** conducted a soil gas survey at the Former Laredo Air Force Base, Laredo, Texas. This site is located near the Laredo International Airport in neighborhoods known as Alta Vista, and Vista Hermosa. Some areas within these neighborhoods are suspected of being on top of old sanitary landfills. Soil gas samples were collected at 150 locations from a depth of 3 feet and 7 feet. The samples were analyzed off-site on a gas chromatograph equipped with a mass spectrometer (GC/MS) for volatiles. The samples collected at a 3 foot depth were also analyzed for methane by gas chromatograph equipped with a thermal conductivity detector (GC/TCD). The objective of the survey was to help determine if any hazardous volatile constituents are present in the subsurface.

One sample collected in the northwest corner of the survey (N120E60B) was found to contain chlorobenzene at 8.95µg/l. The shallow sample at the same location (N120E60A) contained methane at 1.19%. Another sample collected 200 feet east (N120E80A) was also found to contain methane at a concentration of 5.20%. No analytes were detected in any of the remaining samples.

Chlorobenzene is a common solvent used in the manufacture of adhesives, paints, polishes, waxes, insecticides, pharmaceuticals, and in degreasing and dry cleaning operations. It is not soluble in water. Although no regulations were found that require remedial action for chlorobenzene in a vapor state, OSHA (the Occupational Safety and Health Administration) reports a permissible exposure limit (PEL) of 350µg/l for workers, and NIOSH (the National Institute for Occupational Safety and Health) reports that chlorobenzene presents an immediate threat to life or

health at 11,200µg/l.

Methane is typically generated in the subsurface through anaerobic degradation of organic material. Methane is flammable at concentrations of 5% to 15%.

Introduction

The **TULSA DISTRICT CORPS OF ENGINEERS** (The **COE**) contracted **TARGET Environmental Services, Inc. (TARGET)** to perform a soil gas survey at Former Laredo Air Force Base, Laredo, Texas. This site is located near the Laredo International Airport in neighborhoods known as Alta Vista, and Vista Hermosa. The COE's review of historical air photos suggest that parts of the neighborhood are in an area where old landfill trenches are located. The objective of the survey was to help determine if any hazardous volatile constituents are present in the subsurface. The planned scope of work included the collection of soil gas samples from depths of 4 feet and 10 feet below the surface at approximately 150 locations. The sample locations were selected to be representative of the entire site, and to offer accessibility with minimal disruption to the residences in the neighborhoods. Samples were planned in the streets, school yard, and in open fields at 100 to 200 foot spacing.

The samples were to be analyzed at an off site laboratory by GC/MS using EPA 8260 procedures including a library search for non-standard analytes detected. The samples collected at the more shallow depth were selected for analysis by GC/TCD for methane.

Sample Collection and Analysis

Soil gas samples were collected at a total of 150 locations at the site, as shown in Figure 1. The sampling locations were adjusted to avoid contact with underground services in the area. The sample depth was adjusted to depths of 3 feet and 7 feet, since water was found at approximately 10 feet below the surface across the site. The soil gas samples were collected and submitted to

TARGET's laboratory in Columbia, MD for analysis. Four samples were damaged in shipment or in the laboratory. All of the damaged samples were recollected except Sample N96E171A which was damaged in the laboratory and rendered unsuitable for analysis, after the sampling team had demobilized from the site.

A map coordinate system was established on site with the beginning point (N00 E100) centered on the intersection of Cypress Drive and Hibiscus Lane. The north map axis was tilted to parallel the neighborhood layout to ease accurate determination of locations in the field. The sample names refer to their location within the map coordinate system with samples designated "A" collected from a depth of 3 feet and "B" collected from 7 feet.

To collect the soil gas samples, a Geoprobe was used to advance connected 3-4 foot sections of narrow diameter threaded steel casing down to the sampling depth. Once at depth, the casing was hydraulically raised several inches in order to open a retractable drive. Polyethylene tubing with a threaded stainless steel tip and "O" ring was inserted into the casing to the bottom of the hole, and threaded through a plug which isolates the bottom-hole sampling chamber from the up-hole annulus. A sample of in-situ soil gas was then withdrawn (4 liters) through the probe with a vacuum chamber and used to purge atmospheric air from the sampling system. A gas-tight syringe equipped with a needle was used to penetrate a soft portion of the sampling tubing and withdraw an aliquot of soil gas. The sample was then injected into a pre-evacuated glass vial. The self-sealing vial was detached from the syringe, packaged, labeled, and stored for laboratory analysis. All sampling holes were backfilled with bentonite and the surface repaired with like material upon

completion of the sampling.

New tubing and syringes were used for each sample. Prior to the day's field activities all sampling equipment and probes were decontaminated by washing with a Liquinox/water solution and rinsing thoroughly. Internal surfaces were flushed dry using ambient air, and external surfaces were wiped clean using clean paper towels or allowed to air dry.

All of the samples (299) collected during the field phase of the survey were subjected to analysis by GC/MS following EPA 8260 procedures with direct injection. Samples collected from a depth of 3' (149) were also analyzed by GC/TCD for methane concentrations.

Quality Assurance/Quality Control (QA/QC) Evaluation

Field QA/QC Samples

Field control samples (blanks) were collected at the beginning and end of each day's field activities and after every twentieth soil gas sample. These QA/QC blanks were obtained by drawing ambient air through the sampling system, and encapsulating by the same procedures as the field samples. The laboratory results are reported in Table 1. Concentrations of all analytes were below the reporting limit in all field control blanks, indicating that the QA/QC measures employed were sufficient to prevent cross-contamination of the samples during collection.

Target has performed informal shelf life studies and found that the holding time for soil gas samples in glass vials is dependent on the analyte. Petroleum analytes and methane exhibit little or

no change in concentration after 2 weeks or more of storage. Most halogenated analytes are stable for 1 week after sampling. All samples were analyzed within an appropriate holding time.

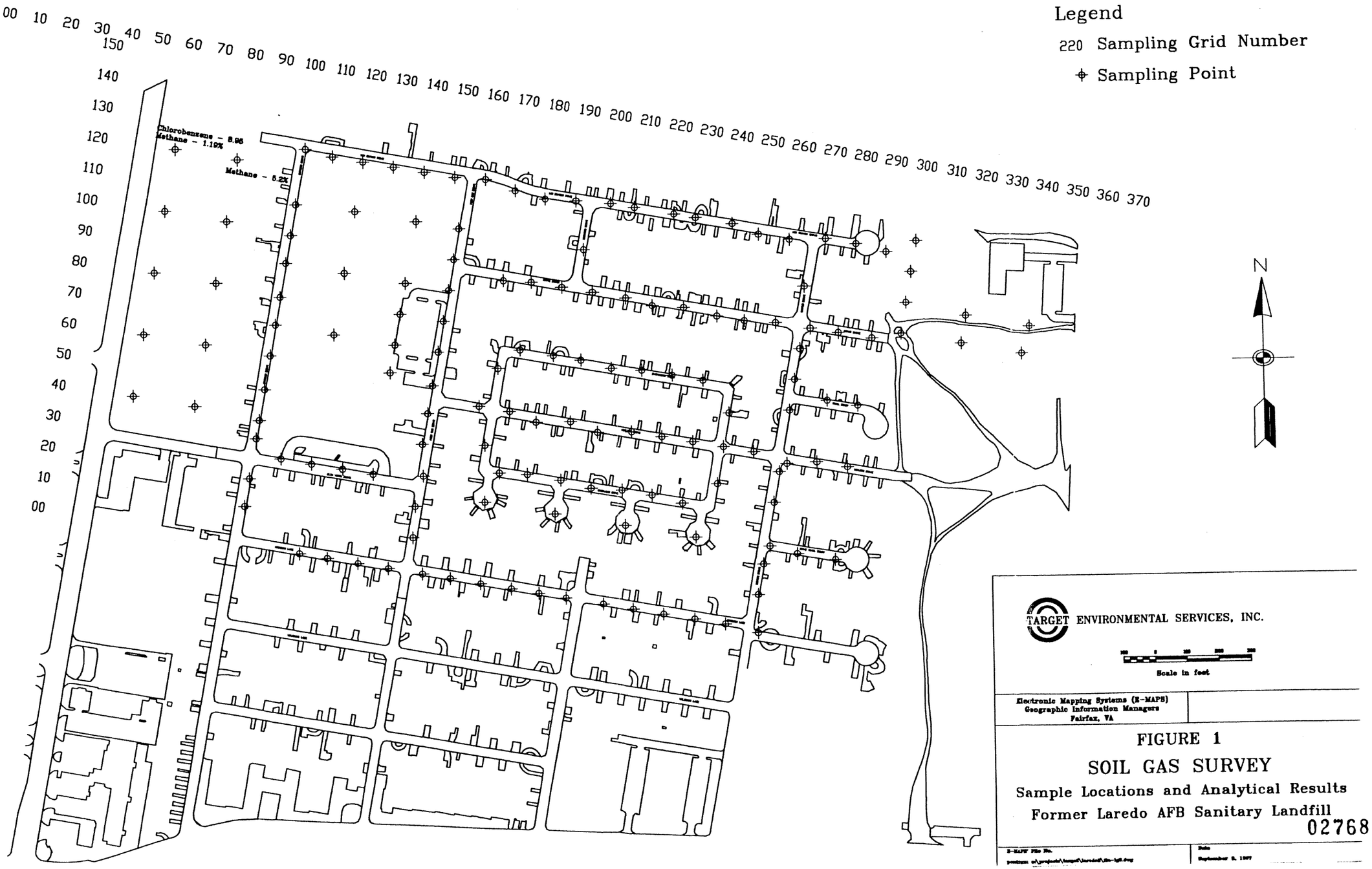
Laboratory QA/QC Samples

To document analytical repeatability, a duplicate analysis was performed on every tenth field sample. Laboratory blanks of nitrogen gas were also analyzed after every tenth field sample. The results of these analyses are reported in Table 1. The duplicate analyses were within acceptable limits. Concentrations of all analytes were below the reporting limit in all laboratory blanks.

Results

One sample collected in the northwest corner of the survey (N120E60B) was found to contain chlorobenzene at 8.95 µg/l. The shallow sample at the same location (N120E60A) contained methane at 1.19%. Another sample collected 200 feet east (N120E80A) was also found to contain methane at a concentration of 5.20% (see figure 1). No analytes were detected in any of the remaining samples. Review of the chromatograms found no significant peaks indicative of additional compounds to research and identify.

Chlorobenzene is a common solvent used in the manufacture of adhesives, paints, polishes, waxes, insecticides, pharmaceuticals, and in degreasing and dry cleaning operations. It is not soluble in water. Although no regulations were found that require remedial action for chlorobenzene in a vapor state, OSHA (the Occupational Safety and Health Administration) reports a permissible exposure limit (PEL) of 350µg/l for workers, and NIOSH (the National Institute of


00 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370
150
140
130
120
110
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90
80
70
60
50
40
30
20
10
00
Chlorobenzene - 8.96
Methane - 1.19%
Methane - 5.2%
Legend
220 Sampling Grid Number
Sampling Point
N
TARGET ENVIRONMENTAL SERVICES, INC.
Scale in feet
Electronic Mapping Systems (E-MAPS)
Geographic Information Managers
Fairfax, VA
FIGURE 1
SOIL GAS SURVEY
Sample Locations and Analytical Results
Former Laredo AFB Sanitary Landfill
02768

Occupational Safety and Health) reports that chlorobenzene presents an immediate threat to life or health at 11,200µg/l.

Methane is typically generated in the subsurface through anaerobic degradation of organic material. The northwest corner of the survey was observed to be the wettest area and topographically lowest area of the survey. Wet conditions can inhibit the free movement of air in the subsurface, thus allowing anaerobic conditions to develop. Neither OSHA nor NIOSH regulate exposure levels or list hazards other than explosion (or oxygen displacement at very high concentrations). Methane is flammable at concentrations of 5% to 15%.

Conclusions

- Low levels of methane were detected in 2 samples from the northwest portion of the survey area.
- A low level of chlorobenzene was detected in one sample from the northwest portion of the survey area.
- Wet conditions in the northwest portion of the survey area may be the cause of anaerobic degradation of any organic materials present, and the generation of detected methane.
- No other contaminants were detected.

Table 1

Analytical Data

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/10/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N11 E101 A (ug/L)	N80 E80 A (ug/L)	N60 E80 A (ug/L)	N40 E60 A (ug/L)	N40 E80 B (ug/L)	N33 E101 B (ug/L)	N60 E60 B (ug/L)	N80 E80 B (ug/L)	N120 E80 B (ug/L)	N60 E80 B (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst: _____

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/10/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N120 E80 A (ug/L)	N120 E60 B (ug/L)	N80 E60 B (ug/L)	N39 E101 A (ug/L)	N39 E101 B (ug/L)	FIELD BLANK 2 (ug/L)	N40 E60 B (ug/L)	N49 E101 A (ug/L)	N80 E60 A (ug/L)	N100 E60 A (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	8.95	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	5.20	N/A	N/A	ND	N/A	ND	N/A	ND	ND	ND
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation
Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst: _____

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/10/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N20 E101 B (ug/L)	N40 E80 A (ug/L)	N20 E101 A (ug/L)	N60 E101 B (ug/L)	N11 E101 B (ug/L)	N100 E80 B (ug/L)	N120 E60 A (ug/L)	N60 E101 A (ug/L)	N49 E101 B (ug/L)	N100 E60 B (ug/L)	N100 E80 A (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	N/A	ND	ND	N/A	N/A	N/A	1.19	ND	N/A	N/A	ND
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst: _____

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/13/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N-01 E170 A (ug/L)	N-01 E161 A (ug/L)	N-01 E208 B (ug/L)	N-01 E150 A (ug/L)	N-01 E208 A (ug/L)	N-01 E150 B (ug/L)	N-01 E199 A (ug/L)	N-01 E199 B (ug/L)	N-01 E190 B (ug/L)	N-01 E140 B (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	ND	N/A	ND	ND	N/A	ND	N/A	N/A	N/A
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/13/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N-01 E140 A (ug/L)	N-01 E180 A (ug/L)	N-01 E161 B (ug/L)	N-01 E170 B (ug/L)	N-01 E180 B (ug/L)	N-01 E121 A (ug/L)	N-01 E121 B (ug/L)	FIELD BLANK 3 (ug/L)	FIELD BLANK 4 (ug/L)	FIELD BLANK 5 (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	ND	N/A	N/A	N/A	ND	N/A	ND	ND	ND
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/13/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N-01 E130 A (ug/L)	N-01 E130 B (ug/L)	N-01 E190 A (ug/L)	N109 E101 A (ug/L)	N109 E101 B (ug/L)	N-01 E260 A (ug/L)	N-01 E250 B (ug/L)	N99 E101 B (ug/L)	N-01 E250 A (ug/L)	N-01 E240 B (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	N/A	ND	ND	N/A	ND	N/A	N/A	ND	N/A
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/13/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N-01 E230 A (ug/L)	N-01 E230 B (ug/L)	N-01 E220 B (ug/L)	N99 E101 A (ug/L)	N90 E101 B (ug/L)	N-01 E240 A (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	N/A	N/A	ND	N/A	ND
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/15/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	FIELD BLANK 1 (ug/L)	N60 E60 A (ug/L)	LABDUP N-01 E260 A (ug/L)	LABDUP N-01 E208 A (ug/L)	N90 E101 A (ug/L)	N70 E101 B (ug/L)	N79 E101 A (ug/L)	N-01 E220 A (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	ND	ND	ND	ND	N/A	ND	ND
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/15/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N-01 E260 B (ug/L)	FIELD BLANK 6 (ug/L)	N127 E101 A (ug/L)	N127 E101 B (ug/L)	N126 E110 A (ug/L)	N126 E110 B (ug/L)	N126 E120 A (ug/L)	N126 E120 B (ug/L)	N126 E130 A (ug/L)	N126 E130 B (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	N/A	ND	ND	N/A	ND	N/A	ND	N/A	ND	N/A
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/15/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N126 E140 A (ug/L)	N126 E140 B (ug/L)	N126 E150 A (ug/L)	N126 E150 B (ug/L)	N127 E160 A (ug/L)	N127 E160 B (ug/L)	N125 E170 A (ug/L)	N125 E170 B (ug/L)	N124 E180 A (ug/L)	N124 E180 B (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/15/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N125 E190 A (ug/L)	N125 E190 B (ug/L)	N126 E201 A (ug/L)	N126 E201 B (ug/L)	FIELD BLANK 7 (ug/L)	N126 E209 A (ug/L)	N126 E209 B (ug/L)	N126 E222 A (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	N/A	ND	N/A	ND	ND	N/A	ND
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/16/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	LABDUP N126 E110 A (ug/L)	LABDUP FIELD BLANK 7 (ug/L)	N70 E101 A (ug/L)	LABDUP N40 E60 B (ug/L)	N120 E60 B (ug/L)	N126 E222 B (ug/L)	N126 E229 A (ug/L)	N126 E229 B (ug/L)	N126 E241 A (ug/L)	N126 E241 A (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	ND	ND	N/A	N/A	N/A	ND	N/A	ND	ND
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/16/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N124 E250 A (ug/L)	N124 E250 B (ug/L)	N124 E260 A (ug/L)	N124 E260 B (ug/L)	N126 E271 A (ug/L)	N126 E271 B (ug/L)	N126 E281 A (ug/L)	N126 E281 B (ug/L)	N125 E291 A (ug/L)	N125 E291 B (ug/L)	FIELD BLANK 8 (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation
Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/17/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N59 E154 A (ug/L)	N59 E154 B (ug/L)	N50 E154 A (ug/L)	N50 E154 B (ug/L)	N40 E154 A (ug/L)	N40 E154 B (ug/L)	N30 E156 A (ug/L)	N30 E156 B (ug/L)	N20 E155 A (ug/L)	N20 E155 B (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation
Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/17/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N10 E156 A (ug/L)	N10 E156 B (ug/L)	N28 E140 A (ug/L)	N28 E140 B (ug/L)	N28 E130 A (ug/L)	N28 E130 B (ug/L)	N28 E120 A (ug/L)	N28 E120 B (ug/L)	N28 E110 A (ug/L)	N28 E110 B (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/17/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N96 E171 B (ug/L)	N97 E180 A (ug/L)	N97 E180 B (ug/L)	N97 E190 A (ug/L)	N97 E190 B (ug/L)	N110 E195 A (ug/L)	N110 E195 B (ug/L)	N97 E200 A (ug/L)	N97 E200 B (ug/L)	N97 E211 A (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/17/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N97 E211 B (ug/L)	N96 E220 A (ug/L)	N96 E220 B (ug/L)	N97 E230 A (ug/L)	N97 E230 B (ug/L)	N96 E241 A (ug/L)	N96 E241 B (ug/L)	N96 E250 A (ug/L)	N96 E250 B (ug/L)	N97 E260 A (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst: 

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/17/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N97 E260 B (ug/L)	N110 E267 A (ug/L)	N110 E267 B (ug/L)	FIELD BLANK 12 (ug/L)	FIELD BLANK 13 (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	N/A	ND	N/A	ND	ND
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/18/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	FIELD BLANK 9 (ug/L)	N130 E300 A (ug/L)	N130 E300 B (ug/L)	N120 E300 A (ug/L)	N120 E300 B (ug/L)	N28 E110 B (ug/L)	LABDUP N97 E260 A (ug/L)	N110 E300 A (ug/L)	LABDUP N110 E300 B (ug/L)	N100 E300 A (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	ND	N/A	ND	N/A	N/A	ND	ND	N/A	ND
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/18/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N100 E300 B (ug/L)	N109 E320 A (ug/L)	N109 E320 B (ug/L)	N109 E341 A (ug/L)	N109 E341 B (ug/L)	N100 E340 A (ug/L)	N100 E340 B (ug/L)	LABDUP FIELD BLANK 12 (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	N/A	ND	N/A	ND	N/A	ND	N/A	ND
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S

Sample Condition (S,U)/Dilution (PQL)
S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation
Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/19/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N100 E320 A (ug/L)	N100 E320 B (ug/L)	N97 E291 A (ug/L)	N97 E291 B (ug/L)	N97 E280 A (ug/L)	N97 E280 B (ug/L)	N97 E271 A (ug/L)	N97 E271 B (ug/L)	FIELD BLANK 10 (ug/L)	N87 E290 A (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	ND
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation
Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/19/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N87 E290 B (ug/L)	N85 E280 A (ug/L)	N85 E280 B (ug/L)	N80 E269 A (ug/L)	N80 E269 B (ug/L)	N110 E154 A (ug/L)	N110 E154 B (ug/L)	N100 E154 A (ug/L)	N100 E154 B (ug/L)	N90 E154 A (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/19/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N90 E154 B (ug/L)	N80 E154 A (ug/L)	N80 E154 B (ug/L)	N70 E154 A (ug/L)	N70 E154 B (ug/L)	N79 E101 B (ug/L)	FIELD BLANK 11 (ug/L)	FIELD BLANK 14 (ug/L)	N90 E269 A (ug/L)	N90 E269 B (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	N/A	ND	N/A	ND	N/A	N/A	ND	ND	ND	N/A
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/19/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N70 E269 A (ug/L)	N70 E269 B (ug/L)	N55 E290 A (ug/L)	N55 E290 B (ug/L)	N55 E280 A (ug/L)	N55 E280 B (ug/L)	N53 E271 A (ug/L)	N53 E271 B (ug/L)	N55 E260 A (ug/L)	N55 E260 B (ug/L)	LABDUP N100 E340 B (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A	N/A
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

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[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/20/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N55 E250 A (ug/L)	N55 E250 B (ug/L)	N55 E240 A (ug/L)	N55 E240 B (ug/L)	N110 E120 A (ug/L)	N110 E120 B (ug/L)	N90 E120 A (ug/L)	N90 E120 B (ug/L)	N70 E120 A (ug/L)	N70 E120 B (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

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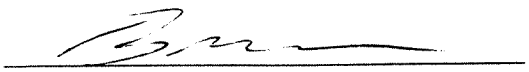
SAMPLE NARRATIVE:

Quality Control Analyst: 

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/20/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N110 E140 A (ug/L)	N110 E140 B (ug/L)	N90 E140 A (ug/L)	N90 E140 B (ug/L)	N80 E140 A (ug/L)	N80 E140 B (ug/L)	N70 E140 A (ug/L)	N70 E140 B (ug/L)	N61 E140 A (ug/L)	N61 E140 B (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

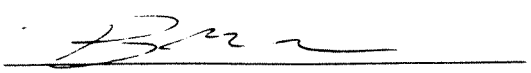
[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst: 

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/20/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N55 E170 A (ug/L)	N55 E170 B (ug/L)	N55 E180 A (ug/L)	N55 E180 B (ug/L)	N53 E189 A (ug/L)	N53 E189 B (ug/L)	N55 E200 A (ug/L)	N55 E200 B (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	N/A	ND	N/A	ND	N/A	ND	N/A
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/21/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N36 E230 A (ug/L)	N36 E230 B (ug/L)	N25 E223 A (ug/L)	N25 E223 B (ug/L)	N35 E210 A (ug/L)	N35 E210 B (ug/L)	N36 E220 A (ug/L)	N36 E220 B (ug/L)	N36 E200 A (ug/L)	N36 E200 B (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

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[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/21/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N25 E200 A (ug/L)	N25 E200 B (ug/L)	N36 E189 A (ug/L)	N36 E189 B (ug/L)	N35 E180 A (ug/L)	N35 E180 B (ug/L)	N25 E177 A (ug/L)	N25 E177 B (ug/L)	N43 E174 A (ug/L)	N43 E174 B (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

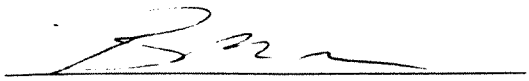
[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst: 

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/21/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N68 E174 A (ug/L)	N68 E174 B (ug/L)	N75 E180 A (ug/L)	N75 E180 B (ug/L)	N75 E191 A (ug/L)	N75 E191 B (ug/L)	N75 E200 A (ug/L)	N75 E200 B (ug/L)	N74 E210 A (ug/L)	N74 E210 B (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/21/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N75 E220 A (ug/L)	N75 E220 B (ug/L)	N75 E230 A (ug/L)	N75 E230 B (ug/L)	N75 E240 A (ug/L)	N75 E240 B (ug/L)	N66 E250 A (ug/L)	N66 E250 B (ug/L)	N50 E269 A (ug/L)	N50 E269 B (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation
Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/21/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N53 E209 A (ug/L)	N53 E209 B (ug/L)	N55 E220 A (ug/L)	N55 E220 B (ug/L)	FIELD BLANK 15 (ug/L)	FIELD BLANK 16 (ug/L)	N43 E250 A (ug/L)	N43 E250 B (ug/L)	N25 E246 A (ug/L)	N25 E246 B (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	N/A	ND	N/A	ND	ND	ND	N/A	ND	N/A
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/21/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N35 E240 A (ug/L)	N35 E240 B (ug/L)	LABDUP N90 E154 A (ug/L)	LABDUP N55 E260 B (ug/L)	LABDUP N61 E140 B (ug/L)	LABDUP N35 E240 B (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	N/A	ND	N/A	N/A	N/A
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation
Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/22/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	LABDUP N43 E174 B (ug/L)	LABDUP N50 E269 B (ug/L)	N40 E269 A (ug/L)	N40 E269 B (ug/L)	N20 E269 A (ug/L)	N20 E269 B (ug/L)	N33 E101 A (ug/L)	FIELD BLANK 17 (ug/L)	FIELD BLANK 18 (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	N/A	N/A	ND	N/A	ND	N/A	ND	ND	ND
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/23/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N25 E291 A (ug/L)	N25 E291 B (ug/L)	N25 E279 A (ug/L)	N25 E279 B (ug/L)	N26 E270 A (ug/L)	N26 E270 B (ug/L)	N10 E269 A (ug/L)	N10 E269 B (ug/L)	N02 E271 A (ug/L)	N02 E271 B (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	N/A	ND	N/A	ND	N/A	ND	N/A	ND	N/A
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

Samples Collected:	7/9/97 - 7/17/97	Collected by:	Vironex	Client:	Tulsa ACOE
Samples Received:	7/10/97 - 7/18/97	Received by:	MM, GA, JP	Client Address:	P.O. Box 61
Samples Analyzed:	7/23/97	Analyzed by:	MM, GA, SN, JP		Tulsa, OK 74121-0061
Samples Reported:	7/24/97	Reported by:	Guy Auld		
Project Identification:	LAREDO, TX	Report Revision:	0.0	Client Contact:	Andy Obrochta
Target Job Code:	UST019V	Method Deviations:	none	Client Phone:	918-669-7155
Purchase Order:		Sampling Method:	Geoprobe	Client Fax:	918-669-7532

USEPA Method 8260 (in ug/L) and GC/TCD (Methane, in %) Vapor Sample Analysis Results

Compound	MW[1] (g/mole)	MDL[2] (ug/L)	PQL[3] (ug/L)	N55 E230 A (ug/L)	N55 E230 B (ug/L)	FIELD BLANK 19 (ug/L)	FIELD BLANK 20 (ug/L)	N70 E101 A (ug/L)	LABDUP FIELD BLANK 19 (ug/L)
Dichlorodifluoromethane	120.91	0.688	10.0	ND	ND	ND	ND	ND	ND
Chloromethane	50.49	0.559	10.0	ND	ND	ND	ND	ND	ND
Vinyl Chloride	62.50	1.011	10.0	ND	ND	ND	ND	ND	ND
Bromomethane	94.94	0.444	10.0	ND	ND	ND	ND	ND	ND
Chloroethane	64.51	0.341	10.0	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	138.38	0.334	10.0	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	96.94	0.298	5.00	ND	ND	ND	ND	ND	ND
Methylene Chloride	84.93	0.448	5.00	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	96.94	0.419	5.00	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	98.96	0.488	5.00	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	96.94	0.455	5.00	ND	ND	ND	ND	ND	ND
Chloroform	119.38	0.472	5.00	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	133.40	0.465	5.00	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	153.82	0.421	5.00	ND	ND	ND	ND	ND	ND
Benzene	78.11	0.496	5.00	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	98.96	0.639	5.00	ND	ND	ND	ND	ND	ND
Trichloroethylene	131.39	0.135	5.00	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	112.99	0.121	5.00	ND	ND	ND	ND	ND	ND
Bromodichloromethane	163.83	0.161	5.00	ND	ND	ND	ND	ND	ND
Dibromomethane	173.83	0.525	5.00	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	110.97	0.306	5.00	ND	ND	ND	ND	ND	ND
Toluene	92.14	0.156	5.00	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	110.97	0.412	5.00	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	133.40	0.551	5.00	ND	ND	ND	ND	ND	ND
Tetrachloroethylene or PCE	165.83	0.231	5.00	ND	ND	ND	ND	ND	ND
Dibromochloromethane	208.28	0.264	5.00	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	187.86	0.562	5.00	ND	ND	ND	ND	ND	ND
Chlorobenzene	112.56	0.171	5.00	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	167.85	0.117	5.00	ND	ND	ND	ND	ND	ND
Ethylbenzene	106.17	0.308	5.00	ND	ND	ND	ND	ND	ND
m&p-Xylene	106.17	0.473	10.0	ND	ND	ND	ND	ND	ND
o-Xylene	106.17	0.227	5.00	ND	ND	ND	ND	ND	ND
Styrene	104.15	0.181	5.00	ND	ND	ND	ND	ND	ND
Isopropylbenzene	120.19	0.339	5.00	ND	ND	ND	ND	ND	ND
Bromoform	252.73	0.338	5.00	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	167.85	0.649	5.00	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	147.43	0.451	5.00	ND	ND	ND	ND	ND	ND
Bromobenzene	157.01	0.127	5.00	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	134.22	0.296	5.00	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	134.22	0.301	5.00	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	147.00	0.084	5.00	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	147.00	0.047	5.00	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	147.00	0.164	5.00	ND	ND	ND	ND	ND	ND
n-Butylbenzene	134.22	0.276	5.00	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	181.45	0.406	5.00	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	260.76	0.461	5.00	ND	ND	ND	ND	ND	ND
Naphthalene	128.17	0.715	5.00	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	181.45	0.573	5.00	ND	ND	ND	ND	ND	ND
Methane[4] (%)	16.00	0.50	0.50	ND	N/A	ND	ND	ND	ND
Sample Condition (S,U)/Dilution (PQL)			1	S	S	S	S	S	S

S: Satisfactory, U: Unsatisfactory - see sample narrative for specific explanation

Dilution: numerical dilution factor used to quantitate analyte concentrations within the range of the initial calibration curve

[1] MW: Molecular Weight

[2] MDL: Method detection limit according to EPA 40CFR Part 136 Appendix B

[3] PQL: Practical quantitation limit using the initial calibration curve low point and dilution factors where applicable

[4] Methane results by GC/TCD are reported as percent (%), "N/A" indicates that the sample was not analyzed for Methane.

SAMPLE NARRATIVE:

Quality Control Analyst:

APPENDIX A

Chain of Custody Records

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD

JOB CODE: UST 019

CLIENT: Tulsa ACOE
ADDRESS:
PHONE: 918-669-7150 FAX:
CLIENT PROJECT #: PROJECT MANAGER: Obrochta

DATE: PAGE 1 OF 2
P.O.#:
LOCATION: Loredo TX
COLLECTOR: DATE OF COLLECTION: 3/5

ANALYSES: VOA 601/8010, VOA 602/8020, VOA 624/8240, Semi Vol 625/8270, TPH 418.1, TPH 8015 (gasoline), TPH 8015 (diesel), TPH 8015 (jet fuel), PNA 610/8100, PEST/PCBs 8080, TCL, BOD, LEAD 239.2, pH, Ignitability, Metals 6000/7000, Reactivity, Preservative (Y/N)

Sample Number	Depth	Time	Sample Type	Container Type	VOA 602/8020	Field Notes	Total Number of Containers	Laboratory Note Number
N40E60A	3'	0718			X			
N40E60B	7'	0729						
N60E60A	3	0740						
N60E60B	7'	0801						
N80E60A	3'	0811						
N80E60B	7'	0828						
N100E60A	3'	0835						
N100E60B	7'	0848						
N120E60A	3'	0859						
N120E60B	7'	0911						
N120E80A	3'	0921						
N120E80B	7'	0953						
N100E80A	3'	1001						
N100E80B	7'	1051						
N80E80A	3'	1058						
N80E80B	7'	1110						
N60E80A	3'	1117						
N60E80B	7'	1127						

Field notes: TCLP "A" Samples only; 8260 - All Samples

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
[signature]	6:30PM 7/9/97		
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE RECEIPT
Total Number of Containers
Chain of Custody Seals Y/N NA
Seals Intact? Y/N NA
Received Good Cond./Cold
Notes:

LABORATORY NOTES:

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD

JOB CODE: 057019

CLIENT: Tulsa ACOE
ADDRESS:
PHONE: 918 669 7155 FAX:
CLIENT PROJECT #: PROJECT MANAGER: Obrecht

DATE: PAGE 2 OF 2
P.O.# :
LOCATION: Laredo TX
COLLECTOR: DATE OF COLLECTION: 7/9

Sample Number	Depth	Time	Sample Type	Container Type	FIELD NOTES	Total Number of Containers	Laboratory Note Number
N40E80A	3'	11:51AM					
N40E80B	7'	11:58AM					
N11E101A	3'	12:31					
N11E101B	7'	12:33					
N20E101A	3'	12:52					
N20E101B	7'	12:55					
N33E101A	3'	1:30					
N33E101B	7'	1:37					
N39E101A	3'	1:56					
N39E101B	7'	2:03					
N49E101A	3'	2:21					
N99E101B	7'	2:30					
N60E101A	3'	2:47					
N60E101B	7'	3:00PM					
FIELD BLANK	—	6:15			FIELD BLANK #1		
FIELD BLANK	—	3:15PM			FIELD BLANK #2		

ANALYSES: VOA 601/8010 · VOA 602/8020 · VOA 624/8260 · Semi Vol 625/8270 · TPH 418.1 · TPH 8015 (gas) · TPH 8015 (diesel) · PNA 610/8100 · Pesticides 608/8080 · TCLP · BOD · TSS · pH · Ignitability · Metals 6000/7000 · Reactivity · Mercury · Preservative (Y/N)

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
	6:30PM 7/9/97		
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE RECEIPT	
Total Number of Containers	
Chain of Custody Seals Y/N NA	
Seals Intact? Y/N NA	
Received Good Cond./Cold	
Notes:	

LABORATORY NOTES:
*NEED TO RESAMPLE #N33E101A(3') DUE TO DETERIORATED SEPTUM ON SAMPLE 7/14/97 VIAL

02809

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD
JOB CODE: 1ST019

CLIENT: ACOE Tulsa District
ADDRESS:
PHONE: 918-669-7155 FAX:
CLIENT PROJECT #: PROJECT MANAGER: Obrochta

DATE: PAGE 1 OF 3
P.O.#:
LOCATION: Laredo, TX
COLLECTOR: DATE OF COLLECTION: 7/10/97

ANALYSES: VOA 601/8010, VOA 602/8020, VOA 624/8260, Semi Vol 625/8270, TPH 418.1, TPH 8015 (gasoline), TPH 8015 (diesel), TPH 8015 (jet fuel), PNA 610/8100, PEST/PCBs 8080, TOC, BOD, LEAD 239.2, pH, Ignitability, Metals 6000/7000, Reactivity, M-[illegible], Preservative (Y/N)

	Sample Number	Depth	Time	Sample Type	Container Type	Analyses marked	Field Notes
1° #3	FIELD BLANK 3	1°	8:36 am				
1° #4	FIELD BLANK 4	1°	1:51 PM				
1° #5	FIELD BLANK 5	1°	6:54 PM			✓	
	N-01 E121A	3'	8:43 am				All Samples
	N-01 E121B	7'	8:50			–	8260
	N-01 E130A	3'	9:05				
	N-01 E130B	7'	9:13			–	"A" Samples
	N-01 E140A	3'	9:27				only [illegible] 6010
	N-01 E140B	7'	9:36			–	[illegible]
	N-01 E150A	3'	9:53				
	N-01 E150B	7'	10:12			–	
	N-01 E161A	3'	10:27				
	N-01 E161B	7'	[redacted]	10:35		–	
	N-01 E170A	3'	[redacted]	10:57			
	N-01 E170B	7'	[redacted]	11:05		✓	
	N-01 E180A	3'	[redacted]	11:23			
	N-01 E180B	7'	[redacted]	11:28		X	
	N-01 E190A	3'	[redacted]	11:44			

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
[signature]	6:00 PM 07/10/97		
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE RECEIPT

Total Number of Containers	43
Chain of Custody Seals Y/N NA	
Seals Intact? Y/N NA	
Received Good Cond./Cold	
Notes:	

LABORATORY NOTES: -1 Broken

02810

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD

JOB CODE: UST 019

CLIENT: Tulsa ACOE
ADDRESS:
PHONE: 918-662-7155 FAX:
CLIENT PROJECT #: PROJECT MANAGER: Obrecht

DATE: PAGE 2 OF 3
P.O.#:
LOCATION: Laredo, TX
COLLECTOR: DATE OF COLLECTION: 7/10/97

Sample Number	Depth	Time	Sample Type	Container Type	VOA 601/8010	VOA 602/8020	VOA 624/8260	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (tot.)	PNA 610/8100	PEST/PCBs 8080	TOC	BOD	LEAD 239.2	pH	Ignitability	Metals 6000/7000	Reactivity	TAL 5-13 [illegible]	Preservative (Y/N)	FIELD NOTES	Total Number of Containers	Laboratory Note Number
N-01 E190B	7'	11:52																				\				
N-01 E199A	3'	12:12																								
N-01 E199B	7'	12:18																				\				
N-01 E200A	3'	12:35																								
N-01 E200B	7'	12:45																				\				
N-01 E220A	3'	2:23																								
N-01 E220B	7'	2:35																				\				
N-01 E230A	3'	2:58																								
N-01 E230B	7'	3:09																				\				
N-01 E240A	3'	3:23																								
N-01 E240B	7'	3:28																				\				
N-01 E250A	3'	3:36																								
N-01 E250B	7'	3:49																				\				
N-01 E260A	3'	4:09																								
N-01 E260B	7'	4:21																				\				
N70 E101A	3'	4:37																								
N70 E101B	7'	4:49																				\				
N79 E101A	3'	4:55																								

FIELD NOTES: All sample "A" 8260. Samples only GC-TCD Methane

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
[signature]	6:11 PM 07/10/97		

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE RECEIPT

Total Number of Containers	43
Chain of Custody Seals Y/N NA	NA
Seals Intact? Y/N NA	
Received Good Cond./Cold	
Notes:	

LABORATORY NOTES:
1 Broken
* N70 E101A: - NEED TO RESAMPLE DUE TO DETERIORATED VIAL SEPTUM

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD

JOB CODE: UST 019

CLIENT: US ACOE - Tulsa District

ADDRESS:

PHONE: FAX:

CLIENT PROJECT #: PROJECT MANAGER: Ohnacht

DATE: PAGE 3 OF 3

P.O.#:

LOCATION: Laredo, TX

COLLECTOR: DATE OF COLLECTION: 7/10/97

ANALYSES: VOA 601/8010, VOA 602/8020, VOA 624/8260, Semi Vol 625/8270, TPH 418.1, TPH 8015 (gasoline), TPH 8015 (diesel), TPH 8015 (ext.d), PNA 610/8100, PEST/PCBs 8080, TOC, BOD, LEAD 239.2, pH, Ignitability, Metals 6000/7000, Reactivity, MtBE, Preservative (Y/N)

Sample Number	Depth	Time	Sample Type	Container Type	Analyses	Field Notes	Total Number of Containers	Laboratory Note Number
*N79 E101B	7'	5:00 PM				Broken in shipment		°
N90 E101A	3'	5:10 PM						
N90 E101B	7'	5:15 PM						
N99 E101A	3'	5:25 PM						
N99 E101B	7'	5:31 PM						
N109 E101A	3'	5:40 PM						
N109 E101B	7'	5:46						

All samples 8260 samples "A" GC TCD by Gas Method

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
[signature]	6:22 PM 07/10/97		
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE RECEIPT

Total Number of Containers	43
Chain of Custody Seals Y/N NA	
Seals Intact? Y/N NA	
Received Good Cond./Cold	
Notes:	

LABORATORY NOTES:

N79 E101B
* Requested recollection

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD

JOB CODE: UST019

CLIENT: ACOE
ADDRESS:
PHONE: 918 699-7155 FAX:
CLIENT PROJECT #: PROJECT MANAGER: Obrochta

DATE: PAGE 1 OF 3
P.O.#:
LOCATION:
COLLECTOR: DATE OF COLLECTION: 7/11/97

Sample Number	Depth	Time	VIAL POS. Sample Type	Container Type	FIELD NOTES	Total Number of Containers	Laboratory Note Number
FIELD BLANK	0 —	8:49	14		FLD BLK #6		14
N127E101 A	3'	8:55	15				15
N127E101 B	7'	9:18	16				16
N126 E 110A	3'	9:31	17				17
N126E 110B	7'	9:36	20				20
N 126 E 120A	3'	9:48	21				21
N126E 120B	7'	9:53	22				22
N126 E 130A	3'	10:06	23				23
N126E 130B	7'	10:11	24				24
N126E 140A	3'	10:23	25				25
N126 E 140B	7'	10:28	26				26
N126 E 150A	3'	10:40	27				27
N126 E 150B	7'	10:45	28				28
N127 E 160A	3'	11:04	29				29
N127 E160B	7'	11:09	30				30
N125 E170A	3'	11:25	31				31
N125 E170B	7'	11:31	32				32
N124 E180A	3'	11:45	33				33

All samples to be analyzed for TCL VOA only.

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
	6:15 PM 07/11/97		7/14/97
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE RECEIPT	
Total Number of Containers	
Chain of Custody Seals Y/N NA	
Seals Intact? Y/N NA	
Received Good Cond./Cold	
Notes:	

LABORATORY NOTES:

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD

JOB CODE: UST 019

CLIENT: ACOE
ADDRESS:
PHONE: 918-669-7155 FAX:
CLIENT PROJECT #: PROJECT MANAGER: Obrochta

DATE: PAGE 2 OF 3
P.O.# :
LOCATION:
COLLECTOR: DATE OF COLLECTION: 7/6

	Sample Number	Depth	Time	VIAL POS. Sample Type	Container Type	ANALYSES: VOA 601/8010	VOA 602/8020	VOA 624/8240	Semi Vol 625/8270	TPH 418.1	TPH 8015 (Gasoline)	TPH 8015 (diesel)	PNA 610/8100	PCB/PCBs only	TOC	BOD	TSS	pH	Ignitability	Metals 6000/7000	Radioactivity	TCLP Metals	Preservative (Y/N)	FIELD NOTES	Total Number of Containers	Laboratory Note Number
19	N129 E180B	7'	11:50	34																✓						34
20	N125 E190A	3'	12:11 PM	35																						35
21	N125 E190B	7'	12:19	36																						36
22	N126 E201A	3'	2:09	37																						37
23	N126 E201B	7'	2:17	38																						38
24	FIELD BLANK #7		1:20PM	39																✓					FLD BLK #7	39
25	N126 E209A	3'	2:34	42																✓						42
26	N126 E209B	7'	2:41	43																						43
27	N126 E222A	3'	2:59	44																✓						44
28	N126 E222B	7'	3:05	1	ANALYSE 7/16																					1
29	N126 E229A	3'	3:18	2																✓						2
30	N126 E229B	7'	3:24	3																						3
31	N126 E241A	3'	3:43	4																						4
32	N126 E241B	7'	3:51	5																✓						5
33	N124 E250A	3'	4:02	6																						6
34	N124 E250B	7'	4:09	1																						1
35	N124 E260A	3'	4:22	2																✓						2
36	N124 E260B	7'	4:31	3																						3

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
	6:13 07/11/97		
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE RECEIPT	
Total Number of Containers	
Chain of Custody Seals Y/N NA	
Seals Intact? Y/N NA	
Received Good Cond./Cold	
Notes:	

LABORATORY NOTES:

07/08/97 WED 11:25 FAX 4109820347 TARGET ENVIRO 002

02814

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD

JOB CODE: UST019

CLIENT:
ADDRESS:
PHONE: 918-669-7155 FAX:
CLIENT PROJECT #: PROJECT MANAGER: Obruchta

DATE: PAGE 3 OF 3
P.O.#:
LOCATION:
COLLECTOR: DATE OF COLLECTION: 7/1

Analyses columns: VOA 601/8010, VOA 602/8020, VOA 624/8260, Semi Vol 625/8270, TPH 418.1, TPH 8015 (gasoline), TPH 8015 (diesel), TPH 8015 (jet), PNA 610/8100, PEST/PCBs 8080, TOC, BOD, ISAD 239.2, pH, Ignitability, Metals 6000/7000, Reactivity, MCY, Preservative (Y/N)

Sample Number	Depth	Time	VIAL POS. (Sample Type)	Container Type	Analyses (MCY)	Field Notes	Total Number of Containers	Laboratory Note Number
					✓			4
NDC6E271A	3'	5:03	4		✓			5
N126 E271B	7'	5:08	5					6
N126 E281A	3'	5:23	6		✓			7
N126 E281B	7'	5:31	7					8
N125 E291A	3'	5:46	8		✓			9
N125 E291B	7'	5:52	9			FIELD BLANK #8 10		10 (119)
FIELD BLANK 8		5:54	10					

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
[signature]	6:14 PM 07/1/97		
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE RECEIPT
- Total Number of Containers
- Chain of Custody Seals Y/N NA
- Seals Intact? Y/N NA
- Received Good Cond./Cold
- Notes:

LABORATORY NOTES:

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD

JOB CODE: UST 019V

CLIENT: _____ DATE: _____ PAGE 1 OF 3

ADDRESS: _____ P.O.# : _____

PHONE: _____ FAX: _____ LOCATION: LAREDO, TX

CLIENT PROJECT #: _____ PROJECT MANAGER: _____ COLLECTOR: _____ DATE OF COLLECTION: 7/12

Sample Number	Depth	Time	VIAL ID# / Sample Type	Container Type	ANALYSES: VOA 601/8010	VOA 602/8020	VOA 624/8260	Semi Vol 625/8270	TPH 418.1	TPH 8015 (Gasoline)	TPH 8015 (Diesel)	TPH 8016 (oil & grease)	PNA 610/8100	PESTICIDES 8080	TCL	BOD	TSAD 2392	pH	Ignitability	Metals 6000/7000	Reactivity	Preservative (Y/N)	FIELD NOTES	Total Number of Containers	Laboratory Sample Number
(166) FIELD BLANK	9 -	8:1[illegible]	40																				FLD BLK #9		
N130 E300A	3'	8:23	41																						
N130 E300B	7'	8:28	42																						
N120 E300A	3'	8:39	43	↑ ANALYZED 7/17 ↑																					
(146) N120 E300B	7'	8:44	44																						
N110 E300A	3'	8:54	3																						
N110 E300B	7'	9:00	1																						
N100 E300A	3'	9:11	2																						
N100 E300B	7'	9:18	3																						
N109 E320A	3'	9:36	4																						
N109 E320B	7'	9:40	5																						
N109 E341A	3'	9:54	6																						
N109 E341B	7'	9:58	7																						
N100 E340A	3'	10:10	8																						DUP THIS OK
(183) N100 E340B	7'	10:15	9																						
N100 E320A	3'	10:29	~~10~~ 2																						
N100 E320B	7'	10:34	~~15~~ 3																						
(199) N97 E291A	3'	10:51	4																						

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
[signature]	07/12/97 4:28 PM		
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE RECEIPT	
Total Number of Containers	
Chain of Custody Seals Y/N NA	
Seals Intact? Y/N NA	
Received Good Cond./Cold	
Notes:	

LABORATORY NOTES:

02816

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD

JOB CODE: VST019 ✓

CLIENT:
ADDRESS:
PHONE: FAX:
CLIENT PROJECT #: PROJECT MANAGER:

DATE: PAGE 2 OF 3
P.O.#:
LOCATION: LAREDO, TX
COLLECTOR: DATE OF COLLECTION: 7/12

Sample Number	Depth	Time	VIAL POS. ~~Sample Type~~	Container Type	ANALYSES: VOA 601/8010	VOA 602/8020	VOA 624/8260	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (G & D)	PNA 610/8100	PEST/PCBs 8080	TOX	BOD	LEAD 239.2	pH	Ignitability	Metals 6000/7000	Reactivity	Preservative (Y/N)	FIELD NOTES	Total Number of Containers	Laboratory Note Number
N97E291B	7'	10:57	1 5																						
N97E280A	3'	11:09	1 6																						
N97E280B	7'	11:15	1 7																						
N97E271A	3'	11:32	1 8																						
N97E271B	7'	11:38	1 9																				FIELD BLANK #10		
FIELD BLANK 10	—	12:20pm	2 10																						
N97E290A	3'	12:46	2 11																						
N97E290B	7'	12:55	2 12																						
N85E280A	3'	1:09	2 13																						
N85E280B	7'	1:17	2 14																						
N80E269A	3'	1:33	2 15																						
N80E269B	7'	1:92	2 16																						
N110E154A	3'	2:09	2 17																						
N110E154B	7'	2:17	2 18																						
N100E154A	3'	2:31	2 19																						
N100E154B	7'	2:37	3 20																					DUP	THIS a.
N90E154A	3'	2:53	3 21																						
N90E154B	7'	3:01	3 24																						

Margin notes: 184; mu map; N 75; N75; (200)

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
[signature]	07/12/97 4:29pm		

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE RECEIPT

Total Number of Containers	
Chain of Custody Seals Y/N NA	
Seals Intact Y/N NA	
Received Good Cond./Cold	
Notes:	

LABORATORY NOTES:

02817

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD

JOB CODE: UST 019V

CLIENT:

ADDRESS:

PHONE: FAX:

CLIENT PROJECT #: PROJECT MANAGER:

DATE: PAGE 3 OF 3

P.O.#:

LOCATION: LAREDO, TX

COLLECTOR: DATE OF COLLECTION: 7/12

ANALYSES: VOA 601/8010, VOA 602/8020, VOA 624/8240, Semi Vol 625/8270, TPH 418.1, TPH 8015 (gasoline), TPH 8015 (diesel), TPH 8015 (gas,d), PNA 610/8100, PEST/PCBs 8080, TOX, BOD, LEAD 239.2, pH, Ignitability, Metals 6000/7000, Reactivity, Preservative (Y/N)

	Sample Number	Depth	Time	VIAL POS. Sample Type	Container Type	Analyses	Field Notes	Total Number of Containers	Laboratory Note Number
202	N80 E154A	3'	3:15	3625					
203	N80 E154B	7'	3:23	3626					
204	N70 E154A	3'	3:34	3627					
205	N70 E154B	7'	3:41	3628			REDONE DUE TO BROKEN SHIPMENT		
206	N79 E101B	7'	4:06	3629			FIELD BLANK #11		
207	FIELD BLANK	—	4:10 PM	3630					

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
[signature]	07/12/97 4:29 am		
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE RECEIPT

Total Number of Containers	
Chain of Custody Seals Y/N NA	
Seals Intact? Y/N NA	
Received Good Cond./Cold	
Notes:	

LABORATORY NOTES:

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD

JOB CODE: UST019V

CLIENT: TULSA ACOE

ADDRESS:

PHONE: 918-669-7155 FAX:

CLIENT PROJECT #: PROJECT MANAGER: Obrochta

DATE: 7/14/97 PAGE 1 OF 3

P.O.#:

LOCATION: Laredo, TX

COLLECTOR:

DATE OF COLLECTION: 7/14/97

Sample Number	Depth	Time	Vial pos. (Sample Type)	Container Type	VOA 601/8010	VOA 602/8020	VOA 624/8260	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (g & d)	PNA 610/8100	PEST/PCBs 8080	TOC	BOD	LEAD 239.2	pH	Ignitability	Metals 6000/7000	Reactivity	Methane	Preservative (Y/N)	FIELD NOTES	Total Number of Containers	Laboratory Note Number
FIELD BLANK 12	—	8:42am	14	ANALYZED 7/17																		✓		FIELD BLANK #12		
N59E154A	3'	8:52am	14	↓																		✓				
N59E154B	7'	9:00	15																							
N80E154A	3'	9:12	16																			✓		8260 on All samples.		
N60E154B	7'	9:18	17																					Methane on blanks		
N40E154A	3'	9:28	18																			✓		& "A" samples only.		
N40E154B	7'	9:33	19																							
N30E156A	3'	9:45	20																			✓				
N30E156B	7'	9:51	21																							
N20E155A	3'	10:05	22																			✓				
N20E155B	7'	10:10	23																							
N10E156A	3'	10:21	24																			✓				
N10E156B	7'	10:26	25																							
N28E140A	3'	10:49	26																			✓				
N28E140B	7'	10:52	27																							
N28E130A	3'	11:06	1 28	(7/17-PM)																		✓				
N28E130B	7'	11:13	2 29																							
N28E120A	3'	11:24	3 30																			✓				

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
[signature]	5:55pm 07/14/97	[signature]	16:00 7/15/97

SAMPLE RECEIPT

- Total Number of Containers
- Chain of Custody Seals Y/N NA
- Seals Intact? Y/N NA
- Received Good Cond./Cold
- Notes:

LABORATORY NOTES:

2813

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD
JOB CODE: UST019V

CLIENT: Tulsa ACOE
ADDRESS:
PHONE: FAX:
CLIENT PROJECT #: PROJECT MANAGER: Obrochta

DATE: 7/14/97 PAGE 2 OF 3
P.O.#:
LOCATION: Laredo, Tx
COLLECTOR: DATE OF COLLECTION: 7/14/97

Sample Number	Depth	Time	VIAL Pos. (~~Sample Type~~)	Container Type	VOA 601/8010	VOA 602/8020	VOA 624/8260	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (g & d)	PNA 610/8100	PEST/PCBs 8080	TOC	BOD	LEAD 239.2	pH	Ignitability	Metals 6000/7000	Reactivity	METHANE	Preservative (Y/N)	FIELD NOTES	Total Number of Containers	Laboratory Note Number
N28 E120 B	7'	11:30AM	4 ~~27~~	Analyzed 7/17																						
N28 E110 A	3'	11:42AM	5 ~~32~~																			X				DUP THIS
N28 E110 B	7'	11:47	6 ~~35~~																							~~DUP THIS~~
N96 E171 A*	3'	12:28PM	7 ~~39~~																			X				
N96 E171 B	7'	12:28	10 ~~37~~																							
N97 E180 A	3'	12:39	11 ~~38~~																			X				
N97 E180 B	7'	12:45	12 ~~39~~																							
N97 E190 A	3'	[illegible]:40	13 ~~40~~																			X				
N97 E190 B	7'	1:47	14 ~~41~~																			x				
W110 E195 A	3'	2:10	15 ~~42~~																			X				
N110 E195 B	7'	2:18	16 ~~43~~																							
N97 E200 A	3'	2:31	17 ~~44~~	Analyzed 7/17																		X				
N97 E200 B	7'	2:37	18																							
N97 E211 A	3'	2:55	19																			X				
N97 E211 B	7'	3:08	20																							
N96 E220 A	3'	3:27	21																			X				
N96 E220 B	7'	3:33	22																							
N97 E230 A	3'	3:49	23																			X				

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
[signature]	6:51PM 07/14/97	[signature]	1600 7/15/97

SAMPLE RECEIPT

Total Number of Containers
Chain of Custody Seals Y/N NA
Seals Intact? Y/N NA
Received Good Cond./Cold
Notes:

LABORATORY NOTES:

* N96 E171 A – WAS DAMAGED DURING ANALYSIS (septum melted) Need to Resample. [initials]

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD

JOB CODE: USTO19V

CLIENT: TULSA ACOE
ADDRESS:
PHONE: FAX:
CLIENT PROJECT #: PROJECT MANAGER: Obrochta

DATE: 7/14/97 PAGE 3 OF 3
P.O.# :
LOCATION: Laredo, Tx
COLLECTOR: DATE OF COLLECTION: 7/14/97

Sample Number	Depth	Time	Vial Pos. / Sample Type	Container Type	ANALYSES: VOA 601/8010	VOA 602/8020	VOA 624/8260	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	PNA 610/8100	PEST/PCBs 8080	TOC	BOD	LEAD 239.2	pH	Ignitability	Metals 6000/7000	Reactivity	Methane	Preservative (Y/N)	FIELD NOTES	Total Number of Containers	Laboratory Note Number
N97 E230B	7'	3:56	24																						
N96 E241A	3'	4:12	25																	X					
N96 E241B	7'	4:22	26																						
N96 E250A	3'	4:39	27																	X					
N96 E250B	7'	4:47	28																						DUP of this GW
N97 E260A	3'	5:01	32																	X					
N97 E260B	7'	5:08	32																						
N110 E267A	3'	5:21	33																	X					
N110 E267B	7'	5:28	34																						
FIELD BLANK #3		5:32 PM	35																	X			FIELD BLANK #13		

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
[signature]	6:05 PM 07/14/97	[signature]	16:00 7/15/97
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE RECEIPT

Total Number of Containers	
Chain of Custody Seals Y/N NA	
Seals Intact? Y/N NA	
Received Good Cond./Cold	
Notes:	

LABORATORY NOTES:

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD

JOB CODE: USTO19V

CLIENT: TULSA ACOE
ADDRESS:
PHONE: FAX:
CLIENT PROJECT #: PROJECT MANAGER: O'brochta

DATE: 7/15/97 PAGE 1 OF 3
P.O.# :
LOCATION: LAREDO, TX
COLLECTOR: DATE OF COLLECTION: 7/15

	Sample Number	Depth	Time	VI/HL pos. Sample Type	Container Type	VOA 601/8010	VOA 602/8020	VOA 624/8260	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (g & d)	PNA 610/8100	PEST/PCBs 8080	TOC	BOD	LEAD 239.2	pH	Ignitability	Metals 6000/7000	Reactivity	METHANE	Preservative (Y/N)	FIELD NOTES	Total Number of Containers	Laboratory Note Number
8	FIELD BLANK	4	—	8:43AM	433		X																X		FIELD BLANK #14		
9	N90E290A	3'	8:50AM	437																			X				
10	N90E290B	7'	8:58	433																							
11	N70E290A	3'	9:07	434																			X				
12	N70E290B	7'	9:17	35																							
13	N56E290A	3'	9:49	36																			X				
14	N55E290B	7'	9:57	37																							
15	N55E280A	3'	10:09	38																			X				
16	N55E280B	7'	10:19	39																							
17	N53E271A	3'	10:33	40																			X				
18	N53E271B	7'	10:39	41																							
19	N55E260A	3'	10:52	42																			X				
20	N55E260B	7'	10:59	43																						DUPTH CN	
21	N55E250A	3'	11:13	3																			X				
22	N55E250B	7'	11:21AM	4																							
23	N55E240A	3'	11:34AM	5																			X				
24	N55E240B	7'	11:45AM	6																							
25	N10E120A	3'	1:45PM	7																			X				

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
	6:01PM 07/15/97		
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE RECEIPT	
Total Number of Containers	
Chain of Custody Seals Y/N NA	
Seals Intact? Y/N NA	
Received Good Cond./Cold	
Notes:	

LABORATORY NOTES:

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD

JOB CODE: UST019V

CLIENT: TULSA ACOE
ADDRESS:
PHONE: FAX:
CLIENT PROJECT #: PROJECT MANAGER: O'brochta

DATE: 7/15/97 PAGE 2 OF 3
P.O.# :
LOCATION: LAREDO, TX
COLLECTOR: DATE OF COLLECTION: 7/15

	Sample Number	Depth	Time	Sample Type	Container Type	VOA 601/8010	VOA 602/8020	VOA 624/8260	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (G & D)	PNA 610/8100	PEST/PCBs 8080	TOC	BOD	LEAD 239.2	pH	Ignitability	Metals 6000/7000	Reactivity	METHANE	Preservative (Y/N)	FIELD NOTES	Total Number of Containers	Laboratory Note Number
6	N110 E120 B	7'	1:50	8		X																					
	N90 E120A	3'	1:58	9																			X				
	N90 E120B	7'	2:03	10																							
	N70 E120A	3'	2:11	11																			X				
	N70 E120B	7'	2:16	12																							
	N110 E140A	3'	2:27	13																			X				
	N110 E140B	7'	2:33	14																							
	N90 E140A	3'	2:46	15																			X				
	N90 E140B	7'	2:51	16																							
	N80 E140A	3'	3:03	17																			X				
	N80 E140B	7'	3:08	18																							
	N70 E140A	3'	3:18	19																			X				
	N70 E140B	7'	3:24	20																							
	N61 E140A	3'	3:38	21																			X				
19	N61 E140B	7'	3:43	22																						DUP THIS	
	N55 E170A	3'	4:02	25																			X				
	N55 E170B	7'	4:07	26																							
31	N55 E180A	3'	4:22	27																			X				

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
	6:06PM 07/15/97		
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE RECEIPT	
Total Number of Containers	
Chain of Custody Seals Y/N NA	
Seals Intact? Y/N NA	
Received Good Cond./Cold	
Notes:	

LABORATORY NOTES:

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD

JOB CODE: UST019V

CLIENT: TULSA ACOE

ADDRESS:

PHONE: FAX:

CLIENT PROJECT #: PROJECT MANAGER: O'brochta

DATE: 7/15/97 PAGE 3 OF 3

P.O.# :

LOCATION: Laredo, TX

COLLECTOR: DATE OF COLLECTION: 7/15

Sample Number	Depth	Time	Sample Type	Container Type	VOA 601/8010	VOA 602/8020	VOA 624/8260	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	PNA 610/8100	PEST/PCBs 8080	TOC	BOD	LEAD 239.2	pH	Ignitability	Metals 6000/7000	Reactivity	METHANE	Preservative (Y/N)	FIELD NOTES	Total Number of Containers	Laboratory Note Number
N55E180B	7'	4:30pm	28			X														X					
N53E189A	3'	4:40pm	29																	X					
N53E189B	7'	4:55	30																	X					
N55E200A	3'	5:05	31																	X					
N55E200B	7'	5:09	32																	X					
N53E209A	3'	5:19	33																	X					
N53E209B	7'	5:25	34																	X					
N55E220A	3'	5:34	35																	X					
N55E220B	7'	5:40pm	36																	X					
FIELDBLANK15		5:50pm	37																	X			FIELD BLANK #15		

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Mark B Mc	6:09 pm 07/15/97		
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE RECEIPT	
Total Number of Containers	
Chain of Custody Seals Y/N NA	
Seals Intact? Y/N NA	
Received Good Cond./Cold	
Notes:	

LABORATORY NOTES:

47820

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD

JOB CODE: VST019

CLIENT: TULSA DISTRICT ACOE
ADDRESS: P.O. Box 61, Tulsa, OK 74121-0061
PHONE: 918-669-7155 FAX: 918-669-7532
CLIENT PROJECT #: _____ PROJECT MANAGER: Andy Obrochta

DATE: 7/16/97 PAGE 1 OF 3
P.O.# : _____
LOCATION: LAREDO, TX
COLLECTOR: _____ DATE OF COLLECTION: 7/16

Sample Number	Depth	Time	VIAL POS / ~~Sample Type~~	Container Type	ANALYSES: VOA 601/8010	VOA 602/8020	VOA 624/8260	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (g & d)	PNA 610/8100	PEST/PCBs 8080	TOC	BOD	LEAD 239.2	pH	Ignitability	Metals 6000/7000	Reactivity	Preservative (Y/N)	FIELD NOTES	Total Number of Containers	Laboratory Note Number
FIELD BLANK #16	—	8:30	38																				FIELD BLANK #16		
N43 E250A	3'	8:53	39																						
N43 E250B	7'	8:59	46																						
N25 E246A	3'	9:13	41																						
N25 E246B	7'	9:18	42																						
N35 E240A	3'	9:35	43																						
N35 E240B	7'	9:43	44																						
N36 E230A	3'	9:56	1																						
N36 E230B	7'	10:02	2																						
N25 E223A	3'	10:16	3																						
N25 E223B	7'	10:21	4																						
N35 E210A	3'	10:36	5																						
N35 E210B	7'	10:41	6																						
N36 E220A	3'	11:00	7																						
N36 E220B	7'	11:06	8																						
N36 E200A	3'	11:17	9																						
N36 E200B	7'	11:25	10																						
N25 E200A	3'	11:47	11																						

Hold for RUSH

PT's

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
[signature]	6:28 PM 07/16/97		
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE RECEIPT	
Total Number of Containers	
Chain of Custody Seals Y/N NA	
Seals Intact? Y/N NA	
Received Good Cond./Cold	
Notes:	

LABORATORY NOTES:

C2820

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD

JOB CODE: UST019V

CLIENT: _____

ADDRESS: _____

PHONE: _____ FAX: _____

CLIENT PROJECT #: _____ PROJECT MANAGER: _____

DATE: 7/16/97 PAGE 2 OF 3

P.O.# : _____

LOCATION: LAREDO, TX

COLLECTOR: _____ DATE OF COLLECTION: 7/16

Sample Number	Depth	Time	VOA Pres. Sample Type	Container Type	ANALYSES: VOA 601/8010	VOA 602/8020	VOA 624/8260	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	PNA 610/8100	PEST/PCBs 8080	TOC	BOD	LEAD 239.2	pH	Ignitability	Metals 6000/7000	Reactivity	Preservative (Y/N)	FIELD NOTES	Total Number of Containers	Laboratory Note Number
N25E200B	7'	11:54	12																					
N36E189A	3'	12:06	13																					
N36E189B	7'	12:14	14																					
N35E180A	3'	12:27	15																					
N35E180B	7'	12:34	16																					
N25E177A	3'	12:47	17																					
N25 E177B	7'	12:54	18																					
N43E174A	3'	1:11	19																					DUP THIS ONE
N43E174B	7'	1:16	20																					
N68E174A	3'	1:31	23																					
N68E174B	7'	1:36	24																					
N75E180A	3'	1:53	25																					
N75E180B	7'	2:02	26																					
N75E191A	3'	2:16	27																					
N75E191B	7'	2:22	28																					
N75E200A	3'	2:26	29																					
N75E200B	7'	2:44	30																					
N74E210A	3'	3:02	31																					

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
[signature]	6:35pm 07/16/97		
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE RECEIPT	
Total Number of Containers	
Chain of Custody Seals Y/N NA	
Seals Intact? Y/N NA	
Received Good Cond./Cold	
Notes:	

LABORATORY NOTES:

0220

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD

JOB CODE: UST019V

CLIENT:
ADDRESS:
PHONE: FAX:
CLIENT PROJECT #: PROJECT MANAGER:

DATE: 7/16/97 PAGE 3 OF 3
P.O.#:
LOCATION: LAREDO, TX
COLLECTOR:
DATE OF COLLECTION: 7/16

Sample Number	Depth	Time	VIAL POS. ~~Sample~~ Type	Container Type	ANALYSES VOA 601/8010	VOA 602/8020	VOA 624/8260	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (g & d)	PNA 610/8100	PEST/PCBs 8080	TOC	BOD	LEAD 239.2	pH	Ignitability	Metals 6000/7000	Reactivity	Preservative (Y/N)	FIELD NOTES	Total Number of Containers	Laboratory Note Number
N74E210B	7'	3:09	32																						
N75E220A	3'	3:23	33																						
N75E220B	7'	3:30	34																						
N75 E230A	3'	3:43	35																						
N75 E230B	7'	3:49	36																						
N75E240A	3'	4:21	37																						
N75 E240B	7'	4:26	38																						
N66 E250A	3'	4:37	39	N66E250A																					
N66 E250B	7'	4:43	40	N66E250B																					
N50 E269A	3'	4:59	41																						DUP THE ONE
N50 E269B	7'	5:06	42	↑ 7/21/97 PM RUN																					
N40 E269A	3'	5:20	~~[illegible]~~																						
N40 E269B	7'	5:28	26																						
N20 E269A	3'	5:41	37																						
N20 E269B	7'	5:48	48																				(resampled Location)		
N33 E101A	3'	6:02	59																				FIELD BLANK #17		
FIELD BLANK 17/a.	—	6:05	6/0																						

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
[signature]	6:41pm 07/16/97		
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE RECEIPT

Total Number of Containers	
Chain of Custody Seals Y/N NA	
Seals Intact? Y/N NA	
Received Good Cond./Cold	
Notes:	

LABORATORY NOTES:

TARGET LABORATORIES

9180 Rumsey Road, Columbia, Md 21045
Office: 410-992-6622 Fax: 410-992-0347

CHAIN-OF-CUSTODY RECORD

JOB CODE: UST019V

CLIENT: TULSA DISTRICT ACOE

ADDRESS: P. O BOX 61 TULSA, OK 74121-0061

PHONE: 918-669-7155 FAX: 918-669-7532

CLIENT PROJECT #: PROJECT MANAGER: Andy Obrachta

DATE: 7/17/97 PAGE 1 OF 1

P.O.# :

LOCATION: Laredo, TX

COLLECTOR: DATE OF COLLECTION: 7/17/97

Sample Number	Depth	Time	Vial Pos. (~~Sample Type~~)	Container Type	VOA 601/8010	VOA 602/8020	VOA 624/8260	Semi Vol 625/8270	TPH 418.1	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (g & d)	PNA 610/8100	PEST/PCBs 8080	TOC	BOD	LEAD 239.2	pH	Ignitability	Metals 6000/7000	Reactivity	Preservative (Y/N)	FIELD NOTES	Total Number of Containers	Laboratory Note Number
FIELD BLANK 18		8:09am	7 11																				FIELD BLANK 18		
N25E291A	3'	8:19	8 12																						
N25E291B	7'	8:28	9 13																						
N25E279A	3'	8:40	10 14																						
N25E279B	7'	8:45	11 15																						
N26E270A	3'	8:55	16																						
N26E270B	7'	9:02	17 12																						
N10E269A	3'	9:13	18 14																						
N10E269B	7'	9:19	19 15																						
N02E271A	3'	9:29	20 16																						
N02E271B	7'	9:35	21 17																						
N55E230A	3'	9:47	22 18																						
N55E230B	7'	9:54	23 19																						
FIELD BLANK		10:00	24 20	ICE CHEST BLANK																			FIELD BLANK 19		DUP
N70E101A	3'	10:31	27 30	26																					
FIELD BLANK (20)		10:33	28 29																				FIELD BLANK 20		

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
[signature]	10:45AM 07/17/97		
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME

SAMPLE RECEIPT

Total Number of Containers	
Chain of Custody Seals Y/N NA	
Seals Intact? Y/N NA	
Received Good Cond./Cold	
Notes:	

LABORATORY NOTES:

LABORATORY PROCEDURES

The soil gas survey data presented in this report are the result of precise sampling and measurement of contaminant concentrations in the vadose zone. Analyte detection at a particular location is representative of vapor, dissolved, and/or liquid phase contamination at that location. The presence of detectable levels of target analytes in the vadose zone is dependent upon several factors, including the presence of vapor-phase hydrocarbons or dissolved or liquid concentrations adequate to facilitate volatilization into the unsaturated zone.

The tabulated results of the laboratory analyses of the soil gas samples are reported in micrograms per liter (µg/l) of vapor in Table 1. Although "micrograms per liter" is equivalent to "parts per billion (volume/volume)" in water analyses, they are not equivalent in gas analyses, due to the difference in the mass of equal volumes of water and gas matrices.

All of the vapor samples collected at a 3 foot depth ("A" samples), during the field phase of the survey were analyzed using direct injection into a research grade gas chromatograph (Shimadzu Model 14A) equipped with a thermal conductivity detector (TCD), capillary columns, thermal ovens, Shimadzu CR4A data processors and associated hardware.

The analytical equipment was calibrated using a 3-point instrument-response curve and injection of known concentrations of the target analyte (methane). Retention times of the standards (stock standards purchased from Scott Specialty Gases) were used to identify the peaks in the chromatograms of the field samples, and their response factors were used to calculate the analyte

concentrations. The correlation coefficients were calculated for each standardized analyte to ensure that they equalled or exceeded 0.99. The retention time windows were determined by examining the retention times of three standards. Windows for retention times are set using the narrowest time band possible (usually ± 0.05 - 0.1 minutes) without including non-standardized peaks.

Following the initial three-point calibration, check standards are analyzed at the beginning and end of each day to ensure retention time and instrument response stability. A check standard is acceptable if the area response measured for a check standard is ± 20% of the area response measured for the initial 2nd level calibration standard. If a check standard does not meet the 20% criteria, then another 3-point calibration is performed.

All of the soil gas samples were analyzed in **TARGET's** laboratory in Columbia, MD in accordance with the attached SOP.

TARGET STANDARD OPERATING PROCEDURES (SOP)

SOP	REVISION	DATE
3810/8260A	2.0	2/1/97

Reviewed By:	Title	Signature	Date
Brian Abraham, Ph.D.	Lab Director		2/1/97
Michael Marrale, Jr.	Lab Supervisor		2/1/97

Volatile Organic Compounds By Gas Chromatography Mass/Spectrometry (GC/MS)

1.0 SCOPE AND APPLICATION

1.1 Method 8260 is used to determine volatile organic compounds in a variety of matrices. This method is applicable to nearly all types of samples, regardless of water content, including water, soil/sediment and gaseous matrices. The compounds listed in Table 1 are determined by Target using this method. Additional compounds can be analyzed upon request.

1.2 Method 8260 can be used to quantify most volatile organic compounds that have boiling points below 200°C and that are insoluble or slightly soluble in water. Volatile water-soluble compounds can be included in this analytical technique, however, quantification limits are approximately ten times higher due to poor purging efficiency. Such compounds include low-molecular-weight halogenated hydrocarbons, aromatics, ketones, nitriles, acetates, acrylates, ethers, and sulfides. See Table 1 for a list of analytes and retention times that have been evaluated on a headspace GC/MS system.

1.3 The practical quantitation limit (PQL) of Method 8260 for an individual compound is somewhat instrument dependent. Using standard quadrupole instrumentation, limits should be approximately 10 ng/g (wet weight) for soil/sediment samples, 500 ng/g (wet weight) for wastes, 5 ng/mL for ground water, and 1-5 ug/L for gas samples (see Table 1). Somewhat lower limits may be achieved using selected ion monitoring or altering the methodology. No matter which technique is used, PQLs will be proportionately higher for samples that require dilution or reduced sample size to avoid saturation of the detector.

1.4 Method 3810-8260A is based upon a heated headspace gas chromatographic/mass spectrometric (GC/MS) procedure. This method is restricted to use by, or under the supervision of, analysts experienced in the use of heated headspace systems and gas chromatograph/mass spectrometers, and skilled in the interpretation of mass spectra and their use as a quantitative tool.

2.0 SUMMARY OF METHOD

2.1 Volatile compounds are introduced into the gas chromatograph by heated headspace direct inlet transfer. A known amount of soil, water, or gas is heated for a pre-established period of time to volatilize the analytes of interest. Using a valve system, the volatilized analytes are swept through a large bore transfer line and into a narrow bore capillary analytical column for analysis. The column is temperature programmed to separate the analytes which are then detected using a mass spectrometer detector interfaced to the gas chromatograph.

2.2 If the above sample introduction techniques are not appropriate (i.e., high levels of detection expected in a given soil sample), a portion of the sample is dispersed in methanol to dissolve the volatile organic constituents. A portion of the solution is combined with organic-free reagent water in a headspace vial. It is then analyzed by headspace GC/MS following the normal water method. Similarly smaller volumes of water, soil or gas samples can be used to avoid saturation of the detector. In this manner, dilutions of the extract can be performed prior to introduction into the GC/MS system for those samples expected to be highly contaminated.

2.3 Analytes eluted from the capillary column are introduced into the mass spectrometer via direct inlet connection into the ionization chamber. Identification of target analytes is accomplished by comparing their mass spectra with the electron impact spectra of authentic standards. Quantification is accomplished by comparing the response of a major ion relative to an internal standard with a three or five point calibration curve. Secondary ions are used to confirm compound identification and proper integration windows.

3.0 INTERFERENCES

3.1 Major contaminant sources are volatile materials in the laboratory and impurities in the system gases. The use of non-polytetrafluoroethylene (PTFE) thread sealants, plastic tubing, or flow controllers with rubber components should be avoided since such materials out-gas organic compounds which will transferred to the analytical column. Crimp vial septa have been known to cause interference and/or contain target analytes such as carbon disulfide. It is critical to analyze blanks to assess the vials prior to use. Analyses of calibration and reagent blanks provide information about the presence of contaminants. When potential interfering peaks are noted in blanks, the analyst should change the gas source and regenerate or replace any molecular sieve filters being used. Subtracting blank values from sample results is not permitted. If reporting values not corrected for blanks result in what the laboratory feels is a false positive for a sample, this should be fully explained in sample narrative text accompanying the uncorrected data.

3.2 Interfering contamination may occur when a sample containing low concentrations of volatile organic compounds is analyzed immediately after a sample containing high concentrations of volatile organic compounds. The preventive technique is to analyze one or more blanks after analysis of a highly contaminated sample.

3.3 Special precautions must be taken to analyze for methylene chloride or any other commonly used lab contaminant/interferant. The analytical and sample storage area should be isolated from all atmospheric sources of methylene chloride. Otherwise random background levels will result. Since methylene chloride will permeate through PTFE tubing, all gas chromatography carrier gas lines and purge gas plumbing should be constructed from stainless steel or copper tubing. Laboratory clothing worn by the analyst should be clean since clothing previously exposed to methylene chloride fumes during liquid/liquid extraction procedures can contribute to sample contamination.

3.4 Samples can be contaminated by diffusion of volatile organics (particularly methylene chloride and fluorocarbons) through the septum seal into the sample during shipment and storage. A trip blank prepared from organic-free reagent water and carried through the sampling and handling protocol can serve as a check on such contamination.

4.0 APPARATUS AND MATERIALS

4.1 Heated Headspace Autosampler (HP 7694 or equivalent).

4.2 Injection port liners (HP catalog #18740-80200, or equivalent split/splitless)

4.3 Gas chromatography/mass spectrometer data system.

4.4.1 Gas chromatograph (Hewlett Packard 5890II, or equivalent) - An analytical system complete with a temperature-programmable gas chromatograph suitable for split/splitless injection and interfaced to a heated headspace system. The system includes all required accessories, including syringes, analytical columns, and gases. The GC should be equipped with variable constant differential flow controllers so that the column flow rate will remain constant throughout the analytical sequence. For some column configurations, the oven must be cooled to < 30°C, therefore, a subambient oven controller may be required. The capillary column should be directly coupled to the source.

4.4.2 Gas chromatographic column: 40 m x 0.18 mm ID capillary column coated with Rtx 502.2 (Restek), 1.8 um film thickness, or equivalent.

4.4.3 Mass spectrometer (Hewlett Packard 5872B MSD, or equivalent) - Capable of scanning from 35 to 300 amu every 2 sec or less, using 70 volts (nominal) electron energy in the electron impact ionization mode. The mass spectrometer must be capable of producing a mass spectrum for *p*-Bromofluorobenzene (BFB) which meets all of the criteria in Table 2 when 50 ng is introduced into the GC. To ensure sufficient precision of mass spectral data, the desirable MS scan rate should allow acquisition of at least five spectra while a sample component elutes from the GC.

4.4.4 GC/MS interface - Direct coupling by inserting the column into the mass spectrometer is generally used for 0.25-0.53 mm i.d. columns.

4.4.4.3 Any enrichment device or transfer line can be used provided the QC criteria for BFB (Table 2) can be achieved. GC-to-MS interfaces constructed entirely of glass or of glass-lined materials are recommended. Glass can be deactivated by silanizing with dichlorodimethylsilane.

4.4.5 Data system - A computer system that allows the continuous acquisition and storage on machine-readable media of all mass spectra obtained throughout the duration of the chromatographic program must be interfaced to the mass spectrometer. The computer must have software that allows searching any GC/MS data file for ions of a specified mass and plotting such ion abundances versus time or scan number. This type of plot is defined as an Extracted Ion Current Profile (EICP). Software must also be available that allows integrating the abundances in any EICP between specified time or scan-number limits. The most recent version of the EPA/NIST Mass Spectral Library should also be available.

4.5 Microsyringes - 10, 25, 100, 250, 500, and 1,000 uL for preparing and injecting calibration standards.

4.6 Syringes - 25 mL, gas-tight with shutoff valve for injection of aqueous and gaseous samples.

4.7 Balance - Analytical, 0.01 g, for weighing soil samples.

4.8 Glass crimp vials with seals - 20 mL vials with high temperature Teflon lined septa and crimp top.

4.9 Disposable pipets - Pasteur pipets used to transfer stock standards purchased to crimp vials.

4.10 Spatula - Stainless steel for weighing soil samples.

5.0 REAGENTS

5.1 Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents shall conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available. Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

5.2 Organic-free reagent water - All references to water in this method refer to organic-free reagent water shall be deionized, carbon filtered water known to be free of contamination in the form of target or interfering analytes.

5.3 Methanol, CH_3OH - Pesticide quality or equivalent, demonstrated to be free of target or interfering analytes. Store apart from other solvents.

5.4 Stock solutions - Stock solutions may be prepared from pure standard materials or purchased as certified solutions. Prepare stock standard solutions in methanol, using assayed liquids or gases, as appropriate. Stock solutions purchased and used by Target, along with representative lot numbers, are shown in Table 3.

5.5 Secondary dilution standards - Using stock standard solutions, prepare secondary dilution standards in methanol containing the compounds of interest. Secondary dilution standards must be stored with minimal headspace and should be checked frequently for signs of degradation or evaporation.

5.9 Surrogate standards - The surrogates recommended are toluene-d_8, 4-bromofluorobenzene, and dibromofluoromethane. Other compounds may be used as surrogates, depending upon the analysis requirements. A stock surrogate solution in methanol should be prepared as described above, and a surrogate standard spiking solution should be prepared from the stock at a concentration of 20 ng/µL in methanol. Each sample undergoing GC/MS analysis must be spiked with 10 uL of the surrogate spiking solution prior to analysis. Surrogate standard stock solutions and recommended dilutions are shown in Table 3.

5.10 Internal standards - The recommended internal standards are 1,4-difluorobenzene, chlorobenzene-d_5, and 1,4-dichlorobenzene-d_4. Other compounds may be used as internal standards as long as they have retention times similar to the compounds being detected by GC/MS. Prepare internal standard stock and secondary dilution standards in methanol as previously described for standards. It is recommended that the secondary dilution standard should be prepared at a concentration of 20 ng/µL of each internal standard compound. Addition of 10 µL of this standard to 5 mL of water sample/calibration point or 5 g of soil sample would be the equivalent of 40 ng/g. Internal standard stock solutions and recommended dilutions are shown in Table 3. Addition of 10 uL of this solution to a gaseous sample results in a 10 ng/mL internal standard concentration.

5.11 4-Bromofluorobenzene (BFB) standard - A standard solution containing 5 ng/µL of BFB in methanol should be prepared. BFB stock solution and recommended dilutions are shown in Table 3.

5.12 Calibration standards - Calibration standards at a minimum of five concentrations should be prepared from the secondary dilution of stock standards as previously discussed. Prepare these solutions in organic-free reagent water. One of the concentrations should be near, but above, the method detection limit. The remaining concentrations should correspond to the expected range of concentrations found in real samples but should not exceed the linear working range of the GC/MS system. Each standard should contain each analyte for detection by this method. Calibration standard stock solutions and recommended dilutions are shown in Table 3.

5.13 Matrix spiking standards - Matrix spiking standards should be prepared from volatile organic compounds which will be representative of the compounds being investigated. At a minimum, the matrix spike should include 1,1-dichloroethene, trichloroethene, chlorobenzene, toluene, and benzene. It is desirable to perform a matrix spike using compounds found in samples or expected to be found in samples when possible. The standard should be prepared in methanol, with each compound present at a concentration of 10 ng/µL. Consequently, a 10 µL injection of this solution into 5 mL of water sample or 5 g of soil sample will result in 20 ng/g (ng/mL) matrix spike compound concentration. When an MS/MSD is used for gas samples, spike the gas sample with 10 µL of the standard to yield a 5 ng/mL concentration. Matrix spike and matrix spike duplicate standard stock solutions and recommended dilutions are shown in Table 3.

5.14 Great care must be taken to maintain the integrity of all standard solutions. It is recommended all standards in methanol be stored at 10°C to -20°C in amber bottles with crimp top seals.

6.0 SAMPLE COLLECTION, PRESERVATION, AND HANDLING

6.1 See Organic Analytes, Sec. 4.1 of USEPA SW846.

7.0 PROCEDURE

7.1 Sample introduction will be performed according to USEPA Method 3810:

7.1.1 Water samples/calibration:

7.1.1.1 Fill individually dedicated 25 µL gastight syringes with 10 µL internal standard/surrogate working solution (20 ng/µL each analyte).

7.1.1.2 Add 5 mL of sample to a 20 mL crimp top vial using a 25 mL pipette and crimp seal.

7.1.1.3 Add the pre-drawn internal standard/surrogate mixture to the 5 mL water sample and place in the autosampler rack.

7.1.1.4 Calibrations are performed using 25 µL gastight syringes to draw 10 µL calibration standard containing target analytes, surrogates, and internal standard. This is injected into 5 mL organic free reagent water in a crimp sealed vial and analyzing.

7.1.2 Soil samples:

7.1.2.1 Fill individually dedicated 25 µL gastight syringes with 10 µL internal standard/surrogate working solution.

7.1.2.2 After carefully homogenizing the sample, add 5 g to 5 mL of organic free reagent water in a 20 mL crimp seal vial.

7.1.2.3 Add the pre-drawn internal standard/surrogate mixture to the soil mixture and place in the autosampler rack.

7.1.2.4 Use the water calibration based upon "ng" for quantification.

7.1.3 Gas samples:

7.1.3.1 Fill individually dedicated 25 µL gastight syringes with 10 µL internal standard/surrogate working solution.

7.1.3.2 Add the pre-drawn internal standard/surrogate mixture to the soil gas vial. Soil gas vials are shipped as 20 mL crimp top vials with sample already in them as sampled by the client.

7.1.3.3 Calibrate for soil gas analysis by adding known amounts of standards to empty 20 mL crimp top vials.

7.1.4 Headspace Autosampler (Hewlett Packard 7694 or equivalent) using the following analytical conditions:

Oven:	180°C
Loop:	190°C
Transfer Line:	200°C transfer line to GC
Vial Equilibration:	5 minutes
Pressurize:	0.4 minutes
Loop Fill:	0.15 minutes
Loop Equilibration:	0.05 minutes
Injection:	2 minutes
Pressure:	22 psi
Loop Size:	3 mL

7.2 Recommended gas chromatograph and mass spectrometer conditions:

GC Conditions

Injector temperature:	210°C
Carrier gas (He) flow rate:	0.5 mL/min
Split Flow:	10:1
Inlet Pressure Program:	60 psi for 1 minute
Initial temperature:	50°C
Temperature program 1:	50 °C - 150 °C at 10 °C/minute
Temperature program 2:	150 °C - 260 °C at 70 °C/minute
Final temperature:	260 °C, hold for 3.43 minutes

MS Conditions

Mass range 1:	49 - 120 amu from 0 - 8 minutes
Mass range 2:	74 - 175 amu 8 - 12 minutes
Mass range 3:	90 - 230 amu 12 - 15 minutes

Solvent delay: 0 minutes
Source temperature: 280 °C set by induction from the transfer line

7.3 Initial calibration.

7.3.1 Each GC/MS system must be hardware-tuned to meet the criteria in Table 2 for a 50 ng injection of 4-bromofluorobenzene. Analyses must not begin until these criteria are met.

7.3.2 A set of three to least five calibration standards containing the method analytes is needed. One calibration standard should contain each analyte at a concentration near but above the method detection limit for that compound; the other calibration standards should contain analytes at concentrations that define the linear range of the GC/MS system. Calibration should be performed using the same sample introduction technique used for sample analysis.

7.3.2.1 Using the headspace technique previously discussed, prepare and analyze the three to five calibration standards. Possible calibration standards for the GC/MS system at Target's facility are as follows:

Standard Conc. (ng/µL)	Injection Volume (µL)	Injection Amount (ng)	Water (mL = ng/mL)	Soil (g = ng/g)	Gas (mL = ng/mL)
5	10	50	5 = 10	5 = 10	20 = 2.5
10	10	100	5 = 20	5 = 20	20 = 5
20	10	200	5 = 40	5 = 40	20 = 10
30	10	300	5 = 60	5 = 60	20 = 15
40	10	400	5 = 80	5 = 80	20 = 20

7.3.3 Tabulate the area response of the characteristic ions (see Table 1) against concentration for each compound and each internal standard. Calculate response factors (RF) for each compound relative to one of the internal standards. The internal standard selected for the calculation of the RF for a compound should be the internal standard that has a retention time closest to the compound being measured. The RF is calculated as follows:

$RF = (A_xC_{is})/(A_{is}C_x)$ where:

A_x = Area of the characteristic ion for the compound being measured.
A_{is} = Area of the characteristic ion for the specific internal standard.
C_{is} = Concentration of the specific internal standard.
C_x = Concentration of the compound being measured.

7.3.4.1 The average RF must be calculated and recorded for each compound using the three to five RF values calculated for each compound from the initial (3 or 5-point) calibration curve.
Response Factor Calibration Criteria: The %RSD of the average response factors should be less than or equal to 30% to ensure a linear calibration curve4 is established.

A system performance check should be performed before this calibration curve is used. The system performance check is defined in this SOP as the mid-point of the calibration curve. The compounds are checked for adequate recovery.
SPCC Criteria: Acceptable recovery values are 70 - 130%.

7.3.6 If the %RSD of any compound is greater than 30%, the source of the error must be identified, eliminated, and the system re-calibrated.

7.3.6.1 Typical problems associated with non-linear calibrations are: 1) the low calibration point is non-linear, need to increase this concentration; 2) the high calibration point is non-linear, need to decrease the concentration; 3) a middle point is skewing the data, need to prepare new standards; 4) there is a systematic or intermittent problem within the instrument, need to check temperatures and flows, re-tune the MS and re-calibrate.

7.3.7 These curves are verified at the beginning and end of each day's analyses by analyzing calibration verification performance standard. Re-calibration is required only if calibration and on-going performance criteria cannot be met. A standard calibration curve generated by Target's GC/MS system is shown in Table 4.

7.4 GC/MS calibration verification:

7.4.1 Prior to the analysis of samples, analyze 50 ng of the 4-bromofluorobenzene standard following Method 3810. The resultant mass spectra for the BFB must meet all of the criteria given in Table 2 before sample analysis begins. These criteria must be demonstrated each shift as previously defined.

7.4.2 The initial calibration curve for each compound of interest must be checked and verified at the beginning and end of each day's analyses. This is accomplished by analyzing a calibration standard that is at a concentration near the midpoint concentration of the working range of the GC/MS.
Calibration Check Criteria: The midpoint check should result in target analyte concentrations with less than 30% difference from the known values. If the criterion is not met (> 30% drift), for any one analyte, corrective action must be taken unless instructed otherwise by the client.

7.4.1 The internal standard responses and retention times in the check calibration standard must be evaluated immediately after or during data acquisition.
Retention Time Criteria: If the retention time for any internal standard changes by more than 30 seconds from the last calibration check, the chromatographic system must be inspected for malfunctions and corrections must be made, as required.
Area Count Criteria: If the EICP area for any of the internal standards changes by a factor of two (-50% to +100%) from the last daily calibration check standard, the mass spectrometer must be inspected for malfunctions and corrections must be made, as appropriate. When corrections are made, re-analysis of samples analyzed while the system was malfunctioning is necessary.

7.5 GC/MS analysis

7.5.1 It is highly recommended that the extract be screened prior to GC/MS analysis. This will minimize contamination of the GC/MS system from unexpectedly high concentrations of organic compounds. Use of screening is particularly important when this method is used to achieve low detection levels.

7.5.2 All samples and standard solutions must be allowed to warm to ambient temperature before analysis.

7.5.3 BFB tuning criteria and GC/MS calibration verification criteria must be met before analyzing samples. This can be incorporated into the mid-point beginning of the day check standard.

7.5.4 The process of taking an aliquot destroys the validity of aqueous and soil samples for future analysis; therefore, if there is only one VOA vial, the analyst should prepare a second aliquot for analysis at this time to protect against possible loss of sample integrity. This second sample is maintained only until such time when the analyst has determined that the first sample has been analyzed properly.

7.5.4.2 As previously discussed, prepare the internal standard/surrogate syringe by drawing 10 µL of the 20 ng/µL mixture into a uniquely dedicated 25 µL gastight syringe.

7.5.4.3 Inject this mixture into the sample matrix as previously discussed and load onto the headspace autosampler.

7.5.1 If the initial sample analysis or a dilution of the sample has a concentration of analytes that exceeds the initial calibration range, the sample must be reanalyzed at a higher dilution. Secondary ion quantification is allowed only when there are sample interferences with the primary ion. When a sample is analyzed that has saturated ions from a compound, this analysis must be followed by a blank organic-free reagent water analysis. If the blank analysis is not free of interferences, the system must be decontaminated. Sample analysis may not resume until the blank analysis is demonstrated to be free of interferences.

7.5.6.1 All dilutions should be made to keep the response of the major constituents within the linear range of the curve.

7.6 Qualitative analysis

7.6.1 The qualitative identification of compounds determined by this method is based on retention time, and on comparison of the sample mass spectrum, after background correction, with characteristic ions in a reference mass spectrum. The reference mass spectrum must be generated by the laboratory using the conditions of this method. The characteristic ions from the reference mass spectrum are defined to be the three ions of greatest relative intensity, or any ions over 30% relative intensity if less than three such ions occur in the reference spectrum. Compounds should be identified as present when the criteria below are met:

7.6.1.1 The intensities of the characteristic ions of a compound maximize in the same scan or within one scan of each other. Selection of a peak by a data system target compound search routine where the search is based on the presence of a target chromatographic peak containing ions specific for the target compound at a compound-specific retention time will be accepted as meeting this criterion.

7.6.1.2 The relative retention time (RRT) of the sample component is within +/- 0.06 minutes of the RRT of the standard component.

7.6.1.3 The relative intensities of the characteristic ions agree within 30% of the relative intensities of these ions in the reference spectrum. (Example: For an ion with an abundance of 50% in the reference spectrum, the corresponding abundance in a sample spectrum can range between 20% and 80%.)

7.6.1.4 Structural isomers that produce very similar mass spectra should be identified as individual isomers if they have sufficiently different GC retention times. Sufficient GC resolution is

achieved if the height of the valley between two isomer peaks is less than 25% of the sum of the two peak heights. Otherwise, structural isomers are identified as isomeric pair.

7.6.1.5 Identification is hampered when sample components are not resolved chromatographically and produce mass spectra containing ions contributed by more than one analyte. When gas chromatographic peaks obviously represent more than one sample component (i.e., a broadened peak with shoulder(s) or a valley between two or more maxima), appropriate selection of analyte spectra and background spectra is important. Examination of extracted ion current profiles of appropriate ions can aid in the selection of spectra, and in qualitative identification of compounds. When analytes co-elute (i.e., only one chromatographic peak is apparent), the identification criteria can be met, but each analyte spectrum will contain extraneous ions contributed by the co-eluting compound.

7.6.1.6 When appropriate, for samples containing components not associated with the calibration standards, a library search may be made for the purpose of tentative identification. The necessity to perform this type of identification will be determined by the type of analysis being conducted. Guidelines for making tentative identification are: Relative intensities of major ions in the reference spectrum (ions > 10% of the most abundant ion) should be present in the sample spectrum. The relative intensities of the major ions should agree within +/- 20%. (Example: For an ion with an abundance of 50% in the standard spectrum, the corresponding sample ion abundance must be between 30 and 70%). Molecular ions present in the reference spectrum should be present in the sample spectrum. Ions present in the sample spectrum but not in the reference spectrum should be reviewed for possible background contamination or presence of co-eluting compounds. Ions present in the reference spectrum but not in the sample spectrum should be reviewed for possible subtraction from the sample spectrum because of background contamination or co-eluting peaks. Data system library reduction programs can sometimes create these discrepancies. Computer generated library search routines should not use normalization routines that would misrepresent the library or unknown spectra when compared to each other. Only after visual comparison of sample with the nearest library searches will the mass spectral interpretation specialist assign a tentative identification.

7.6.2 Quantitative analysis

7.6.2.1 When a compound has been identified, the quantification of that compound will be based on the integrated abundance from the EICP of the primary characteristic ion. Quantification will take place using the internal standard technique. The internal standard used shall be the one nearest the retention time of that of a given analyte. When MS response is linear and passes through the origin, calculate the concentration of each identified analyte in the sample as follows:

Water Samples

$$C_x \text{ (ng/mL)} = A_x C_{is} / A_{is} V_w RF \text{ where,}$$

A_x = Area of the characteristic ion for the compound being measured.
A_{is} = Area of the characteristic ion for the specific internal standard.
C_{is} = Concentration of the specific internal standard in ng.
RF = Analyte response factor from the initial calibration curve.
Vw = Volume of water analyzed in mL.

Soil Samples

$$C_x\ (ng/g) = A_x C_{is}/A_{is} W_s RF \text{ where,}$$

A_x = Area of the characteristic ion for the compound being measured.
A_{is} = Area of the characteristic ion for the specific internal standard.
C_{is} = Concentration of the specific internal standard in ng.
RF = Analyte response factor from the initial calibration curve.
W_s = Weight of the soil in g.

Gas Samples

$$C_x\ (ng/mL) = A_x C_{is}/A_{is} V_s RF \text{ where,}$$

A_x = Area of the characteristic ion for the compound being measured.
A_{is} = Area of the characteristic ion for the specific internal standard.
C_{is} = Concentration of the specific internal standard in ng.
RF = Analyte response factor from the initial calibration curve.
V_s = Volume of gas in mL.

8.0 QUALITY CONTROL

8.1 Each laboratory that uses this method is required to operate a formal quality control program. The minimum requirements of this program consist of an initial demonstration of laboratory capability and an ongoing analysis of spiked samples to evaluate and document data quality. The laboratory must maintain records to document the quality of data that is generated. On-going data quality checks are compared with established performance criteria to determine if the results of analyses meet the performance characteristics of the method. When results of sample spikes indicate a typical method performance. A quality control check standard must be analyzed to confirm that the measurements were performed in an in-control mode of operation.

8.1.1 The analyst must make an initial, one-time, demonstration of the ability to generate acceptable accuracy and precision with this method. This ability is established by analyzing a blind PE sample while being overseen by the laboratory director. Results of the blind PE sample must agree within specified EPA limits.

8.1.2 In recognition of advances that are occurring in chromatography, the analyst is permitted certain options to improve the separations or lower the cost of measurements. Each time such a modification is made to the method, the analyst is required to repeat the demonstration of ability PE sample analysis.

8.2 *MS Check*: Prior to any sample analyses, the GC/MS system must be tuned to meet the BFB specifications as shown in Table 2 with a 50 ng injection of bromofluorobenzene (BFB) to show that the RF and DC voltages, lens settings and multiplier voltages are optimized for Method 8260 analysis.
Frequency: Every 12 hours or working shift.
Criteria: As listed in Table 2.
Corrective Action: If the bromofluorobenzene check fails QC, the standard must be checked for degradation and re-prepared and analyzed if necessary. It may also be necessary to re-tune the mass spectrometer using the BFB

Tune function of the system. Analyses cannot proceed until the BFB check has passed the pre-established criteria set forth in Table 2.

8.3 *Calibration Curve*: A calibration curve must be generated and response factors calculated as previously discussed.
Frequency: When a continuing calibration check fails QC or when power is lost to the instrument or prior to a major (> 1 week) work scope or at the client's request.
Criteria: The average response factors calculated must have a percent relative standard deviation ≤ 30%.
Corrective Action: If the response factor %RSD fails QC, the calibration levels must be carefully scrutinized for an outlier. If any one point appears to be an outlier, that concentration should be re-analyzed. If there are no outliers, the standards should be checked for degradation and be re-prepared as needed. The GC and MS components should also be checked for leaks or blocked transfer lines. Heating zones and flow rates should be verified and it may be necessary to re-tune the mass spectrometer using the BFB Tune function of the system.

8.4 *Calibration Verification*: The working calibration curve or must be verified each working day (at the beginning and end of each day) by measurement of the analyte response factor at the mid-point of the initial calibration curve if the sample analysis concentrations are unknown. If the expected sample concentrations are known to be low or high, the CF should be checked at the second or fourth concentrations, respectively.
Frequency: Beginning and end of each day's analyses or every 20 samples.
Criteria: Each analyte response factor must be within 30% difference from the average RF from the initial calibration curve.
Corrective Action: Response factor values differing by more than 30% difference for the low and/or high calibration points from the initial calibration curve indicates the integrity of the standard solution has been compromised or the operating parameters of the instrument have changed over time or preventative maintenance must be performed on the GC and/or detector. The system should be checked and any preventative maintenance required must be performed. After the performance of preventative maintenance, a new calibration curve must be generated. If no preventative maintenance is deemed necessary and if the response factor for any compound varies from the initial calibration curve calibration factor by more than 30%, the test must be repeated using a fresh calibration standard at a second concentration. If any of the analyte RFs calculated from this second point fall outside of the 30% window, a third concentration is used and the three points analyzed are used as a new calibration curve provided the %RSD meets the criteria set forth for initial calibration generation.

8.5 *Method Blank*: Prior to any sample analyses, a method blank analysis must be performed where the system is checked for background contamination. Using analyte free materials (water, soil, or inert gas) analyze a blank sample using the method GC temperature program for the presence/absence of background contaminants in either a soil, water, or gaseous matrix.
Frequency: At the beginning of each day after establishing or verifying the initial calibration curve **and** at a rate of 5%.
Criteria: The method blank must be free of target analyte concentrations below the detection limit of the methodology.
Corrective Action: If background contamination is found, a process of elimination approach must be taken to isolate the source of the contamination. This process of elimination should include the GC column, GC inlet, injection syringe, injection syringe plunger, sample container cap, sample container, and analyte free matrix in that order. Prior to any analyses (calibration or site samples) the system must be found to be free of any outside sources of contamination.

8.6 *Duplicate Analysis*: Duplicate analyses must be performed at a rate of 5% or once/day (whichever comes first). Duplicate analysis is a second analysis of the same sample matrix using a different aliquot of matrix. It should be understood that soil gas duplicate analyses may actually be replicate analyses if a second sample is not collected at the source that will serve as a separate aliquot of the same sample.
Frequency: Duplicate analyses must be performed at a rate of 5% or once/day (whichever comes first) for each sample matrix.
Criteria: The duplicate analysis should not result in a concentration value that exceeds 30% of the initial measurement.
Corrective Action: If the duplicate analysis results in significantly different analyte concentration values compared to the initial analysis, the instrument must be checked for proper flow rates, syringe penetration, heating of the headspace vials, and detector condition and the experiment must be repeated unless the analyte results are sufficiently close (3x) to the method detection limit for that analyte.

8.7 *Surrogates*: The analyst should monitor both the performance of the analytical system and the effectiveness of the method in dealing with each sample matrix by spiking each sample, standard, and blank with surrogate compounds recommended to encompass the range of the temperature program used in this method. Prepare the surrogate spike at a concentration at the midpoint of the linear range of the instrument for the analyte selected.
Frequency: Surrogates should be spiked into each sample, standard, and blank analyzed.
Criteria: Generic recovery limits for the surrogate have been established at 70 - 130%. Laboratory specific values should be generated after analyzing 20 samples of the given matrix with the surrogate compound injected. Warning and control levels are calculated as follows:

Upper Warning Level: $\rho + 2\sigma$
Lower Warning Level: $\rho - 2\sigma$

Upper Control Level: $\rho + 3\sigma$
Lower Control Level: $\rho - 3\sigma$, where

ρ = the average quantified concentration of the 20 analyses
σ = the standard deviation of the 20 analyses

Corrective Action: If the surrogate fails, the instrument must be checked for proper flow rates, syringe penetration, heating of the headspace vials, and detector condition and the experiment must be repeated. Samples with surrogate recoveries outside of the established limits must be re-analyzed or flagged as estimated on the final data reporting sheet using an H (high) or L (low) flag.

9.0 METHOD PERFORMANCE

9.1 The method detection limit (MDL) is defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the value is above zero. The MDL actually achieved in a given analysis will vary depending on instrument sensitivity and matrix effects. MDL's determined for this method using Target's GC/MS system are shown in Table 1.

9.2 The practical quantification limit (PQL) is defined as the minimum concentration of a substance that can be measured and reported within the linear range of the calibration curve taking into account all sample dilution

parameters and sample mass/volume. The PQL's determined for this method using 5 g of soil sample, 10 mL of water sample, or 10 mL of gas sample using Target's GC/MS system are shown in Table 1.

Table 1. Target Laboratory's Method 8260A Method Detection Limits, Practical Quantitation Limits, Retention Times, and Quantification Ions.

TARGET'S USEPA METHOD 8260A PERFORMANCE CRITERIA								
Compound	Water MDL[1] (ng/mL)	Water PQL[2] (ng/mL)	Soil MDL (ng/g)	Soil PQL (ng/g)	Gas MDL (ng/mL)	Gas PQL (ng/mL)	RT[3] (min.)	Quantification Ion (m/z)
Dichlorodifluoromethane	TBD	TBD	TBD	TBD	TBD	2.50	3.43	85
Chloromethane	TBD	TBD	TBD	TBD	TBD	2.50	3.56	50
Vinyl Chloride	TBD	TBD	TBD	TBD	TBD	2.50	3.61	62
Bromomethane	TBD	TBD	TBD	TBD	TBD	2.50	4.08	94
Chloroethane	TBD	TBD	TBD	TBD	TBD	2.50	4.11	64
Trichlorofluoromethane	TBD	TBD	TBD	TBD	TBD	2.50	4.22	101
1,1-Dichloroethene	TBD	TBD	TBD	TBD	TBD	2.50	4.66	96
Methylene Chloride	TBD	TBD	TBD	TBD	TBD	2.50	4.97	84
trans-1,2-Dichloroethene	TBD	TBD	TBD	TBD	TBD	2.50	5.21	96
1,1-Dichloroethane	TBD	TBD	TBD	TBD	TBD	2.50	5.51	63
cis-1,2-Dichloroethene	TBD	TBD	TBD	TBD	TBD	2.50	5.99	96
Chloroform	TBD	TBD	TBD	TBD	TBD	2.50	6.12	83
1,1,1-Trichloroethane	TBD	TBD	TBD	TBD	TBD	2.50	6.47	97
Carbon Tetrachloride	TBD	TBD	TBD	TBD	TBD	2.50	6.74	117
Benzene	TBD	TBD	TBD	TBD	TBD	2.50	6.87	78
1,2-Dichloroethane	TBD	TBD	TBD	TBD	TBD	2.50	6.82	62
Trichloroethylene	TBD	TBD	TBD	TBD	TBD	2.50	7.43	95
1,2-Dichloropropane	TBD	TBD	TBD	TBD	TBD	2.50	7.60	63
Bromodichloromethane	TBD	TBD	TBD	TBD	TBD	2.50	7.85	83
Dibromomethane	TBD	TBD	TBD	TBD	TBD	2.50	7.93	93
cis-1,3-Dichloropropene	TBD	TBD	TBD	TBD	TBD	2.50	8.36	75
Toluene	TBD	TBD	TBD	TBD	TBD	2.50	8.78	92
trans-1,3-Dichloropropene	TBD	TBD	TBD	TBD	TBD	2.50	8.90	75
1,1,2-Trichloroethane	TBD	TBD	TBD	TBD	TBD	2.50	9.12	83
Tetrachloroethylene or PCE	TBD	TBD	TBD	TBD	TBD	2.50	9.59	164
Dibromochloromethane	TBD	TBD	TBD	TBD	TBD	2.50	9.83	129
1,2-Dibromoethane	TBD	TBD	TBD	TBD	TBD	2.50	10.10	107
Chlorobenzene	TBD	TBD	TBD	TBD	TBD	2.50	10.55	112
1,1,1,2-Tetrachloroethane	TBD	TBD	TBD	TBD	TBD	2.50	10.57	131
Ethylbenzene	TBD	TBD	TBD	TBD	TBD	2.50	10.57	91
m&p-Xylene	TBD	TBD	TBD	TBD	TBD	2.50	10.64	106
o-Xylene	TBD	TBD	TBD	TBD	TBD	2.50	11.11	106
Styrene	TBD	TBD	TBD	TBD	TBD	2.50	11.13	104
Isopropylbenzene	TBD	TBD	TBD	TBD	TBD	2.50	11.43	105
Bromoform	TBD	TBD	TBD	TBD	TBD	2.50	11.51	173
1,1,2,2-Tetrachloroethane	TBD	TBD	TBD	TBD	TBD	2.50	11.58	83
1,2,3-Trichloropropane	TBD	TBD	TBD	TBD	TBD	2.50	11.72	95
Bromobenzene	TBD	TBD	TBD	TBD	TBD	2.50	11.89	156
tert-Butylbenzene	TBD	TBD	TBD	TBD	TBD	2.50	12.24	119
sec-Butylbenzene	TBD	TBD	TBD	TBD	TBD	2.50	12.52	119
1,3-Dichlorobenzene	TBD	TBD	TBD	TBD	TBD	2.50	12.65	146
1,4-Dichlorobenzene	TBD	TBD	TBD	TBD	TBD	2.50	12.72	146
1,2-Dichlorobenzene	TBD	TBD	TBD	TBD	TBD	2.50	13.02	146
n-Butylbenzene	TBD	TBD	TBD	TBD	TBD	2.50	12.84	91
1,2,4-Trichlorobenzene	TBD	TBD	TBD	TBD	TBD	2.50	14.25	180
Hexachlorobutadiene	TBD	TBD	TBD	TBD	TBD	2.50	14.33	225
Naphthalene	TBD	TBD	TBD	TBD	TBD	2.50	14.48	128
1,2,3-Trichlorobenzene	TBD	TBD	TBD	TBD	TBD	2.50	14.66	180

[1] MDL: Method detection limit, [2] PQL: Practical quantitation limit, [3] RT: Analyte retention time in minutes

Table 2. Method 8260A GC/MS BFB Tune Criteria for 50 ng Injection of Bromofluorobenzene.

Bromofluorobenzene GC/MS Tuning Criteria			
Target Mass	Relative to Mass	Lower Limit %	Upper Limit %
50	95	15	40
75	95	30	60
95	95	100	100
96	95	5	9
173	174	0	2
174	95	50	200
175	174	5	9
176	174	95	101
177	176	5	9

Table 3. Calibration Standards Preparation.

GC/MS Calibration Standards

Stock	Conc. (ng/uL)	Vendor
8260	2000	Ultra Scientific (North Kingstown, RI) Catalog No. DWM-588 Lot No. K0357
	200	1:10 dilution
IS	2000	Ultra Scientific (North Kingstown, RI) Catalog No. STM-341 Lot No. J-0137 A2LA Certification US0182
	200	1:10 dilution
Surrogate	2000	Ultra Scientific (North Kingstown, RI) Catalog No. STM-330 Lot No. J-0195 A2LA Certification US0193
	200	1:10 dilution
SPCC	2000	Ultra Scientific (North Kingstown, RI) Catalog No. CLP-120 Lot No. J-2005
	200	1:10 dilution
CCC	2000	Ultra Scientific (North Kingstown, RI) Catalog No. CLP-110 Lot No. H-0988
	200	1:10 dilution
BFB	2000	Ultra Scientific (North Kingstown, RI) Catalog No. STS-110 Lot No. H-0924 A2LA Certification US0160
	200	10:1 dilution (900 uL MeOH:100uL BFB)
MS/MSD	1000	Ultra Scientific (North Kingstown, RI) Catalog No. CLP-100N Lot No. J-0610 A2LA Certification US0119
	100	10:1 dilution
Methanol	Neat	Fisher Scientific Catalog No. A454-4 Lot No. 963236 opened 11/26/96

Point One	Stock	Injection (uL)	Conc. (ng)	Conc. (ng/uL)	Injection (uL)	Conc. (ng)	Water (mL)
8260	200	25	5000	5	10	50	10
IS	2000	10	20000	20	10	200	10
Surrogate	200	25	5000	5	10	50	10
MeOH		940					
Total Volume		1000					

Point Two	Stock	Injection (uL)	Conc. (ng)	Conc. (ng/uL)	Injection (uL)	Conc. (ng)	Water (mL)
8260	200	50	10000	10	10	100	10
IS	2000	10	20000	20	10	200	10
Surrogate	200	50	10000	10	10	100	10
MeOH		890					
Total Volume		1000					

Table 3. Continued.

Point Three	Stock	Injection (uL)	Conc. (ng)	Conc. (ng/uL)	Injection (uL)	Conc. (ng)	Water (mL)
8260	2000	10	20000	20	10	200	10

IS	2000	10	20000	20	10	200	10
Surrogate	2000	10	20000	20	10	200	10
MeOH		970					
Total Volume		1000					

	Stock	Injection	Conc.	Conc.	Injection	Conc.	Water
Point Four		(uL)	(ng)	(ng/uL)	(uL)	(ng)	(mL)
8260	2000	15	30000	30	10	300	10
IS	2000	10	20000	20	10	200	10
Surrogate	2000	15	30000	30	10	300	10
MeOH		960					
Total Volume		1000					

	Stock	Injection	Conc.	Conc.	Injection	Conc.	Water
Point Five		(uL)	(ng)	(ng/uL)	(uL)	(ng)	(mL)
8260	2000	20	40000	40	10	400	10
IS	2000	10	20000	20	10	200	10
Surrogate	2000	20	40000	40	10	400	10
MeOH		950					
Total Volume		1000					

	Stock	Injection	Conc.	Conc.	Injection	Conc.	Water
Upper Level		(uL)	(ng)	(ng/uL)	(uL)	(ng)	(mL)
8260	2000	50	100000	100	10	1000	10
IS	2000	10	20000	20	10	200	10
Surrogate	2000	50	100000	100	10	1000	10
MeOH		890					
Total Volume		1000					

	Stock	Injection	Conc.	Conc.	Injection	Conc.	Water
Surrogate		(uL)	(ng)	(ng/uL)	(uL)	(ng)	(mL)
Surrogate	2000	10	20000	20	10	200	10
IS	2000	10	20000	20	10	200	10
MeOH		980					
Total Volume		1000					

	Stock	Injection	Conc.	Conc.	Injection	Conc.	Water
SPCC		(uL)	(ng)	(ng/uL)	(uL)	(ng)	(mL)
SPCC	2000	10	20000	20	10	200	10
IS	2000	10	20000	20	10	200	10
BFB	200	25	5000	5	10	50	10
CCC	2000	10	20000	20	10	200	10
MeOH		945					
Total Volume		1000					

	Stock	Injection	Conc.	Conc.	Injection	Conc.	Water
MS/MSD		(uL)	(ng)	(ng/uL)	(uL)	(ng)	(mL)
MS/MSD	1000	10	10000	10	10	100	10
Surrogate	2000	10	20000	20	10	200	10
IS	2000	10	20000	20	10	200	10
MeOH		970					
Total Volume		1000					

Appendix B

Appendix B

Chemical Data Quality Report

FORMER LAREDO AIR FORCE BASE

(Laredo International Airport)

Phase I (Preliminary Investigation)

Chemical Data Quality Report
for
Sanitary Landfill Area

Laredo, Texas

Prepared by the U.S. Army Corps of Engineers - Tulsa District
December 1997

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1.0 Introduction.

The U.S. Army Corps of Engineers (USACE), Tulsa District, conducted a preliminary investigation of a number of landfills which had been identified by air photos on land formerly owned by the U.S. Air Force. A neighborhood and an elementary school currently reside near or on top of the suspected landfill areas which belonged to the Former Laredo Air Force Base.

During the months of June and July 1997, the USACE collected 48 soil boring samples, 4 sediment samples, and 55 groundwater samples. In addition, 4 quality assurance (QA) groundwater and 4 travel blank samples were collected; 5 QA soil boring and 2 equipment blank (EB) samples were collected; 1 quality control (QC), 1 QA sediment sample and 1 associated EB sample were collected. During the investigation, 5 prepurge samples (denoted with a "U") were collected to provide additional information relating to the sampling technique employed. 1 water sample (PW) was collected from a local water source to judge its chemical quality for use in decontamination procedures. 1 composite investigative derived waste (IDW) sample was collected from three 55 gallon drums used to temporarily store decontamination fluids and lab waste generated during the investigation.

All soil boring samples were collected with the use of the USACE Site Characterization and Analysis Penetrometer System (SCAPS) and earthprobe. Groundwater samples were collected from temporary wells installed by SCAPs technology. All samples were collected and analyzed in accordance with state and federal guidance documents which establish definitive analytical/technical elements, i.e., SW-846 and other EPA methods.

USACE field representatives distributed the samples to USACE Southwestern Division (SWD) Laboratory for distribution and analysis. The majority of field samples were distributed to Intertek Testing Services (ITS). Specific QA duplicate samples were analyzed by SWD lab and Environmental Chemical Corporation (ECC). See Appendix A for a synopsis of the chain of custodies.

2.0 Scope and Objectives.

There were two main objectives of the preliminary investigation (1) define the nature of any contamination associated with the sanitary landfill cells and (2) to determine the groundwater flow direction of any groundwater which may have been affected by the site.

The USACE planned to meet these objectives by conducting the following activities:

(1) Conduct an electromagnetic (EM) survey by USACE Waterways Experiment Station to evaluate areas where the suspected landfill cells are anticipated and where investigation activities may occur.

(2) Conduct a soil gas survey by a USACE contractor to sample and analyze a number of locations in and around the area of investigation.

(3) Collect approximately 4 surface water samples (if practical) and 4 sediment samples from a drainage ditch located on the western portion of the site.

(4) Collect soil samples at three depths from approximately 18 locations in and around the area of investigation.

(5) Install approximately 60 temporary wells in and around the area of investigation.

The text within this document discusses details associated with groundwater, soil, and sediment samples collected during activities described above in points 3 through 5.

3.0 Data Quality Objectives and Laboratory Deliverables.

The USACE defines data quality objectives (DQOs) as an integrated set of thought processes which define data quality requirements based on the intended use of the data. Many of these DQOs are defined and reported within various USACE regulations, i.e., ER-1110-1-263, and within the text of specified analytical methods, i.e., SW-846 manual.

To ensure that the quality of data is adequate for the decision making process, the USACE requires that certain data quality objectives be met and that the following laboratory deliverables be provided:

- Results of field samples, laboratory blanks, surrogate spikes, surrogate recoveries, matrix spikes, laboratory control samples, laboratory duplicates, matrix spike duplicates, relative percent differences, field duplicates, and field blanks.

- The selected analytical methods must be able to adequately detect the analytes of concern. Action levels must be taken into account by the technical staff.

- Sample identification numbers cross-referenced with laboratory identification numbers and quality control sample numbers. Table(s) which cross reference field samples with associated method blanks, matrix spikes, and matrix spike duplicate samples.

- Legible copies of the fully executed chain of custody forms and cooler receipt forms on which the laboratory has documented the condition of the samples on arrival.

- Each analyte will be reported as an actual value or less than a specified quantitation limit. Actual sample results and method detection limits will be reported in a tabular format. Data qualifiers will be used to address sample/analytical anomalies associated with an analyte.

- Soil samples will be reported on a dry weight basis with moisture content. Dilution factors, sampling dates, extraction dates, and analysis dates will also be reported.

- ASCII or DBASE format data files, submitted per the "Guidance for Submittal of Data of Electronic Media for the Tulsa District HTRW Project Database."

Analytical details, such as, calibration data, mass spectra, chromatograms, method detection limit studies, performance standards, and other lab quality control information are not generally requested, but are available to the customer upon request.

4.0 Standards of Comparability.

The U.S. Army Corps of Engineers (USACE) assures that chemical data results generated from in-house programs and architect-engineering contracts are both reliable and defensible. This is accomplished by following the guidelines set fourth in ER 1110-1-263; Chemical Data Quality Management for Hazardous Waste Remedial Activities. Other guidance documents associated with sampling, analysis, and validation include, but are not limited to, "RCRA Groundwater Monitoring Draft Technical Guidance; EPA/530-R-93-001 (November 1992)", "Compendium of ERT Soil Sampling and Geophysics Procedures; EPA/540/P-91/006 (January 1991)", "USACE MCX-Sampling and Analysis Requirements for Measurement of Chemicals in the Environment (June 1993)", "National Functional Guidelines For Organic Data Review (June 1991)", and "National Functional Guidelines For Evaluating Inorganics Analyses (July 1988)."

The U.S. Army Corps of Engineers requests that all contractor laboratories be approved by USACE Center of Expertise (HTRW-CX). All samples are shipped to USACE Southwestern Division (SWD) laboratory prior to analysis. Each of the laboratories is required to have in place a laboratory quality control program which certifies that the data generated from the lab is reliable and defensible. The contracting laboratory generally initiates another level of review to insure that the data is reliable, defensible, and complete. Parallel to these activities, the USACE requires that quality assurance (QA) samples are to be collected and distributed to the government laboratory. A similar review and validation process is conducted upon the QA samples.

Upon receipt of the contractor's sample data, contractor's laboratory report, USACE sample data, and USACE laboratory report, the USACE District office initiates another review. The District office reviews the findings of both the contractor and USACE laboratory reports, and determines if the generated data is indeed reliable, defensible, and complete. Inconsistencies found between the field, quality control duplicate, and quality assurance duplicate samples are investigated. Guidelines previously mentioned, are employed to judge the validity of the results. Differences in field, QC, and QA duplicate sample results which are greater than five times the practical quantitation limit (PQL) are noted. Differences that are greater than a factor of two for aqueous samples and a factor of five for soil/sediment samples are considered to fall outside typical quality control ranges. Differences which cannot be analytically interpreted are noted by the project chemist and evaluated by the technical team.

Analytical results for both field and duplicate analyses have been tabulated and reported in Appendix B of this report.

5.0 Comparability Discussions.

5.1 Analytical Requirements. Three separate mediums were identified to be sampled, these included soil, sediment and groundwater. All three mediums were requested to be analyzed for volatile organics (VOCs), semivolatile organics (SVOCs), undissolved (total) metals, herbicides (Herb), pesticides (Pest), and polychlorinated biphenyls (PCBs). These parameters were analyzed by utilizing the following methods:

Table 5.1 - Analytical Requirements

Groundwater	Soil	Sediment
SW846 **8260B** (volatile organics)	SW846 **8260B** (volatile organics)	SW846 **8260B** (volatile organics)
SW846 **8270B** (semivolatile organics)	SW846 **8270B** (semivolatile organics)	SW846 **8270B** (semivolatile organics)
metals: SW846 **7060** (arsenic) SW846 **6010** (aluminum, antimony, barium, beryllium, cadmium, cobalt, calcium, chromium, copper, iron, magnesium, manganese, nickel, tin, vanadium, zinc, potassium, sodium, thallium, and silver) SW846 **7421** (lead) SW846 **7740** (selenium) SW846 **7470** (mercury)	metals: SW846 **7060** (arsenic) SW846 **6010** (aluminum, antimony, barium, beryllium, cadmium, cobalt, calcium, chromium, copper, iron, magnesium, manganese, nickel, tin, vanadium, zinc, potassium, sodium, thallium, and silver) SW846 **6010** (lead) SW846 **7740** (selenium) SW846 **7471** (mercury)	metals: SW846 **7060** (arsenic) SW846 **6010** (aluminum, antimony, barium, beryllium, cadmium, cobalt, calcium, chromium, copper, iron, magnesium, manganese, nickel, tin, vanadium, zinc, potassium, sodium, thallium, and silver) SW846 **6010** (lead) SW846 **7740** (selenium) SW846 **7471** (mercury)
SW846 **8150** (herbicides)	SW846 **8150** (herbicides)	SW846 **8150** (herbicides)
SW846 **8080** (pesticides/polychlorinated biphenyls)	SW846 **8080** (pesticides/polychlorinated biphenyls)	SW846 **8080** (pesticides/polychlorinated biphenyls)

5.2 Field and QA Duplicate Discussions. The following sections evaluate how close individual field and QA duplicate sample results compare. Field and QA duplicate results have been tabulated and reported within Appendix B of this report.

5.2.1 Sample LF-SB2 (2.0).

Field and QA duplicate soil boring samples were collected at location LF-SB2(2.0). A volatile organic QA duplicate was collected at this location. No other QA parameters were collected due to insufficient soil sample recovery. The field and QA duplicate results were reviewed and found to be generally inconsistent. A notable number of volatile organic analytes and tentatively identified compounds (TICs) were detected in the QA laboratory's results, see Appendix B, Table B-1. Landfill materials (concrete, brick, wood, paper, plastic, glass) and soil staining were encountered in and around this location.

These materials hampered the recovery of soil samples. Laboratory quality control data supports the validity of both the field and QA sample results, therefore it is believed that due to the nonhomogeneous matrix of the soil sample that the QA sample is most representative of detected contaminants at this location.

It was noted that the primary laboratory employed SW846 method 8260 to analyze the volatile organic sample while the QA lab employed method 8260A. Analytical methods are reported to be comparable.

Results are tabulated in Appendix B, Table B-1 (p. B-1).

5.2.2 Sample DR-SD1.

Field, QC and QA duplicate sediment samples were collected at location DR-SD1. QC duplicate samples were collected for all parameters described in Table 5.1. The field and QC results were reviewed and found to be in agreement.

QA duplicate samples were collected for all parameters described in Table 5.1. The field and QA results were reviewed and found to be in general agreement, except for the volatile organic, pesticide/PCB and herbicide analyses. It was noted that the primary laboratory analyzed herbicides by SW846 method 8151 instead of method 8150. These methods are comparable; method 8151 includes a larger analyte list.

It was noted that the primary laboratory analyzed pesticides and PCBs by SW846 method 8081 instead of method 8080. These methods are comparable; method 8081 includes a larger analyte list. It was also noted that the QA laboratory identified the existence of additional pesticide analytes undetected by the primary laboratory. The QA lab also indicated difficulties with quantifying these analytes due to coelution.

It was noted that the primary laboratory employed SW846 method 8260 to analyze the volatile organic sample while the QA lab employed method 8260A. Analytical methods and results are reported to be comparable.

Results are tabulated in Appendix B, Table B-2 (p. B-3).

5.2.3 Sample LF-W9.

Field and QA duplicate groundwater samples were collected at location LF-W9. A volatile organic QA duplicate sample was collected from this location. No other QA parameters were collected due to insufficient groundwater recovery. The field and QA duplicate results were reviewed and found to be in agreement.

It was noted that the primary laboratory employed SW846 method 8260 to analyze the volatile organic sample while the QA lab employed method 8260A. Analytical results and methods are reported to be comparable.

Results are tabulated in Appendix B, Table B-3 (p. B-16).

5.2.4 Sample LF-W13.

Field and QA duplicate groundwater samples were collected at location LF-W13. A volatile organic QA duplicate sample was collected from this location. No other QA parameters were collected due to insufficient groundwater recovery. The field and QA duplicate results were reviewed and found to be in agreement.

It was noted that the primary laboratory employed SW846 method 8260 to analyze the volatile organic sample while the QA lab employed method 8260A. Analytical methods and results are reported to be comparable.

Results are tabulated in Appendix B, Table B-4 (p. B-18).

5.2.5 Sample LF-W24.

Field and QA duplicate groundwater samples were collected at location LF-W24. A volatile organic QA duplicate sample was collected from this location. No other QA parameters were collected due to insufficient groundwater recovery. The field and QA duplicate results were reviewed and found to be in agreement.

It was noted that the primary laboratory employed SW846 method 8260 to analyze the volatile organic sample while the QA lab employed method 8260A. Analytical methods and results are reported to be comparable.

Results are tabulated in Appendix B, Table B-5 (p B-20).

5.2.6 Sample LF-SB35(5.0).

Field and QA duplicate soil samples were collected at location LF-SB35(5.0). A semivolatile organic QA duplicate sample was collected from this location. No other QA parameters were collected due to insufficient soil sample recovery. The field and QA duplicate results were reviewed and found to be in agreement.

Results are tabulated in Appendix B, Table B-6 (p. B-22).

5.2.7 Sample LF-SB50(8.0).

Field and QA duplicate soil samples were collected at location LF-SB50(8.0). Volatile organic and metal QA duplicate samples were collected from this location. No other QA parameters were collected due to insufficient soil sample recovery. The field and QA duplicate results were reviewed and found to be in general agreement. The QA laboratory did not report the results for the metal zinc. The laboratory will be contacted.

It was noted that the primary laboratory analyzed lead by SW846 method 6010 instead of the requested method 7421. Analytical methods and results are reported to be comparable.

It was noted that the primary laboratory employed SW846 method 8260 to analyze the volatile organic sample while the QA lab employed method 8260A. Analytical methods and results are reported to be comparable.

Results are tabulated in Appendix B, Table B-7 (p. B-29).

5.2.8 Sample LF-W39.

Field and QA duplicate groundwater samples were collected at location LF-W39. A volatile organic QA duplicate sample was collected from this location. No other QA parameters were collected due to insufficient groundwater recovery. The field and QA duplicate results were reviewed and found to be in agreement.

It was noted that the primary laboratory employed SW846 method 8260 to analyze the volatile organic sample while the QA lab employed method 8260A. Results are reported to be comparable.

Results are tabulated in Appendix B, Table B-8 (p. B-33).

5.2.9 Sample LF-SB47(5.0).

Field and QA duplicate soil samples were collected at location LF-SB47(5.0). A herbicide QA duplicate sample was collected from this location. No other QA parameters were collected due to insufficient soil sample recovery. The field and QA duplicate results were reviewed and found to be in general agreement. It was noted that the primary laboratory analyzed herbicides by SW846 method 8151 instead of method 8150. These methods are comparable; method 8151 includes a larger analyte list.

Results are tabulated in Appendix B, Table B-9 (p. B-35).

5.2.10 Sample LF-SB39(5.0).

Field and QA duplicate soil samples were collected at location LF-SB39(5.0). A semivolatile organic QA duplicate sample was collected from this location. No other QA parameters were collected due to insufficient soil sample recovery. The field and QA duplicate results were reviewed and found to be in agreement.

Results are tabulated in Appendix B, Table B-10 (p. B-36).

5.3 Laboratory and Technical Discussions.

The following sections summarize observations and issues regarding the analytical data and chain of custody forms. Additional information may be found by reviewing the laboratory data reports. All chemical data has been reported within SWD Reports #16824 through #16824-4.

5.3.1 SWD Report #16824. As indicated in the case narrative, the majority of all the relative percent differences (RPDs), matrix spikes (MS), matrix spike duplicates (MSDs), surrogate, laboratory control spikes (LCSs), and laboratory control spike duplicate (LCSDs) recoveries were within the acceptable control limits. Exceptions are highlighted below and detailed within the lab report.

5.3.1.1 Accuracy & Precision. MS and MSDs, LCS and LCSDs, surrogates, and RPDs were reported as acceptable with the following exceptions:

Volatile organic sample batch 970721W1 required that a LCS and LCSD be prepared instead of a MS and MSD.

Metal sample batch AC160-10F reported that MS, MSD, and RPDs fell outside quality control limits for lead and selenium due to matrix interference.

Pesticide sample batch AC142-49A required that a blank spike (BS) and blank spike duplicate (BSD) be prepared instead of a MS and MSD.

Herbicide sample batch AC142-50 required that a BS and BSD be prepared instead of a MS and MSD.

Semivolatile organic sample batch AC142-56 required that a BS and BSD be prepared instead of a MS and MSD.

5.3.1.2 Representativeness. All method and travel blanks were reported to be free of contamination. Sample LF-SB55(2.0)EB indicated the presence of 0.235 mg/L of aluminum, 10.7 mg/L of sodium, 0.0529 ug/L of endosulfan II, and one semivolatile organic tentatively identified compound (TIC).

5.3.1.3 Completeness. Pesticide/PCBs results for sample LF-SB55(2.0)EB were found to be missing in the submittal to the Tulsa District. The laboratory has forwarded the missing results to the District. All other samples appear to have been properly received and analyzed.

5.3.2 SWD Report #16824-1. As indicated in the case narrative, the majority of all the relative percent differences (RPDs), matrix spikes (MS), matrix spike duplicates (MSDs), surrogate, laboratory control spikes (LCSs), and laboratory control spike duplicate (LCSDs) recoveries were within the acceptable control limits. Exceptions are highlighted below and detailed within the lab report.

5.3.2.1 Accuracy & Precision. MS and MSDs, LCS and LCSDs, surrogates, and RPDs were reported as acceptable with the following exceptions:

Semivolatile organic sample batch AC141-22 required that a BS and BSD be prepared instead of a MS and MSD.

Metal sample batch 17627F reported that MS, MSD, and RPDs fell outside quality control limits for lead and selenium due to matrix interference.

Pesticide sample batch AC141-21 required that a BS and BSD be prepared instead of a MS and MSD.

5.3.2.2 Representativeness. All method and travel blanks were reported to be free of contamination.

5.3.2.3 Completeness. The herbicide sample for location LF-W35 could not be analyzed due to insufficient sample volume. All other samples appear to have been properly received and analyzed.

5.3.3 SWD Report #16824-2. As indicated in the case narrative, the majority of all the relative percent differences (RPDs), matrix spikes (MS), matrix spike duplicates (MSDs), surrogate, laboratory control spikes (LCSs), and laboratory control spike duplicate (LCSDs) recoveries were within the acceptable control limits. Exceptions are highlighted below and detailed within the lab report.

5.3.3.1 Accuracy & Precision. MS and MSDs, LCS and LCSDs, surrogates, and RPDs were reported as acceptable with the following exceptions:

Volatile organic sample batch 970711S1 required that a LCS and LCSD be prepared instead of a MS and MSD.

Metals sample batch 7-108S reported the following: that MS and MS/MSD RPDs for arsenic and selenium, the sample duplicate RPD for thallium and antimony, and the MS/MSD RPD for antimony and thallium fell outside quality control limits due to a non-homogeneous QC sample.

Semivolatile organic sample batch 97072S33 required that a LCS and LCSD were prepared instead of a MS and MSD. The sample duplicate RPD, LCS, and LCSD fell outside of the quality control limits. The sample was reextracted and reanalyzed.

Pesticide sample batch 767 required that a LCS and LCSD were prepared instead of a MS and MSD.

Metals sample batch DIGSP728 reported that the MS, MSD, and MS/MSD RPD fell outside quality control limits due to matrix interference. The post-digested spike passed the quality control limits.

Metal sample batches 17706 and 17499 reported that the MS, MSD, and MS/MSD RPD for potassium and arsenic fell outside quality control limits due to matrix interference.

Metal sample batches 17701F and 17705F reported that the MS, MSD, and MS/MSD RPD for selenium and arsenic fell outside quality control limits due to matrix interference.

Pesticide sample batch AC141-74A required that a BS and BSD be prepared instead of a MS and MSD.

Pesticide sample batch AC141-94A reported that the MS and MSD for endrin fell outside quality control limits.

Pesticide sample batch AC141-60 reported that the MS, MSD, and MS/MSD RPD for endrin and 4,4'-DDT fell outside of quality control limits due to matrix interference.

Herbicides sample batch AC141-40 reported that a BS and BSD were prepared instead of a MS and MSD.

Herbicide sample batch AC142-78 reported that the MS, MSD, and MS/MSD RPD for 2,4,5-T and 2,4,5-TP fell outside of quality control limits due to nonhomogeneous QC sample.

Semivolatile organic sample batch AC141-37 reported that the MS and MSD for trichlorobenzene fell outside of the quality control limits.

5.3.3.2 Representativeness. The majority of method blanks were free of contamination, however ITS reported a SW846 8151 method blank with "excessive contamination". Effected samples were re-extracted and analyzed outside of their holding times. They include herbicide samples from locations DR-SD1 QA, LF-SB19(2.0), LF-SB1(2.0), LF-SB1(5.0), LF-SB1(8.0), LF-SB2(2.0), LF-SB5(5.0), LF-SB5(10.0), DR-SD1, DR-SD1 QC, DR-SD2, DR-SD3, and DR-SD4. Results should be considered estimated.

Equipment blank sample DR-SD1 EB indicated the presence of 0.68 mg/L of calcium. All travel blanks were reported free of contamination.

5.3.3.3 Completeness. Pesticide/PCBs results for sample LF-W10 were found to be missing in the submittal to the Tulsa District. Due to a tracking error the sample was never analyzed. All other samples appear to have been properly received and analyzed.

5.3.4 SWD Report #16824-3. As indicated in the case narrative, the majority of all the relative percent differences (RPDs), matrix spikes (MS), matrix spike duplicates (MSDs), surrogate, laboratory control spikes (LCSs), and laboratory control spike duplicate (LCSDs) recoveries were within the acceptable control limits. Exceptions are highlighted below and detailed within the lab report.

5.3.4.1 Accuracy & Precision. MS and MSDs, LCS and LCSDs, surrogates, and RPDs were reported as acceptable with the following exceptions:

Volatile organic sample batch 970711S1 and 97078W1 required that a LCS and LCSD be prepared instead of a MS and MSD. Sample batch 97078W1 reported that the LCS/LCSD RPD for 1,2-dibromo-3-chlorpropane was outside of quality control limits.

Metals sample batch 7-104S reported that the sample duplicate RPD for thallium and antimony were outside of quality control limits. The MS/MSD RPD for antimony and thallium were outside of quality control limits due to a non-homogeneous QC sample.

Metals sample batch 7-108S reported that the MS and MSD RPD for arsenic and selenium were outside of quality control limits due to a non-homogeneous QC sample.

Semivolatile organics batch 970714S34 reported that a LCS and LCSD were prepared instead of a MS and MSD. The LCS/LCSD RPD for pentachlorophenol fell outside of the quality control limits.

Metals sample batch DIGSP728 reported that the MS, MSD and MS/MSD RPD for antimony, thallium, and manganese fell outside of the quality control limits.

Metals sample batch AC1459-33 reported that the MS, MSD and MS/MSD RPD for aluminum, iron, calcium, potassium, and magnesium fell outside of the quality control limits due to a high analyte concentration in the QC sample.

Metals sample batch AC1459-46F reported that the MS, MSD, and MS/MSD RPD for arsenic fell outside of the quality control limits due to matrix interference.

Metal sample batches AC159-25 and AC159-26 reported that the MS, MSD, and MS/MSD RPD for mrercury fell outside of the quality control limits due to a high analyte concentration in the QC sample.

Metal sample batch AC159-33 reported that the MS, MSD, and MS/MSD RPD for antimony fell outside of the quality control limits due to matrix interference.

Metal sample batch AC159-43 reported that the MS, MSD, and MS/MSD RPD for iron and sodium wer outside of quality control limits due to a high analyte concentration in the QC sample.

Pesticide sample batch AC141-92 reported a BS and BSD were prepared instead of a MS and MSD.

Herbicide sample batch AC142-18A reported a BS and BSD were prepared instead of a MS and MSD.

Semivolatile organic sample batch AC142-15 reported that the MSD and MS/MSD RPD for 4-nitrophenol were outside of quality control limits.

Semivolatile organic sample batch AC141-86 reported that a BS and BSD were prepared instead of a MS and MSD.

Samples LF-SB24(6.0), LF-SB28(5.0), LF-SB35(5.0) reported low surrogate recoveries. The samples were reanalyzed at a dilution.

5.3.4.2 Representativeness. The majority of method blanks were free of contamination, however ITS reported a SW846 8151 method blank with "excessive contamination". Effected samples were re-extracted and analyzed outside of their holding times. They include herbicide samples from locations LF-W23, LF-W24, LF-SB14(2.0), LF-SB15(5.0), LF-SB14(6.5), LF-SB24(2.0), LF-SB24(5.0), LF-SB24(6.0), LF-SB28(5.0), LF-SB28(8.0), LF-SB35(2.0), LF-SB35(5.0), LF-SB35(8.0), LF-SB37(2.0), LF-SB49(2.0), LF-SB49(5.0), LF-SB50(2.0), LF-SB50(5.0), and LF-SB50(8.0). Results should be considered estimated

Pesticide samples from locations LF-W23, LF-W24, LF-SB14(2.0)EB and LF-SB14(6.5) were analyzed outside their appropriate holding time due to a tracking error. Results should be considered estimated.

Semivolatile organic samples from locations LF-W23 and LF-SB14(6.5) were analyzed outside the appropriate holding time due to a tracking error. Results should be considered estimated. Semivolatile organic samples from locations LF-SB28(5.0) and LF-SB35(5.0) were diluted and analyzed outside the appropriate holding times when internal standard recoveries were reported to fall outside acceptable QC limits. Initial results should be viewed as acceptable. Both initial and diluted analyses were reported.

Equipment blank sample LF-SB14(2.0) EB indicated the presence of 0.60 mg/L of calcium, 1.5 mg/L of sodium, 26.5 mg/L of zinc. All travel blanks were reported to be free of contamination.

5.3.4.3 Completeness. Metal results for sample LF-SB50 (8.0) QA were found to be missing in the submittal to the Tulsa District. The laboratory has forwarded copies of this information to the District. All other samples appear to have been properly received and analyzed.

5.3.5 SWD Report #16824-4. As indicated in the case narrative, the majority of all the relative percent differences (RPDs), matrix spikes (MS), matrix spike duplicates (MSDs), surrogate, laboratory control spikes (LCSs), and laboratory control spike duplicate (LCSDs) recoveries were within the acceptable control limits. Exceptions are highlighted below and detailed within the lab report.

5.3.5.1 Accuracy & Precision. MS and MSDs, LCS and LCSDs, surrogates, and RPDs were reported as acceptable with the following exceptions:

ITS reported that the matrix spike and associated duplicate extracts were partially spilled during the preparation stage of the analysis. A blank spike and associated duplicate were used to evaluate spike recoveries; spike recoveries fell within acceptable control limits.

Metals sample batch AC160-22 reported that the MS, MSD, and MS/MSD RPD for aluminum, iron, and calcium fell outside of the quality control limits due to a high analyte concentration in the QC sample.

Metals sample batch AC160-53 reported that the MS, MSD, and MS/MSD RPD for sodium fell outside of the quality control limits due to matrix interference.

Metals sample batch AC160-22 reported that the MS, MSD, and MS/MSD RPD for antimony, potassium, and magnesium fell outside of the quality control limits due to matrix interference.

Herbicide sample batch AC142-88 reported that a BS and BSD were prepared instead of a MS and MSD.

Herbicide sample batch AC143-2 reported that the MS, MSD, and MS/MSD RPD fell outside of the quality control limits.

Semivolatile organic sample batch AC143-6 reported that the MS, MSD, and MS/MSD RPD fell outside of the quality control limits due to a preparation error.

Semivolatile organic sample batch AC142-73 reported that a BS and BSD were prepared instead of a MS and MSD.

Volatile organic sample batch 9707177001 reported that a BS and BSD were prepared instead of a MS and MSD.

Volatile organic sample batch 9707187001 reported that the MS, MSD, and MS/MSD RPD fell oustide of quality control limits due to a high analyte concentration in the QC sample.

5.3.5.2 Representativeness. Method blanks were reported to be free of contamination.

5.3.5.3 Completeness. All samples appear to have been properly received by the laboratory and analyzed.

5.3.6 Bubbles in Vials. A number of volatile organic samples vials were reported to contain bubbles by the laboratory, i.e., SWD #16824, #16824-1, #16824-2. During field sampling activities, it was observed that groundwater samples "foamed" when preserved with acid prior to shipment. Field crews speculated that the pH content of the soil was high enough to react with the preservative. Landfill materials (concrete) which were encountered during the investigation may have also attributed to the "foaming" of the samples; some of these materials have a high pH content..

5.3.7 Method of Standard Additions. SWD laboratory performed a number of metal analyses by the method of standard additions (SW846, July 1992, 7000A-10). This method was routinely applied to the metal analytes; selenium, antimony, arsenic, and thallium. Thallium was requested to be analyzed by SW846 method 6010.

5.3.8 Volatile Organic Method Deviation. It was noted that the primary laboratory employed SW846 method 8260 to analyze the volatile organic sample while the lab employed method 8260A. Analytical method 8260A was requested on the chain of custody. The workplan originally requested method 8260B. All these methods are comparable; differences lie within the number of analytes listed for each method.

5.3.9 Lead Method Deviation. It was noted that all the lead samples analyzed by the primary laboratory referenced in SWD Reports # 16824-3 and #16824-4 were analyzed by SW846 method 6010 instead of method 7421. Results are reported to be comparable.

5.3.10 Detection Limits. A number of analytical tests did not report detection limits low enough to reach the risk-based standards for clean-up as reported by the Texas Natural Resource Conservation Commission. In particular, analyses for semivolatile organics, pesticides/PCBs, and herbicides parameters were generally affected. Three factors can account for this deficiency. First, that the chosen analytical methods cannot practically and routinely meet the action limits established by the state for particular analytes. Second, detection limits are dependent upon the volume of sample collected. Due to the limited amount of sample volume collected at several locations, detection limits would be raised accordingly. Third, detection limits are affected by sample dilutions. If sample dilutions were made then detection limits would be raised accordingly.

5.3.11 Completeness. Completeness is defined as the percentage of measurements made which are judged to be valid measurements compared to the total number of measurements planned. Table 5.3.1.1 represents proposed and actual field samples collected by field crews. Completion values of less than 100% reflect difficulties associated with sampling temporary wells where no groundwater was collected and the sampling of soil in and around landfill debris which hindered soil sample collection. Completion values of less than 100% also reflect QA/QC field modifications adopted to meet insufficient sample volume recoveries at various soil and groundwater locations.

The majority of collected samples were analyzed and found to reflect a completeness of 100%, however the pesticide/PCB analysis for sample LF-W10 was not performed due to a tracking error. This factor reflects a 99% completion relating to the analyzed pesticide/PCB samples.

Table 5.3.1.1 - Sampling and Analytical Activities

Proposed Field Samples	Collected Field Samples	Completeness (%)
4 sediment	4 sediment	100%
4 surface water	0 surface water	0%
54 soil boring	48 soil boring	89%
60 groundwater	55 groundwater	92%
Proposed QA/QC Samples	Collected QA/QC Samples	Completeness (%)
1 sediment 1 equipment blank	1 sediment 1 equipment blank	100% 100%
2 surface water	0 surface water	0%
5 soil borings 3 equipment blanks	5 soil boring (QA only) 2 equipment blanks	100% (QA only) 67%
6 groundwater	4 groundwater (QA only) 5 groundwater (QC/prepurge)	67% (QA only) 83% (QC/prepurge)
4 VOC shipments (4 travel blanks)	4 travel blanks	100%

6.0 Conclusion.

An evaluation with regards to the quality of the chemical data collected during the June-July 1997 Preliminary Landfill Investigation (Former Laredo Air Force Base) indicates that no major problems exist which invalidate the reported data. However, a significant number of analytical parameters were analyzed outside their appropriate holding times due to tracking problems and method blank contamination. Any analytes detected in these samples should be considered estimated.

Rex W. Ostrander,
Chief, CIH Section.

Christopher S. Kennedy,
Chemist, CIH Section.

APPENDIX A

Table A-1 Chain of Custody Synopsis Former Webb AFB - Landfill Investigation (June-July 97)			Analytical Method					
Sample ID	Sample Date	Matrix Defn	VOCs	Metals	SVOCs	Pest/PCBs	Herb	SWD Report#
TB01	06/25/97	TB	1					16824-1
LF-W30	06/25/97	GW	1	1	1	1		16824-1
LF-W14	06/25/97	GW	1	1	1	1	1	16824-1
LF-W35	06/25/97	GW	1	1	1	1		16824-1
LF-W37	06/25/97	GW	1					16824-1
LF-W30	06/26/97	GW					1	16824-1
LF-W35	06/26/97	GW					1	16824-1
LF-W1	06/26/97	GW	1	1	1	1	1	16824-1
LF-W3	06/26/97	GW	1	1	1	1	1	16824-1
LF-W5	06/26/97	GW	1	1	1	1	1	16824-1
LF-W6	06/26/97	GW	1	1	1	1	1	16824-1
LF-W2	06/26/97	GW	1	1	1	1	1	16824-1
LF-W4	06/26/97	GW	1	1	1	1	1	16824-1
LF-W7	06/26/97	GW	1					16824-1
LF-W48	06/26/97	GW	1					16824-1
LF-W34	06/26/97	GW	1					16824-1
TB02	06/27/97	TB	1					16824-2

Table A-1 Chain of Custody Synopsis Former Webb AFB - Landfill Investigation (June-July 97)			Analytical Method					
Sample ID	Sample Date	Matrix Defn	VOCs	Metals	SVOCs	Pest/PCBs	Herb	SWD Report#
LF-W8	06/27/97	GW	1					16824-2
LF-W11	06/27/97	GW	1					16824-2
LF-W15	06/27/97	GW	1	1	1	1	1	16824-2
LF-W21	06/27/97	GW	1	1	1	1	1	16824-2
LF-W18	06/27/97	GW	1	1				16824-2
LF-W19	06/27/97	GW	1	1				16824-2
LF-W22	06/27/97	GW	1	1				16824-2
LF-W31	06/27/97	GW	1	1				16824-2
LF-W32	06/27/97	GW	1	1				16824-2
LF-W27	06/28/97	GW	1	1				16824-2
LF-W28	06/28/97	GW	1	1				16824-2
LF-W25	06/28/97	GW	1	1				16824-2
LF-W26	06/28/97	GW	1	1	1			16824-2
LF-SB19(2.0)	06/28/97	SL	1	1	1	1	1	16824-2
LF-SB11(2.0)	06/28/97	SL	1	1	1	1		16824-2
LF-SB11(5.0)	06/28/97	SL	1	1	1	1		16824-2
LF-SB11(8.0)	06/28/97	SL	1	1	1	1		16824-2
LF-SB6(2.0)	06/28/97	SL	1	1	1	1		16824-2

Table A-1 Chain of Custody Synopsis Former Webb AFB - Landfill Investigation (June-July 97)			Analytical Method					
Sample ID	Sample Date	Matrix Defn	VOCs	Metals	SVOCs	Pest/PCBs	Herb	SWD Report#
LF-SB6(5.0)	06/28/97	SL	1	1	1	1		16824-2
LF-SB8(2.0)	06/28/97	SL	1	1	1	1		16824-2
LF-SB1(2.0)	06/28/97	SL	1	1	1	1	1	16824-2
LF-SB1(5.0)	06/28/97	SL	1	1	1	1	1	16824-2
LF-SB1(8.0)	06/28/97	SL	1	1	1	1	1	16824-2
LF-SB2(2.0)	06/28/97	SL	1	1	1	1	1	16824-2
LF-SB2(2.0) QA	06/28/97	SL QA	2					16824-2
LF-SB2(5.0)	06/28/97	SL	1	1	1	1		16824-2
LF-SB2(6.0)	06/28/97	SL	1	1	1	1		16824-2
LF-SB5(2.0)	06/28/97	SL	1	1	1	1		16824-2
LF-SB5(5.0)	06/28/97	SL	1	1	1	1	1	16824-2
LF-SB5(10.0)	06/28/97	SL	1	1	1	1	1	16824-2
LF-W10	06/29/97	GW	1	1	1	Missing	1	16824-2
LF-W17	06/29/97	GW	1	1				16824-2
LF-W16	06/29/97	GW	1	1				16824-2
LF-W12	06/29/97	GW	1	1				16824-2
DR-SD1	06/29/97	SD	1	1	1	1	1	16824-2
DR-SD1 QC	06/29/97	SD QC	1	1	1	1	1	16824-2

Table A-1 Chain of Custody Synopsis Former Webb AFB - Landfill Investigation (June-July 97)			Analytical Method					
Sample ID	Sample Date	Matrix Defn	VOCs	Metals	SVOCs	Pest/PCBs	Herb	SWD Report#
DR-SD1 QA	06/29/97	SD QA	2	2 & 3	2	2	3	16824-2
DR-SD2	06/29/97	SD	1	1	1	1	1	16824-2
DR-SD3	06/29/97	SD	1	1	1	1	1	16824-2
DR-SD4	06/29/97	SD	1	1	1	1	1	16824-2
DR-SD1-EB	06/29/97	SD EB	1	1	1	1	1	16824-2
LF-W9	06/30/97	GW	1					16824-3
LF-W9 QA	06/30/97	GW QA	2					16824-3
LF-W13	06/30/97	GW	1					16824-3
LF-W13 QA	06/30/97	GW QA	2					16824-3
LF-W20	06/30/97	GW	1	1				16824-3
LF-W23	06/30/97	GW	1	1	1	1	1	16824-3
LF-W24	06/30/97	GW	1	1	1			16824-3
LF-W24 QA	06/30/97	GW QA	2					16824-3
TB03	07/01/97	TB	1					16824-3
LF-SB14(2.0) EB	07/01/97	SL EB	1	1	1	1	1	16824-3
LF-SB14(2.0)	07/01/97	SL	1	1	1	1	1	16824-3
LF-SB14(5.0)	07/01/97	SL	1	1	1	1	1	16824-3
LF-SB14(6.5)	07/01/97	SL	1	1	1	1	1	16824-3

Table A-1 Chain of Custody Synopsis Former Webb AFB - Landfill Investigation (June-July 97)			Analytical Method					
Sample ID	Sample Date	Matrix Defn	VOCs	Metals	SVOCs	Pest/PCBs	Herb	SWD Report#
LF-SB24(2.0)	07/01/97	SL	1	1	1	1	1	16824-3
LF-SB24(5.0)	07/01/97	SL	1	1	1	1	1	16824-3
LF-SB24(6.0)	07/01/97	SL	1	1	1	1	1	16824-3
LF-SB28(2.0)	07/01/97	SL	1	1	1	1	1	16824-3
LF-SB28(5.0)	07/01/97	SL	1	1	1	1	1	16824-3
LF-SB28(8.0)	07/01/97	SL	1	1	1	1	1	16824-3
LF-SB35(2.0)	07/01/97	SL	1	1	1	1	1	16824-3
LF-SB35(5.0)	07/01/97	SL	1	1	1	1	1	16824-3
LF-SB35(5.0) QA	07/01/97	SL QA			2			16824-3
LF-SB35(8.0)	07/01/97	SL	1	1	1	1	1	16824-3
LF-SB37(2.0)	07/01/97	SL	1	1	1	1	1	16824-3
LF-SB49(2.0)	07/01/97	SL	1	1	1	1	1	16824-3
LF-SB49(5.0)	07/01/97	SL	1	1	1	1	1	16824-3
LF-SB50(2.0)	07/01/97	SL	1	1	1	1	1	16824-3
LF-SB50(5.0)	07/01/97	SL	1	1	1	1	1	16824-3
LF-SB50(8.0)	07/01/97	SL	1	1	1	1	1	16824-3
LF-SB50(8.0) QA	07/01/97	SL QA	3	3				16824-3
TB04	07/08/97	TB	1					16824

Table A-1 Chain of Custody Synopsis Former Webb AFB - Landfill Investigation (June-July 97)			Analytical Method					
Sample ID	Sample Date	Matrix Defn	VOCs	Metals	SVOCs	Pest/PCBs	Herb	SWD Report#
LF-W49	07/08/97	GW	1	1				16824
LF-W50 U	07/08/97	GW	1					16824
LF-W50	07/08/97	GW	1	1				16824
LF-W51 U	07/08/97	GW	1					16824
LF-W51	07/08/97	GW	1	1				16824
LF-W54 U	07/08/97	GW	1					16824
LF-W54	07/08/97	GW	1					16824
LF-W55	07/08/97	GW	1					16824
LF-W55 U	07/08/97	GW	1					16824
LF-PW	07/08/97	GW		1				16824
LF-W57	07/08/97	GW	1					16824
LF-W57 U	07/08/97	GW	1					16824
LF-W59	07/08/97	GW	1					16824
LF-SB55(2.0) EB	07/08/97	SL EB	1	1	1	1	1	16824
LF-W58	07/09/97	GW	1					16824
LF-W56	07/09/97	GW	1					16824
LF-W52	07/09/97	GW	1					16824
LF-W53	07/09/97	GW	1					16824

Table A-1 Chain of Custody Synopsis Former Webb AFB - Landfill Investigation (June-July 97)			Analytical Method					
Sample ID	Sample Date	Matrix Defn	VOCs	Metals	SVOCs	Pest/PCBs	Herb	SWD Report#
LF-W46	07/09/97	GW	1					16824
LF-W45	07/09/97	GW	1	1				16824
LF-W29	07/10/97	GW	1					16824
LF-W39	07/10/97	GW	1					16824
LF-W39 QA	07/10/97	GW QA	2					16824
LF-W36	07/10/97	GW	1					16824
LF-W42	07/10/97	GW	1					16824
LF-W38	07/10/97	GW	1					16824
LF-W43	07/10/97	GW	1					16824
LF-W47	07/10/97	GW	1					16824
LF-SB55(2.0)	7/11/97	SL	1	1	1	1	1	168424-4
LF-SB55(5.0)	7/11/97	SL	1	1	1	1	1	168424-4
LF-SB55(7.0)	7/11/97	SL	1	1	1	1	1	168424-4
LF-SB58(2.0)	7/11/97	SL	1	1	1	1	1	168424-4
LF-SB58(5.0)	7/11/97	SL	1	1	1	1	1	168424-4
LF-SB58(6.5)	7/11/97	SL	1	1	1	1	1	168424-4
LF-SB47(2.0)	7/11/97	SL	1	1	1	1	1	168424-4
LF-SB47(5.0)	7/11/97	SL	1	1	1	1	1	168424-4

Table A-1 Chain of Custody Synopsis Former Webb AFB - Landfill Investigation (June-July 97)			Analytical Method					
Sample ID	Sample Date	Matrix Defn	VOCs	Metals	SVOCs	Pest/PCBs	Herb	SWD Report#
LF-SB47(5.0) QA	7/11/97	SL QA					3	168424-4
LF-SB47(7.0)	7/11/97	SL	1	1	1	1	1	168424-4
LF-SB46(2.0)	7/11/97	SL	1	1	1	1		168424-4
LF-SB46(5.0)	7/11/97	SL	1	1		1		168424-4
LF-SB39(2.0)	7/11/97	SL	1	1	1	1	1	168424-4
LF-SB39(5.0)	7/11/97	SL	1	1	1	1	1	168424-4
LF-SB39(5.0) QA	7/11/97	SL QA			3			168424-4
LF-SB36(2.0)	7/11/97	SL	1	1	1	1	1	168424-4
LF-DECON	7/11/97	GW	1	1	1	1	1	168424-4

Key.

1	Intertek Testing Services (ITS)
2	USACE Southwestern Division Laboratory (SWD)
3	Environmental Chemical Corporation (ECC)
GW	Groundwater matrix
SL	Soil matrix
SD	Sediment matrix
TB	Travel blank
QA	Quality assurance duplicate
QC	Quality control duplicate
EB	Equipment blank or rinsate blank
Missing	All or specific chemical data were found to be missing from the submittal

APPENDIX B

Table B-1-1 - Field Comparability Volatile Organic Compounds (VOC)			
Compound	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	LF-SB2(2.0)	NA	LF-SB2(2.0) QA
acetone	<22.7		<60
allyl chloride	NR		NR
benzene	<5.66		<2.0
benzyl chloride	NR		NR
bromochloromethane	<5.66		<4.0
bromoform	<5.66		<2.0
bromomethane	<5.66		<4.0
carbon tetrachloride	<5.66		<2.0
chlorobenzene	<5.66		38
chlorodibromomethane	<5.66		<2.0
chloroethane	<5.66		<6.0
2-chloroethyl vinyl ether	<11.3		NR
chloroform	<5.66		<2.0
chloromethane	<5.66		<6.0
chloroprene	NR		NR
1,2-dibromoethane	<5.66		<2.0
dibromomethane	<5.66		<2.0
1,2-dichlorobenzene	<5.66		<2.0
1,3-dichlorobenzene	<5.66		<2.0
1,4-dichlorobenzene	<5.66		180
cis-1,4-dichloro-2-butene	NR		NR
dichlorodifluoromethane	NR		<4.0
1,1-dichloroethane	<5.66		<2.0
1,2-dichloroethane	<5.66		<2.0
1,1-dichloroethene	<5.66		<2.0
cis-1,2-dichloroethene	<5.66		<2.0
trans-1,2-dichloroethene	<5.66		<4.0
1,2-dichloroethene (total)	NA		NA
1,2-dichloropropane	<5.66		<2.0
cis-1,3-dichloropropene	<5.66		NR
trans-1,3-dichloropropene	<5.66		NR
1,2,3,4-diepoxybutane	NR		NR
diethyl ether	NR		NR

Table B-1-1 - Field Comparability Volatile Organic Compounds (VOC)			
Compound	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	LF-SB2(2.0)	NA	LF-SB2(2.0) QA
ethylbenzene	<5.66		280
ethyl methacrylate	NR		NR
napthalene	NR		38
nitrobenzene	NR		NR
2-nitropropane	NR		NR
n-proplamine	NR		NR
styrene	<5.66		<2.0
1,1,1,2-tetrachloroethane	<5.66		<2.0
1,1,2,2-tetrachloroethane	<5.66		<4.0
tetrachloroethene	<5.66		<2.0
toluene	<5.66		85
1,2,4-trichlorobenzene	<5.66		<2.0
1,1,1-trichloroethane	<5.66		<2.0
1,1,2-trichloroethane	<5.66		<2.0
trichloroethene	<5.66		<2.0
trichlorofluoromethane	<5.66		<2.0
1,2,3-trichloropropane	<5.66		<4.0
vinyl acetate	<56.6		NR
vinyl chloride	<2.27		<4.0
o-xylene	<5.66		410
m-xylene	<5.66		1100
p-xylene	<5.66		
xylenes (total)	NA		NA
Additional Analyte Information			
n-butyl benzene	NR		21
sec-butyl benzene	NR		12
tert-butyl benzene	NR		19
isopropyl benzene	NR		33
n-propyl benzene	NR		31
1,2,4-trimethyl benzene	NR		160
1,3,5-trimethyl benzene	NR		55
undecane (TIC)	19		36

Table B-2-1 - Field Comparability Volatile Organic Compounds (VOC)			
Compound	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	DR-SD1	DR-SD1 QC	DR-SD1 QA
acetone	<28.3	<27.4	<30
allyl chloride	NR	NR	NR
benzene	<7.08	<6.85	<1.0
benzyl chloride	NR	NR	NR
bromochloromethane	<7.08	<6.85	<1.0
bromoform	<7.08	<6.85	<1.0
bromomethane	<7.08	<6.85	<2.0
carbon tetrachloride	<7.08	<6.85	<1.0
chlorobenzene	<7.08	<6.85	<1.0
chlorodibromomethane	<7.08	<6.85	<1.0
chloroethane	<7.08	<6.85	<3.0
2-chloroethyl vinyl ether	<14.2	<13.7	NR
chloroform	<7.08	<6.85	<1.0
chloromethane	<7.08	<6.85	<3.0
chloroprene	NR	NR	NR
1,2-dibromoethane	<7.08	<6.85	<1.0
dibromomethane	<7.08	<6.85	<1.0
1,2-dichlorobenzene	<7.08	<6.85	<1.0
1,3-dichlorobenzene	<7.08	<6.85	<1.0
1,4-dichlorobenzene	<7.08	<6.85	<1.0
cis-1,4-dichloro-2-butene	NR	NR	NR
dichlorodifluoromethane	NR	NR	<2.0
1,1-dichloroethane	<7.08	<6.85	<1.0
1,2-dichloroethane	<7.08	<6.85	<1.0
1,1-dichloroethene	<7.08	<6.85	<1.0
cis-1,2-dichloroethene	<7.08	<6.85	<1.0
trans-1,2-dichloroethene	<7.08	<6.85	<2.0
1,2-dichloroethene (total)	NA	NA	NA
1,2-dichloropropane	<7.08	<6.85	<1.0
cis-1,3-dichloropropene	<7.08	<6.85	NR
trans-1,3-dichloropropene	<7.08	<6.85	NR
1,2,3,4-diepoxybutane	NR	NR	NR
diethyl ether	NR	NR	NR
ethylbenzene	<7.08	<6.85	<1.0
ethyl methacrylate	NR	NR	NR

Table B-2-1 - Field Comparability Volatile Organic Compounds (VOC)			
Compound	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	DR-SD1	DR-SD1 QC	DR-SD1 QA
napthalene	NR	NR	<1.0
nitrobenzene	NR	NR	NR
2-nitropropane	NR	NR	NR
n-proplamine	NR	NR	NR
styrene	<7.08	<6.85	<1.0
1,1,1,2-tetrachloroethane	<7.08	<6.85	<1.0
1,1,2,2-tetrachloroethane	<7.08	<6.85	<2.0
tetrachloroethene	<7.08	<6.85	<1.0
toluene	<7.08	<6.85	<2.0
1,2,4-trichlorobenzene	<7.08	<6.85	<1.0
1,1,1-trichloroethane	<7.08	<6.85	<1.0
1,1,2-trichloroethane	<7.08	<6.85	<1.0
trichloroethene	<7.08	<6.85	<1.0
trichlorofluoromethane	<7.08	<6.85	<1.0
1,2,3-trichloropropane	<7.08	<6.85	<2.0
vinyl acetate	<70.8	<68.5	NR
vinyl chloride	<2.83	<2.74	<2.0
o-xylene	<7.08	<6.85	<1.0
m-xylene	<7.08	<6.85	<1.0
p-xylene	<7.08	<6.85	<1.0
xylenes (total)	NA	NA	NA

Table B-2-2 - Field Comparability Semivolatile Organic Compounds (SVOCs)			
Compounds	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	DR-SD1	DR-SD1 QC	DR-SD1 QA
acenaphthene	<467	<452	<400
acenaphthylene	<467	<452	NR
acetophenone	NR	NR	NR
2-acetylaminofluorene	NR	NR	NR
1-acetyl-2-thiourea	NR	NR	NR
aldrin	NR	NR	NR
2-aminoanthraquinone	NR	NR	NR
aminoazobenzene	NR	NR	NR
4-aminobiphenyl	NR	NR	NR
3-amino-9-ethylcarbazole	NR	NR	NR
anilazine	NR	NR	NR
aniline	NR	NR	NR
o-anisidine	NR	NR	NR
anthracene	<467	<452	<400
benzoic acid	<1130	<1100	NR
benz(a)anthracene	<467	<452	<400
benzo(b)fluoranthene	<467	<452	<300
benzo(k)fluoranthene	<467	<452	<400
benzo(g,h,i)perylene	<467	<452	<400
benzo(a)pyrene	<467	<452	<400
benzyl alcohol	<921	<890	NR
α-BHC	NR	NR	NR
β-BHC	NR	NR	NR
δ-BHC	NR	NR	NR
Y-BHC	NR	NR	NR
bis(2-chloroethoxy)methane	<467	<452	<500
bis(2-chloroethyl)ether	<467	<452	<400
bis(2-chloroisopropyl)ether	<467	<452	<400
bis(2-ethylhexyl)phthalate	<467	<452	<1000

Table B-2-2 - Field Comparability Semivolatile Organic Compounds (SVOCs)			
Compounds	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	DR-SD1	DR-SD1 QC	DR-SD1 QA
4-bromophenyl phenyl ether	<467	<452	<400
bromoxynil	NR	NR	NR
butyl benzyl phthalate	<467	<452	<500
2-sec-butyl-4,6-dinitrophenol	NR	NR	NR
carbaryl	NR	NR	NR
carbonfuran	NR	NR	NR
carbophenothion	NR	NR	NR
chlorodane	NR	NR	NR
chlorfenvinphos	NR	NR	NR
4-chloroaniline	<467	<452	<600
chlorobenzilate	NR	NR	NR
5-chloro-2-methylaniline	NR	NR	NR
4-chloro-3-methylphenol	<921	<890	<1000
3-(chloromethyl)pyridine hydrochloride	NR	NR	NR
1-chloronaphthalene	<467	<452	NR
2-chloronapthalene	<467	<452	<500
2-chlorophenol	<467	<452	<400
4-chloro-1,2-phenylenediamine	NR	NR	NR
4-chloro-1,3-phenylenediamine	NR	NR	NR
4-chlorophenyl phenyl ether	<467	<452	<400
chrysene	<467	<452	<400
coumaphos	NR	NR	NR
p-cresidine	NR	NR	NR
crotoxyphos	NR	NR	NR
2-cyclohexyl-4,6-dinitro-phenol	NR	NR	NR
4,4'-DDD	NR	NR	NR
4,4'-DDE	NR	NR	NR
4,4'-DDT	NR	NR	NR
demeton-O	NR	NR	NR

Table B-2-2 - Field Comparability Semivolatile Organic Compounds (SVOCs)			
Compounds	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	DR-SD1	DR-SD1 QC	DR-SD1 QA
demeton-S	NR	NR	NR
diallate (cis or trans)	NR	NR	NR
dibenz(a,j)acridine	NR	NR	NR
dibenz(a,h)anthracene	<467	<452	<400
dibenzofuran	<467	<452	<400
1,2-dibromo-3-chloropropane	NR	NR	NR
di-n-butyl phthalate	<467	<452	<2000
1,2-dichlorobenzene	<467	<452	<200
1,3-dichlorobenzene	<467	<452	<400
1,4-dicholorbenzene	<467	<452	<300
3,3'-dichlorobenzidine	<467	<452	NR
2,4-dichlorophenol	<467	<452	<1000
2,6-dichlorophenol	NR	NR	NR
dichlorovos	NR	NR	NR
dicrotophos	NR	NR	NR
dieldrin	NR	NR	NR
diethyl phthalate	<467	<452	<400
3,3'-dimethoxybenzidine	NR	NR	NR
dimethylaminoazobenzene-7,12-dimethylbenz(a)anthracene	NR	NR	NR
3,3'-dimethylbenzidine	NR	NR	<400
2,4-dimethylphenol	<467	<452	<300
dimethyl phthalate	<467	<452	<400
1,2-dinitrobenzene	NR	NR	NR
1,3-dinitrobenzene	NR	NR	NR
4,6-dinitro-2-methylphenol	<2340	<2260	<1000
2,4-dinitrophenol	<2340	<2260	<3000
2,4-dinitrotoluene	<467	<452	<600
2,6-dinitrotoluene	<467	<452	<600
dinoseb	NR	NR	NR

Table B-2-2 - Field Comparability Semivolatile Organic Compounds (SVOCs)			
Compounds	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	DR-SD1	DR-SD1 QC	DR-SD1 QA
diphenylamine	NR	NR	NR
5,5-diphenylhydantoin	NR	NR	NR
1,2-diphenylhydrazine	NR	NR	NR
di-n-octyl phthalate	<467	<452	<400
disulfoton	NR	NR	NR
endosulfan I	NR	NR	NR
endosulfan II	NR	NR	NR
endosulfan sulfate	NR	NR	NR
endrin	NR	NR	NR
endrin aldehyde	NR	NR	NR
endrin ketone	NR	NR	NR
EPN	NR	NR	NR
ethion	NR	NR	NR
ethyl methanesulfonate	NR	NR	NR
ethyl parathion	NR	NR	NR
famphur	NR	NR	NR
fensulfothion	NR	NR	NR
fenthion	NR	NR	NR
fluchloralin	NR	NR	NR
fluroanthene	<467	<452	<400
fluorene	<467	<452	<400
heptchlor	NR	NR	NR
heptchlor epoxide	NR	NR	NR
hexachlorobenzene	<467	<452	<500
hexachlorobutadiene	<467	<452	<1000
hexachlorocyclopentadiene	<467	<452	<400
hexachloroethane	<467	<452	<400
hexachloropropene	NR	NR	NR
hexamethylphosphoramide	NR	NR	NR

Table B-2-2 - Field Comparability Semivolatile Organic Compounds (SVOCs)			
Compounds	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	DR-SD1	DR-SD1 QC	DR-SD1 QA
indeno(1,2,3-cd)pyrene	<467	<452	<400
isodrin	NR	NR	NR
isophorone	<467	<452	NR
kepone	NR	NR	NR
leptophos	NR	NR	NR
mestranol	NR	NR	NR
methapyrilene	NR	NR	NR
methoxychlor	NR	NR	NR
3-methylcholanthrene	NR	NR	NR
4,4'-methylenebis(N,N-dimethylaniline)	NR	NR	NR
methyl methanesulfonate	NR	NR	NR
2-methylnaphthalene	<467	<452	NR
2-methyl-5-nitroaniline	NR	NR	NR
methyl parathion	NR	NR	NR
2-methylphenol	<467	<452	<400
3-methylphenol	<467	<452	NR
4-methylphenol	<467	<452	NR
2-methylpyridine	NR	NR	NR
mevinphos	NR	NR	NR
mirex	NR	NR	NR
naled	NR	NR	NR
naphthalene	<467	<452	<1000
1,4-naphthoquinone	NR	NR	NR
2-naphthylamine	NR	NR	NR
5-nitroacenaphthene	NR	NR	NR
2-nitroaniline	<2340	<2260	<500
3-nitroaniline	<2340	<2260	<400
4-nitroaniline	<2340	<2260	NR
5-nitro-o-anisidine	NR	NR	NR

Table B-2-2 - Field Comparability
Semivolatile Organic Compounds (SVOCs)

Compounds	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	DR-SD1	DR-SD1 QC	DR-SD1 QA
nitrobenzene	<467	<452	<1000
4-nitrobiphenyl	NR	NR	NR
nitrofen	NR	NR	NR
2-nitrophenol	<467	<452	<1000
4-nitrophenol	<1130	<2260	<1000
5-nitro-o-toluidine	NR	NR	NR
nitroquinoline-1-oxide	NR	NR	NR
N-nitrosodibutylamine	NR	NR	NR
N-nitrosodibutylamine	NR	NR	NR
N-nitrosodiethylamine	NR	NR	NR
N-nitrosodimethylamine	NR	NR	NR
N-nitrosodiphenylamine	<467	<452	<300
N-nitrosodi-n-propylamine	<467	<452	<400
N-nitrosopiperidine	NR	NR	NR
N-nitrosopyrrolidine	NR	NR	NR
4,4'-oxydianiline	NR	NR	NR
parathion	NR	NR	NR
pentachlorobenzene	NR	NR	NR
pentachloronitrobenzene	NR	NR	NR
pentachlorophenol	<2340	<2260	<500
phenacetin	NR	NR	NR
phenanthrene	<467	<452	<400
phenobarbital	NR	NR	NR
1,4-phenylenediamine	NR	NR	NR
phorate	NR	NR	NR
piperonyl sulfoxide	NR	NR	NR
pronamide	NR	NR	NR
pyrene	<467	<452	<1000
safrole	NR	NR	NR

Table B-2-2 - Field Comparability Semivolatile Organic Compounds (SVOCs)			
Compounds	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	DR-SD1	DR-SD1 QC	DR-SD1 QA
sulfallate	NR	NR	NR
terbufos	NR	NR	NR
1,2,4,5-tetrachlorobenzene	NR	NR	NR
2,3,4,6-tetrachlorophenol	NR	NR	NR
tetrachlorvinphos	NR	NR	NR
tetraethyl dithiopyrophosphate	NR	NR	NR
tetraethyl pyrophosphate	NR	NR	NR
thioinazine	NR	NR	NR
thiophenol (benzenethiol)	NR	NR	NR
o-toluidine	NR	NR	NR
toxaphene	NR	NR	NR
1,2,4-trichlorobenzene	<467	<452	<1000
2,4,5-trichlorophenol	<2340	<2260	<600
2,4,6-trichlorophenol	<467	<452	<500
trifluralin	NR	NR	NR
2,4,5-trimethylaniline	NR	NR	NR
1,3,5-trinitrobenzene	NR	NR	NR
tris(2,3-dibromopropyl)phosphate	NR	NR	NR
tri-p-tolyl phosphate	NR	NR	NR
O,O,O-triethyl phosphorothioate	NR	NR	NR

Table B-2-3 - Field Comparability Metals			
Compounds	Results		
	Field Sample (mg/kg)	QC Sample (mg/kg)	QA Sample (mg/kg)
	DR-SD1	DR-SD-1 QC	DR-SD-1 QA
Aluminum	4580	6550	7470
Antimony	<7.08	<6.85	0.79
Arsenic	2.02	2.37	2.2
Barium	50.9	62.3	101
Beryllium	<0.42	<0.41	0.42
Bismuth	NR		
Boron	NR		
Cadmium	<0.71	<0.68	<1.4
Calcium	13900	15700	27700
Chromium	4.02	5.86	6.4
Cobalt	2.89	2.96	5.0
Copper	3.49	4.66	5.9
Iron	5860	7480	10700
Lead	7.54	10.8	48.3
Lithium			
Magnesium	1500	1990	2450
Manganese	57.6	69.9	97.0
Mercury	<0.017	<0.164	0.020 J
Molybednum			
Nickel	4.41	5.38	7.0
Phosphorus			
Potassium	1220	1650	2010
Selenium	<1.42	<1.37	0.36
Silicon			
Silver	<0.71	<0.68	<1.4
Sodium	443	473	673
Sulfur			
Tellerium			
Thallium	<1.4	<1.4	<0.2
Tin	1.37	1.47	<13.9
Titanium			
Tungsten			
Uranium			

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Table B-2-3 - Field Comparability Metals			
Compounds	Results		
	Field Sample (mg/kg)	QC Sample (mg/kg)	QA Sample (mg/kg)
	DR-SD1	DR-SD-1 QC	DR-SD-1 QA
Vanadium	9.44	12.5	16.2
Yttrium			
Zinc	23.6	29.5	46.9

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Table B-2-4 - Field Comparability Pesticides (Pest) and Polychlorinated Biphenyls (PCBs)			
Compound	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	DR-SD1	DR-SD1 QC	DR-SD1 QA
aldrin	<18.8	<70.4	<2
α-BHC	<14.1	<52.8	<2
β-BHC	<28.3	<106	<2
δ-BHC	<42.4	<158	<2
Y-BHC (lindane)	<18.8	<70.4	<2
chlordane	783	1110	2100
4,4'-DDD	<51.8	<193	37
4,4'-DDE	<18.8	<70.4	91
4,4'-DDT	<56.5	<211	62
dieldrin	<9.42	<35.2	130
endolsulfan I	<65.9	<246	<1
endolsulfan II	<18.8	<70.4	<2
endosulfan sulfate	<311	<1160	<7
endrin	<28.3	<106	<2
endrin aldehyde	<108	<405	<2
heptachlor	<14.1	<52.8	<2
heptachlor epoxide	<391	<1460	<2
methoxychlor	<829	<3100	<5
toxaphene	<1130	<4220	<20
PCB-1016	<306	<1140	<20
PCB-1221	<306	<1140	<20
PCB-1232	<306	<1140	<20
PCB-1242	<306	<1140	<20
PCB-1248	<306	<1140	<20
PCB-1254	<306	<1140	<20
PCB-1260	<306	<1140	<20

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Table B-2-5 - Field Comparability Herbicides (Herb)			
Compounds	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	DR-SD1	DR-SD1 QC	DR-SD1 QA
2,4-D	<212	<137	<56
2,4-DB	<212	<137	<56
2,4,5-T	<21.5	<13.7	<56
2,4,5-TP (silvex)	<21.2	<13.7	<56
dalapon	<850	<548	NR
dicamba	<21.2	<13.7	<56
dichlorprop	<212	<137	NR
dinoseb	<85.0	<54.8	NR
MCPA	<85000	<54800	NR
MCPP	<85000	<54800	NR

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Table B-3-1 - Field Comparability Volatile Organic Compounds (VOCs)			
Compounds	Results		
	Field Sample (ug/L)	QC Sample (ug/L)	QA Sample (ug/L)
	LF-W9	NA	LF-W9 QA
acetone	<20.0		<6.0
allyl chloride	NR		NR
benzene	<5.0		<0.1
benzyl chloride	NR		NR
bromochloromethane	<5.0		<0.4
bromoform	<5.0		<0.3
bromomethane	<5.0		<0.4
carbon tetrachloride	<5.0		<0.2
chlorobenzene	<5.0		<0.2
chlorodibromomethane	<5.0		<0.4
chloroethane	<5.0		<0.5
2-chloroethyl vinyl ether	<10.0		NR
chloroform	<5.0		<0.2
chloromethane	<5.0		<0.4
chloroprene	NR		NR
1,2-dibromoethane	<5.0		<0.3
dibromoethane	<5.0		<0.3
1,2-dichlorobenzene	<5.0		<0.2
1,3-dichlorobenzene	<5.0		<0.2
1,4-dichlorobenzene	<5.0		<0.2
cis-1,4-dichloro-2-butene	NR		NR
dichlorodifluoromethane	NR		<0.4
1,1-dichloroethane	<5.0		<0.2
1,2-dichloroethane	<5.0		<0.3
1,1-dichloroethene	<5.0		<0.4
cis-1,2-dichloroethene	<5.0		<0.3
trans-1,2-dichloroethene	<5.0		<0.3
1,2-dichloroethene (total)	NA		NA
1,2-dichloropropane	<5.0		<0.2

Table B-3-1 - Field Comparability Volatile Organic Compounds (VOCs)			
Compounds	Results		
	Field Sample (ug/L)	QC Sample (ug/L)	QA Sample (ug/L)
	LF-W9	NA	LF-W9 QA
cis-1,3-dichloropropene	<5.0		NR
trans-1,3-dichloropropene	<5.0		NR
1,2,3,4-diepoxybutene	NR		NR
diethyl ether	NR		NR
ethylbenzene	<5.0		<0.2
ethyl methacrylate	NR		NR
methylene chloride	<5.0		<0.4
napthalene	NR		<0.3
nitrobenzene	NR		NR
2-nitropropane	NR		NR
n-proplamine	NR		NR
styrene	<5.0		<0.2
1,1,1,2-tetrachloroethane	<5.0		<0.2
1,1,2,2-tetrachloroethane	<5.0		<0.3
tetrachloroethene	<5.0		<0.2
toluene	<5.0		<0.2
1,2,4-trichlorobenzene	<5.0		<0.2
1,1,1-trichloroethane	<5.0		<0.2
1,1,2-trichloroethane	<5.0		<0.4
trichloroethene	<5.0		<0.2
trichlorofluoromethane	<5.0		<0.3
1,2,3-trichloropropane	<5.0		<0.3
vinyl acetate	<50.0		NR
vinyl chloride	<2.0		<0.2
o-xylene	<5.0		<0.3
m-xylene	<5.0		<0.5
p-xylene	<5.0		
xylenes (total)	NA		NA

Table B-4-1 - Field Comparability Volatile Organic Compounds (VOCs)			
Compounds	Results		
	Field Sample (ug/L)	QC Sample (ug/L)	QA Sample (ug/L)
	LF-W13	NA	LF-W13 QA
acetone	<20.0		<6.0
allyl chloride	NR		NR
benzene	<5.0		<0.1
benzyl chloride	NR		NR
bromochloromethane	<5.0		<0.4
bromoform	<5.0		<0.3
bromomethane	<5.0		<0.4
carbon tetrachloride	<5.0		<0.2
chlorobenzene	<5.0		<0.2
chlorodibromomethane	<5.0		<0.4
chloroethane	<5.0		<0.5
2-chloroethyl vinyl ether	<10.0		NR
chloroform	<5.0		<0.2
chloromethane	<5.0		<0.4
chloroprene	NR		NR
1,2-dibromoethane	<5.0		<0.3
dibromoethane	<5.0		<0.3
1,2-dichlorobenzene	<5.0		<0.2
1,3-dichlorobenzene	<5.0		<0.2
1,4-dichlorobenzene	<5.0		<0.2
cis-1,4-dichloro-2-butene	NR		NR
dichlorodifluoromethane	NR		<0.4
1,1-dichloroethane	<5.0		<0.2
1,2-dichloroethane	<5.0		<0.3
1,1-dichloroethene	<5.0		<0.4
cis-1,2-dichloroethene	<5.0		<0.3
trans-1,2-dichloroethene	<5.0		<0.3
1,2-dichloroethene (total)	NA		NA
1,2-dichloropropane	<5.0		<0.2
cis-1,3-dichloropropene	<5.0		NR
trans-1,3-dichloropropene	<5.0		NR
1,2,3,4-diepoxybutene	NR		NR
diethyl ether	NR		NR
ethylbenzene	<5.0		<0.2

Table B-4-1 - Field Comparability
Volatile Organic Compounds (VOCs)

Compounds	Results		
	Field Sample (ug/L)	QC Sample (ug/L)	QA Sample (ug/L)
	LF-W13	NA	LF-W13 QA
ethyl methacrylate	NR		NR
methylene chloride	<5.0		<0.4
napthalene	NR		<0.3
nitrobenzene	NR		NR
2-nitropropane	NR		NR
n-proplamine	NR		NR
styrene	<5.0		<0.2
1,1,1,2-tetrachloroethane	<5.0		<0.2
1,1,2,2-tetrachloroethane	<5.0		<0.3
tetrachloroethene	<5.0		<0.2
toluene	<5.0		<0.2
1,2,4-trichlorobenzene	<5.0		<0.2
1,1,1-trichloroethane	<5.0		<0.2
1,1,2-trichloroethane	<5.0		<0.4
trichloroethene	<5.0		<0.2
trichlorofluoromethane	<5.0		<0.3
1,2,3-trichloropropane	<5.0		<0.3
vinyl acetate	<50.0		NR
vinyl chloride	<2.0		<0.2
o-xylene	<5.0		<0.3
m-xylene	<5.0		<0.5
p-xylene	<5.0		
xylenes (total)	NA		NA

Table B-5-1 - Field Comparability Volatile Organic Compounds (VOCs)			
Compounds	Results		
	Field Sample (ug/L)	QC Sample (ug/L)	QA Sample (ug/L)
	LF-W24	NA	LF-W24 QA
acetone	<20.0		<6.0
allyl chloride	NR		NR
benzene	<5.0		<0.1
benzyl chloride	NR		NR
bromochloromethane	<5.0		<0.4
bromoform	<5.0		<0.3
bromomethane	<5.0		<0.4
carbon tetrachloride	<5.0		<0.2
chlorobenzene	<5.0		<0.2
chlorodibromomethane	<5.0		<0.4
chloroethane	<5.0		<0.5
2-chloroethyl vinyl ether	<10.0		NR
chloroform	<5.0		<0.2
chloromethane	<5.0		<0.4
chloroprene	NR		NR
1,2-dibromoethane	<5.0		<0.3
dibromoethane	<5.0		<0.3
1,2-dichlorobenzene	<5.0		<0.2
1,3-dichlorobenzene	<5.0		<0.2
1,4-dichlorobenzene	<5.0		<0.2
cis-1,4-dichloro-2-butene	NR		NR
dichlorodifluoromethane	NR		<0.4
1,1-dichloroethane	<5.0		<0.2
1,2-dichloroethane	<5.0		<0.3
1,1-dichloroethene	<5.0		<0.4
cis-1,2-dichloroethene	<5.0		<0.3
trans-1,2-dichloroethene	<5.0		<0.3
1,2-dichloroethene (total)	NA		NA
1,2-dichloropropane	<5.0		<0.2
cis-1,3-dichloropropene	<5.0		NR
trans-1,3-dichloropropene	<5.0		NR
1,2,3,4-diepoxybutane	NR		NR
diethyl ether	NR		NR

Table B-5-1 - Field Comparability Volatile Organic Compounds (VOCs)			
Compounds	Results		
	Field Sample (ug/L)	QC Sample (ug/L)	QA Sample (ug/L)
	LF-W24	NA	LF-W24 QA
ethylbenzene	<5.0		<0.2
ethyl methacrylate	NR		NR
methylene chloride	<5.0		<0.4
napthalene	NR		<0.3
nitrobenzene	NR		NR
2-nitropropane	NR		NR
n-proplamine	NR		NR
styrene	<5.0		<0.2
1,1,1,2-tetrachloroethane	<5.0		<0.2
1,1,2,2-tetrachloroethane	<5.0		<0.3
tetrachloroethene	<5.0		<0.2
toluene	<5.0		<0.2
1,2,4-trichlorobenzene	<5.0		<0.2
1,1,1-trichloroethane	<5.0		<0.2
1,1,2-trichloroethane	<5.0		<0.4
trichloroethene	<5.0		<0.2
trichlorofluoromethane	<5.0		<0.3
1,2,3-trichloropropane	<5.0		<0.3
vinyl acetate	<50.0		NR
vinyl chloride	<2.0		<0.2
o-xylene	<5.0		<0.3
m-xylene	<5.0		<0.5
p-xylene	<5.0		
xylenes (total)	NA		NA
-			

Table B-6-1 - Field Comparability Semivolatile Organic Compounds (SVOCs)			
Compounds	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	LF-SB35(5.0)	NA	LF-SB35(5.0) QA
acenaphthene	<405		<200
acenaphthylene	<405		NR
acetophenone	NR		NR
2-acetylaminofluorene	NR		NR
1-acetyl-2-thiourea	NR		NR
aldrin	NR		NR
2-aminoanthraquinone	NR		NR
aminoazobenzene	NR		NR
4-aminobiphenyl	NR		NR
3-amino-9-ethylcarbazole	NR		NR
anilazine	NR		NR
aniline	NR		NR
o-anisidine	NR		NR
anthracene	<405		<200
benzoic acid	<982		NR
benz(a)anthracene	<405		<200
benzo(b)fluoranthene	<405		<200
benzo(k)fluoranthene	<405		<200
benzo(g,h,i)perylene	<405		<200
benzo(a)pyrene	<405		<200
benzyl alcohol	<798		NR
α-BHC	NR		NR
β-BHC	NR		NR
δ-BHC	NR		NR
γ-BHC	NR		NR
bis(2-chloroethoxy)methane	<405		<300
bis(2-chloroethyl)ether	<405		<100
bis(2-chloroisopropyl)ether	<405		<200
bis(2-ethylhexyl)phthalate	<405		<600

Table B-6-1 - Field Comparability Semivolatile Organic Compounds (SVOCs)			
Compounds	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	LF-SB35(5.0)	NA	LF-SB35(5.0) QA
4-bromophenyl phenyl ether	<405		<200
bromoxynil	NR		NR
butyl benzyl phthalate	<405		<200
2-sec-butyl-4,6-dinitrophenol	NR		NR
carbaryl	NR		NR
carbonfuran	NR		NR
carbophenothion	NR		NR
chlorodane	NR		NR
chlorfenvinphos	NR		NR
4-chloroaniline	<405		<300
chlorobenzilate	NR		NR
5-chloro-2-methylaniline	NR		NR
4-chloro-3-methylphenol	<798		<600
3-(chloromethyl)pyridine hydrochloride	NR		NR
1-chloronaphthalene	<405		NR
2-chloronapthalene	<405		<200
2-chlorophenol	<405		<200
4-chloro-1,2-phenylenediamine	NR		NR
4-chloro-1,3-phenylenediamine	NR		NR
4-chlorophenyl phenyl ether	<405		<300
chrysene	<405		<200
coumaphos	NR		NR
p-cresidine	NR		NR
crotoxyphos	NR		NR
2-cyclohexyl-4,6-dinitro-phenol	NR		NR
4,4'-DDD	NR		NR
4,4'-DDE	NR		NR
4,4'-DDT	NR		NR

Table B-6-1 - Field Comparability Semivolatile Organic Compounds (SVOCs)			
Compounds	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	LF-SB35(5.0)	NA	LF-SB35(5.0) QA
demeton-O	NR		NR
demeton-S	NR		NR
diallate (cis or trans)	NR		NR
dibenz(a,j)acridine	NR		NR
dibenz(a,h)anthracene	<405		<200
dibenzofuran	<405		<200
1,2-dibromo-3-chloropropane	NR		NR
di-n-butyl phthalate	<405		<1000
1,2-dichlorobenzene	<405		<100
1,3-dichlorobenzene	<405		<200
1,4-dicholorbenzene	<405		<200
3,3'-dichlorobenzidine	<405		NR
2,4-dichlorophenol	<405		<600
2,6-dichlorophenol	NR		NR
dichlorovos	NR		NR
dicrotophos	NR		NR
dieldrin	NR		NR
diethyl phthalate	<410		<200
3,3'-dimethoxybenzidine	NR		NR
dimethylaminoazobenzene-7,12-dimethylbenz(a)anthracene	NR		NR
3,3'-dimethylbenzidine	NR		NR
2,4-dimethylphenol	<405		<200
dimethyl phthalate	<405		<400
1,2-dinitrobenzene	NR		NR
1,3-dinitrobenzene	NR		NR
4,6-dinitro-2-methylphenol	<2020		<1000
2,4-dinitrophenol	<2020		<3000
2,4-dinitrotoluene	<405		<300

Table B-6-1 - Field Comparability Semivolatile Organic Compounds (SVOCs)			
Compounds	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	LF-SB35(5.0)	NA	LF-SB35(5.0) QA
2,6-dinitrotoluene	<405		<300
dinoseb	NR		NR
diphenylamine	NR		NR
5,5-diphenylhydantoin	NR		NR
1,2-diphenylhydrazine	NR		NR
di-n-octyl phthalate	<405		<200
disulfoton	NR		NR
endosulfan I	NR		NR
endosulfan II	NR		NR
endosulfan sulfate	NR		NR
endrin	NR		NR
endrin aldehyde	NR		NR
endrin ketone	NR		NR
EPN	NR		NR
ethion	NR		NR
ethyl methanesulfonate	NR		NR
ethyl parathion	NR		NR
famphur	NR		NR
fensulfothion	NR		NR
fenthion	NR		NR
fluchloralin	NR		NR
fluroanthene	<405		<200
fluorene	<405		<200
heptchlor	NR		NR
heptchlor epoxide	NR		NR
hexachlorobenzene	<405		<300
hexachlorobutadiene	<405		<600
hexachlorocyclopentadiene	<405		<200
hexachloroethane	<405		<200

Table B-6-1 - Field Comparability Semivolatile Organic Compounds (SVOCs)			
Compounds	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	LF-SB35(5.0)	NA	LF-SB35(5.0) QA
hexachloropropene	NR		NR
hexamethylphosphoramide	NR		NR
indeno(1,2,3-cd)pyrene	<405		<200
isodrin	NR		NR
isophorone	<405		NR
kepone	NR		NR
leptophos	NR		NR
mestranol	NR		NR
methapyrilene	NR		NR
methoxychlor	NR		NR
3-methylcholanthrene	NR		NR
4,4'-methylenebis(N,N-dimethylaniline)	NR		NR
methyl methanesulfonate	NR		NR
2-methylnaphthalene	<405		NR
2-methyl-5-nitroaniline	NR		NR
methyl parathion	NR		NR
2-methylphenol	<405		<200
3-methylphenol	<405		NR
4-methylphenol	<405		NR
2-methylpyridine	NR		NR
mevinphos	NR		NR
mirex	NR		NR
naled	NR		NR
naphthalene	<405		<600
1,4-naphthoquinone	NR		NR
2-naphthylamine	NR		NR
5-nitroacenaphthene	NR		NR
2-nitroaniline	<2020		<200

Table B-6-1 - Field Comparability Semivolatile Organic Compounds (SVOCs)			
Compounds	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	LF-SB35(5.0)	NA	LF-SB35(5.0) QA
3-nitroaniline	<2020		<200
4-nitroaniline	<2020		NR
5-nitro-o-anisidine	NR		NR
nitrobenzene	<405		<600
4-nitrobiphenyl	NR		NR
nitrofen	NR		NR
2-nitrophenol	<405		<600
4-nitrophenol	<982		<600
5-nitro-o-toluidine	NR		NR
nitroquinoline-1-oxide	NR		NR
N-nitrosodibutylamine	NR		NR
N-nitrosodibutylamine	NR		NR
N-nitrosodiethylamine	NR		NR
N-nitrosodimethylamine	NR		NR
N-nitrosodiphenylamine	<405		<200
N-nitrosodi-n-propylamine	<405		<200
N-nitrosopiperidine	NR		NR
N-nitrosopyrrolidine	NR		NR
4,4'-oxydianiline	NR		NR
parathion	NR		NR
pentachlorobenzene	NR		NR
pentachloronitrobenzene	NR		NR
pentachlorophenol	<2020		<300
phenacetin	NR		NR
phenanthrene	<405		<200
phenobarbital	NR		NR
1,4-phenylenediamine	NR		NR
phorate	NR		NR
piperonyl sulfoxide	NR		NR

Table B-6-1 - Field Comparability Semivolatile Organic Compounds (SVOCs)			
Compounds	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	LF-SB35(5.0)	NA	LF-SB35(5.0) QA
pronamide	NR		NR
pyrene	<405		<600
safrole	NR		NR
sulfallate	NR		NR
terbufos	NR		NR
1,2,4,5-tetrachlorobenzene	NR		NR
2,3,4,6-tetrachlorophenol	NR		NR
tetrachlorvinphos	NR		NR
tetraethyl dithiopyrophosphate	NR		NR
tetraethyl pyrophosphate	NR		NR
thioinazine	NR		NR
thiophenol (benzenethiol)	NR		NR
o-toluidine	NR		NR
toxaphene	NR		NR
1,2,4-trichlorobenzene	<405		<600
2,4,5-trichlorophenol	<2020		<300
2,4,6-trichlorophenol	<405		<200
trifluralin	NR		NR
2,4,5-trimethylaniline	NR		NR
1,3,5-trinitrobenzene	NR		NR
tris(2,3-dibromopropyl)phosphate	NR		NR
tri-p-tolyl phosphate	NR		NR
O,O,O-triethyl phosphorothioate	NR		NR

Table B-7-1 - Field Comparability Volatile Organic Compounds (VOC)			
Compound	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	LF-SB50(8.0)	NA	LF-SB50(8.0) QA
acetone	<23.8		<30
allyl chloride	NR		NR
benzene	<5.96		<1.0
benzyl chloride	NR		NR
bromochloromethane	<5.96		<1.0
bromoform	<5.96		<1.0
bromomethane	<5.96		<2.0
carbon tetrachloride	<5.96		<1.0
chlorobenzene	<5.96		<1.0
chlorodibromomethane	<5.96		<1.0
chloroethane	<5.96		<3.0
2-chloroethyl vinyl ether	<11.9		NR
chloroform	<5.96		<1.0
chloromethane	<5.96		<3.0
chloroprene	NR		NR
1,2-dibromoethane	<5.96		<1.0
dibromomethane	<5.96		<1.0
1,2-dichlorobenzene	<5.96		<1.0
1,3-dichlorobenzene	<5.96		<1.0
1,4-dichlorobenzene	<5.96		<1.0
cis-1,4-dichloro-2-butene	NR		NR
dichlorodifluoromethane	NR		<2.0
1,1-dichloroethane	<5.96		<1.0
1,2-dichloroethane	<5.96		<1.0
1,1-dichloroethene	<5.96		<1.0
cis-1,2-dichloroethene	<5.96		<1.0
trans-1,2-dichloroethene	<5.96		<2.0
1,2-dichloroethene (total)	NA		NA
1,2-dichloropropane	<5.96		<1.0
cis-1,3-dichloropropene	<5.96		NR
trans-1,3-dichloropropene	<5.96		NR
1,2,3,4-diepoxybutane	NR		NR
diethyl ether	NR		NR
ethylbenzene	<5.96		<1.0

Table B-7-1 - Field Comparability Volatile Organic Compounds (VOC)			
Compound	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	LF-SB50(8.0)	NA	LF-SB50(8.0) QA
ethyl methacrylate	NR		NR
napthalene	NR		<1.0
nitrobenzene	NR		NR
2-nitropropane	NR		NR
n-proplamine	NR		NR
styrene	<5.96		<1.0
1,1,1,2-tetrachloroethane	<5.96		<1.0
1,1,2,2-tetrachloroethane	<5.96		<2.0
tetrachloroethene	<5.96		<1.0
toluene	<5.96		<2.0
1,2,4-trichlorobenzene	<5.96		<1.0
1,1,1-trichloroethane	<5.96		<1.0
1,1,2-trichloroethane	<5.96		<1.0
trichloroethene	<5.96		<1.0
trichlorofluoromethane	<5.96		<1.0
1,2,3-trichloropropane	<5.96		<2.0
vinyl acetate	<59.6		NR
vinyl chloride	<2.34		<2.0
o-xylene	<5.96		<1.0
m-xylene	<5.96		<1.0
p-xylene	<5.96		<1.0
xylenes (total)	NA		NA

Table B-7-2 - Field Comparability Metals			
Compounds	Results		
	Field Sample (mg/kg)	QC Sample (mg/kg)	QA Sample (mg/kg)
	LF-SB50(8.0)	NA	LF-SB50(8.0) QA
Aluminum	7920		8340
Antimony	<6.0		0.2 J
Arsenic	2.20		4.8
Barium	55.7		52.3
Beryllium	0.48		0.52
Bismuth	NR		
Boron	NR		
Cadmium	<0.60		<1.2
Calcium	10500		3080
Chromium	13.7		7.9
Cobalt	5.0		8.9
Copper	4.15		4.1
Iron	11600		18900
Lead	8.40		13.1
Lithium			
Magnesium	2270		2460
Manganese	164		272
Mercury	<0.143		0.008 J
Molybednum			
Nickel	11.5		11.2
Phosphorus			
Potassium	1600		1700
Selenium	<0.60		0.70
Silicon			
Silver	<0.60		<1.2
Sodium	3230		4100
Sulfur			
Tellerium			
Thallium	<1.19		0.2 J
Tin	1.8		22.3
Titanium			
Tungsten			
Uranium			

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Table B-7-2 - Field Comparability Metals			
Compounds	Results		
	Field Sample (mg/kg)	QC Sample (mg/kg)	QA Sample (mg/kg)
	LF-SB50(8.0)	NA	LF-SB50(8.0) QA
Vanadium	15.8		16.8
Yttrium			
Zinc	NR		33.2

Table B-8-1 - Field Comparability Volatile Organic Compounds (VOCs)			
Compounds	Results		
	Field Sample (ug/L)	QC Sample (ug/L)	QA Sample (ug/L)
	LF-W39	NA	LF-W39 QA
acetone	<20.0		<6.0
allyl chloride	NR		NR
benzene	<5.0		<0.1
benzyl chloride	NR		NR
bromochloromethane	<5.0		<0.4
bromoform	<5.0		<0.3
bromomethane	<5.0		<0.4
carbon tetrachloride	<5.0		<0.2
chlorobenzene	<5.0		<0.2
chlorodibromomethane	<5.0		<0.4
chloroethane	<5.0		<0.5
2-chloroethyl vinyl ether	<10.0		NR
chloroform	<5.0		<0.2
chloromethane	<5.0		<0.4
chloroprene	NR		NR
1,2-dibromoethane	<5.0		<0.3
dibromoethane	<5.0		<0.3
1,2-dichlorobenzene	<5.0		<0.2
1,3-dichlorobenzene	<5.0		<0.2
1,4-dichlorobenzene	<5.0		<0.2
cis-1,4-dichloro-2-butene	NR		NR
dichlorodifluoromethane	NR		<0.4
1,1-dichloroethane	<5.0		<0.2
1,2-dichloroethane	<5.0		<0.3
1,1-dichloroethene	<5.0		<0.4
cis-1,2-dichloroethene	<5.0		<0.3
trans-1,2-dichloroethene	<5.0		<0.3
1,2-dichloroethene (total)	NA		NA
1,2-dichloropropane	<5.0		<0.2
cis-1,3-dichloropropene	<5.0		NR
trans-1,3-dichloropropene	<5.0		NR
1,2,3,4-diepoxybutane	NR		NR
diethyl ether	NR		NR

Table B-8-1 - Field Comparability Volatile Organic Compounds (VOCs)			
Compounds	Results		
	Field Sample (ug/L)	QC Sample (ug/L)	QA Sample (ug/L)
	LF-W39	NA	LF-W39 QA
ethylbenzene	<5.0		<0.2
ethyl methacrylate	NR		NR
methylene chloride	<5.0		<0.4
napthalene	NR		<0.3
nitrobenzene	NR		NR
2-nitropropane	NR		NR
n-proplamine	NR		NR
styrene	<5.0		<0.2
1,1,1,2-tetrachloroethane	<5.0		<0.2
1,1,2,2-tetrachloroethane	<5.0		<0.3
tetrachloroethene	<5.0		<0.2
toluene	<5.0		<0.2
1,2,4-trichlorobenzene	<5.0		<0.2
1,1,1-trichloroethane	<5.0		<0.2
1,1,2-trichloroethane	<5.0		<0.4
trichloroethene	<5.0		<0.2
trichlorofluoromethane	<5.0		<0.3
1,2,3-trichloropropane	<5.0		<0.3
vinyl acetate	<50.0		NR
vinyl chloride	<2.0		<0.2
o-xylene	<5.0		<0.3
m-xylene	<5.0		<0.5
p-xylene	<5.0		
xylenes (total)	NA		NA

Table B-9-1 - Field Comparability Herbicides (Herb)			
Compounds	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	LF-SB47(5.0)	NA	LF-SB47(5.0) QA
2,4-D	<58.2		<46.5
2,4-DB	<58.2		<46.5
2,4,5-T	<5.82		<46.5
2,4,5-TP (silvex)	<5.82		<46.5
dalapon	<33		NR
dicamba	<5.82		<46.5
dichlorprop	<58.2		NR
dinoseb	<23.3		NR
MCPA	<23300		NR
MCPP	<23000		NR

Table B-10-1 - Field Comparability Semivolatile Organic Compounds (SVOCs)			
Compounds	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	LF-SB39(5.0)	NA	LF-SB39(5.0) QA
acenaphthene	<376		<575
acenaphthylene	<376		<575
acetophenone	NR		NR
2-acetylaminofluorene	NR		NR
1-acetyl-2-thiourea	NR		NR
aldrin	NR		NR
2-aminoanthraquinone	NR		NR
aminoazobenzene	NR		NR
4-aminobiphenyl	NR		NR
3-amino-9-ethylcarbazole	NR		NR
anilazine	NR		NR
aniline	NR		NR
o-anisidine	NR		NR
anthracene	<376		<575
benzoic acid	<911		NR
benz(a)anthracene	<376		<575
benzo(b)fluoranthene	<376		<575
benzo(k)fluoranthene	<376		<575
benzo(g,h,i)perylene	<376		<575
benzo(a)pyrene	<376		<575
benzyl alcohol	<740		<575
α-BHC	NR		NR
β-BHC	NR		NR
δ-BHC	NR		NR
Y-BHC	NR		NR
bis(2-chloroethoxy)methane	<376		<575
bis(2-chloroethyl)ether	<376		<575
bis(2-chloroisopropyl)ether	<376		<575
bis(2-ethylhexy)phthalate	<376		<575

Table B-10-1 - Field Comparability Semivolatile Organic Compounds (SVOCs)			
Compounds	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	LF-SB39(5.0)	NA	LF-SB39(5.0) QA
4-bromophenyl phenyl ether	<376		<575
bromoxynil	NR		NR
butyl benzyl phthalate	<376		<575
2-sec-butyl-4,6-dinitrophenol	NR		NR
carbaryl	NR		NR
carbonfuran	NR		NR
carbophenothion	NR		NR
chlorodane	NR		NR
chlorfenvinphos	NR		NR
4-chloroaniline	<376		<575
chlorobenzilate	NR		NR
5-chloro-2-methylaniline	NR		NR
4-chloro-3-methylphenol	<740		<575
3-(chloromethyl)pyridine hydrochloride	NR		NR
1-chloronaphthalene	<376		NR
2-chloronapthalene	<376		<575
2-chlorophenol	<376		<575
4-chloro-1,2-phenylenediamine	NR		NR
4-chloro-1,3-phenylenediamine	NR		NR
4-chlorophenyl phenyl ether	<376		<575
chrysene	<376		<575
coumaphos	NR		NR
p-cresidine	NR		NR
crotoxyphos	NR		NR
2-cyclohexyl-4,6-dinitro-phenol	NR		NR
4,4'-DDD	NR		NR
4,4'-DDE	NR		NR
4,4'-DDT	NR		NR

Table B-10-1 - Field Comparability Semivolatile Organic Compounds (SVOCs)			
Compounds	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	LF-SB39(5.0)	NA	LF-SB39(5.0) QA
demeton-O	NR		NR
demeton-S	NR		NR
diallate (cis or trans)	NR		NR
dibenz(a,j)acridine	NR		NR
dibenz(a,h)anthracene	<376		<575
dibenzofuran	<376		<575
1,2-dibromo-3-chloropropane	NR		NR
di-n-butyl phthalate	<376		<575
1,2-dichlorobenzene	<376		<575
1,3-dichlorobenzene	<376		<575
1,4-dicholorbenzene	<376		<575
3,3'-dichlorobenzidine	<376		NR
2,4-dichlorophenol	<376		<575
2,6-dichlorophenol	NR		NR
dichlorovos	NR		NR
dicrotophos	NR		NR
dieldrin	NR		NR
diethyl phthalate	<376		<575
3,3'-dimethoxybenzidine	NR		NR
dimethylaminoazobenzene-7,12-dimethylbenz(a)anthracene	NR		NR
3,3'-dimethylbenzidine	NR		<1150
2,4-dimethylphenol	<376		<575
dimethyl phthalate	<376		<575
1,2-dinitrobenzene	NR		NR
1,3-dinitrobenzene	NR		NR
4,6-dinitro-2-methylphenol	<1880		<575
2,4-dinitrophenol	<1880		<1150
2,4-dinitrotoluene	<376		<575

Table B-10-1 - Field Comparability Semivolatile Organic Compounds (SVOCs)			
Compounds	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	LF-SB39(5.0)	NA	LF-SB39(5.0) QA
2,6-dinitrotoluene	<376		<575
dinoseb	NR		NR
diphenylamine	NR		NR
5,5-diphenylhydantoin	NR		NR
1,2-diphenylhydrazine	NR		NR
di-n-octyl phthalate	<376		<575
disulfoton	NR		NR
endosulfan I	NR		NR
endosulfan II	NR		NR
endosulfan sulfate	NR		NR
endrin	NR		NR
endrin aldehyde	NR		NR
endrin ketone	NR		NR
EPN	NR		NR
ethion	NR		NR
ethyl methanesulfonate	NR		NR
ethyl parathion	NR		NR
famphur	NR		NR
fensulfothion	NR		NR
fenthion	NR		NR
fluchloralin	NR		NR
fluroanthene	<376		<575
fluorene	<376		<575
heptchlor	NR		NR
heptchlor epoxide	NR		NR
hexachlorobenzene	<376		<575
hexachlorobutadiene	<376		<575
hexachlorocyclopentadiene	<376		<1150
hexachloroethane	<376		<575

Table B-10-1 - Field Comparability Semivolatile Organic Compounds (SVOCs)			
Compounds	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	LF-SB39(5.0)	NA	LF-SB39(5.0) QA
hexachloropropene	NR		NR
hexamethylphosphoramide	NR		NR
indeno(1,2,3-cd)pyrene	<376		<575
isodrin	NR		NR
isophorone	<376		NR
kepone	NR		NR
leptophos	NR		NR
mestranol	NR		NR
methapyrilene	NR		NR
methoxychlor	NR		NR
3-methylcholanthrene	NR		NR
4,4'-methylenebis(N,N-dimethylaniline)	NR		NR
methyl methanesulfonate	NR		NR
2-methylnaphthalene	<376		<575
2-methyl-5-nitroaniline	NR		NR
methyl parathion	NR		NR
2-methylphenol	<376		<575
3-methylphenol	<376		<575
4-methylphenol	<376		
2-methylpyridine	NR		NR
mevinphos	NR		NR
mirex	NR		NR
naled	NR		NR
naphthalene	<376		<575
1,4-naphthoquinone	NR		NR
2-naphthylamine	NR		NR
5-nitroacenaphthene	NR		NR
2-nitroaniline	<1880		<575

Table B-10-1 - Field Comparability Semivolatile Organic Compounds (SVOCs)			
Compounds	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	LF-SB39(5.0)	NA	LF-SB39(5.0) QA
3-nitroaniline	<1880		<575
4-nitroaniline	<1880		<575
5-nitro-o-anisidine	NR		NR
nitrobenzene	<376		<575
4-nitrobiphenyl	NR		NR
nitrofen	NR		NR
2-nitrophenol	<376		<575
4-nitrophenol	<911		<575
5-nitro-o-toluidine	NR		NR
nitroquinoline-1-oxide	NR		NR
N-nitrosodibutylamine	NR		NR
N-nitrosodibutylamine	NR		NR
N-nitrosodiethylamine	NR		NR
N-nitrosodimethylamine	NR		<575
N-nitrosodiphenylamine	<376		<575
N-nitrosodi-n-propylamine	<376		<575
N-nitrosopiperidine	NR		NR
N-nitrosopyrrolidine	NR		NR
4,4'-oxydianiline	NR		NR
parathion	NR		NR
pentachlorobenzene	NR		NR
pentachloronitrobenzene	NR		NR
pentachlorophenol	<1880		<575
phenacetin	NR		NR
phenanthrene	<376		<575
phenobarbital	NR		NR
1,4-phenylenediamine	NR		NR
phorate	NR		NR
piperonyl sulfoxide	NR		NR

Table B-10-1 - Field Comparability Semivolatile Organic Compounds (SVOCs)			
Compounds	Results		
	Field Sample (ug/kg)	QC Sample (ug/kg)	QA Sample (ug/kg)
	LF-SB39(5.0)	NA	LF-SB39(5.0) QA
pronamide	NR		NR
pyrene	<376		<575
safrole	NR		NR
sulfallate	NR		NR
terbufos	NR		NR
1,2,4,5-tetrachlorobenzene	NR		NR
2,3,4,6-tetrachlorophenol	NR		NR
tetrachlorvinphos	NR		NR
tetraethyl dithiopyrophosphate	NR		NR
tetraethyl pyrophosphate	NR		NR
thioinazine	NR		NR
thiophenol (benzenethiol)	NR		NR
o-toluidine	NR		NR
toxaphene	NR		NR
1,2,4-trichlorobenzene	<376		<575
2,4,5-trichlorophenol	<1880		<575
2,4,6-trichlorophenol	<376		<575
trifluralin	NR		NR
2,4,5-trimethylaniline	NR		NR
1,3,5-trinitrobenzene	NR		NR
tris(2,3-dibromopropyl)phosphate	NR		NR
tri-p-tolyl phosphate	NR		NR
O,O,O-triethyl phosphorothioate	NR		NR