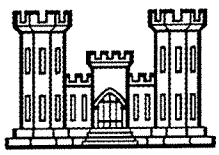
CONSTRUCTION LANDFILL
FORMER LAREDO AIR FORCE BASE (FUDS)
LAREDO, TEXAS

PRELIMINARY INVESTIGATION REPORT

PREPARED BY



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

JANUARY, 1998

PRELIMINARY INVESTIGATION REPORT
CONSTRUCTION LANDFILL
FORMER LAREDO AIR FORCE BASE (FUDS)
LAREDO, TEXAS

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ACRONYMS

ASTM	American Society for Testing and Materials
DQO	Data Quality Objective
EB	Equipment Blank
ECD	Electron Capture Detector
EM	Electromagnetic
EPA	Environmental Protection Agency
FID	Flame Ionization Detector
GC	Gas Chromatography/ Mass Spectroscopy
IDW	Investigated Derived Wastes
MCL	Maximum Contaminant Level
MDL	Method Detection Limit
MSD	Matrix Spike Duplicate
MSSL	Media Specific Screening Level
PCB	Polychlorinated Biphenol
PPE	Personal Protective Equipment
TPH	Total Petroleum Hydrocarbons
QA	Quality Assurance
QC	Quality Control
USACE	U.S. Army Corps of Engineers
VOC	Volatile Organic Compound

EXECUTIVE SUMMARY

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

The Construction Landfill is located on property now owned by the City of Laredo, and is part of the Laredo International Airport. Deposition of material in the Construction Landfill area occurred while the property was owned by the U.S. Government and operated as an Air Force Base, and continued after the property was deeded to the City of Laredo.

The preliminary investigation of the suspected construction debris landfill area included conducting a series of geophysical investigations in September, 1996, and completion of a soil gas survey in October, 1996. The geophysical investigation clearly defined the limits of the Construction Landfill area except along the southern boundary where the landfill appears to extend beyond the limits of the geophysical survey. The anomaly maps produced for each of the geophysical methods employed indicate that the landfill forms an arcuate shaped zone which extends from south to north and is bounded on the western and northern sides by a steep slope with construction debris exposed on the incline. There is little indication from any of the geophysical anomaly maps that sanitary landfill cells are present under the surveyed area, and the geophysical responses observed during this investigation are indicative of subsurface material consisting primarily of construction debris.

A total of 299 soil gas samples were collected at the site from a depth of four feet. The samples were analyzed off-site on a gas chromatograph equipped with a flame ionization detector (GC/FID) for petroleum hydrocarbons and an electron capture detector (GC/ECD) for

chlorinated compounds typically contained in industrial solvents. Samples were analyzed using EPA methods 8010M and 8020M, and none of the analytes tested were present in concentrations above the detection limit. No evidence of contamination by volatile organic compounds was found in any of the soil gas samples.

Both the geophysical survey results and the absence of volatile organic compounds in the soil gas samples provide evidence that only construction debris was disposed at this site, and no further action is warranted.

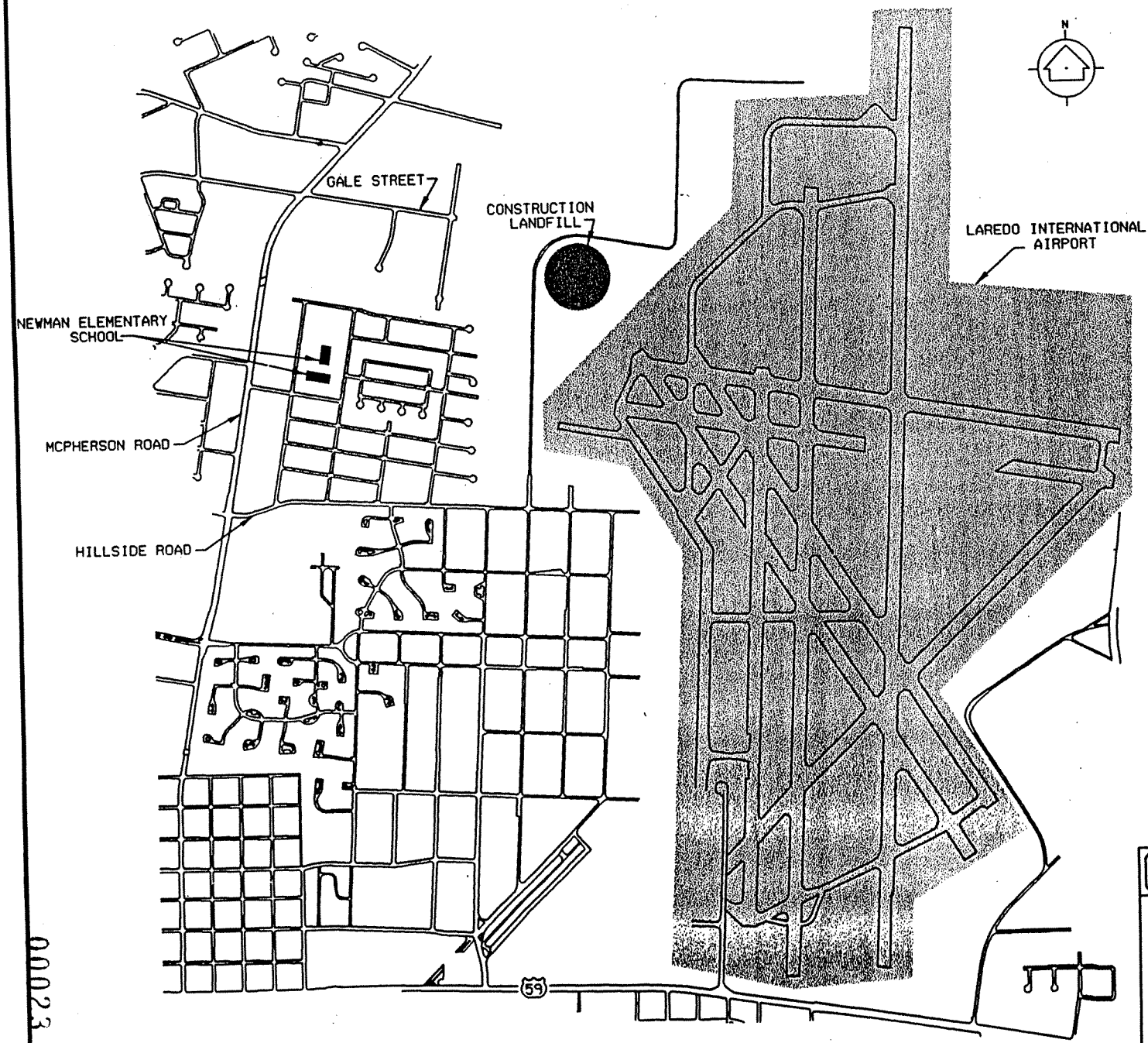
1.0 INTRODUCTION

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

The former Laredo Air Force Base was used as a military base from 1942 to 1975. The U.S. Government acquired 2,085 acres for the construction of Laredo Army Airfield (now known as the former Laredo Air Force Base) on May 7, 1942. The Government constructed runways and numerous facilities on the Base from 1942 to 1974. The Base was initially deactivated on June 17, 1947; however, it was reactivated during the Korean conflict. The Base was again deactivated on March 29, 1974, and approximately 309 acres were either deeded or sold to other federal, state and county agencies, or private interests. The remainder of the Base was deeded to the City of Laredo, Texas.

The Construction Landfill is located on property now owned by the City of Laredo, and is part of the Laredo International Airport. Figure 1-1 presents a site location map for the Construction Landfill. The site is located along the northwest boundary of the Laredo International Airport.

Figure 1-2 presents a site map for the Construction Landfill. The site gently slopes to the northwest, and is bounded to the west and north by a steep topographic slope with 5 to 8 foot of drop in elevation. Numerous large discarded metal objects and debris including pieces of machinery, vehicles, and concrete rubble are visible along this slope. Because the landfill is located near the end of an aircraft runway, the disposal area is suspected to have been used primarily for disposal of construction debris originating from broken runway pavement.



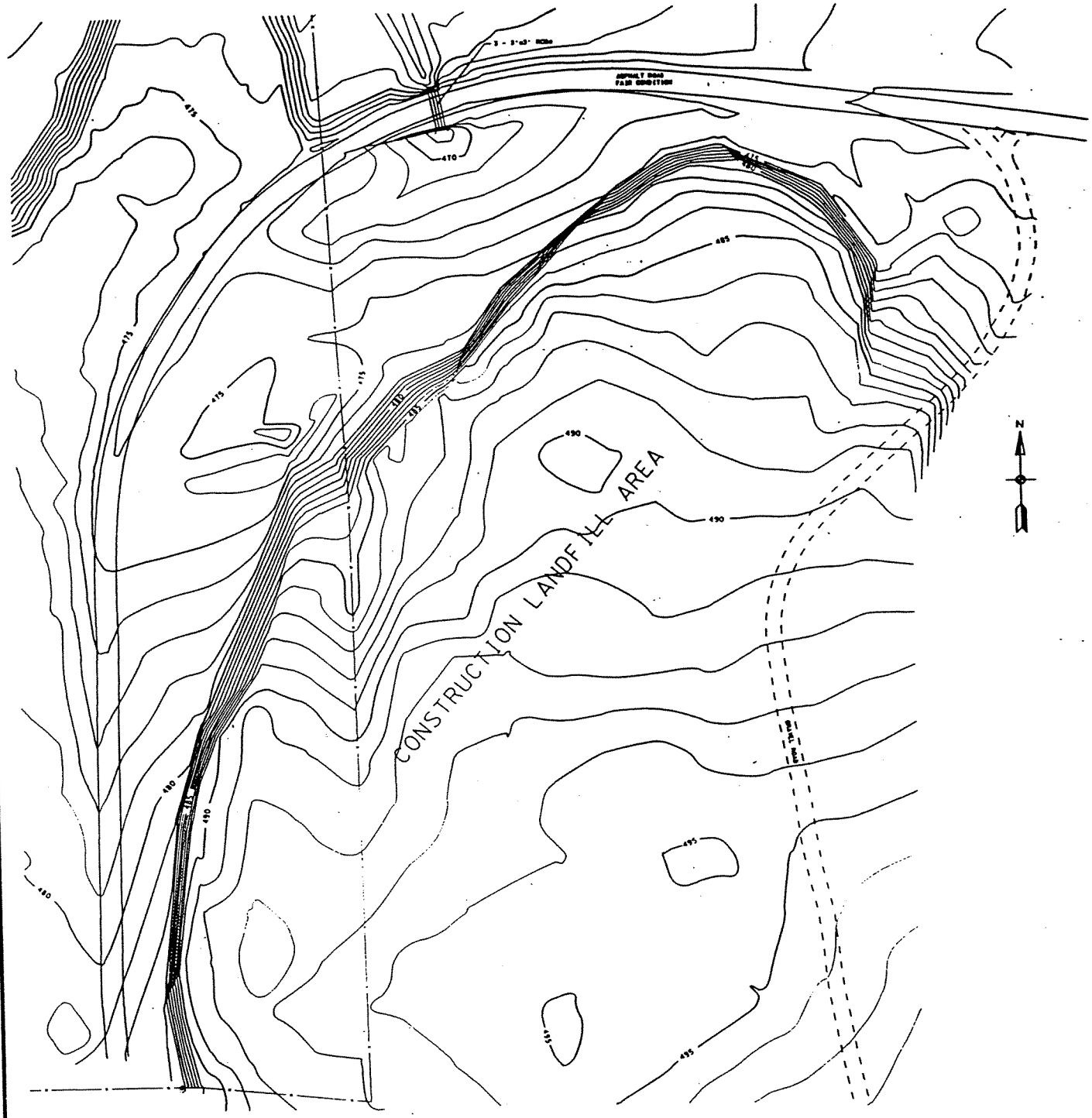
U.S. Army Corps of Engineers
Tulsa District
September 1997

CONSTRUCTION LANDFILL
FORMER LAREDO AIR FORCE BASE (FUDS)
LAREDO, TEXAS

SITE LOCATION MAP

FIGURE 1-1

00023



ELEVATION DATUM BASED ON N.G.V.D. 1929 DATUM.

U.S. Army Corps of Engineers
Tulsa District
September 1997

CONSTRUCTION LANDFILL
FORMER LAREDO AIR FORCE BASE (FUDS)
LAREDO, TEXAS

SITE MAP

FIGURE 1-2

Deposition of material in the Construction Landfill area occurred while the property was owned by the U.S. Government and operated as an Air Force Base, and continued after the property was deeded to the City of Laredo.

2.0 FIELD WORK

The preliminary investigation of the suspected Construction Landfill area included conducting a series of geophysical investigations in September, 1996, and completion of a soil gas survey in October, 1996.

2.1 Geophysical Surveys. Three applicable geophysical methods were employed during the geophysical investigation of the site. These methods included a total field magnetics survey and two electromagnetic (EM) induction survey techniques. The geophysical surveys were completed by USACE Waterways Experiment Station personnel. The objective of the geophysical surveys was to determine the limits of the suspected landfill and to predict the type of material which may have been buried in the area.

The geophysical surveys were accomplished using Geonics EM-31 and EM-61 equipment. The area to be geophysically investigated was topographically surveyed, and wooden stakes were placed at 50 foot intervals to establish an 800 foot by 1,100 foot grid across the site. The geophysical surveys were conducted along north-south traverses spaced 25 feet apart. Electro-magnetic induction measurements were collected at 5 foot intervals along each traverse, and magnetic data was collected every few feet.

The field data collected during the geophysical survey was compiled and reviewed, and geophysical anomaly maps were produced by USACE Waterways Experiment Station personnel following completion of the field work.

2.2 Soil Gas Survey. Soil gas samples were collected and analyzed off-site to help determine if any hazardous volatile constituents are present in the subsurface at the Construction Landfill.

Soil gas samples were collected from a total of 299 locations at the site, as shown in Figure 2-1. Sampling locations were evenly spaced at 50 foot intervals using the 800 foot by 1,100 foot grid

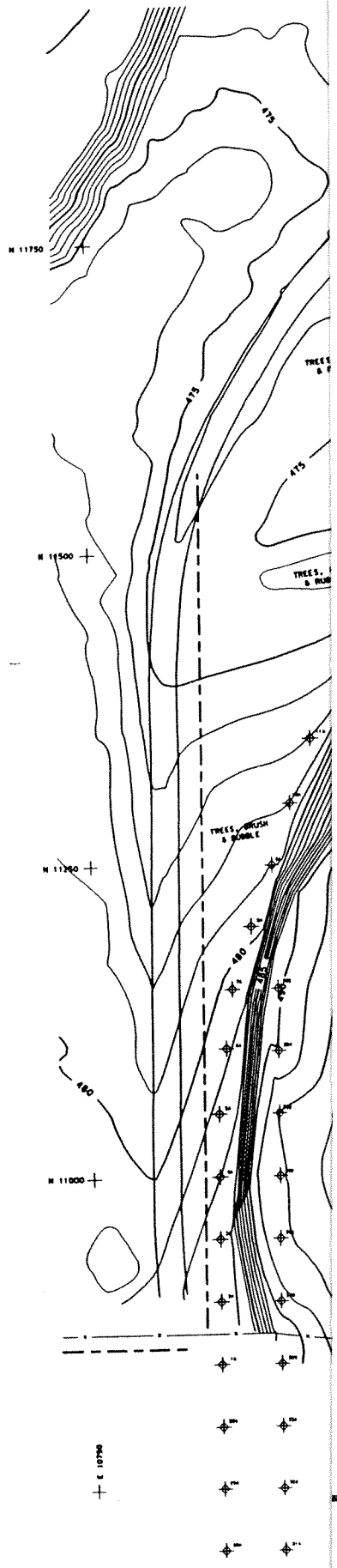
established for the geophysical survey. Soil gas samples were collected from a depth of four feet at each location, and submitted to Target Environmental Services Corp., Columbia, Maryland, for off-site analysis.

The soil gas samples were analyzed using a gas chromatograph equipped with a flame ionization detector (GC/FID) for petroleum hydrocarbons, and an electron capture detector (GC/ECD) for chlorinated compounds typically contained in industrial solvents.

Samples were collected by using a drive rod to produce a ½ inch hole, four feet in depth. The entire sampling system was purged with ambient air drawn through an organic vapor filter cartridge, and a stainless steel probe was inserted to the full depth of the hole and sealed off from the atmosphere. A sample of in-situ soil gas was then withdrawn through the probe and used to purge atmospheric air from the sampling system. A second sample of soil gas was withdrawn through the probe and encapsulated in a pre-evacuated glass vial at two atmospheres of pressure (29 psig). The self-sealing vial was detached from the sampling system, packaged, labeled, and stored for laboratory analysis.

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 filtering ambient air through a dust and organic vapor filter cartridge and encapsulating the sample in a pre-evacuated glass vial at two atmospheres of pressure.

Prior to each day's field activities all sampling equipment, slide hammer rods and probes were decontaminated by washing with a Liquinox/distilled water solution and rinsing thoroughly with distilled water. Internal surfaces were flushed dry using filtered ambient air, and external surfaces were wiped clean using clean paper towels or allowed to air dry.



LEGEND

- SAN. SEWER MANHOLE
- COMMUNICATIONS MANHOLE
- COMMUNICATIONS PEDESTAL
- ELECTRIC MANHOLE
- STORM SEWER MANHOLE
- AREA INLET
- WATER VALVE
- WATER METER
- FIRE HYDRANT
- GAS VALVE
- GAS REGULATOR
- UTILITY POLE
- LIGHT POLE
- DOWN GUY
- TRANSFORMER
- C. OF E. MONUMENT
- SIGN
- TREE (CONIFEROUS)
- TREE (DECIDUOUS)
- SOIL GAS SAMPLE LOCATION

NOTE: MAP SHOWS WHERE TARGET ENVIRONMENTAL SERVICES, INC., COLLECTED SOIL GAS SAMPLES. BASE MAP PROVIDED BY CORPS OF ENGINEERS.

ELEVATION DATUM BASED ON N.G.V.D. 1929 DATUM. FOR CLARITY SPOT ELEVATIONS ARE SHOWN WITHOUT THE 400.

UNDERGROUND UTILITIES WERE LOCATED BY FIELD SURVEY OF SURFACE EVIDENCE AND UTILITY SITE PLANS AS PROVIDED. ACTUAL LOCATION SHOULD BE OBTAINED PRIOR TO EXCAVATION.

FIELD DATA RECORDED IN ELECTRONIC DATA COLLECTOR BOOK.

	LOCAL GRID		NAD83 STATE PLANE COORDS		NGVD 29
	NORTHING	EASTING	NORTHING	EASTING	ELEV
LA 1	10000.00	10300.00	1T089246.33	668712.63	486.14
LA 2	10549.99	10300.00	1T088795.58	668741.22	475.36
LA 3	10000.19	11150.27	1T089202.32	669961.76	905.60
LA 4	10857.03	11062.55	1T090062.56	669918.70	493.50
LA 5	10820.09	11635.71	1T089995.80	670069.16	499.91
LA 6	11437.36	11644.42	1T090611.86	670129.95	489.58
LA 7	11965.63	11891.30	1T091136.90	670204.23	473.84

U.S. Army Corps of Engineers
Tulsa District
September 1997

CONSTRUCTION LANDFILL
FORMER LAREDO AIR FORCE BASE (FUDS)
LAREDO, TEXAS

SOIL GAS SAMPLE LOCATIONS

FIGURE 2-1 00028

3.0 LABORATORY ANALYSIS

All soil gas samples collected during this investigation were subjected to dual analyses. To analyze for chlorinated hydrocarbons commonly used in industrial solvents, one analysis was conducted according to EPA Method 8010 (modified) on a gas chromatograph equipped with an electron capture detector (GC/ECD) using direct injection.

The second analysis was conducted according to EPA Method 8020 (modified) on a gas chromatograph equipped with a flame ionization detector (GC/FID) using direct injection. This method was employed to analyze soil gas samples for the presence of fuel products or petroleum based solvents.

Table 3-1 presents a list of the analytes tested and the associated analytical methods and detection limits.

3.1 Quality Assurance/Quality Control (QA/QC) Evaluation. Field control samples (blanks) were collected at the beginning and end of each day's field activities and after every twentieth soil gas sample. The concentrations of all analytes tested were below the detection limit in all field control blanks indicating that the QA/QC measures employed were sufficient to prevent cross-contamination of the samples during collection.

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 duplicate analyses were within acceptable limits, and concentrations of all analytes tested were below the detection limit in all laboratory blanks.

TABLE 3-1 SOIL GAS ANALYTICAL METHODS		
Analyte	Method	Detection Limit
1,1-dichloroethene	8010 (Modified)	1.0 ug/L
methylene chloride	8010 (Modified)	1.0 ug/L
trans-1,2-dichloroethene	8010 (Modified)	1.0 ug/L
1,1-dichloroethane	8010 (Modified)	1.0 ug/L
cis-1,2-dichloroethene	8010 (Modified)	1.0 ug/L
chloroform	8010 (Modified)	1.0 ug/L
1,1,1-trichloroethane	8010 (Modified)	1.0 ug/L
carbon tetrachloride	8010 (Modified)	1.0 ug/L
trichloroethene	8010 (Modified)	1.0 ug/L
1,1,2-trichloroethane	8010 (Modified)	1.0 ug/L
tetrachloroethene	8010 (Modified)	1.0 ug/L
benzene	8020 (Modified)	1.0 ug/L
toluene	8020 (Modified)	1.0 ug/L
ethylbenzene	8020 (Modified)	1.0 ug/L
meta- and para- xylene	8020 (Modified)	1.0 ug/L
ortho-xylene	8020 (Modified)	1.0 ug/L
Total FID Volatiles	8020 (Modified)	10.0 ug/L

4.0 INVESTIGATION RESULTS

4.1 Geophysical Survey Results. The Construction Landfill site at the Former Laredo Air Force Base was geophysically investigated using three different methodologies: field magnetics and two different electromagnetic induction techniques. Each of the geophysical methods produced and located different anomalous features in the subsurface. The investigation clearly defined the limits of the debris fill except along the southern boundary where the landfill appears to extend beyond the limits of the geophysical survey. The anomaly maps produced for each of the geophysical methods indicate that the landfill forms an arcuate shaped zone which extends from south to north and is bounded on the western and northern sides by a steep slope with construction debris exposed on the incline. Figure 4-1 indicates the boundary of the Construction Landfill as interpreted from the geophysical survey data.

The geophysical responses observed during this investigation are indicative that the subsurface material is chiefly construction debris. When objects are scattered in the subsurface, as would be expected in a construction debris landfill, geophysical surveys will produce a disjointed series of isolated anomalous magnetic responses. However, when buried objects are compacted into cells or trenches, as was generally the practice for sanitary landfills of this age, long linear anomalies will be observed. There is little indication on any of the geophysical anomaly maps developed during this investigation that sanitary landfill cells are present under the surveyed area, and all data, especially the EM31 conductivity survey, supported the concept that the fill material was construction debris and not sanitary landfill.

Most of the metal pieces that were visible on the surface consisted of rebar in broken concrete. Concrete rubble and large pieces of machinery and vehicles visible along the slopes on the western and northern boundaries of the landfill were expected to, and did produce numerous large geophysical anomalies. All of the geophysical methods indicated that the concentration of metal material in the subsurface appears to increase from the south to the north in the filled area.

N

LEGEND

INTERPRETED LANDFILL BOUNDARY

SOIL BORING/TEMPORARY MONITORING WELL

ELEVATION DATUM BASED ON
N.G.V.D. 1929 DATUM.

50 25 0 50 100FT
SCALE IN FEET

U.S. Army Corps of Engineers
Tulsa District
September 1997

CONSTRUCTION LANDFILL
FORMER LAREDO AIR FORCE BASE (FUDS)
LAREDO, TEXAS

INTERPRETED LANDFILL BOUNDARY

00032

FIGURE 4-1

The presence of a large non-ferrous piece of metal in the fill suggests that office equipment, airplane parts, and/or functional items such as furniture or kitchen equipment may have also been placed in the fill.

Appendix A includes geophysical anomaly maps and a full report of the findings of the geophysical survey conducted during the site investigation.

4.2 Soil Gas Survey Results. A total of 299 soil gas samples were collected from a depth of four feet. The samples were analyzed off-site on a gas chromatograph equipped with a flame ionization detector (GC/FID) for petroleum hydrocarbons and an electron capture detector (GC/ECD) for chlorinated compounds typically contained in industrial solvents. Samples were tested for all analytes listed in Table 3-1 using EPA methods 8010M and 8020M, and QA/QC procedures were followed both in the field collecting the samples and during analysis at the analytical laboratory.

None of the analytes tested were present in concentrations above the detection limit, and no evidence of contamination by volatile organic compounds was found in any of the soil gas samples. Appendix B includes a complete report of the findings of the soil gas survey conducted at the site.

5.0 CONCLUSION

The geophysical investigation clearly defined the limits of the Construction Landfill area except along the southern boundary where the landfill appears to extend beyond the limits of the geophysical survey. The anomaly maps produced for each of the geophysical methods employed indicate that the landfill forms an arcuate shaped zone which extends from south to north and is bounded on the western and northern sides by a steep slope with construction debris exposed on the incline.

The geophysical responses observed during this investigation are indicative of subsurface material consisting primarily of construction debris. There is little indication on any of the geophysical anomaly maps that sanitary landfill cells are present under the surveyed area, and all data, especially the EM31 conductivity survey, supported the concept that the fill material was construction debris and not sanitary landfill.

A total of 299 soil gas samples were collected across the site from a depth of four feet. The samples were analyzed off-site on a gas chromatograph equipped with a flame ionization detector (GC/FID) for petroleum hydrocarbons and an electron capture detector (GC/ECD) for chlorinated compounds typically contained in industrial solvents. Samples were analyzed using EPA methods 8010M and 8020M, and none of the analytes tested were present in concentrations above the detection limit. No evidence of contamination by volatile organic compounds was found in any of the soil gas samples.

Both the geophysical survey results and the absence of volatile organic compounds in the soil gas samples provide evidence that only construction debris has been disposed at this site, and no further action is warranted.

APPENDIX B

SOIL GAS SURVEY REPORT

SOIL GAS SURVEY

FORMER LAREDO AFB
CONSTRUCTION LANDFILL
Laredo, TX

PREPARED FOR

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NOVEMBER 1996

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EXECUTIVE SUMMARY

From October 17 to October 24, 1996, **TARGET Environmental Services, Inc. (TARGET)** conducted a soil gas survey at the Former Laredo Air Force Base, Laredo, Texas. This site is located at the Laredo Municipal Airport. A total of 299 soil gas samples were collected from a depth of 4 feet. The samples were analyzed off-site on a gas chromatograph equipped with a flame ionization detector (GC/FID) for petroleum hydrocarbons and an electron capture detector (ECD) for chlorinated compounds typically contained in industrial solvents. The objective of the survey was to help determine if any hazardous volatile constituents are present in the subsurface.

None of the analytes chosen for this project were found above the detection limit. No evidence of contamination from volatiles was found.

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 at the Laredo Municipal Airport. 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 713 soil gas sample locations on 50 foot spacing, and 10 soil sampling locations. The **COE** elected to complete the soil sampling through other techniques, and the actual number of soil gas samples required to test the areas in question (as determined by The **COE**) was 299.

Sample Collection and Analysis

Soil gas samples were collected at a total of 299 locations at the site, as shown in Figure 1. Soil gas samples were collected from a depth of 4 feet at each location and submitted to **TARGET**'s laboratory in Columbia, MD for analysis. A detailed explanation of the sampling procedure is provided in Appendix A.

All of the samples collected during the field phase of the survey were subjected to dual analyses. One analysis was conducted according to EPA Method 8010 (modified) on a gas chromatograph equipped with an electron capture detector (ECD), and using direct injection. Specific analytes standardized for this analysis were:

1,1-dichloroethene (11DCE)
methylene chloride (CH_2Cl_2)
trans-1,2-dichloroethene (t12DCE)
1,1-dichloroethane (11DCA)
cis-1,2-dichloroethene (c12DCE)

chloroform ($CHCl_3$)
1,1,1-trichloroethane (111TCA)
carbon tetrachloride (CCl_4)
trichloroethene (TCE)
1,1,2-trichloroethane (112TCA)
tetrachloroethene (PCE)

The chlorinated hydrocarbons in this suite were chosen because of their common usage in industrial solvents, and/or their degradational relationship to commonly used compounds.

The second analysis was conducted according to EPA Method 8020 (modified) on a gas chromatograph equipped with a flame ionization detector (FID), and using direct injection. The analytes selected for standardization in this analysis were:

benzene
toluene
ethylbenzene
meta- and para- xylene
ortho- xylene

These compounds were chosen because of their utility in evaluating the presence of fuel products, or petroleum based solvents.

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 filtering ambient air through a dust and organic vapor filter cartridge and encapsulating as described in the "Field Procedures" in Appendix A. The laboratory results are reported in Tables 1 and 2. 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.

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 Tables 1 and 2. The duplicate analyses were within acceptable limits. Concentrations of all analytes were below the reporting limit in all laboratory blanks.

Results

None of the analytes chosen for this project were found above the detection limit. No evidence of contamination from volatiles was found.

Conclusions

- No evidence of contamination from volatiles was found in any of the soil gas samples.

TABLE 1

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8020M

SAMPLE NUMBER	DATE ANALYZED	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOTAL FID VOLATILES*
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	10.0 ug/L
001	10/27/96	ND	ND	ND	ND	ND
001A	10/28/96	ND	ND	ND	ND	ND
002	10/27/96	ND	ND	ND	ND	ND
002A	10/29/96	ND	ND	ND	ND	ND
003	10/24/96	ND	ND	ND	ND	ND
003A	10/29/96	ND	ND	ND	ND	ND
004	10/24/96	ND	ND	ND	ND	ND
004A	10/29/96	ND	ND	ND	ND	ND
005	10/27/96	ND	ND	ND	ND	ND
005A	10/28/96	ND	ND	ND	ND	ND
006	10/24/96	ND	ND	ND	ND	ND
006A	10/28/96	ND	ND	ND	ND	ND
007	10/27/96	ND	ND	ND	ND	ND
007A	10/28/96	ND	ND	ND	ND	ND
008	10/27/96	ND	ND	ND	ND	ND
008A	10/29/96	ND	ND	ND	ND	ND
009	10/28/96	ND	ND	ND	ND	ND
009A	10/28/96	ND	ND	ND	ND	ND
010	10/29/96	ND	ND	ND	ND	ND
010A	10/29/96	ND	ND	ND	ND	ND
011	10/28/96	ND	ND	ND	ND	ND
011A	10/29/96	ND	ND	ND	ND	ND
012	10/28/96	ND	ND	ND	ND	ND
012A	10/29/96	ND	ND	ND	ND	ND
013	10/29/96	ND	ND	ND	ND	ND
013A	10/28/96	ND	ND	ND	ND	ND
014	10/30/96	ND	ND	ND	ND	ND
014A	10/29/96	ND	ND	ND	ND	ND
015	10/29/96	ND	ND	ND	ND	ND
015A	10/30/96	ND	ND	ND	ND	ND
016	10/29/96	ND	ND	ND	ND	ND
016A	10/27/96	ND	ND	ND	ND	ND
017	10/28/96	ND	ND	ND	ND	ND
017A	10/29/96	ND	ND	ND	ND	ND
018	10/30/96	ND	ND	ND	ND	ND
018A	10/28/96	ND	ND	ND	ND	ND
019	10/29/96	ND	ND	ND	ND	ND
019A	10/29/96	ND	ND	ND	ND	ND
020	10/27/96	ND	ND	ND	ND	ND
020A	10/27/96	ND	ND	ND	ND	ND
021	10/27/96	ND	ND	ND	ND	ND

TABLE 1

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8020M

SAMPLE NUMBER	DATE ANALYZED	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOTAL FID VOLATILES*
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	10.0 ug/L
021A	10/27/96	ND	ND	ND	ND	ND
022	10/29/96	ND	ND	ND	ND	ND
022A	10/27/96	ND	ND	ND	ND	ND
023	10/28/96	ND	ND	ND	ND	ND
023A	10/29/96	ND	ND	ND	ND	ND
024	10/28/96	ND	ND	ND	ND	ND
024A	10/29/96	ND	ND	ND	ND	ND
025A	10/29/96	ND	ND	ND	ND	ND
026A	10/29/96	ND	ND	ND	ND	ND
027A	10/29/96	ND	ND	ND	ND	ND
028A	10/29/96	ND	ND	ND	ND	ND
029A	10/29/96	ND	ND	ND	ND	ND
030A	10/28/96	ND	ND	ND	ND	ND
031A	10/28/96	ND	ND	ND	ND	ND
032A	10/28/96	ND	ND	ND	ND	ND
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036A	10/28/96	ND	ND	ND	ND	ND
037A	10/28/96	ND	ND	ND	ND	ND
038A	10/28/96	ND	ND	ND	ND	ND
039A	10/28/96	ND	ND	ND	ND	ND
040A	10/28/96	ND	ND	ND	ND	ND
041A	10/28/96	ND	ND	ND	ND	ND
042A	10/28/96	ND	ND	ND	ND	ND
043A	10/28/96	ND	ND	ND	ND	ND
044A	10/28/96	ND	ND	ND	ND	ND
045A	10/28/96	ND	ND	ND	ND	ND
046A	10/28/96	ND	ND	ND	ND	ND
047A	10/27/96	ND	ND	ND	ND	ND
048A	10/27/96	ND	ND	ND	ND	ND
049A	10/29/96	ND	ND	ND	ND	ND
050A	10/28/96	ND	ND	ND	ND	ND
051A	10/28/96	ND	ND	ND	ND	ND
052A	10/29/96	ND	ND	ND	ND	ND
053A	10/30/96	ND	ND	ND	ND	ND
054A	10/27/96	ND	ND	ND	ND	ND
055A	10/28/96	ND	ND	ND	ND	ND
056A	10/28/96	ND	ND	ND	ND	ND
057A	10/28/96	ND	ND	ND	ND	ND
058A	10/28/96	ND	ND	ND	ND	ND

TABLE 1

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8020M

SAMPLE NUMBER	DATE ANALYZED	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOTAL FID VOLATILES*
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	10.0 ug/L
059A	10/28/96	ND	ND	ND	ND	ND
060A	10/28/96	ND	ND	ND	ND	ND
061A	10/27/96	ND	ND	ND	ND	ND
062A	10/28/96	ND	ND	ND	ND	ND
063A	10/29/96	ND	ND	ND	ND	ND
064A	10/28/96	ND	ND	ND	ND	ND
065A	10/28/96	ND	ND	ND	ND	ND
066A	10/28/96	ND	ND	ND	ND	ND
067A	10/28/96	ND	ND	ND	ND	ND
068A	10/28/96	ND	ND	ND	ND	ND
069A	10/28/96	ND	ND	ND	ND	ND
070A	10/28/96	ND	ND	ND	ND	ND
071A	10/30/96	ND	ND	ND	ND	ND
072A	10/28/96	ND	ND	ND	ND	ND
073A	10/28/96	ND	ND	ND	ND	ND
074A	10/28/96	ND	ND	ND	ND	ND
075A	10/28/96	ND	ND	ND	ND	ND
389	10/28/96	ND	ND	ND	ND	ND
390	10/28/96	ND	ND	ND	ND	ND
391	10/28/96	ND	ND	ND	ND	ND
392	10/29/96	ND	ND	ND	ND	ND
393	10/28/96	ND	ND	ND	ND	ND
394	10/28/96	ND	ND	ND	ND	ND
395	10/28/96	ND	ND	ND	ND	ND
430	10/28/96	ND	ND	ND	ND	ND
431	10/28/96	ND	ND	ND	ND	ND
432	10/29/96	ND	ND	ND	ND	ND
433	10/28/96	ND	ND	ND	ND	ND
434	10/28/96	ND	ND	ND	ND	ND
435	10/28/96	ND	ND	ND	ND	ND
436	10/28/96	ND	ND	ND	ND	ND
437	10/29/96	ND	ND	ND	ND	ND
438	10/28/96	ND	ND	ND	ND	ND
471	10/28/96	ND	ND	ND	ND	ND
472	10/28/96	ND	ND	ND	ND	ND
473	10/29/96	ND	ND	ND	ND	ND
474	10/28/96	ND	ND	ND	ND	ND
475	10/28/96	ND	ND	ND	ND	ND
476	10/29/96	ND	ND	ND	ND	ND
477	10/28/96	ND	ND	ND	ND	ND
478	10/28/96	ND	ND	ND	ND	ND

TABLE 1

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8020M

SAMPLE NUMBER	DATE ANALYZED	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOTAL FID VOLATILES*
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	10.0 ug/L
479	10/28/96	ND	ND	ND	ND	ND
480	10/29/96	ND	ND	ND	ND	ND
481	10/28/96	ND	ND	ND	ND	ND
482	10/29/96	ND	ND	ND	ND	ND
496	10/29/96	ND	ND	ND	ND	ND
497	10/30/96	ND	ND	ND	ND	ND
498	10/28/96	ND	ND	ND	ND	ND
499	10/28/96	ND	ND	ND	ND	ND
500	10/28/96	ND	ND	ND	ND	ND
501	10/30/96	ND	ND	ND	ND	ND
502	10/28/96	ND	ND	ND	ND	ND
503	10/28/96	ND	ND	ND	ND	ND
504	10/29/96	ND	ND	ND	ND	ND
505	10/29/96	ND	ND	ND	ND	ND
506	10/28/96	ND	ND	ND	ND	ND
507	10/28/96	ND	ND	ND	ND	ND
521	10/25/96	ND	ND	ND	ND	ND
522	10/24/96	ND	ND	ND	ND	ND
523	10/25/96	ND	ND	ND	ND	ND
524	10/25/96	ND	ND	ND	ND	ND
525	10/25/96	ND	ND	ND	ND	ND
526	10/27/96	ND	ND	ND	ND	ND
527	10/25/96	ND	ND	ND	ND	ND
528	10/25/96	ND	ND	ND	ND	ND
529	10/27/96	ND	ND	ND	ND	ND
530	10/24/96	ND	ND	ND	ND	ND
531	10/29/96	ND	ND	ND	ND	ND
532	10/29/96	ND	ND	ND	ND	ND
533	10/28/96	ND	ND	ND	ND	ND
534	10/29/96	ND	ND	ND	ND	ND
546	10/25/96	ND	ND	ND	ND	ND
547	10/24/96	ND	ND	ND	ND	ND
548	10/25/96	ND	ND	ND	ND	ND
549	10/25/96	ND	ND	ND	ND	ND
550	10/25/96	ND	ND	ND	ND	ND
551	10/24/96	ND	ND	ND	ND	ND
552	10/27/96	ND	ND	ND	ND	ND
553	10/24/96	ND	ND	ND	ND	ND
554	10/24/96	ND	ND	ND	ND	ND
555	10/25/96	ND	ND	ND	ND	ND
556	10/29/96	ND	ND	ND	ND	ND

TABLE 1

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8020M

SAMPLE NUMBER	DATE ANALYZED	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOTAL FID VOLATILES*
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	10.0 ug/L
557	10/28/96	ND	ND	ND	ND	ND
558	10/28/96	ND	ND	ND	ND	ND
559	10/29/96	ND	ND	ND	ND	ND
560	10/29/96	ND	ND	ND	ND	ND
571	10/25/96	ND	ND	ND	ND	ND
572	10/27/96	ND	ND	ND	ND	ND
573	10/25/96	ND	ND	ND	ND	ND
574	10/24/96	ND	ND	ND	ND	ND
575	10/24/96	ND	ND	ND	ND	ND
576	10/24/96	ND	ND	ND	ND	ND
577	10/24/96	ND	ND	ND	ND	ND
578	10/24/96	ND	ND	ND	ND	ND
579	10/24/96	ND	ND	ND	ND	ND
580	10/27/96	ND	ND	ND	ND	ND
581	10/28/96	ND	ND	ND	ND	ND
582	10/28/96	ND	ND	ND	ND	ND
583	10/28/96	ND	ND	ND	ND	ND
584	10/28/96	ND	ND	ND	ND	ND
585	10/29/96	ND	ND	ND	ND	ND
586	10/29/96	ND	ND	ND	ND	ND
596	10/24/96	ND	ND	ND	ND	ND
597	10/27/96	ND	ND	ND	ND	ND
598	10/25/96	ND	ND	ND	ND	ND
599	10/24/96	ND	ND	ND	ND	ND
600	10/24/96	ND	ND	ND	ND	ND
601	10/24/96	ND	ND	ND	ND	ND
602	10/25/96	ND	ND	ND	ND	ND
603	10/27/96	ND	ND	ND	ND	ND
604	10/25/96	ND	ND	ND	ND	ND
605	10/25/96	ND	ND	ND	ND	ND
606	10/28/96	ND	ND	ND	ND	ND
607	10/28/96	ND	ND	ND	ND	ND
608	10/29/96	ND	ND	ND	ND	ND
609	10/28/96	ND	ND	ND	ND	ND
610	10/30/96	ND	ND	ND	ND	ND
611	10/29/96	ND	ND	ND	ND	ND
612	10/30/96	ND	ND	ND	ND	ND
621	10/25/96	ND	ND	ND	ND	ND
622	10/24/96	ND	ND	ND	ND	ND
623	10/25/96	ND	ND	ND	ND	ND
624	10/24/96	ND	ND	ND	ND	ND

TABLE 1

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8020M

SAMPLE NUMBER	DATE ANALYZED	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOTAL FID VOLATILES*
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	10.0 ug/L
625	10/27/96	ND	ND	ND	ND	ND
626	10/24/96	ND	ND	ND	ND	ND
627	10/25/96	ND	ND	ND	ND	ND
628	10/27/96	ND	ND	ND	ND	ND
629	10/25/96	ND	ND	ND	ND	ND
630	10/25/96	ND	ND	ND	ND	ND
631	10/29/96	ND	ND	ND	ND	ND
632	10/28/96	ND	ND	ND	ND	ND
633	10/28/96	ND	ND	ND	ND	ND
634	10/28/96	ND	ND	ND	ND	ND
635	10/29/96	ND	ND	ND	ND	ND
636	10/30/96	ND	ND	ND	ND	ND
637	10/30/96	ND	ND	ND	ND	ND
638	10/30/96	ND	ND	ND	ND	ND
646	10/25/96	ND	ND	ND	ND	ND
647	10/25/96	ND	ND	ND	ND	ND
648	10/24/96	ND	ND	ND	ND	ND
649	10/25/96	ND	ND	ND	ND	ND
650	10/25/96	ND	ND	ND	ND	ND
651	10/24/96	ND	ND	ND	ND	ND
652	10/24/96	ND	ND	ND	ND	ND
653	10/25/96	ND	ND	ND	ND	ND
654	10/25/96	ND	ND	ND	ND	ND
655	10/28/96	ND	ND	ND	ND	ND
656	10/29/96	ND	ND	ND	ND	ND
657	10/28/96	ND	ND	ND	ND	ND
658	10/28/96	ND	ND	ND	ND	ND
659	10/28/96	ND	ND	ND	ND	ND
660	10/28/96	ND	ND	ND	ND	ND
661	10/30/96	ND	ND	ND	ND	ND
662	10/30/96	ND	ND	ND	ND	ND
663	10/29/96	ND	ND	ND	ND	ND
664	10/29/96	ND	ND	ND	ND	ND
671	10/27/96	ND	ND	ND	ND	ND
672	10/25/96	ND	ND	ND	ND	ND
673	10/25/96	ND	ND	ND	ND	ND
674	10/25/96	ND	ND	ND	ND	ND
675	10/25/96	ND	ND	ND	ND	ND
676	10/24/96	ND	ND	ND	ND	ND
677	10/25/96	ND	ND	ND	ND	ND
678	10/25/96	ND	ND	ND	ND	ND

TABLE 1

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8020M

SAMPLE NUMBER	DATE ANALYZED	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOTAL FID VOLATILES*
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	10.0 ug/L
679	10/27/96	ND	ND	ND	ND	ND
680	10/28/96	ND	ND	ND	ND	ND
681	10/29/96	ND	ND	ND	ND	ND
682	10/28/96	ND	ND	ND	ND	ND
683	10/28/96	ND	ND	ND	ND	ND
684	10/29/96	ND	ND	ND	ND	ND
685	10/28/96	ND	ND	ND	ND	ND
686	10/30/96	ND	ND	ND	ND	ND
687	10/30/96	ND	ND	ND	ND	ND
689	10/29/96	ND	ND	ND	ND	ND
689	10/30/96	ND	ND	ND	ND	ND
696	10/25/96	ND	ND	ND	ND	ND
697	10/27/96	ND	ND	ND	ND	ND
698	10/24/96	ND	ND	ND	ND	ND
699	10/24/96	ND	ND	ND	ND	ND
700	10/25/96	ND	ND	ND	ND	ND
701	10/24/96	ND	ND	ND	ND	ND
702	10/27/96	ND	ND	ND	ND	ND
703	10/25/96	ND	ND	ND	ND	ND
704	10/25/96	ND	ND	ND	ND	ND
705	10/29/96	ND	ND	ND	ND	ND
706	10/29/96	ND	ND	ND	ND	ND
707	10/28/96	ND	ND	ND	ND	ND
708	10/28/96	ND	ND	ND	ND	ND
709	10/29/96	ND	ND	ND	ND	ND
710	10/30/96	ND	ND	ND	ND	ND
711	10/29/96	ND	ND	ND	ND	ND
712	10/30/96	ND	ND	ND	ND	ND
713	10/29/96	ND	ND	ND	ND	ND
714	10/29/96	ND	ND	ND	ND	ND
721	10/24/96	ND	ND	ND	ND	ND
722	10/27/96	ND	ND	ND	ND	ND
723	10/27/96	ND	ND	ND	ND	ND
724	10/24/96	ND	ND	ND	ND	ND
725	10/25/96	ND	ND	ND	ND	ND
726	10/24/96	ND	ND	ND	ND	ND
727	10/25/96	ND	ND	ND	ND	ND
728	10/24/96	ND	ND	ND	ND	ND
729	10/25/96	ND	ND	ND	ND	ND
730	10/28/96	ND	ND	ND	ND	ND
731	10/29/96	ND	ND	ND	ND	ND

TABLE 1

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8020M

SAMPLE NUMBER	DATE ANALYZED	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOTAL FID VOLATILES*
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	10.0 ug/L
732	10/29/96	ND	ND	ND	ND	ND
733	10/29/96	ND	ND	ND	ND	ND
734	10/28/96	ND	ND	ND	ND	ND
735	10/30/96	ND	ND	ND	ND	ND
736	10/29/96	ND	ND	ND	ND	ND
737	10/29/96	ND	ND	ND	ND	ND
738	10/28/96	ND	ND	ND	ND	ND
746	10/27/96	ND	ND	ND	ND	ND
747	10/25/96	ND	ND	ND	ND	ND
748	10/27/96	ND	ND	ND	ND	ND
749	10/24/96	ND	ND	ND	ND	ND
750	10/24/96	ND	ND	ND	ND	ND
751	10/25/96	ND	ND	ND	ND	ND
752	10/25/96	ND	ND	ND	ND	ND
753	10/27/96	ND	ND	ND	ND	ND
754	10/24/96	ND	ND	ND	ND	ND
755	10/28/96	ND	ND	ND	ND	ND
756	10/29/96	ND	ND	ND	ND	ND
757	10/28/96	ND	ND	ND	ND	ND
758	10/29/96	ND	ND	ND	ND	ND
759	10/28/96	ND	ND	ND	ND	ND
760	10/28/96	ND	ND	ND	ND	ND
771	10/27/96	ND	ND	ND	ND	ND
772	10/24/96	ND	ND	ND	ND	ND
773	10/24/96	ND	ND	ND	ND	ND
774	10/24/96	ND	ND	ND	ND	ND
775	10/24/96	ND	ND	ND	ND	ND
776	10/25/96	ND	ND	ND	ND	ND
777	10/27/96	ND	ND	ND	ND	ND
778	10/25/96	ND	ND	ND	ND	ND
779	10/27/96	ND	ND	ND	ND	ND
780	10/28/96	ND	ND	ND	ND	ND
781	10/29/96	ND	ND	ND	ND	ND
782	10/28/96	ND	ND	ND	ND	ND
783	10/28/96	ND	ND	ND	ND	ND
784	10/28/96	ND	ND	ND	ND	ND

** CALCULATED USING THE SUM OF THE AREAS OF ALL INTEGRATED CHROMATOGRAM PEAKS AND THE INSTRUMENT RESPONSE FACTOR FOR TOLUENE*

"ND" INDICATES NO ANALYTE DETECTED AT THE DETECTION LIMITS

TABLE 1

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8020M

SAMPLE NUMBER	DATE ANALYZED	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOTAL FID VOLATILES*
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	10.0 ug/L

Analyst: MIKE MARRALE
Reviewed by: _____

TABLE 2

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8010M

SAMPLE NUMBER	DATE ANALYZED	11DCE*	CH2Cl2	t12DCE	11DCA	c12DCE	CHCl3	111TCA	CCl4*	TCE	112TCA	PCE
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L
)01	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
)01A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
)02	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
)02A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
)03	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
)03A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
)04	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
)04A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
)05	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
005A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
006	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
006A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
007	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
007A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
008	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
0L	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
009A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
010	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
010A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
011	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
011A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
012	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
012A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
013	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
013A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
014	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
014A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
015	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
015A	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
016	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
016A	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
017	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
017A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
018	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
018A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
019	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
019A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
020	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
020A	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
0	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8010M

SAMPLE NUMBER	DATE ANALYZED	11DCE*	CH2Cl2	t12DCE	11DCA	c12DCE	CHCl3	111TCA	CCl4*	TCE	112TCA	PCE
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L
)21A	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
)22	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
)22A	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
)23	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
)23A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
)24	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
)24A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
)25A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
)26A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
)27A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
)28A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
)29A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
)30A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
)31A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
)3[illegible]	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
[illegible]	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
)3[illegible]	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
035A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
036A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
037A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
038A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
039A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
040A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
041A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
042A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
043A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
044A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
045A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
046A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
047A	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
048A	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
049A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
050A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
051A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
052A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
053A	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
054A	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
055A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
056A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
0[illegible]	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
[illegible]	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8010M

SAMPLE NUMBER	DATE ANALYZED	11DCE*	CH2Cl2	t12DCE	11DCA	c12DCE	CHCl3	111TCA	CCl4*	TCE	112TCA	PCE
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L
059A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
060A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
061A	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
062A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
063A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
064A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
065A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
066A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
067A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
068A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
069A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
070A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
071A	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
072A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
073A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
0,	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
389	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
390	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
391	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
392	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
393	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
394	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
395	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
430	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
431	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
432	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
433	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
434	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
435	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
436	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
437	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
438	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
471	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
472	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
473	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
474	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
475	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
476	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
477	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
/	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8010M

SAMPLE NUMBER	DATE ANALYZED	11DCE*	CH2Cl2	t12DCE	11DCA	c12DCE	CHCl3	111TCA	CCl4*	TCE	112TCA	PCE
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L
79	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
80	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
81	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
82	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
96	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
97	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
98	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
99	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
00	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
01	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
02	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
03	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
04	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
05	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
06	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
y	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
22	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
23	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
25	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
27	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
28	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
29	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
31	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
32	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
33	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
34	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
46	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
47	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
48	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
49	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
50	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
51	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
52	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
53	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
54	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
55	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8010M

SAMPLE NUMBER	DATE ANALYZED	11DCE*	CH2Cl2	t12DCE	11DCA	c12DCE	CHCl3	111TCA	CCl4*	TCE	112TCA	PCE
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L
557	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
558	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
559	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
560	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
571	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
572	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
573	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
574	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
575	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
576	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
577	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
578	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
579	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
580	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
581	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
[illegible]	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
[illegible]	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
584	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
585	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
586	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
596	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
597	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
598	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
599	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
600	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
601	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
602	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
603	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
604	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
605	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
606	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
607	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
608	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
609	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
610	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
611	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
612	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
621	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
622	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
623	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
[illegible]	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8010M

SAMPLE NUMBER	DATE ANALYZED	11DCE*	CH2Cl2	t12DCE	11DCA	c12DCE	CHCl3	111TCA	CCl4*	TCE	112TCA	PCE
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L
625	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
626	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
627	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
628	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
629	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
630	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
631	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
632	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
633	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
634	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
635	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
636	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
637	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
638	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
64[illegible]	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6[illegible]	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
649	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
650	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
651	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
652	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
653	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
654	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
655	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
656	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
657	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
658	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
659	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
660	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
661	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
662	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
663	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
664	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
671	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
672	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
673	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
674	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
675	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
676	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
67[illegible]	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8010M

SAMPLE NUMBER	DATE ANALYZED	11DCE*	CH2Cl2	t12DCE	11DCA	c12DCE	CHCl3	111TCA	CCl4*	TCE	112TCA	PCE
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L
679	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
680	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
681	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
682	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
683	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
684	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
685	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
686	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
687	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
689	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
689	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
696	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
697	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
698	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
699	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7[illegible]	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
702	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
703	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
704	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
705	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
706	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
707	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
708	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
709	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
710	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
711	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
712	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
713	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
714	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
721	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
722	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
723	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
724	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
725	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
726	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
727	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
728	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
729	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7[illegible]	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8010M

SAMPLE NUMBER	DATE ANALYZED	11DCE*	CH2Cl2	t12DCE	11DCA	c12DCE	CHCl3	111TCA	CCl4*	TCE	112TCA	PCE
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L
732	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
733	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
734	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
735	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
736	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
737	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
738	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
746	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
747	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
748	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
749	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
750	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
751	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
752	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
753	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
756	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
757	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
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759	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
760	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
771	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
772	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
773	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
774	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
775	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
776	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
777	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
778	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
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780	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
781	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
782	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
783	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
784	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

"ND" INDICATES NO ANALYTE DETECTED AT THE DETECTION LIMITS

11DCE = 1,1-dichloroethene
= 1,1-dichloroethane

CH2Cl2 = methylene chloride
c12DCE = cis-1,2-dichloroethene

t12DCE = trans-1,2-dichloroethene
CHCl3 = chloroform

TABLE 2

NALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8010M

AMPLE IUMBER	DATE ANALYZED	11DCE*	CH2Cl2	t12DCE	11DCA	c12DCE	CHCl3	111TCA	CCl4*	TCE	112TCA	PCE
ETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L

11TCA = 1,1,1-trichloroethane *CCl4 = carbon tetrachloride* *TCE = trichloroethene*

12TCA = 1,1,2-trichloroethane *PCE = tetrachloroethene*

11DCE/TCTFA and CCl4/12DCA are co-eluting pairs and are reported in concentrations of 11DCE and CCl4, respectively.

nalyst:
Reviewed by:

FIELD PROCEDURES

To collect the samples, a 1/2-inch hole was produced to a depth of approximately 4 feet by using a drive rod. The entire sampling system was purged with ambient air drawn through an organic vapor filter cartridge, and a stainless steel probe was inserted to the full depth of the hole and sealed off from the atmosphere. A sample of in-situ soil gas was then withdrawn through the probe and used to purge atmospheric air from the sampling system. A second sample of soil gas was withdrawn through the probe and encapsulated in a pre-evacuated glass vial at two atmospheres of pressure (15 psig). The self-sealing vial was detached from the sampling system, packaged, labeled, and stored for laboratory analysis.

Prior to the day's field activities all sampling equipment, slide hammer rods and probes were decontaminated by washing with a Liquinox/distilled water solution and rinsing thoroughly with distilled water. Internal surfaces were flushed dry using filtered ambient air, and external surfaces were wiped clean using clean paper towels or allowed to air dry.

LABORATORY PROCEDURES

The soil gas samples were analyzed in **TARGET's** laboratory in Columbia, MD. The analytical equipment was calibrated using a 3-point (FID) or a 5-point (ECD) instrument-response curve and injection of known concentrations of the target analytes. Retention times of the standards were used to identify the peaks in the chromatograms of the field samples, and their average calibration factors were used to calculate the analyte concentrations.

Total FID Volatiles values were generated by summing the areas of all integrated chromatogram peaks and calculated using the instrument response factor for toluene. Injection peaks, which also contain the light hydrocarbon methane, were excluded to avoid the skewing of Total FID Volatiles values due to injection disturbances and biogenic methane. For samples with low hydrocarbon concentrations, the calculated Total FID Volatiles concentration is occasionally lower than the sum of the individual analytes. This is because the response factor used for the Total FID Volatiles calculation is a constant, whereas the individual analyte response factors are compound specific. It is important to understand that the Total FID Volatiles levels reported are relative, not absolute, values.

The tabulated results of the laboratory analyses of the soil gas samples are reported in micrograms per liter (µg/l) of vapor in Tables 1 and 2. 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. The xylenes concentrations reported in Table 1 are the sum of the m- and p-xylene and the o-xylene concentrations for each sample. With **TARGET's** analytical run conditions, 11DCE/TCTFA and CCl_4/12DCA occur as co-eluting pairs and are reported in Table 2 in concentrations of 11DCE and CCl_4, respectively.

DETECTABILITY

Detectability

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 presence of a large non-ferrous piece of metal in the fill suggests that office equipment, airplane parts, and/or functional items such as furniture or kitchen equipment may have also been placed in the fill.

Appendix A includes geophysical anomaly maps and a full report of the findings of the geophysical survey conducted during the site investigation.

4.2 Soil Gas Survey Results. A total of 299 soil gas samples were collected from a depth of four feet. The samples were analyzed off-site on a gas chromatograph equipped with a flame ionization detector (GC/FID) for petroleum hydrocarbons and an electron capture detector (GC/ECD) for chlorinated compounds typically contained in industrial solvents. Samples were tested for all analytes listed in Table 3-1 using EPA methods 8010M and 8020M, and QA/QC procedures were followed both in the field collecting the samples and during analysis at the analytical laboratory.

None of the analytes tested were present in concentrations above the detection limit, and no evidence of contamination by volatile organic compounds was found in any of the soil gas samples. Appendix B includes a complete report of the findings of the soil gas survey conducted at the site.

5.0 CONCLUSION

The geophysical investigation clearly defined the limits of the Construction Landfill area except along the southern boundary where the landfill appears to extend beyond the limits of the geophysical survey. The anomaly maps produced for each of the geophysical methods employed indicate that the landfill forms an arcuate shaped zone which extends from south to north and is bounded on the western and northern sides by a steep slope with construction debris exposed on the incline.

The geophysical responses observed during this investigation are indicative of subsurface material consisting primarily of construction debris. There is little indication on any of the geophysical anomaly maps that sanitary landfill cells are present under the surveyed area, and all data, especially the EM31 conductivity survey, supported the concept that the fill material was construction debris and not sanitary landfill.

A total of 299 soil gas samples were collected across the site from a depth of four feet. The samples were analyzed off-site on a gas chromatograph equipped with a flame ionization detector (GC/FID) for petroleum hydrocarbons and an electron capture detector (GC/ECD) for chlorinated compounds typically contained in industrial solvents. Samples were analyzed using EPA methods 8010M and 8020M, and none of the analytes tested were present in concentrations above the detection limit. No evidence of contamination by volatile organic compounds was found in any of the soil gas samples.

Both the geophysical survey results and the absence of volatile organic compounds in the soil gas samples provide evidence that only construction debris has been disposed at this site, and no further action is warranted.

APPENDIX A

GEOPHYSICAL SURVEY REPORT

CONSTRUCTION LANDFILL
FORMER LAREDO AIR FORCE BASE (FUDS)
LAREDO, TEXAS

GEOPHYSICAL SURVEY REPORT

PREPARED BY

U.S. ARMY CORPS OF ENGINEERS
WATERWAYS EXPERIMENT STATION
Vicksburg, Mississippi

SEPTEMBER 1997

GEOPHYSICAL SURVEY REPORT
CONSTRUCTION LANDFILL
FORMER LAREDO AIR FORCE BASE (FUDS)
LAREDO, TEXAS

1.0 INTRODUCTION

The former Laredo Air Force Base at Laredo, TX is classified as a Formerly Used Defense Site (FUDS). Certain areas on the past air base were used for the discarding of material. These include sanitary landfill disposal and construction debris placement. Since most of the construction debris originated from broken runway pavement, it is not surprising that the disposal area for this material was at the end of an aircraft runway.

In September of 1996, the U.S. Army Corps of Engineers (USACE) Tulsa District tasked the USACE Waterways Experiment Station (WES) to conduct a series of geophysical investigations at the suspected construction debris landfill site at the former Laredo Air Force Base. This area is just north of the west ramp of the now Laredo International Airport. The methods applied at the site included total field magnetics and two different electromagnetic induction techniques. The investigations defined the limits of the construction debris fill. There is little geophysical indication that any sanitary landfill cells are present under the surveyed area. The geophysical responses are indicative that the subsurface material is chiefly construction debris with other materials such as aircraft parts and furniture included.

2.0 TOPOGRAPHIC SURVEY AND SITE

The area to be geophysically investigated was topographically surveyed by Huffman Surveyors of Muskogee, OK. A grided zone of wooden stakes was formed over the area at a 50 foot interval. Geophysical surveys were conducted over north-south traverses every 25 feet, with measurements taken every 5 feet for the induction methods and every few feet for the magnetic technique. The site consisted of level ground with construction fill (as evident from surface exposures) on the north and west side of the site. The west and north boundaries of the survey were also bounded by a steep topographical slope. Along this slope were numerous large metal discarded objects such as machinery, auto pieces, and other junk. These larger pieces of machinery and vehicles were expected to, and did produce numerous large geophysical anomalies close to the northern edge of the survey.

3.0 GEOPHYSICAL SURVEY METHODS

Three applicable geophysical methods were employed at the construction landfill site at the former Laredo Air Force Base. One of these included total field magnetics. For this investigation the magnetic survey was organized so as to indicate the presence in the subsurface of ferrous material (iron and steel). The method is based upon the following principle. The Earth's magnetic field induces a weaker secondary magnetic field in ferrous objects. This smaller but significant anomalous magnetic field can be detected in the local area around and over the buried ferrous material. Thus, the presence and location of buried ferrous material in the subsurface can be ascertained. The larger the concentration of ferrous objects, generally the greater the secondary magnetic field, if other factors (such as depth of burial) are held constant.

If these objects are scattered in the subsurface, then they will produce a disjointed series of isolated anomalous magnetic responses. If they are compacted into a long linear sanitary landfill, then a long linear magnetic anomaly generally will be established.

The electromagnetic (EM) induction methods included the use of a Geonics EM-31 and a Geonics EM-61. Although both operate on EM induction principles, each are quite different in approach, and consequently measure related subsurface properties by contrasting methods. Hence the results are often different, but the two methods verify and complement each other. The EM31 broadcasts a continuous oscillating sine wave in the 10's of Kilo Hertz. This EM wave penetrates 5 to 15 feet in the substrate or ground and interacts with the electrical properties of the subsurface fluids, soil, rock, and other debris material. Certain types of subsurface soils and conductors will generate secondary EM fields from the excitation of the broadcast primary EM field. The receiver on the EM31 collects both the primary and secondary broadcast fields. From this data the phase shift and amplitude of the received field is measured and processed. As a result the subsurface conductivity (in milli-Seimens / meter or mS/m) can be calculated. In addition the "In-Phase Response" (in parts per thousand or PPT) can be deduced. This measurement is an indication of the broad concentration of subsurface metal.

The last induction method employed was the Geonics EM-61. This is a time domain induction method whereby a steady state field is broadcast from a transmitter coil. The even part of the EM field establishes (temporarily) steady secondary EM fields around and in conductors in the subsurface. The primary field is quickly switched off and the collapse of the secondary field

around the metallic objects in the subsurface can be measured. This is done using two receiving coils separated vertically by approximately two feet, i.e. one over the other. By numerically processing the responses of the two coils, metallic subsurface conductors can be identified as "shallow" or "deep".

4.0 GEOPHYSICAL SURVEY RESULTS

4.1 EM31 Electromagnetic Induction. The results of the subsurface electrical conductivity as performed with the EM31 are spatially shown and contoured in Figure 1, "EM31 Electrical Conductivity". The area lying within the defined zone north of N10900 and south of N11500, and east of E11250 and west of E11600 is referred to as the Undisturbed Zone (UZ). Centered at N10950-E11430 is an approximately 200 by 200 foot area which displays a conductivity of 125 to 155 mS/m or 25 to 50 mS/m higher than the immediately surrounding area. The underlying material at this location is most likely more clayey than the adjacent material. The remainder of the surveyed area is termed the Filled Area (FA). The UZ is characterized by subsurface electrical conductivities from 75 to over 150 mS/m. These ranges of conductivities are associated with clayey or silty sands. The FA area displays electrical conductivities from 55 to 30 mS/m. The exception to this is the area along the north to south traverse defined by E11060. This is the response from a three strand, four foot high, barbed wire fence. The low electrical conductivities in the FA are not representative of typical sanitary or industrial landfills which often have electrical conductivities of 250 to 500 mS/m. These observed low conductivities are representative of nonconductive debris such as concrete and asphalt. Two small electromagnetic

anomalies are located at N11330-E11050 and N11360-E11170 which have conductivities below 35 mS/m. These areas are most likely underlain by large metal objects which affect the conductivity response in a reverse manner due to instrument to object orientations. At the northern end of the FA and centered at about N11700-E11350 is a zone which displays a 10 to 15 mS/m greater response than the surrounding fill. This slightly greater conductivity response is most likely the result of the increased amounts of metal objects in the subsurface in this area (see below).

The results of the EM31 subsurface "In Phase Response" (Figure 2) is representative of a measure of the collected quadrature response of the sinusoidal broadcasted field. The effect is calculated in Parts Per Thousand (PPT) of the primary field. Larger numerical values generally represent greater concentrations of metal in the subsurface. The surveyed area displays responses of the In-Phase component in numerical values, typically 1 to 15 PPT. These are not significant responses and relate to relatively low concentrations of metal in the subsurface (for a landfill). As with the conductivity chart, two small anomalies are located at N11330-E11050 and N11360-E11170 which have very low responses in PPT. Again this is related to metal subsurface object to sensor geometric configurations. At the northern end of the FA and centered at about N11700-E11350 is an area which displays numerous "In Phase" responses which are indicative of numerous smaller sized metal objects buried near or tipped over the northern edge of the construction landfill. The metallic response of the north-south, 3 strand barbed wire fence is also clearly evident along the traverse E11060.

4.2 EM61 Electromagnetic Induction. The EM61 electromagnetic induction is normally contoured in two responses, Channel 1 in milli-Volts/ Volt and Channel 2 in the same units of measure. These two different channels represent data from two different antennas, Channel 1 which is close to the ground and Channel 2 which originates from an antenna about 2 feet above the previous one. The sensing coil for channel 1 is closer to the ground and hence receives responses from larger, deeper buried metal objects and small, near surface metal objects. The antenna for channel number 2 is higher above the ground and senses a weaker response from larger deeper buried metal objects and a MUCH weaker response from the smaller buried objects closer to the surface. As a result, it is possible to discriminate from shallow, small metal pieces and larger metal debris which is at a deeper depth.

The channel 1 results are displayed in Figure 3 titled "EM61 Channel 1 Response". These contoured anomalies form an arc which well defines the limits and area of the construction landfill. Most of the metal pieces that were visible on the surface were from rebar in broken concrete. The density of the closed contours or anomalies increases to the northern end of the construction landfill or FA. This is verified by the increased quantity of metal debris visible at the surface at the location.

The channel 2 results (Figure 4) from the EM61 response display a spatial response similar in area to the channel 1 data. An arcuate band of closed contoured anomalies exists in the FA. The density of these anomalies remains generally constant over the FA suggesting a similar subsurface concentration of fill material with metal constituents. The northern area exhibits

a greater number and intensity of responses indicating, as did the EM31 data, a greater concentration of metallic debris in the subsurface of this area. Centered at approximately E11100-N11300 is a very large EM61 response of approximately 300 mS/m which is indicative of a large metal object in the subsurface, perhaps of 55 gallon barrel or office file cabinet size. As discussed below, this object is probably of nonferrous metal. This area is offset sufficiently from a conductivity anomaly in the same area (detected using the EM31) to be a different subsurface object. This indicates that not all subsurface metal objects are found with both or either the EM61 or EM31 induction systems due to shape, size, orientation, burial, etc. This also verifies the need to use what appear to be redundant systems, but in effect are instruments which can be sensitive to different target parameters.

Figure 5 titled "EM61 Channel 1 - Channel 2" represents data which has been processed using both channels of data in a manner so as to suppress the near surface responses. The information that this figure contains is largely the result of deeper (a few feet to about 10 feet) and larger sized metal objects. With this chart the FA on the construction landfill is clearly defined as an arcuate area extending from the south to the north of the surveyed area. Generally this type of processing best defines sanitary landfill trenches, if they are present. No indication of these type of features are present in this data. The two north-south orientated closed contoured "strips" on the far east side of the figure represent artifacts in the numerical processing of this method and are not manifestations of any subsurface feature.

4.3 **Magnetic Survey**. The final figure of the geophysical data is Figure 6 titled "Residual Total Magnetic Field". This method maps the ferrous metal in the subsurface. The results are similar to the EM31 In-phase and the EM61 results to the point that a nearly identical arcuate area in the FA is defined which is representative of the fill zone of the construction landfill. Interestingly, only a weak magnetic response is achieved from the EM61 anomaly at E11100-N11300. This most likely means that the source of the electromagnetic response is nonferrous metal, such as stainless steel (e.g. kitchen hardware) or aluminum (e.g. a piece of aircraft). Larger subsurface concentrations of ferrous metal are evident in the northern portion of the FA as was identified with the other geophysical methods. The different concentrations of metal may be indicative of grossly different types of construction fill in the northern vs. southern portions of the construction landfill. No organized disposal areas are evident from the residual total field magnetic investigation, which is identical to the results found using the induction techniques.

5.0 CONCLUSION

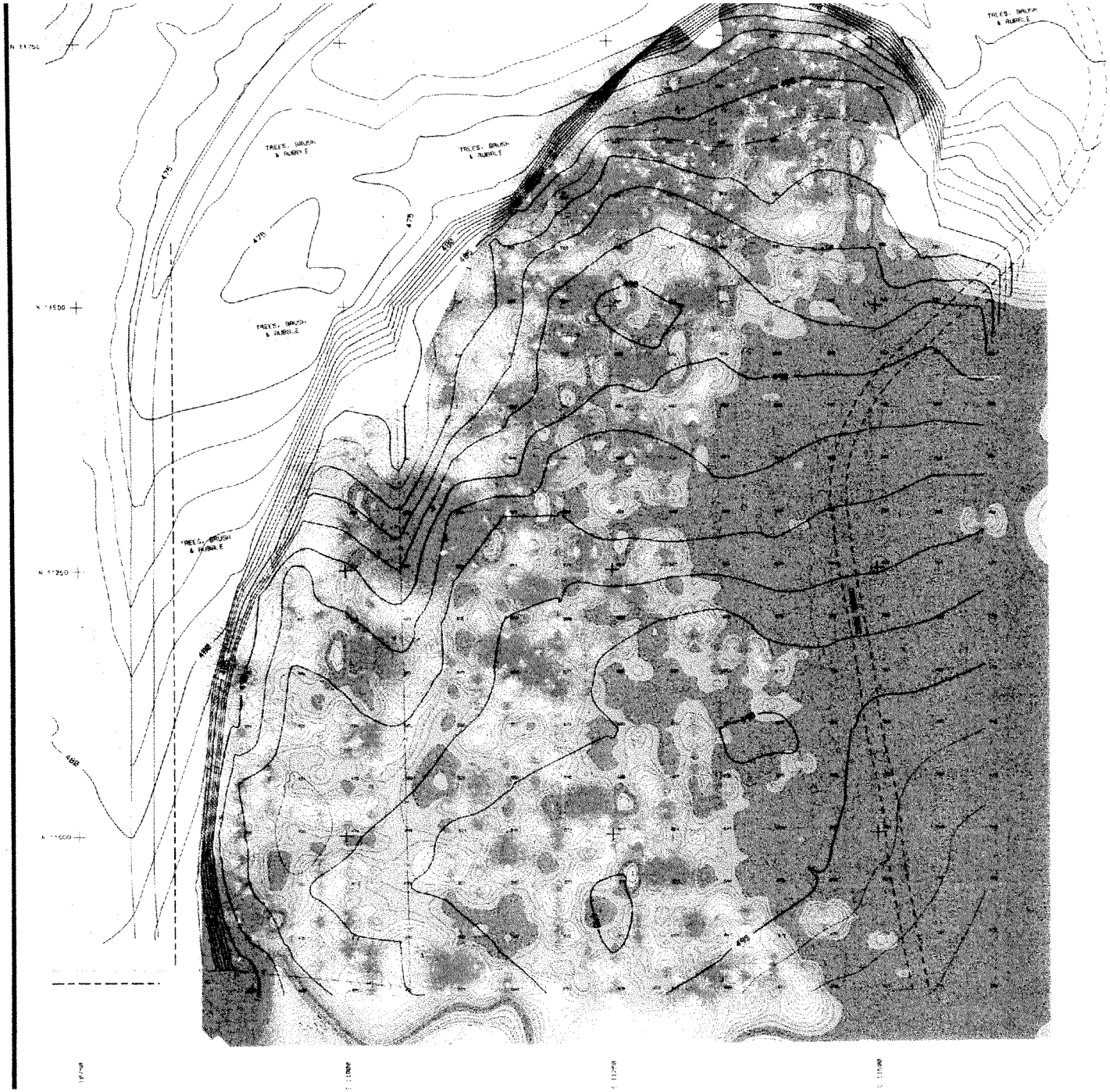
The construction landfill site at the Former Laredo Air Force Base was geophysically investigated using three different methodologies. All produced and located different anomalous features in the subsurface. All data, especially the EM31 conductivity investigation, supported the concept that the fill material was construction debris and not sanitary landfill. It was clear on all geophysical investigations that the construction landfill forms an arcuate shaped zone which is bounded on the west and northern side by a steep slope with construction debris exposed on the incline. The concentration of metal material in the subsurface appears to increase from the south to the north in the filled area, suggesting different sources of material in the fill.

The presence of a large non-ferrous piece of metal in the fill suggests that office equipment, airplane parts, and/or functional items such as furniture or kitchen equipment may have also been placed in the fill.

ELEVATION DATUM BASED ON N.G.V.D. 1929 DATUM.

CONSTRUCTION LANDFILL
FORMER LAREDO AIR FORCE BASE (FUDS)
LAREDO, TEXAS

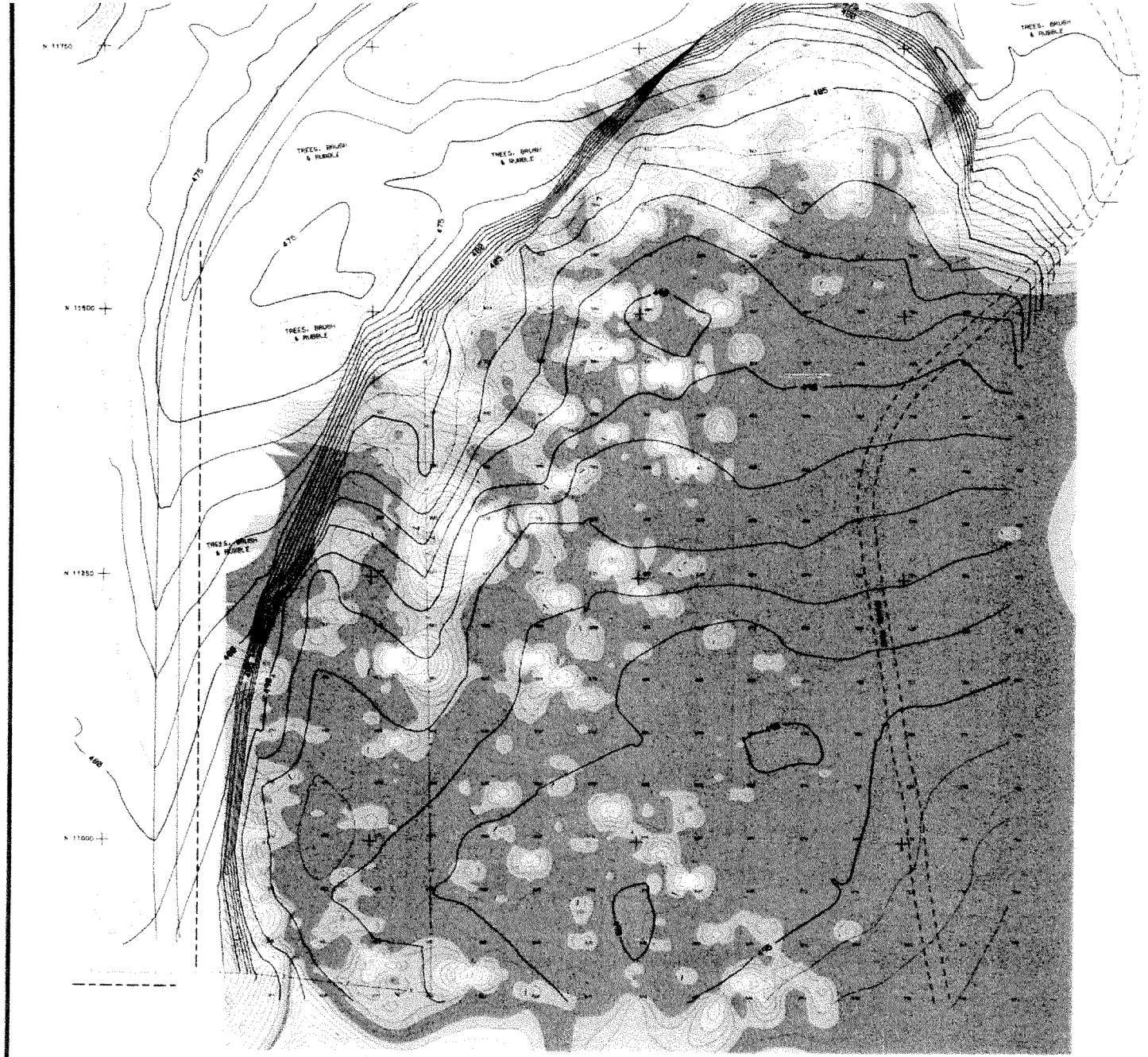
EM31 IN PHASE RESPONSE



ELEVATION DATUM BASED ON N.G.V.D. 1929 DATUM.

CONSTRUCTION LANDFILL
FORMER LAREDO AIR FORCE BASE (FLDS)
LAREDO, TEXAS

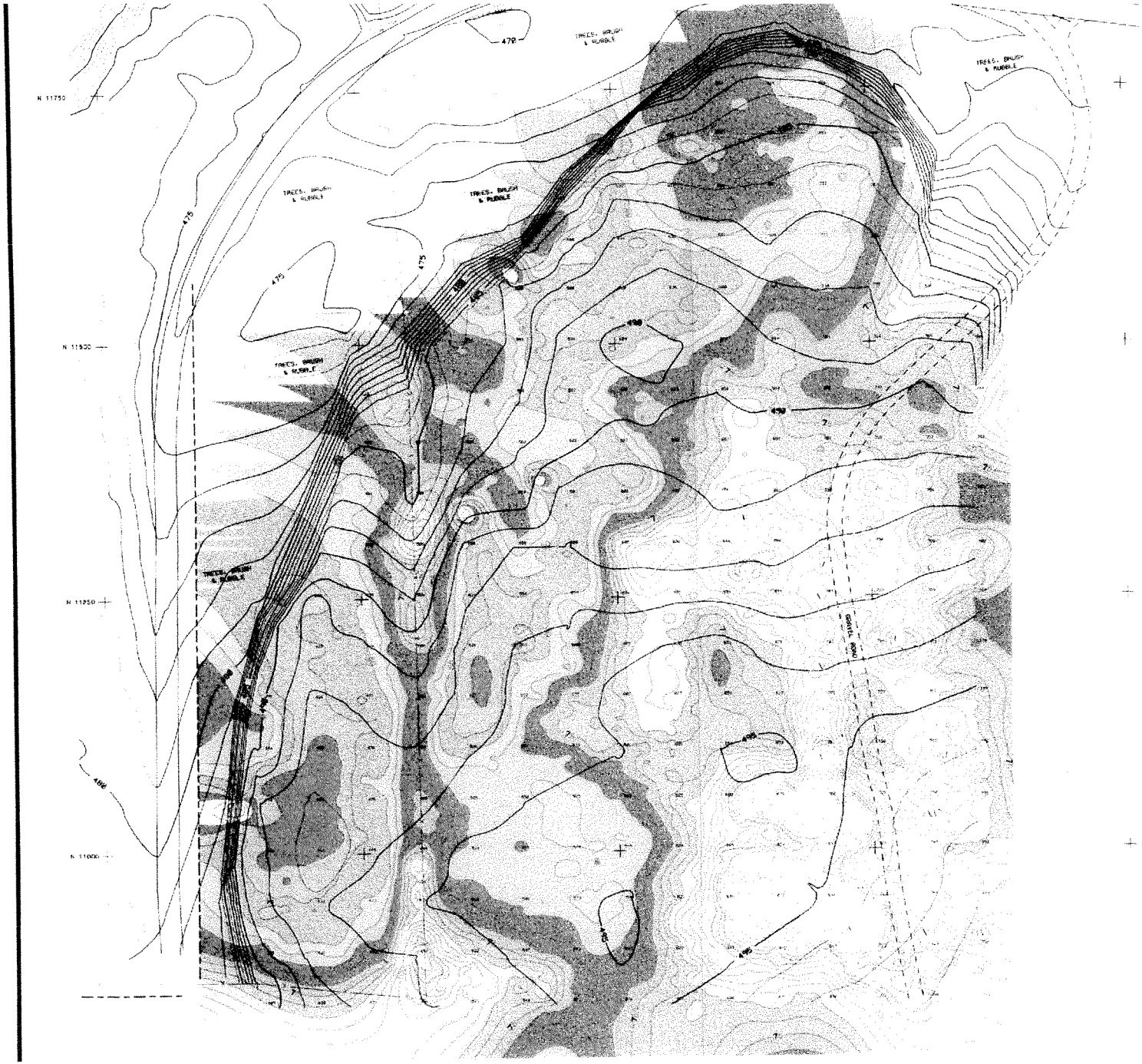
EM61 CHANNEL 1 RESPONSE



ELEVATION DATUM BASED ON N.G.V.D. 1929 DATUM.

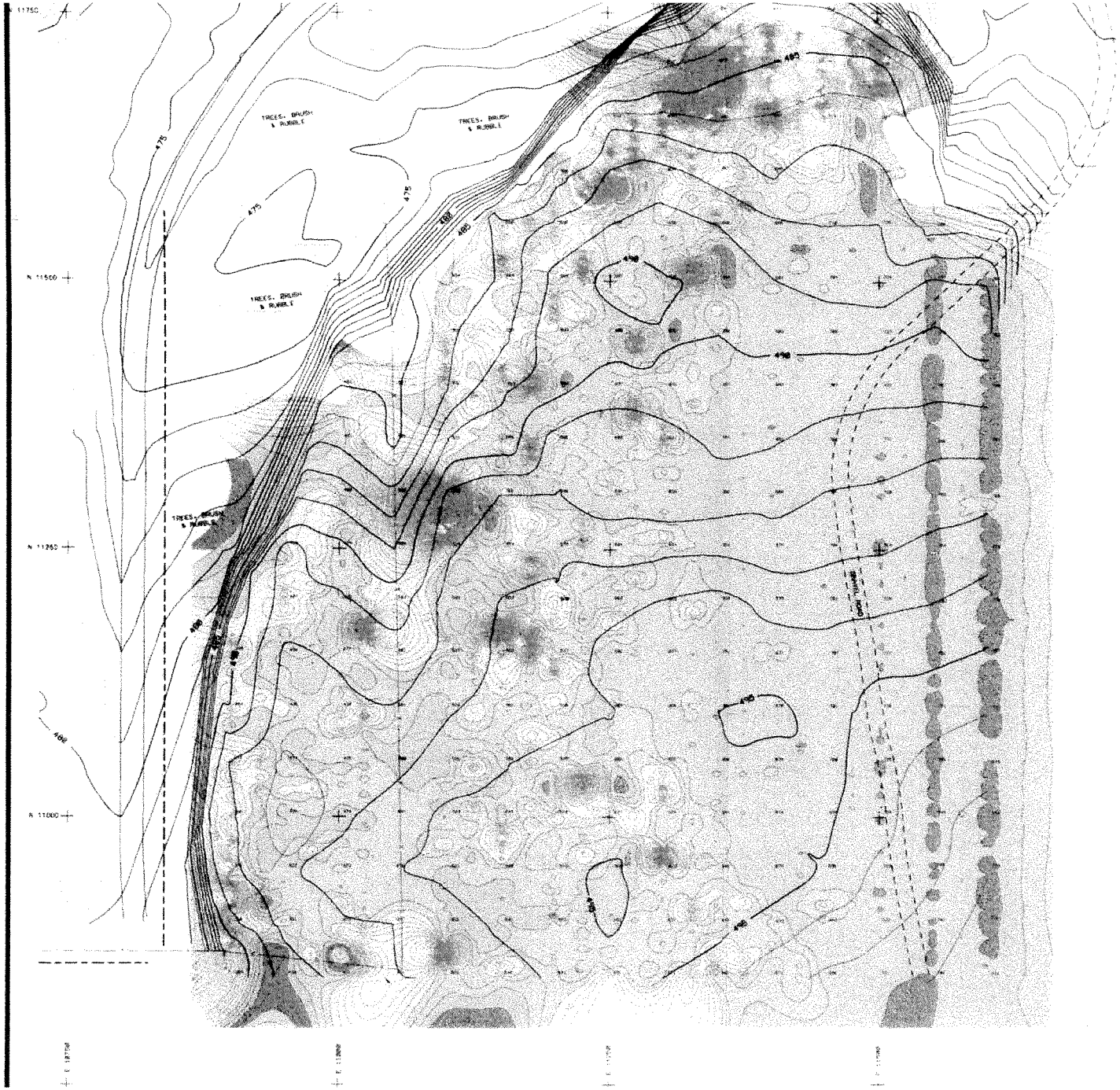
CONSTRUCTION LANDFILL
FORMER LAREDO AIR FORCE BASE (FUDS)
LAREDO, TEXAS

EM61 CHANNEL 2 RESPONSE



ELEVATION DATUM BASED ON N.G.V.D. 1929 DATUM.

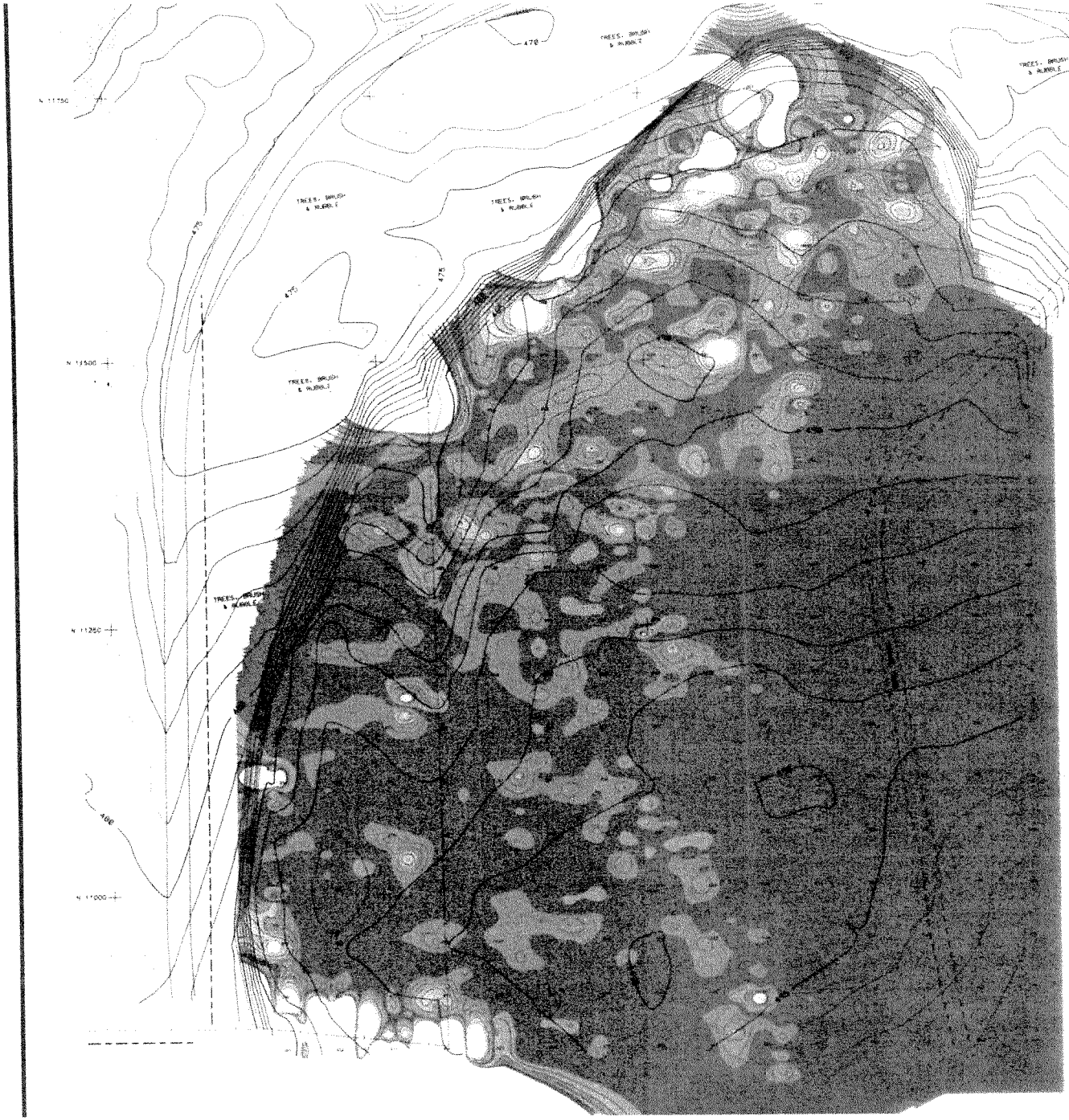
CONSTRUCTION LANDFILL
FORMER LAREDO AIR FORCE BASE (1908)
LAREDO, TEXAS



ELEVATION DATUM BASED ON
N.G.V.D. 1929 DATUM.

CONSTRUCTION LANDFILL
FORMER LAREDO AIR FORCE BASE (1945)
LAREDO, TEXAS

EM61 CHANNEL 1 - CHANNEL 2



ELEVATION DATUM BASED ON
N.G.V.D. 1929 DATUM.

CONSTRUCTION LANDFILL
FORMER LAREDO AIR FORCE BASE (FUDS)
LAREDO, TEXAS

APPENDIX
B

APPENDIX B

SOIL GAS SURVEY REPORT

SOIL GAS SURVEY

FORMER LAREDO AFB
CONSTRUCTION LANDFILL
Laredo, TX

PREPARED FOR

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NOVEMBER 1996

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FIGURES

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APPENDICES

EXECUTIVE SUMMARY

From October 17 to October 24, 1996, **TARGET Environmental Services, Inc. (TARGET)** conducted a soil gas survey at the Former Laredo Air Force Base, Laredo, Texas. This site is located at the Laredo Municipal Airport. A total of 299 soil gas samples were collected from a depth of 4 feet. The samples were analyzed off-site on a gas chromatograph equipped with a flame ionization detector (GC/FID) for petroleum hydrocarbons and an electron capture detector (ECD) for chlorinated compounds typically contained in industrial solvents. The objective of the survey was to help determine if any hazardous volatile constituents are present in the subsurface.

None of the analytes chosen for this project were found above the detection limit. No evidence of contamination from volatiles was found.

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 at the Laredo Municipal Airport. 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 713 soil gas sample locations on 50 foot spacing, and 10 soil sampling locations. The **COE** elected to complete the soil sampling through other techniques, and the actual number of soil gas samples required to test the areas in question (as determined by The **COE**) was 299.

Sample Collection and Analysis

Soil gas samples were collected at a total of 299 locations at the site, as shown in Figure 1. Soil gas samples were collected from a depth of 4 feet at each location and submitted to **TARGET**'s laboratory in Columbia, MD for analysis. A detailed explanation of the sampling procedure is provided in Appendix A.

All of the samples collected during the field phase of the survey were subjected to dual analyses. One analysis was conducted according to EPA Method 8010 (modified) on a gas chromatograph equipped with an electron capture detector (ECD), and using direct injection. Specific analytes standardized for this analysis were:

1,1-dichloroethene (11DCE)
methylene chloride (CH_2Cl_2)
trans-1,2-dichloroethene (t12DCE)
1,1-dichloroethane (11DCA)
cis-1,2-dichloroethene (c12DCE)

chloroform ($CHCl_3$)
1,1,1-trichloroethane (111TCA)
carbon tetrachloride (CCl_4)
trichloroethene (TCE)
1,1,2-trichloroethane (112TCA)
tetrachloroethene (PCE)

The chlorinated hydrocarbons in this suite were chosen because of their common usage in industrial solvents, and/or their degradational relationship to commonly used compounds.

The second analysis was conducted according to EPA Method 8020 (modified) on a gas chromatograph equipped with a flame ionization detector (FID), and using direct injection. The analytes selected for standardization in this analysis were:

benzene
toluene
ethylbenzene
meta- and para- xylene
ortho- xylene

These compounds were chosen because of their utility in evaluating the presence of fuel products, or petroleum based solvents.

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 filtering ambient air through a dust and organic vapor filter cartridge and encapsulating as described in the "Field Procedures" in Appendix A. The laboratory results are reported in Tables 1 and 2. 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.

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 Tables 1 and 2. The duplicate analyses were within acceptable limits. Concentrations of all analytes were below the reporting limit in all laboratory blanks.

Results

None of the analytes chosen for this project were found above the detection limit. No evidence of contamination from volatiles was found.

Conclusions

- No evidence of contamination from volatiles was found in any of the soil gas samples.

TABLE 1

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8020M

SAMPLE NUMBER	DATE ANALYZED	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOTAL FID VOLATILES*
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	10.0 ug/L
001	10/27/96	ND	ND	ND	ND	ND
001A	10/28/96	ND	ND	ND	ND	ND
002	10/27/96	ND	ND	ND	ND	ND
002A	10/29/96	ND	ND	ND	ND	ND
003	10/24/96	ND	ND	ND	ND	ND
003A	10/29/96	ND	ND	ND	ND	ND
004	10/24/96	ND	ND	ND	ND	ND
004A	10/29/96	ND	ND	ND	ND	ND
005	10/27/96	ND	ND	ND	ND	ND
005A	10/28/96	ND	ND	ND	ND	ND
006	10/24/96	ND	ND	ND	ND	ND
006A	10/28/96	ND	ND	ND	ND	ND
007	10/27/96	ND	ND	ND	ND	ND
007A	10/28/96	ND	ND	ND	ND	ND
008	10/27/96	ND	ND	ND	ND	ND
008A	10/29/96	ND	ND	ND	ND	ND
009	10/28/96	ND	ND	ND	ND	ND
009A	10/28/96	ND	ND	ND	ND	ND
010	10/29/96	ND	ND	ND	ND	ND
010A	10/29/96	ND	ND	ND	ND	ND
011	10/28/96	ND	ND	ND	ND	ND
011A	10/29/96	ND	ND	ND	ND	ND
012	10/28/96	ND	ND	ND	ND	ND
012A	10/29/96	ND	ND	ND	ND	ND
013	10/29/96	ND	ND	ND	ND	ND
013A	10/28/96	ND	ND	ND	ND	ND
014	10/30/96	ND	ND	ND	ND	ND
014A	10/29/96	ND	ND	ND	ND	ND
015	10/29/96	ND	ND	ND	ND	ND
015A	10/30/96	ND	ND	ND	ND	ND
016	10/29/96	ND	ND	ND	ND	ND
016A	10/27/96	ND	ND	ND	ND	ND
017	10/28/96	ND	ND	ND	ND	ND
017A	10/29/96	ND	ND	ND	ND	ND
018	10/30/96	ND	ND	ND	ND	ND
018A	10/28/96	ND	ND	ND	ND	ND
019	10/29/96	ND	ND	ND	ND	ND
019A	10/29/96	ND	ND	ND	ND	ND
020	10/27/96	ND	ND	ND	ND	ND
020A	10/27/96	ND	ND	ND	ND	ND
021	10/27/96	ND	ND	ND	ND	ND

TABLE 1

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8020M

SAMPLE NUMBER	DATE ANALYZED	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOTAL FID VOLATILES*
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	10.0 ug/L
021A	10/27/96	ND	ND	ND	ND	ND
022	10/29/96	ND	ND	ND	ND	ND
022A	10/27/96	ND	ND	ND	ND	ND
023	10/28/96	ND	ND	ND	ND	ND
023A	10/29/96	ND	ND	ND	ND	ND
024	10/28/96	ND	ND	ND	ND	ND
024A	10/29/96	ND	ND	ND	ND	ND
025A	10/29/96	ND	ND	ND	ND	ND
026A	10/29/96	ND	ND	ND	ND	ND
027A	10/29/96	ND	ND	ND	ND	ND
028A	10/29/96	ND	ND	ND	ND	ND
029A	10/29/96	ND	ND	ND	ND	ND
030A	10/28/96	ND	ND	ND	ND	ND
031A	10/28/96	ND	ND	ND	ND	ND
032A	10/28/96	ND	ND	ND	ND	ND
033A	10/28/96	ND	ND	ND	ND	ND
034A	10/30/96	ND	ND	ND	ND	ND
035A	10/28/96	ND	ND	ND	ND	ND
036A	10/28/96	ND	ND	ND	ND	ND
037A	10/28/96	ND	ND	ND	ND	ND
038A	10/28/96	ND	ND	ND	ND	ND
039A	10/28/96	ND	ND	ND	ND	ND
040A	10/28/96	ND	ND	ND	ND	ND
041A	10/28/96	ND	ND	ND	ND	ND
042A	10/28/96	ND	ND	ND	ND	ND
043A	10/28/96	ND	ND	ND	ND	ND
044A	10/28/96	ND	ND	ND	ND	ND
045A	10/28/96	ND	ND	ND	ND	ND
046A	10/28/96	ND	ND	ND	ND	ND
047A	10/27/96	ND	ND	ND	ND	ND
048A	10/27/96	ND	ND	ND	ND	ND
049A	10/29/96	ND	ND	ND	ND	ND
050A	10/28/96	ND	ND	ND	ND	ND
051A	10/28/96	ND	ND	ND	ND	ND
052A	10/29/96	ND	ND	ND	ND	ND
053A	10/30/96	ND	ND	ND	ND	ND
054A	10/27/96	ND	ND	ND	ND	ND
055A	10/28/96	ND	ND	ND	ND	ND
056A	10/28/96	ND	ND	ND	ND	ND
057A	10/28/96	ND	ND	ND	ND	ND
058A	10/28/96	ND	ND	ND	ND	ND

TABLE 1

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8020M

SAMPLE NUMBER	DATE ANALYZED	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOTAL FID VOLATILES*
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	10.0 ug/L
059A	10/28/96	ND	ND	ND	ND	ND
060A	10/28/96	ND	ND	ND	ND	ND
061A	10/27/96	ND	ND	ND	ND	ND
062A	10/28/96	ND	ND	ND	ND	ND
063A	10/29/96	ND	ND	ND	ND	ND
064A	10/28/96	ND	ND	ND	ND	ND
065A	10/28/96	ND	ND	ND	ND	ND
066A	10/28/96	ND	ND	ND	ND	ND
067A	10/28/96	ND	ND	ND	ND	ND
068A	10/28/96	ND	ND	ND	ND	ND
069A	10/28/96	ND	ND	ND	ND	ND
070A	10/28/96	ND	ND	ND	ND	ND
071A	10/30/96	ND	ND	ND	ND	ND
072A	10/28/96	ND	ND	ND	ND	ND
073A	10/28/96	ND	ND	ND	ND	ND
074A	10/28/96	ND	ND	ND	ND	ND
075A	10/28/96	ND	ND	ND	ND	ND
389	10/28/96	ND	ND	ND	ND	ND
390	10/28/96	ND	ND	ND	ND	ND
391	10/28/96	ND	ND	ND	ND	ND
392	10/29/96	ND	ND	ND	ND	ND
393	10/28/96	ND	ND	ND	ND	ND
394	10/28/96	ND	ND	ND	ND	ND
395	10/28/96	ND	ND	ND	ND	ND
430	10/28/96	ND	ND	ND	ND	ND
431	10/28/96	ND	ND	ND	ND	ND
432	10/29/96	ND	ND	ND	ND	ND
433	10/28/96	ND	ND	ND	ND	ND
434	10/28/96	ND	ND	ND	ND	ND
435	10/28/96	ND	ND	ND	ND	ND
436	10/28/96	ND	ND	ND	ND	ND
437	10/29/96	ND	ND	ND	ND	ND
438	10/28/96	ND	ND	ND	ND	ND
471	10/28/96	ND	ND	ND	ND	ND
472	10/28/96	ND	ND	ND	ND	ND
473	10/29/96	ND	ND	ND	ND	ND
474	10/28/96	ND	ND	ND	ND	ND
475	10/28/96	ND	ND	ND	ND	ND
476	10/29/96	ND	ND	ND	ND	ND
477	10/28/96	ND	ND	ND	ND	ND
478	10/28/96	ND	ND	ND	ND	ND

TABLE 1

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8020M

SAMPLE NUMBER	DATE ANALYZED	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOTAL FID VOLATILES*
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	10.0 ug/L
479	10/28/96	ND	ND	ND	ND	ND
480	10/29/96	ND	ND	ND	ND	ND
481	10/28/96	ND	ND	ND	ND	ND
482	10/29/96	ND	ND	ND	ND	ND
496	10/29/96	ND	ND	ND	ND	ND
497	10/30/96	ND	ND	ND	ND	ND
498	10/28/96	ND	ND	ND	ND	ND
499	10/28/96	ND	ND	ND	ND	ND
500	10/28/96	ND	ND	ND	ND	ND
501	10/30/96	ND	ND	ND	ND	ND
502	10/28/96	ND	ND	ND	ND	ND
503	10/28/96	ND	ND	ND	ND	ND
504	10/29/96	ND	ND	ND	ND	ND
505	10/29/96	ND	ND	ND	ND	ND
506	10/28/96	ND	ND	ND	ND	ND
507	10/28/96	ND	ND	ND	ND	ND
521	10/25/96	ND	ND	ND	ND	ND
522	10/24/96	ND	ND	ND	ND	ND
523	10/25/96	ND	ND	ND	ND	ND
524	10/25/96	ND	ND	ND	ND	ND
525	10/25/96	ND	ND	ND	ND	ND
526	10/27/96	ND	ND	ND	ND	ND
527	10/25/96	ND	ND	ND	ND	ND
528	10/25/96	ND	ND	ND	ND	ND
529	10/27/96	ND	ND	ND	ND	ND
530	10/24/96	ND	ND	ND	ND	ND
531	10/29/96	ND	ND	ND	ND	ND
532	10/29/96	ND	ND	ND	ND	ND
533	10/28/96	ND	ND	ND	ND	ND
534	10/29/96	ND	ND	ND	ND	ND
546	10/25/96	ND	ND	ND	ND	ND
547	10/24/96	ND	ND	ND	ND	ND
548	10/25/96	ND	ND	ND	ND	ND
549	10/25/96	ND	ND	ND	ND	ND
550	10/25/96	ND	ND	ND	ND	ND
551	10/24/96	ND	ND	ND	ND	ND
552	10/27/96	ND	ND	ND	ND	ND
553	10/24/96	ND	ND	ND	ND	ND
554	10/24/96	ND	ND	ND	ND	ND
555	10/25/96	ND	ND	ND	ND	ND
556	10/29/96	ND	ND	ND	ND	ND

TABLE 1

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8020M

SAMPLE NUMBER	DATE ANALYZED	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOTAL FID VOLATILES*
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	10.0 ug/L
557	10/28/96	ND	ND	ND	ND	ND
558	10/28/96	ND	ND	ND	ND	ND
559	10/29/96	ND	ND	ND	ND	ND
560	10/29/96	ND	ND	ND	ND	ND
571	10/25/96	ND	ND	ND	ND	ND
572	10/27/96	ND	ND	ND	ND	ND
573	10/25/96	ND	ND	ND	ND	ND
574	10/24/96	ND	ND	ND	ND	ND
575	10/24/96	ND	ND	ND	ND	ND
576	10/24/96	ND	ND	ND	ND	ND
577	10/24/96	ND	ND	ND	ND	ND
578	10/24/96	ND	ND	ND	ND	ND
579	10/24/96	ND	ND	ND	ND	ND
580	10/27/96	ND	ND	ND	ND	ND
581	10/28/96	ND	ND	ND	ND	ND
582	10/28/96	ND	ND	ND	ND	ND
583	10/28/96	ND	ND	ND	ND	ND
584	10/28/96	ND	ND	ND	ND	ND
585	10/29/96	ND	ND	ND	ND	ND
586	10/29/96	ND	ND	ND	ND	ND
596	10/24/96	ND	ND	ND	ND	ND
597	10/27/96	ND	ND	ND	ND	ND
598	10/25/96	ND	ND	ND	ND	ND
599	10/24/96	ND	ND	ND	ND	ND
600	10/24/96	ND	ND	ND	ND	ND
601	10/24/96	ND	ND	ND	ND	ND
602	10/25/96	ND	ND	ND	ND	ND
603	10/27/96	ND	ND	ND	ND	ND
604	10/25/96	ND	ND	ND	ND	ND
605	10/25/96	ND	ND	ND	ND	ND
606	10/28/96	ND	ND	ND	ND	ND
607	10/28/96	ND	ND	ND	ND	ND
608	10/29/96	ND	ND	ND	ND	ND
609	10/28/96	ND	ND	ND	ND	ND
610	10/30/96	ND	ND	ND	ND	ND
611	10/29/96	ND	ND	ND	ND	ND
612	10/30/96	ND	ND	ND	ND	ND
621	10/25/96	ND	ND	ND	ND	ND
622	10/24/96	ND	ND	ND	ND	ND
623	10/25/96	ND	ND	ND	ND	ND
624	10/24/96	ND	ND	ND	ND	ND

TABLE 1

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8020M

SAMPLE NUMBER	DATE ANALYZED	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOTAL FID VOLATILES*
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	10.0 ug/L
625	10/27/96	ND	ND	ND	ND	ND
626	10/24/96	ND	ND	ND	ND	ND
627	10/25/96	ND	ND	ND	ND	ND
628	10/27/96	ND	ND	ND	ND	ND
629	10/25/96	ND	ND	ND	ND	ND
630	10/25/96	ND	ND	ND	ND	ND
631	10/29/96	ND	ND	ND	ND	ND
632	10/28/96	ND	ND	ND	ND	ND
633	10/28/96	ND	ND	ND	ND	ND
634	10/28/96	ND	ND	ND	ND	ND
635	10/29/96	ND	ND	ND	ND	ND
636	10/30/96	ND	ND	ND	ND	ND
637	10/30/96	ND	ND	ND	ND	ND
638	10/30/96	ND	ND	ND	ND	ND
646	10/25/96	ND	ND	ND	ND	ND
647	10/25/96	ND	ND	ND	ND	ND
648	10/24/96	ND	ND	ND	ND	ND
649	10/25/96	ND	ND	ND	ND	ND
650	10/25/96	ND	ND	ND	ND	ND
651	10/24/96	ND	ND	ND	ND	ND
652	10/24/96	ND	ND	ND	ND	ND
653	10/25/96	ND	ND	ND	ND	ND
654	10/25/96	ND	ND	ND	ND	ND
655	10/28/96	ND	ND	ND	ND	ND
656	10/29/96	ND	ND	ND	ND	ND
657	10/28/96	ND	ND	ND	ND	ND
658	10/28/96	ND	ND	ND	ND	ND
659	10/28/96	ND	ND	ND	ND	ND
660	10/28/96	ND	ND	ND	ND	ND
661	10/30/96	ND	ND	ND	ND	ND
662	10/30/96	ND	ND	ND	ND	ND
663	10/29/96	ND	ND	ND	ND	ND
664	10/29/96	ND	ND	ND	ND	ND
671	10/27/96	ND	ND	ND	ND	ND
672	10/25/96	ND	ND	ND	ND	ND
673	10/25/96	ND	ND	ND	ND	ND
674	10/25/96	ND	ND	ND	ND	ND
675	10/25/96	ND	ND	ND	ND	ND
676	10/24/96	ND	ND	ND	ND	ND
677	10/25/96	ND	ND	ND	ND	ND
678	10/25/96	ND	ND	ND	ND	ND

TABLE 1

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8020M

SAMPLE NUMBER	DATE ANALYZED	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOTAL FID VOLATILES*
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	10.0 ug/L
679	10/27/96	ND	ND	ND	ND	ND
680	10/28/96	ND	ND	ND	ND	ND
681	10/29/96	ND	ND	ND	ND	ND
682	10/28/96	ND	ND	ND	ND	ND
683	10/28/96	ND	ND	ND	ND	ND
684	10/29/96	ND	ND	ND	ND	ND
685	10/28/96	ND	ND	ND	ND	ND
686	10/30/96	ND	ND	ND	ND	ND
687	10/30/96	ND	ND	ND	ND	ND
689	10/29/96	ND	ND	ND	ND	ND
689	10/30/96	ND	ND	ND	ND	ND
696	10/25/96	ND	ND	ND	ND	ND
697	10/27/96	ND	ND	ND	ND	ND
698	10/24/96	ND	ND	ND	ND	ND
699	10/24/96	ND	ND	ND	ND	ND
700	10/25/96	ND	ND	ND	ND	ND
701	10/24/96	ND	ND	ND	ND	ND
702	10/27/96	ND	ND	ND	ND	ND
703	10/25/96	ND	ND	ND	ND	ND
704	10/25/96	ND	ND	ND	ND	ND
705	10/29/96	ND	ND	ND	ND	ND
706	10/29/96	ND	ND	ND	ND	ND
707	10/28/96	ND	ND	ND	ND	ND
708	10/28/96	ND	ND	ND	ND	ND
709	10/29/96	ND	ND	ND	ND	ND
710	10/30/96	ND	ND	ND	ND	ND
711	10/29/96	ND	ND	ND	ND	ND
712	10/30/96	ND	ND	ND	ND	ND
713	10/29/96	ND	ND	ND	ND	ND
714	10/29/96	ND	ND	ND	ND	ND
721	10/24/96	ND	ND	ND	ND	ND
722	10/27/96	ND	ND	ND	ND	ND
723	10/27/96	ND	ND	ND	ND	ND
724	10/24/96	ND	ND	ND	ND	ND
725	10/25/96	ND	ND	ND	ND	ND
726	10/24/96	ND	ND	ND	ND	ND
727	10/25/96	ND	ND	ND	ND	ND
728	10/24/96	ND	ND	ND	ND	ND
729	10/25/96	ND	ND	ND	ND	ND
730	10/28/96	ND	ND	ND	ND	ND
731	10/29/96	ND	ND	ND	ND	ND

TABLE 1

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8020M

SAMPLE NUMBER	DATE ANALYZED	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOTAL FID VOLATILES*
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	10.0 ug/L
732	10/29/96	ND	ND	ND	ND	ND
733	10/29/96	ND	ND	ND	ND	ND
734	10/28/96	ND	ND	ND	ND	ND
735	10/30/96	ND	ND	ND	ND	ND
736	10/29/96	ND	ND	ND	ND	ND
737	10/29/96	ND	ND	ND	ND	ND
738	10/28/96	ND	ND	ND	ND	ND
746	10/27/96	ND	ND	ND	ND	ND
747	10/25/96	ND	ND	ND	ND	ND
748	10/27/96	ND	ND	ND	ND	ND
749	10/24/96	ND	ND	ND	ND	ND
750	10/24/96	ND	ND	ND	ND	ND
751	10/25/96	ND	ND	ND	ND	ND
752	10/25/96	ND	ND	ND	ND	ND
753	10/27/96	ND	ND	ND	ND	ND
754	10/24/96	ND	ND	ND	ND	ND
755	10/28/96	ND	ND	ND	ND	ND
756	10/29/96	ND	ND	ND	ND	ND
757	10/28/96	ND	ND	ND	ND	ND
758	10/29/96	ND	ND	ND	ND	ND
759	10/28/96	ND	ND	ND	ND	ND
760	10/28/96	ND	ND	ND	ND	ND
771	10/27/96	ND	ND	ND	ND	ND
772	10/24/96	ND	ND	ND	ND	ND
773	10/24/96	ND	ND	ND	ND	ND
774	10/24/96	ND	ND	ND	ND	ND
775	10/24/96	ND	ND	ND	ND	ND
776	10/25/96	ND	ND	ND	ND	ND
777	10/27/96	ND	ND	ND	ND	ND
778	10/25/96	ND	ND	ND	ND	ND
779	10/27/96	ND	ND	ND	ND	ND
780	10/28/96	ND	ND	ND	ND	ND
781	10/29/96	ND	ND	ND	ND	ND
782	10/28/96	ND	ND	ND	ND	ND
783	10/28/96	ND	ND	ND	ND	ND
784	10/28/96	ND	ND	ND	ND	ND

** CALCULATED USING THE SUM OF THE AREAS OF ALL INTEGRATED CHROMATOGRAM PEAKS AND THE INSTRUMENT RESPONSE FACTOR FOR TOLUENE*

"ND" INDICATES NO ANALYTE DETECTED AT THE DETECTION LIMITS

TABLE 1

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8020M

SAMPLE NUMBER	DATE ANALYZED	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOTAL FID VOLATILES*
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	10.0 ug/L

Analyst: MIKE MARRALE
Reviewed by: _____

TABLE 2

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8010M

SAMPLE NUMBER	DATE ANALYZED	11DCE*	CH2Cl2	t12DCE	11DCA	c12DCE	CHCl3	111TCA	CCl4*	TCE	112TCA	PCE
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L
001	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
001A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
002	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
002A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
003	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
003A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
004	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
004A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
005	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
005A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
006	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
006A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
007	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
007A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
008	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
0	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
009A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
010	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
010A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
011	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
011A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
012	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
012A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
013	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
013A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
014	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
014A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
015	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
015A	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
016	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
016A	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
017	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
017A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
018	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
018A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
019	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
019A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
020	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
020A	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
0	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8010M

SAMPLE NUMBER	DATE ANALYZED	11DCE*	CH2Cl2	t12DCE	11DCA	c12DCE	CHCl3	111TCA	CCl4*	TCE	112TCA	PCE
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L
021A	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
022	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
022A	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
023	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
023A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
024	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
024A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
025A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
026A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
027A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
028A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
029A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
030A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
031A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
03[illegible]	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
[illegible]	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
03[illegible]	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
035A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
036A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
037A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
038A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
039A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
040A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
041A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
042A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
043A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
044A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
045A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
046A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
047A	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
048A	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
049A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
050A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
051A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
052A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
053A	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
054A	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
055A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
056A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
0[illegible]	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8010M

SAMPLE NUMBER	DATE ANALYZED	11DCE*	CH2Cl2	t12DCE	11DCA	c12DCE	CHCl3	111TCA	CCl4*	TCE	112TCA	PCE
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L
059A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
060A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
061A	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
062A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
063A	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
064A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
065A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
066A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
067A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
068A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
069A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
070A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
071A	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
072A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
073A	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
C	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
0,	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
389	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
390	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
391	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
392	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
393	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
394	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
395	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
430	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
431	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
432	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
433	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
434	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
435	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
436	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
437	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
438	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
471	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
472	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
473	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
474	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
475	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
476	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
477	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
'	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8010M

SAMPLE NUMBER	DATE ANALYZED	11DCE*	CH2Cl2	t12DCE	11DCA	c12DCE	CHCl3	111TCA	CCl4*	TCE	112TCA	PCE
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L
479	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
480	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
481	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
482	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
496	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
497	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
498	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
499	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
500	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
501	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
502	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
503	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
504	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
505	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
506	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5/	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5/	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
522	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
523	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
524	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
525	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
526	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
527	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
528	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
529	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
530	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
531	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
532	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
533	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
534	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
546	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
547	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
548	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
549	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
550	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
551	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
552	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
553	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
554	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
555	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8010M

SAMPLE NUMBER	DATE ANALYZED	11DCE*	CH2Cl2	t12DCE	11DCA	c12DCE	CHCl3	111TCA	CCl4*	TCE	112TCA	PCE
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L
557	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
558	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
559	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
560	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
571	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
572	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
573	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
574	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
575	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
576	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
577	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
578	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
579	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
580	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
581	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
[illegible]	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
[illegible]	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
584	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
585	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
586	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
596	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
597	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
598	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
599	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
600	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
601	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
602	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
603	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
604	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
605	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
606	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
607	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
608	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
609	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
610	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
611	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
612	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
621	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
622	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
623	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
[illegible]	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8010M

SAMPLE NUMBER	DATE ANALYZED	11DCE*	CH2Cl2	t12DCE	11DCA	c12DCE	CHCl3	111TCA	CCl4*	TCE	112TCA	PCE
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L
625	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
626	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
627	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
628	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
629	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
630	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
631	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
632	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
633	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
634	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
635	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
636	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
637	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
638	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
64[illegible]	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
6[illegible]	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
649	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
650	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
651	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
652	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
653	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
654	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
655	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
656	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
657	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
658	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
659	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
660	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
661	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
662	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
663	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
664	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
671	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
672	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
673	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
674	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
675	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
676	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
67[illegible]	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8010M

SAMPLE NUMBER	DATE ANALYZED	11DCE*	CH2Cl2	t12DCE	11DCA	c12DCE	CHCl3	111TCA	CCl4*	TCE	112TCA	PCE
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L
679	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
680	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
681	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
682	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
683	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
684	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
685	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
686	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
687	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
689	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
689	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
696	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
697	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
698	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
69[illegible]	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7[illegible]	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
702	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
703	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
704	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
705	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
706	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
707	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
708	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
709	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
710	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
711	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
712	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
713	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
714	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
721	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
722	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
723	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
724	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
725	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
726	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
727	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
728	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
729	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
73[illegible]	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2

ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8010M

SAMPLE NUMBER	DATE ANALYZED	11DCE*	CH2Cl2	t12DCE	11DCA	c12DCE	CHCl3	111TCA	CCl4*	TCE	112TCA	PCE
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L
732	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
733	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
734	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
735	10/30/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
736	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
737	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
738	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
746	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
747	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
748	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
749	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
750	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
751	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
752	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
753	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
756	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
757	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
758	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
759	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
760	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
771	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
772	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
773	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
774	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
775	10/24/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
776	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
777	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
778	10/25/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
779	10/27/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
780	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
781	10/29/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
782	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
783	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
784	10/28/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

"ND" INDICATES NO ANALYTE DETECTED AT THE DETECTION LIMITS

11DCE = *1,1-dichloroethene*
= *1,1-dichloroethane*

CH2Cl2 = methylene chloride
c12DCE = cis-1,2-dichloroethene

t12DCE = trans-1,2-dichloroethene
CHCl3 = chloroform

TABLE 2

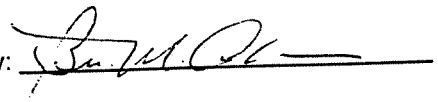
ANALYTE CONCENTRATIONS IN SOIL GAS VIA EPA METHOD 8010M

SAMPLE NUMBER	DATE ANALYZED	11DCE*	CH2Cl2	t12DCE	11DCA	c12DCE	CHCl3	111TCA	CCl4*	TCE	112TCA	PCE
DETECTION LIMIT		1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L	1.00 ug/L

111TCA = 1,1,1-trichloroethane *CCl4 = carbon tetrachloride* *TCE = trichloroethene*

112TCA = 1,1,2-trichloroethane *PCE = tetrachloroethene*

** 11DCE/TCTFA and CCl4/12DCA are co-eluting pairs and are reported in concentrations of 11DCE and CCl4, respectively.*

Analyst:
Reviewed by: 

FIELD PROCEDURES

To collect the samples, a 1/2-inch hole was produced to a depth of approximately 4 feet by using a drive rod. The entire sampling system was purged with ambient air drawn through an organic vapor filter cartridge, and a stainless steel probe was inserted to the full depth of the hole and sealed off from the atmosphere. A sample of in-situ soil gas was then withdrawn through the probe and used to purge atmospheric air from the sampling system. A second sample of soil gas was withdrawn through the probe and encapsulated in a pre-evacuated glass vial at two atmospheres of pressure (15 psig). The self-sealing vial was detached from the sampling system, packaged, labeled, and stored for laboratory analysis.

Prior to the day's field activities all sampling equipment, slide hammer rods and probes were decontaminated by washing with a Liquinox/distilled water solution and rinsing thoroughly with distilled water. Internal surfaces were flushed dry using filtered ambient air, and external surfaces were wiped clean using clean paper towels or allowed to air dry.

LABORATORY PROCEDURES

The soil gas samples were analyzed in **TARGET's** laboratory in Columbia, MD. The analytical equipment was calibrated using a 3-point (FID) or a 5-point (ECD) instrument-response curve and injection of known concentrations of the target analytes. Retention times of the standards were used to identify the peaks in the chromatograms of the field samples, and their average calibration factors were used to calculate the analyte concentrations.

Total FID Volatiles values were generated by summing the areas of all integrated chromatogram peaks and calculated using the instrument response factor for toluene. Injection peaks, which also contain the light hydrocarbon methane, were excluded to avoid the skewing of Total FID Volatiles values due to injection disturbances and biogenic methane. For samples with low hydrocarbon concentrations, the calculated Total FID Volatiles concentration is occasionally lower than the sum of the individual analytes. This is because the response factor used for the Total FID Volatiles calculation is a constant, whereas the individual analyte response factors are compound specific. It is important to understand that the Total FID Volatiles levels reported are relative, not absolute, values.

The tabulated results of the laboratory analyses of the soil gas samples are reported in micrograms per liter (µg/l) of vapor in Tables 1 and 2. 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. The xylenes concentrations reported in Table 1 are the sum of the m- and p-xylene and the o-xylene concentrations for each sample. With **TARGET's** analytical run conditions, 11DCE/TCTFA and CCl_4/12DCA occur as co-eluting pairs and are reported in Table 2 in concentrations of 11DCE and CCl_4, respectively.

DETECTABILITY

Detectability

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.