SFUND RECORDS CTR
89113

SUBSURFACE GAS CONTINGENCY PLAN INVESTIGATION REPORT

Waste Disposal, Inc., Superfund Site
Santa Fe Springs, California

FINAL

October 15, 1999

Prepared under Contract
DACW05-96-D-008 for:
U. S. Army Corps of Engineers
Sacramento District
Sacramento, California

and for the

U.S. Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, California

Prepared by:
CDM Federal Programs Corporation
1111 Civic Drive, Suite 280
Walnut Creek, California

CDM Federal Programs Corporation
A subsidiary of Camp Dresser & McKee Inc.

SUBSURFACE GAS CONTINGENCY PLAN
INVESTIGATION REPORT
WASTE DISPOSAL, INC. SUPERFUND SITE
SANTA FE SPRINGS, CALIFORNIA

FINAL

Prepared Under Contract DACW05-96-D-008
for:
United States Army Corps of Engineers
Sacramento District
Sacramento, California

and
for the

United States Environmental Protection Agency
Region 9
San Francisco, California

Prepared by:

CDM Federal Programs Corporation
100 Pringle Avenue, Suite 500
Walnut Creek, California

February 18, 1999

WDI SUBSURFACE GAS CONTINGENCY PLAN INVESTIGATION REPORT

TABLE OF CONTENTS

LIST OF FIGURES iii
LIST OF TABLES iii
EXECUTIVE SUMMARY ES-1

1.0 INTRODUCTION 1-1
1.1 BACKGROUND 1-1
1.1.1 Site History 1-1
1.1.2 Results of Earlier Investigations 1-3
1.2 OVERALL SCOPE AND OBJECTIVES 1-3

2.0 OVERALL APPROACH AND SAMPLING METHODS 2-1
2.1 SAMPLING FROM EXISTING VAPOR WELLS 2-1
2.2 SAMPLING FROM TEMPORARY SOIL GAS PROBES 2-1
2.3 IN-BUSINESS AIR SAMPLING 2-2
2.4 DEVIATIONS FROM THE WORKPLAN 2-9
2.4.1 Sampling from Existing Vapor Wells 2-9
2.4.2 Sampling from Temporary Soil Gas Probes 2-11
2.4.3 In-Business Air Sampling 2-11

3.0 ANALYTICAL RESULTS 3-1
3.1 VAPOR WELLS 3-1
3.2 TEMPORARY SOIL GAS PROBES 3-4
3.3 IN-BUSINESS AIR SAMPLES 3-5
3.3.1 Background Samples 3-5
3.3.2 In-Business Air Sample Results 3-11

4.0 QUALITY ASSURANCE/QUALITY CONTROL 4-1
4.1 EXISTING VAPOR WELLS 4-1
4.2 TEMPORARY SOIL GAS PROBES 4-2
4.3 IN-BUSINESS AIR SAMPLING 4-3
4.4 CONFIRMATION OF METHANE MEASUREMENTS IN THE FIELD 4-3

5.0 CONCLUSIONS 5-1

6.0 REFERENCES 6-1

APPENDIX A ANALYTICAL RESULTS

A-1 Soil Gas Results from Vapor Wells, Waste Disposal Inc. Site
A-2 Soil Gas Results from Temporary Probes, Waste Disposal Inc. Site
A-3 Analytical Results of Ambient Air Samples (Background), Waste Disposal Inc. Site
A-4 Analytical Results of Indoor Air Samples, Waste Disposal Inc. Site

APPENDIX B VALIDATION REPORTS

LIST OF FIGURES

E-1	Location of Exceedances of USEPA's Interim Threshold Levels	ES-3
1-1	Location of WDI Site, Santa Fe Springs, California	1-2
1-2	Vapor Well Monitoring Results From 1989 USEPA and 1995 WDIG Sampling Events	1-5
2-1	Soil Gas Monitoring Wells	2-3
2-2	Locations of 1997 USEPA Temporary Soil Gas Probes	2-4
3-1	Vapor Well Results For Primary Chemicals of Concern	3-3
3-2a	Field Measurements for Methane	3-6
3-2b	Analytical Results for Benzene	3-7
3-2c	Analytical Results for Vinyl Chloride	3-8
3-3	Soil Gas Results for 9843 Greenleaf Ave. Area	3-9
3-4	Soil Gas Results for 12637B Los Nietos Road Area	3-10
3-5	In-Business Air 24 Hour Sample Results	3-12
5-1	Location of Exceedences of USEPA's Interim Threshold Levels	5-3

LIST OF TABLES

2-1	Summary of Samples Collected from Temporary Probes	2-5
2-2	Methane, Carbon Dioxide, and Oxygen Measurements of Soil Gas Purged from the Vapor Wells	2-10
3-1	USEPA Soil Gas and In-Business Air Interim Threshold Screening Levels for WDI Site Chemicals of Concern	3-2
3-2	Chemical Inventory of Buildings	3-13
4-1	Comparison of Field Measurements of Methane to Laboratory Results	4-4
5-1	Soil Gas Results Summary, Subsurface Gas Contingency Plan	5-2

EXECUTIVE SUMMARY

During August and September 1997, CDM Federal Programs Corporation, under contract with the U.S. Army Corps of Engineers and on the behalf of the U.S. Environmental Protection Agency (USEPA), implemented the field sampling and analysis activities outlined in the *Subsurface Gas Contingency Plan Waste Disposal, Inc. Superfund Site, Santa Fe Springs, California*. The Contingency Plan outlined three primary investigative activities at the Waste Disposal, Inc. (WDI) site related to chemical contaminants found in soil gas at the site: (1) sampling of the existing vapor well monitoring network for volatile organic chemicals (VOCs) and methane; (2) determination of the distribution of chemical constituents in soil gas at the site through the use of a temporary probe installation/sampling/ analysis program; and (3) collection of in-business air data for all buildings at the site to determine if subsurface gas was migrating into the buildings.

Prior investigation of the wastes disposed of at the WDI site identified over 20 volatile chemicals related to the disposal of solvent and petroleum wastes. Of these 20 chemicals, 6 gaseous chemical constituents were determined to characterize soil gas constituents and wastes at the WDI site based on toxicity or frequency of detection. These constituents include: (1) methane, an explosive gas that is generated through the decomposition of organic matter in wastes at the site; (2) benzene, a characteristic component of petroleum wastes and a known human carcinogen; (3) toluene, a typical component of petroleum wastes; (4) trichloroethene (TCE), a common industrial solvent frequently observed in soil gas samples; (5) tetrachloroethene (PCE), also a common industrial solvent found in groundwater beneath the site; and (6) vinyl chloride, a degradation product of TCE and PCE and a known human carcinogen. Methane, benzene, toluene, TCE, PCE, and vinyl chloride comprise a significant component of the VOCs that exist in gaseous phase within soil gas at the site.

Interim threshold levels for the primary soil gas contaminants, identified during previous investigations at the WDI site, were established by USEPA in the 1997 *Subsurface Gas Contingency Plan*. USEPA's interim threshold levels were set at concentrations below which USEPA has determined that the chemical will pose no threat to human health through inhalation of the contaminants. The interim threshold concentrations for primary chemicals of concern are shown below.

USEPA Soil Gas Interim Threshold Levels for Key Site Contaminants

Contaminant	In-Business Air Interim Threshold Value	Site Boundary Interim Threshold Value
Methane	1.25% by volume	1.25% by volume
Benzene	2 ppbv	100 ppbv
Toluene	212 ppbv	10,600 ppbv
Trichloroethene	8.2 ppbv	411 ppbv
Tetrachloroethene	10.6 ppbv	532 ppbv
Vinyl Chloride	0.25 ppbv	12.5 ppbv

During the August and September 1997 soil gas investigations at the WDI site, soil gas samples were collected from 27 vapor wells and 196 temporary soil gas probes throughout the site area. Figure E-1 shows the locations at the site where interim threshold levels were exceeded in the soil gas samples. The locations showing methane exceedences are for vapor well and temporary probes installed above or within buried wastes. The buried wastes contain oil field drilling muds, petroleum wastes, and solvent wastes that produce methane gas as the chemicals degrade. The VOCs exceeding interim threshold levels in Area 1 and Area 8 (Figure E-1) appear to be a result of disposal of solvents at those locations.

The vinyl chloride interim threshold level was exceeded at 14 site locations (VW4, VW8, VW9, VW10, VW14, VW22, VW23, MP1, MP2, GP9, GP40, GP41, GP78, and GP172). The benzene interim threshold level was exceeded at 16 site locations (VW4, VW9, VW10, VW18, VW22, MP1, MP2, GP7, GP9, GP12, GP40, GP41, GP48, GP172, GP175, and GP176). The TCE interim threshold was exceeded at locations VW22, VW23, and MP2. The PCE interim threshold was exceeded at locations VW23, GP12, and GP31. GP31, located on the eastern site boundary, is the only boundary sample location exhibiting an exceedance of an interim threshold level. Vapor wells VW10, VW18, VW22, VW23, MP1, and MP2 and temporary probes GP18, GP78, GP170, GP172, GP179, GP180 are all located within 50 feet of a site structure. Methane exceeded the State of California's 5% standard at 29 locations throughout the site area. Although toluene did not exceed its interim threshold level (toluene has the highest interim threshold level), it was observed in 40% of all samples analyzed.

During August and September 1997, in-business air samples were collected over a 24 hour period from each of the 22 buildings at the site. The samples were collected when the businesses were closed (e.g., Sunday morning to Monday morning) with minimal or no ventilation in order to assess the "worst-case" conditions. Many of the VOCs detected in the soil gas samples were also detected in the in-business air samples. An inventory of the chemicals used in industrial and maintenance activities related to the site buildings indicated that VOCs detected were present in fuels, paint thinners, and solvents stored and used within the building. Elevated concentrations of methane were not reported for the in-business air samples indicating no significant migration of soil gas into the indoor air spaces. Many of the VOCs found in soil gas were also detected in outdoor, background air samples, reflecting automotive exhaust and the release of solvents from adjacent industrial facilities in the Santa Fe Springs area.

The soil gas interim threshold levels outlined in the USEPA *Subsurface Gas Contingency Plan* included measures for performing more frequent monitoring of in-business air quality or the placement of additional permanent monitoring probes near buildings. Based on the results of the study, EPA directed the Waste Disposal Inc. Group (WDIG), the potentially responsible parties for cleanup of the WDI Site, to perform additional indoor air sampling of buildings adjacent to locations with elevated soil gas VOCs and/or methane levels, and to install new multi-level soil gas monitoring wells between buried wastes and the site structures. The results of the WDIG's additional in-business air and vapor well sampling are reported in a separate document.

1.0 INTRODUCTION

This report has been prepared by CDM Federal Programs Corporation (CDM Federal) under contract to the United States Army Corps of Engineers (USACE) and in support of the United States Environmental Protection Agency (USEPA). This report presents the field and analytical results collected under the requirements of the *Subsurface Gas Contingency Plan, Waste Disposal, Inc. (WDI) Superfund Site* (CDM Federal, 1997). The WDI Site is located in Santa Fe Springs, California (Figure 1-1). The results of this investigation will be used in conjunction with other technical data to support USEPA's evaluation of the proposed remedial design for the WDI site. The specific objectives of this investigation are described below.

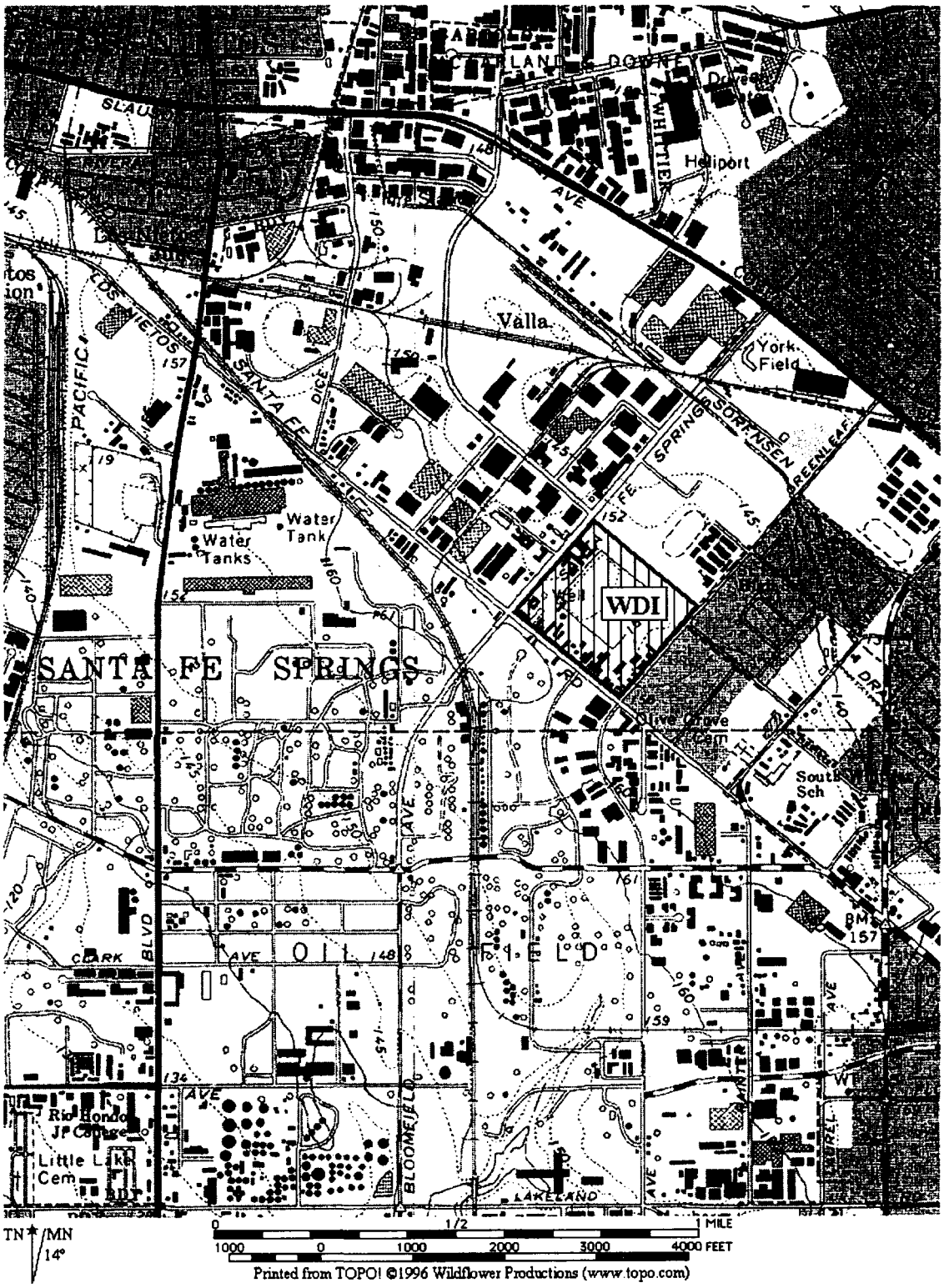
1.1 BACKGROUND

1.1.1 Site History

The WDI site contains a buried 42-million gallon capacity reservoir originally constructed at grade for crude petroleum storage. The original reservoir was approximately 600 feet (ft) in diameter and 25-ft deep. The reservoir was decommissioned for storage of crude petroleum in the late 1920s, but was used until the mid 1960s for the disposal of a variety of liquid and solid wastes. Based on remedial investigations of the area, wastes (many of which contain hazardous substances) disposed at WDI include petroleum-related chemicals, solvents, acetylene sludge, drilling muds, and construction debris.

Historical aerial photographs indicate that liquids were also discharged into bermed areas surrounding the reservoir beginning in the late 1920s. Most of these bermed areas were at grade at least until the late 1950s when the reservoir and surrounding bermed disposal pits were covered with 5 to 10 feet of soil.

The WDI site was placed on the National Priorities List in July of 1987. During late 1988 to early 1989, USEPA conducted a Remedial Investigation (RI) of the site during which more than 100 soil borings were drilled and sampled and 26 vapor monitoring wells and 27 groundwater wells were installed (Ebasco, 1989). During late 1988 to early 1989, USEPA initiated three quarters of groundwater sampling (USEPA, 1993).



Source: USGS, Whittier Quadrangle
7.5' Series Topographic

CDM Federal Programs Corporation
A Subsidiary of Camp Dresser & McKee Inc.

Location of WDI Site
Santa Fe Springs, California

Figure 1-1

1.1.2 Results of Earlier Investigations

During the RI in 1989 soil gas samples were collected from 26 vapor wells installed at WDI (Figure 1-2). Soil gas samples were analyzed for volatile organic compounds (VOCs) using a full scan GC/MS and results were reported for 10 target compounds (vinyl chloride; dichloromethane; chloroform; 1,1,1-trichloroethane; 1,2-dichloroethane; benzene; carbon tetrachloride; trichloroethene; 1,2-dibromoethane; and tetrachloroethene). With the exception of dichloromethane, all of the target compounds were detected during the RI. The highest VOC concentrations were detected in VW9 with 16,000 parts per billion by volume (ppbv) benzene and 12,000 ppbv vinyl chloride. Samples were also analyzed for hydrogen, nitrogen, oxygen, methane, carbon monoxide, and carbon dioxide. Concentrations ranged from 16.1 to 81.6% for nitrogen, 1.53 to 18.24% for oxygen, 0.0 to 0.02% for carbon monoxide, 0.1 to 17.6% for carbon dioxide, and 0.0 to 39.1% for methane[1]. During the 1988-1989 RI, the highest methane concentration (39.1%) was measured in VW9.

In 1995 as part of initial remedial design investigations, the Waste Disposal, Inc. Group (WDIG) analyzed 23 of the vapor wells for methane using South Coast Air Quality Management District (SCAQMD) Modified Method 25.1 and six of the wells for VOCs using USEPA Method TO-14 (Figure 1-2). The TO-14 analysis reported the results for 22 target compounds. As shown on Figure 1-2, the data collected in 1989 and 1995 showed inconsistencies between the two data sets. In some cases higher methane and VOC concentrations were detected in 1995. Methane at VW25 measured 18.5% in 1995, while only 0.29% in 1989. Benzene was detected at VW18 at a concentration of 2,000 ppbv in 1995, while no benzene was reported (at a method detection limit of 20 ppbv) in the 1989 RI. Some compounds detected by the WDIG in 1995 such as xylenes and ethylbenzene were not identified as chemicals of concern (COCs) for soil gas compounds by the USEPA in the 1989 RI.

1.2 OVERALL SCOPE AND OBJECTIVES

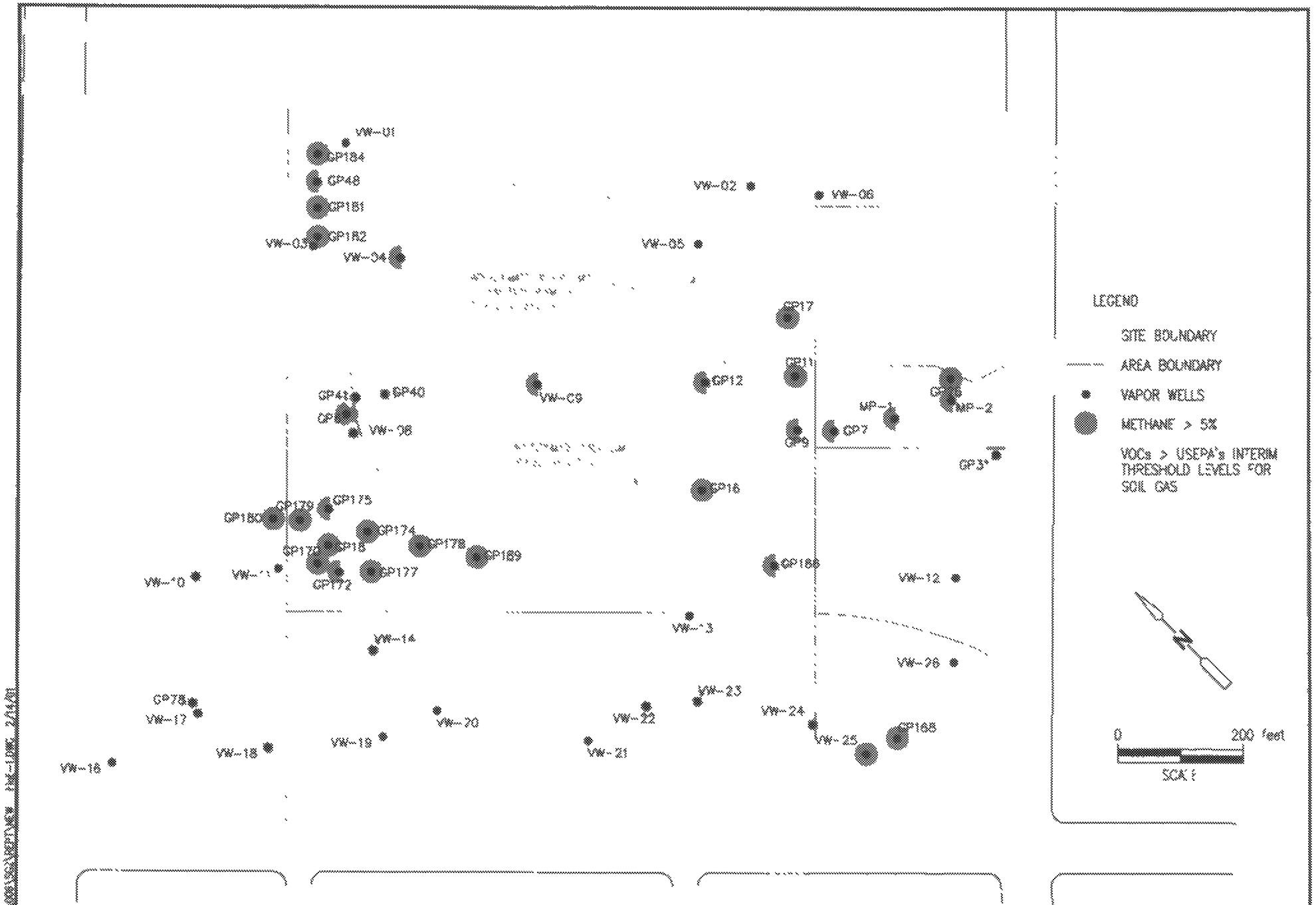
The data presented in this report will be used to support USEPA's re-evaluation of the WDIG's 1995 90% remedial design proposal for the WDI site. As described above, the data from past

---

[1] Many field readings of "methane" reflect total explosive gases measured by the monitoring equipment which includes CH4 and other alkane compounds. For purposes of discussion, field measurements of "explosive gases" are presented in relation to methane, recognizing that other explosive gases have contributed to the instrument reading.

investigations conducted at WDI are old Figure 1-2, Vapor Well Monitoring Results and exhibit inconsistences between data sets. Therefore, during 1997, USEPA collected additional data at the WDI site in order to provide a more comprehensive characterization of the current soil gas conditions. USEPA also collected in-business air data at the WDI site in order to evaluate whether soil gas is migrating into the on-site buildings, thus creating an explosion (methane) or health hazard (VOCs). Specifically, data collected from this investigation were used to address the following objectives:

- Identify any locations within the site and along the boundaries of the site with elevated VOCs and methane concentrations in soil gas that may indicate the migration of soil gas emanating from wastes disposed at the site;
- Obtain current data documenting subsurface gas migration near and below buildings for USEPA's use in communicating site conditions to building owners and occupants;
- Correlate, where possible, soil gas data with in-business air data to determine if there is a link between subsurface gas migration and in-business air quality;
- Provide a current data base for all chemicals found at the site in order to evaluate the proposed subsurface soil gas remedies.



CDM Federal Programs Corporation
A Subsidiary of Camp Dresser & McKee Inc.

Location of Exceedences of USEPA's Interim Threshold Levels
Waste Disposal Inc., Santa Fe Springs, California

Figure E-1

94-258 TM4-03 REV. 12/11/96

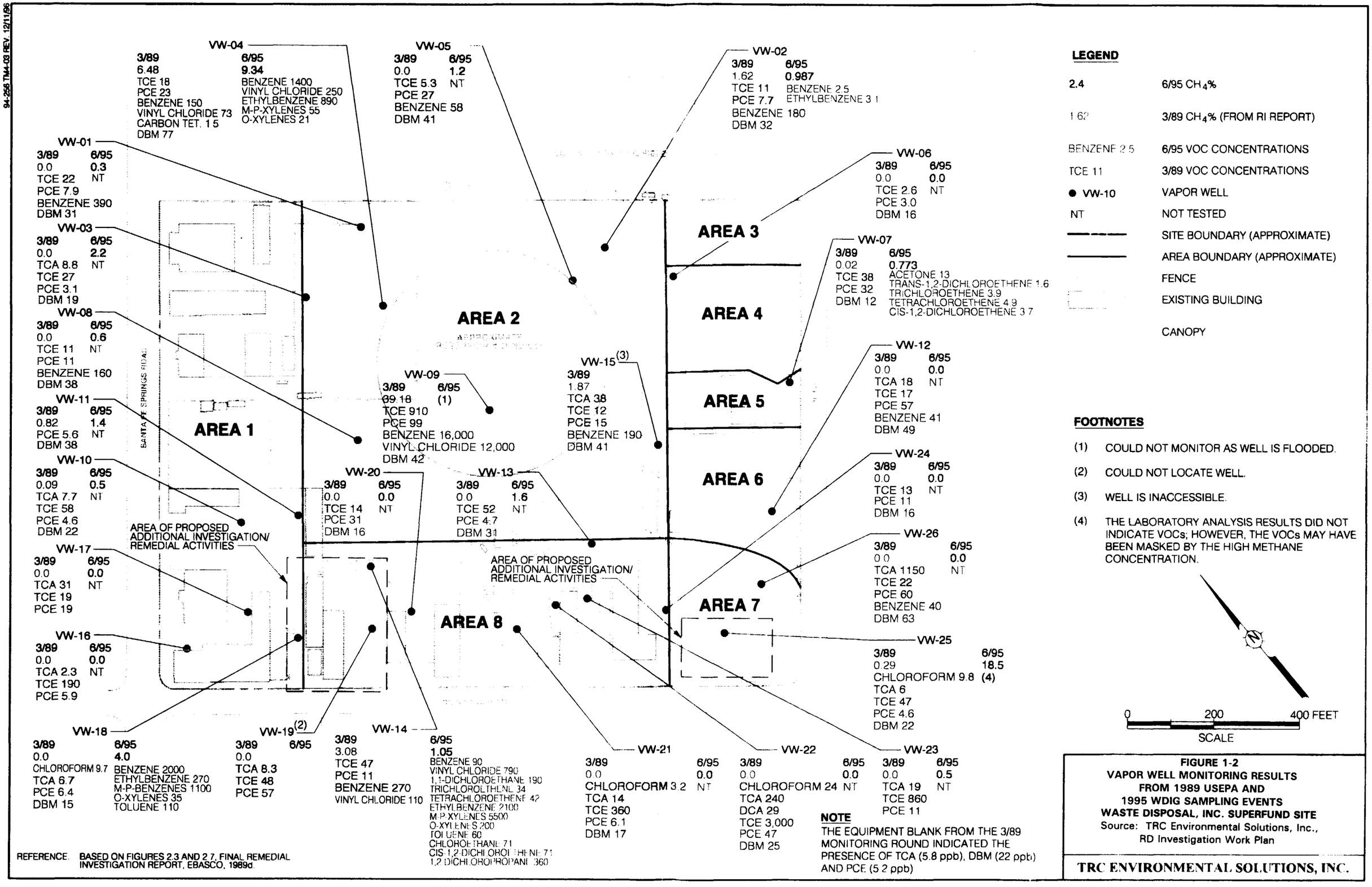


FIGURE 1-2
VAPOR WELL MONITORING RESULTS FROM 1989 USEPA AND 1995 WDIG SAMPLING EVENTS
WASTE DISPOSAL, INC. SUPERFUND SITE
Source: TRC Environmental Solutions, Inc., RD Investigation Work Plan

TRC ENVIRONMENTAL SOLUTIONS, INC.

2.0 OVERALL APPROACH AND SAMPLING METHODS

2.1 SAMPLING FROM EXISTING VAPOR WELLS

During August and September 1997, soil gas samples were collected by CDM Federal, contractor to the U.S. Army Corps of Engineers, from 23 of the 26 vapor wells installed during the RI and from two dual-probe vapor wells installed at 9483 Greenleaf Avenue in 1996 (Figure 2-1). Three wells had been destroyed or were no longer accessible (see Sect. 2.4.1 for further details). To obtain a representative sample, soil gas was purged from the wells prior to sampling. At least two well volumes of soil gas were purged from each well with an Amatek MG-5P portable pump. Before collecting a sample, a Landtec GA-90 infrared gas analyzer was used to measure the percent oxygen, carbon dioxide, and methane in the purged soil gas. The concentration of volatile organics in the purged soil gas was also measured with either a Photovac MicroTIP™ or an OVM 580B. Both of these instruments were equipped with a photoionization detector (PID) and a 10.6 eV ultraviolet lamp. The OVM 580B and the Photovac MicroTIP™ were calibrated every day using 100 ppm isobutylene. The methane response of the Landtec GA-90 was checked every day using 1% methane.

Soil gas samples were collected either in 1-liter Tedlar bags for analysis on site by the USEPA Region 9 Field Analytical Support Program (FASP) laboratory or in 6-liter SUMMA canisters for analysis by an off-site laboratory (Quanterra Laboratory in the City of Industry, California). The FASP lab analyzed soil gas for VOCs using gas chromatography/mass spectrometry (GC/MS) and following protocols outlined in the USEPA Contract Laboratory Program (CLP) Statement of Work for Organics Analysis (OLMO3.1) and the USEPA SW846 8260 Method. The Quanterra Laboratory analyzed samples for VOCs using USEPA Method TO-15 and for methane using Southern California Air Quality Management District (SCAQMD) Method 25.1. Analytical procedures for the FASP lab and the Quanterra Laboratory are presented in Appendix B and Appendix E, respectively, of the *Subsurface Gas Contingency Plan* (CDM Federal, 1997).

2.2 SAMPLING FROM TEMPORARY SOIL GAS PROBES

Temporary soil gas probes were installed to depths of 3 to 20 ft below ground surface (bgs) at approximately 186 locations throughout the site (Figure 2-2). Soil gas probes were driven with a hydraulic hammer using either the USEPA Geoprobe unit or a subcontractor's (Transglobal Environmental Geochemistry) Stratoprobe system. Both systems utilized stainless-steel rods

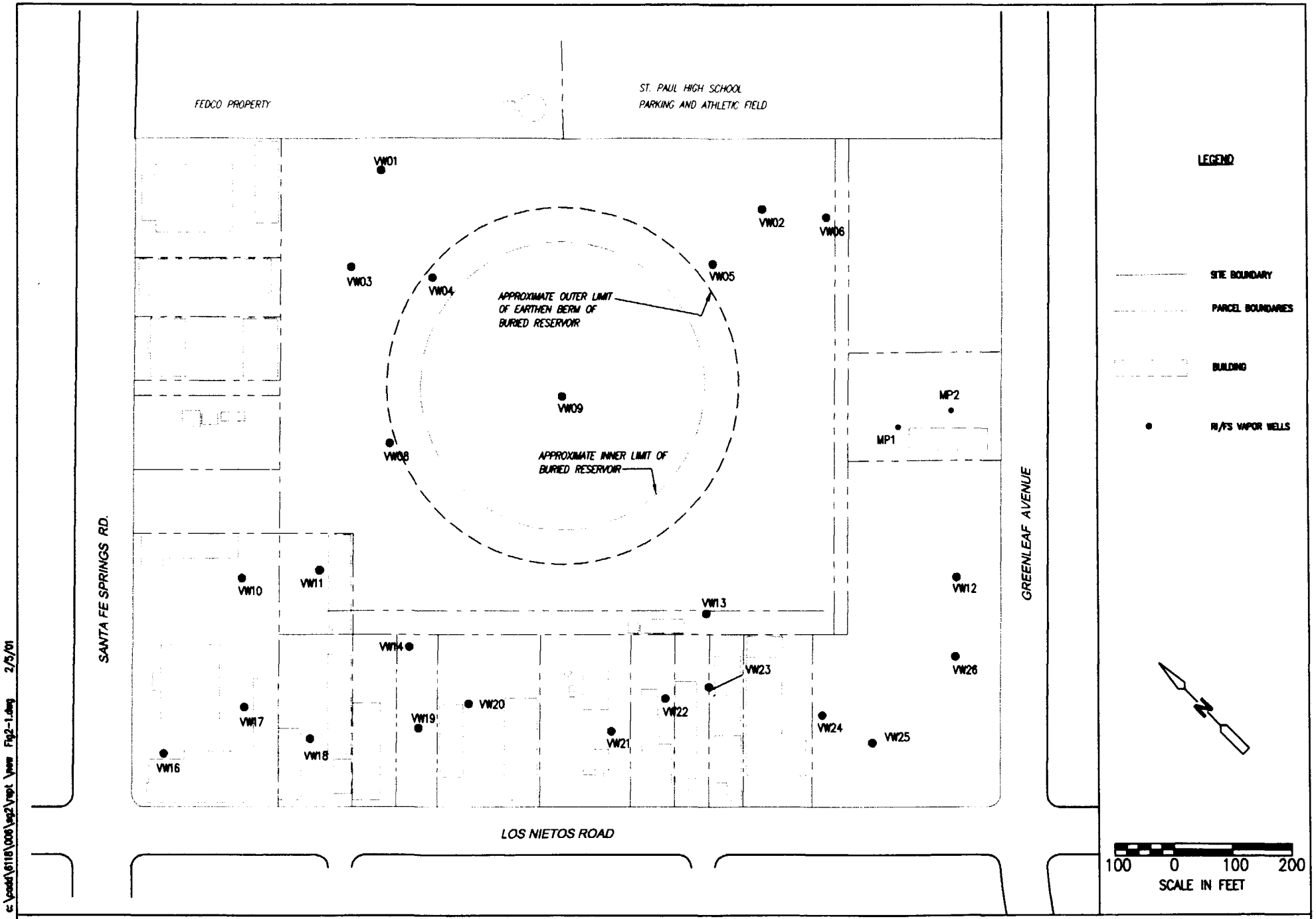
equipped with drop off tips. An Amatek MG-5P portable pump attached to Teflon tubing inside the rods was used to collect soil gas samples into 1-L Tedlar bags. Table 2-1 presents a summary of the samples collected from the temporary soil gas probes. At four locations (GP63, GP64, GP65, and GP73) temporary soil gas probes could not be installed because the rods could not be hammered more than 2 ft bgs.

Before collecting a sample, a Landtec GA-90 infrared gas analyzer was used to measure percent oxygen, carbon dioxide, and methane. For two days, a MSA Gasport Gas Tester was used to measure methane levels. The percent methane was measured for approximately 214 samples (see Table 2-1). The concentration of volatile organics was also measured with either a Photovac MicroTIP™ or an OVM 580B. For one day, the volatile organics were measured with a HnU Photo-ionizer Model PI-101. The PID instruments were calibrated every day using 100 ppm isobutylene calibration gas and the methane instruments were checked every day using 1 percent methane calibration gas.

Soil gas samples collected from the temporary probes were analyzed by a screening laboratory (OnSite Environmental) using a modified USEPA 8021 Method. The screening laboratory used a purge and trap method and a gas chromatograph (GC) equipped with an Electrolytic Conductivity Detector (ELCD) and a PID. The screening laboratory also used second column confirmation for positive detections. The FASP laboratory confirmed the results of the screening laboratory at key locations containing elevated VOC concentrations or samples containing compounds not identified by the screening laboratory. The screening laboratory and the FASP laboratory analyzed 150 samples collected from 10 ft bgs, 21 samples from 20 ft bgs, 21 samples from less than 10 ft bgs, and one sample from 15 ft bgs (see Table 2-1).

2.3 IN-BUSINESS AIR SAMPLING

In-business air samples were collected in SUMMA canisters. In order to collect 24-hour integrated air samples, flow controllers were used to collect a steady flow of air into the SUMMA canisters over the sampling period. As a "worst case" analysis of the buildings, an effort was made to collect all samples when the businesses in the buildings were closed (e.g., Sunday morning to Monday morning). Therefore, all in-business air samples were collected over the weekend. Either a Landtec GA-90 infrared gas analyzer or a MSA Gasport Gas Tester was used to measure percent methane both inside and outside the building. The concentration of volatile organics was also measured with either a Photovac MicroTIP, HnU Photo-ionizer Model PI-101, or an OVM 580B.

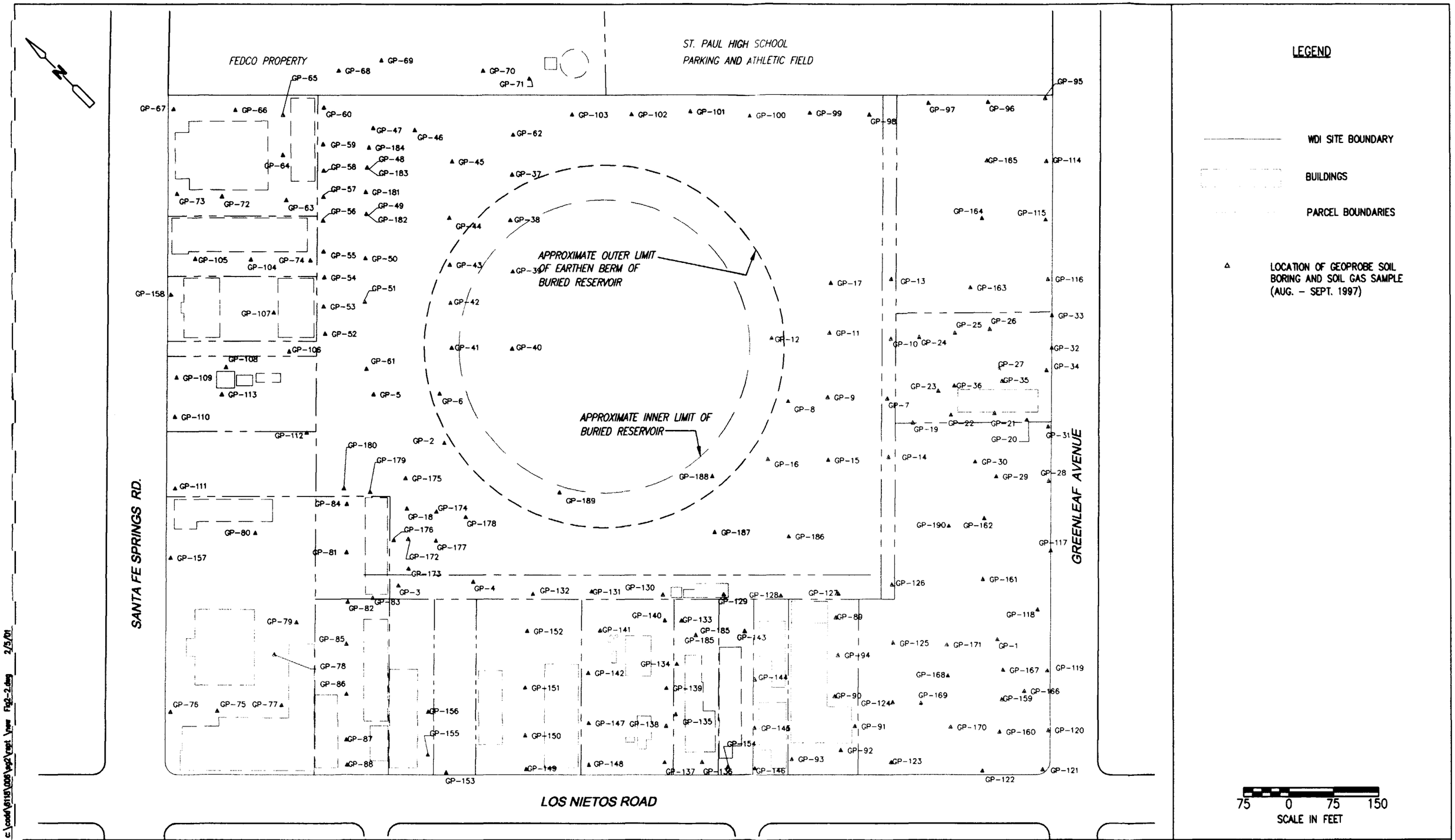


c:\cadd\6118\006\sg2\rept\new Fig2-1.dwg 2/5/01

CDM Federal Programs Corporation
A Subsidiary of Camp Dresser & McKee Inc.

SOIL GAS MONITORING WELLS
WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

Figure 2-1



c:\cadd\6118\006\sg2\rept \new Fig2-2.dwg 2/5/01

CDM Federal Programs Corporation
A Subsidiary of Camp Dresser & McKee Inc.

LOCATIONS OF 1997 USEPA TEMPORARY SOIL GAS PROBES
WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

Figure 2-2

TABLE 2-1
SUMMARY OF SAMPLES COLLECTED FROM TEMPORARY PROBES
WASTE DISPOSAL INC. SITE

Sample Location	Sample Depth (ft)	Sample Date	VOC analysis by Screening Laboratory	VOC analysis by FASP	Confirmation sample analysis by Quanterra Methane (%)	VOCs	Field Measurement of Methane (%)	Comment
GP1	20	8/14/97	X	X			0.1	
GP2	10	8/15/97	X	X			0.1	
GP3	10	8/15/97	X	X			0.1	
GP4	10	8/15/97	X	X			0.1	
GP5	10	8/15/97	X				0.3	
GP6	10	8/15/97	X	X			13.6	
GP7	10	8/18/97	X	X			39.1	
GP7	20	8/18/97	X	X			0.3	
GP8	10	8/18/97	X				0.3	
GP8	20	8/18/97	X				0.1	
GP9	10	8/19/97	X	X			>100	
GP9	20	8/19/97	X	X			4.6	
GP9	10	9/12/97	X	X			41.2	
GP10	10	8/19/97	X	X			0.3	
GP10	20	8/19/97	X				3.2	
GP11	10	8/19/97	X	X			6.8	
GP11	20	8/19/97	X	X			6.8	
GP12	3	8/19/97	X	X			8.9	
GP12	20	8/19/97	X	X	7.1	X	77	
GP13	10	8/19/97	X				21.7	
GP13	20	8/19/97	X				1.8	
GP14	10	8/20/97	X	X			0.1	
GP14	20	8/20/97	X	X			0.9	
GP15	3	8/20/97	X				0.1	Liquid observed in tubing at 6 and 10 ft.
GP16	10	8/20/97	X	X			61.4	
GP16	20	8/20/97	X	X			0.2	
GP17	5	8/20/97					20.8	Unable to draw sample due to saturated soils.
GP17	10	8/20/97					51.2	Liquid observed in tubing. No sample collected.
GP18	5	8/29/97	X	X	0	X	0	
GP18	20	8/29/97	X	X			5.9	Oily waste observed on probe at 10 ft.
GP19	10	8/21/97	X	X			0.05	
GP20	10	8/21/97	X	X			0.06	
GP21	10	8/21/97	X	X			0.06	
GP22	10	8/21/97	X	X			0.05	
GP23	10	8/21/97	X	X			0.08	
GP24	10	8/21/97	X	X			0.06	
GP25	5	8/21/97	X				0	Liquid observed on tubing at 8 ft.
GP26	3	8/21/97	X				5%LEL	Liquid observed in tubing at 6 and 10 ft.
GP27	3	8/21/97	X				0	Unable to draw soil gas with pump. Soils too tight.
GP28	10	8/22/97		X			0.08	No screening analysis because GC not functioning.
GP29	10	8/22/97		X			0.05	No screening analysis because GC not functioning.
GP30	10	8/22/97		X			0.055	No screening analysis because GC not functioning.
GP31	10	8/22/97		X	0		0.063	No screening analysis because GC not functioning.
GP32	10	8/26/97	X				0	
GP33	10	8/26/97	X				1.0	
GP34	4	9/23/97	X	X			0	
GP34	10	8/26/97	X				0	
GP35	10	8/26/97	X				0	
GP36	4	8/26/97	X	X			0	
GP36	10	8/26/97	X				0.4	
GP37	10	8/26/97	X				0	
GP38	5	8/26/97	X				0	Obstruction at 5 ft. Unable to hammer deeper.
GP39	10	8/26/97	X				0.1	
GP39	20	8/26/97	X	X			0.5	
GP40	5	8/26/97	X	X			3.6	Obstruction at 5 ft. Unable to hammer deeper.
GP41	5	8/26/97	X	X			0.9	Clear oily liquid observed in tubing at 10 ft.
GP42	8	8/26/97	X	X			0.7	Obstruction at 9 ft. Unable to hammer deeper.
GP43	5	8/26/97	X	X			0	Black sludge material observed on tubing at 10 ft.
GP44	10	8/26/97	X				0.4	
GP45	5	8/27/97	X				0.7	Liquid observed on tubing at 10 ft.
GP46	10	8/27/97	X				0	
GP47	10	8/27/97	X	X			0.5	

TABLE 2-1 (continued)
SUMMARY OF SAMPLES COLLECTED FROM TEMPORARY PROBES
WASTE DISPOSAL INC. SITE

Sample Location	Sample Depth (ft)	Sample Date	VOC analysis by Screening Laboratory	VOC analysis by FASP	Confirmation sample analysis by Quanterra Methane (%)	VOCs	Field Measurement of Methane (%)	Comment
GP48	10	8/27/97	X	X			75	
GP49	10	8/27/97	X				0	
GP50	10	8/27/97	X				0.4	
GP51	10	8/27/97	X				0	
GP52	10	8/27/97	X	X			0	
GP53	10	8/27/97	X				0	
GP54	10	8/27/97	X				0	
GP55	10	8/27/97	X				0.4	
GP56	10	8/27/97	X				0	
GP57	10	8/27/97	X	X			0	
GP58	10	8/27/97	X				0	
GP59	10	8/27/97	X				0	
GP60	10	8/27/97	X				0	
GP61	10	8/27/97	X				0	
GP62	5	8/28/97	X				2.1	Liquid observed in tubing at 10 ft.
GP63	no sample	8/28/97						Obstruction. Can not hammer past 1 ft.
GP64	no sample	8/28/97						Obstruction. Can not hammer past 1 ft.
GP65	no sample	8/28/97						Obstruction. Can not hammer past 1 ft.
GP66	10	8/28/97	X				0	
GP67	10	8/28/97	X				0	
GP68	10	8/28/97	X				0	
GP69	10	8/28/97	X				0	
GP70	10	8/28/97	X				0	
GP71	10	8/28/97	X				0	
GP72	10	8/28/97	X				0	
GP73	no sample	8/28/97	X					Can not hammer past 1 ft
GP74	10	8/28/97	X				0	
GP75	10	8/28/97	X				0	
GP76	10	8/28/97	X				0	
GP77	10	8/28/97	X	X			0	
GP78	10	8/28/97	X	X			0	
GP79	10	8/28/97	X				0	
GP80	10	8/28/97	X				0.1	
GP81	10	8/29/97	X				0	
GP82	10	8/29/97	X				0	
GP83	10	8/29/97	X				0	
GP84	10	8/29/97	X	X			0	
GP85	10	9/3/97	X				0	Sample collected after core cut from concrete slab.
GP86	10	8/29/97	X				0	
GP87	10	8/29/97	X				0	
GP88	10	8/29/97	X				0	
GP89	10	9/2/97	X				0	
GP90	10	9/2/97	X				0	
GP91	10	9/2/97	X				0	
GP92	10	9/2/97	X	X			0	
GP92	20	9/2/97	X	X			0	
GP93	10	9/2/97	X	X			0	
GP93	20	9/2/97	X	X			0	
GP94	10	9/2/97	X				0	
GP95	10	9/2/97	X				0	
GP96	10	9/2/97	X				0	
GP97	10	9/2/97	X				0	
GP98	10	9/2/97	X	X			0	
GP98	20	9/2/97	X	X			0	
GP99	10	9/2/97	X				0	
GP99	20	9/2/97	X				0	
GP100	10	9/2/97	X				0	
GP100	20	9/2/97	X				0	
GP101	10	9/2/97	X				0	
GP101	20	9/2/97	X	X		X	0	
GP102	10	9/2/97	X				0	
GP102	20	9/2/97	X	X	0	X	0	

TABLE 2-1 (continued)
SUMMARY OF SAMPLES COLLECTED FROM TEMPORARY PROBES
WASTE DISPOSAL INC. SITE

Sample Location	Sample Depth (ft)	Sample Date	VOC analysis by Screening Laboratory	VOC analysis by FASP	Confirmation sample analysis by Quanterra Methane (%)	VOCs	Field Measurement of Methane (%)	Comment
GP103	10	9/3/97	X				0	
GP103	20	9/3/97	X				0	
GP104	10	9/3/97	X				0	
GP105	10	9/3/97	X				0	
GP106	10	9/3/97	X	X			0	
GP107	10	9/3/97	X				0	
GP108	10	9/3/97	X	X			0	
GP109	10	9/3/97	X				0	
GP110	10	9/3/97	X				0	
GP111	10	9/3/97	X				0	
GP112	10	9/3/97	X	X	0	X	0	
GP113	10	9/3/97	X				0	
GP114	10	9/4/97	X				0	
GP115	10	9/4/97	X				0	
GP116	10	9/4/97	X	X			0	
GP117	10	9/4/97	X				0	
GP118	10	9/4/97	X				0	
GP119	10	9/4/97	X				0	
GP120	10	9/4/97	X				0	
GP121	10	9/4/97	X				0	
GP122	10	9/4/97	X				0	
GP123	10	9/4/97	X				0	
GP124	10	9/4/97	X	X			0	
GP125	10	9/4/97	X	X			0	
GP126	10	9/4/97	X				0	
GP127	10	9/4/97	X				0	
GP128	10	9/4/97	X				0	
GP129	10	9/4/97	X	X			0	
GP130	10	9/4/97	X	X			0	
GP131	10	9/5/97	X		0		0	
GP132	10	9/5/97	X	X			0	
GP133	10	9/5/97	X	X			0	
GP134	10	9/5/97	X				0	
GP135	10	9/5/97	X				0	
GP136	10	9/5/97	X				0	
GP137	10	9/5/97	X				0	
GP138	10	9/5/97	X				0	
GP139	10	9/5/97	X	X			0	
GP140	10	9/5/97	X	X			0	
GP141	10	9/5/97	X		0 (5ppm)		0	
GP142	10	9/5/97	X				0	
GP143	10	9/8/97	X	X	0.04	X	0.4	
GP144	10	9/8/97	X				0	
GP145	10	9/8/97	X				0.1	
GP146	10	9/8/97	X				0.1	
GP147	10	9/8/97	X				0	
GP148	10	9/8/97	X				0	
GP149	10	9/8/97	X				0	
GP150	10	9/8/97	X	X			0	
GP151	10	9/8/97	X	X			0	
GP152	10	9/8/97	X	X			0	
GP153	10	9/8/97	X	X			0	
GP154	10	9/9/97	X	X			1.0	
GP155	10	9/9/97	X				0	
GP156	10	9/9/97	X				0	
GP157	10	9/9/97	X				0	
GP158	10	9/9/97	X				0	
GP159	10	9/9/97	X	X	0.76		2.3	
GP160	10	9/9/97	X				0	
GP161	10	9/10/97	X				0	
GP162	10	9/10/97	X				0	
GP162	20	9/10/97	X				0	

TABLE 2-1 (continued)
SUMMARY OF SAMPLES COLLECTED FROM TEMPORARY PROBES
WASTE DISPOSAL INC. SITE

Sample Location	Sample Depth (ft)	Sample Date	VOC analysis by Screening Laboratory	VOC analysis by FASP	Confirmation sample analysis by Quanterra Methane (%)	VOCs	Field Measurement of Methane (%)	Comment
GP163	10	9/10/97	X				0.2	
GP164	10	9/10/97	X				0	
GP165	10	9/10/97	X				0	
GP166	10	9/10/97					0	
GP167	10	9/10/97					0.2	
GP168	5	9/10/97	X	X	4.8	X	7.3	Soils saturated at 8 and 10 ft.
GP169	6	9/10/97					0	Soils saturated at 10 ft.
GP170	10	9/10/97					0	
GP171	10	9/10/97					0	
GP172	6	9/11/97		X	2.8	X	8.5	Soils saturated at 10 ft.
GP173	10	9/11/97					0.3	
GP174	5	9/11/97		X			10.3	Soils saturated at 10 ft. Moisture observed on rods.
GP175	10	9/11/97		X			0	
GP175	15	9/11/97		X			63.3	
GP176	6	9/11/97					6.5	Soils saturated at 10 ft. Moisture observed on rods.
GP176	16	9/11/97					1.3	
GP177	8	9/11/97					85.5	Soils saturated at 10 ft. Moisture observed on rods.
GP177	20	9/11/97					8.3	
GP178	6	9/11/97					9.9	
GP179	6	9/12/97					>100	
GP180	8	9/12/97		X			13.8	
GP180	18	9/12/97					1.1	
GP181	10	9/12/97					38.7	
GP182	10	9/12/97					31.4	
GP183	9	9/12/97					1	
GP184	8	9/12/97					5	
GP185	8	9/23/97		X			0	Soils saturated at 10 ft. Moisture observed on rods.
GP186	10	9/23/97		X			>100	
GP187	5	9/23/97					2.6	Sample Analyzed by EPA Richmond Laboratory
GP188	10	9/23/97					4.5	Sample Analyzed by EPA Richmond Laboratory
GP189	8	9/23/97					85	Sample Analyzed by EPA Richmond Laboratory
GP190	10	9/23/97			0	X	0	Sample Analyzed by EPA Richmond Laboratory
TOTAL # of ANALYSES			**181**	**80**	**12**	**9**	**214**	Total #'s do not include duplicates and blanks.

Field Measurements are for total explosive gases reported as methane.

These instruments were calibrated using 100 ppm isobutylene and 1% methane calibration gas. Samples collected in SUMMA canisters were sent off site for analysis of VOCs by USEPA Method TO-15. Samples were analyzed by either the USEPA Region 9 lab in Richmond, California or the Quanterra Laboratory in the City of Industry, California.

2.4 DEVIATIONS FROM THE WORKPLAN

The rationale for deviations from the *Subsurface Gas Contingency Plan* (Work Plan) is documented in the following sections.

2.4.1 Sampling from Existing Vapor Wells

The Work Plan proposed analyzing all soil gas samples from the vapor wells by the FASP lab. However, due to difficulties in obtaining electrical power and in order to meet the sampling schedule, 13 of the 26 existing vapor wells sampled in September 1997 were analyzed by Quanterra, instead of by FASP. These two laboratories analyzed samples using different methods (see Section 2.1). However, this should not have affected the data results since the Quanterra laboratory analyzed samples for the same target compounds as the FASP laboratory with slightly lower reporting limits.

In order to sample all of the vapor wells faster, the vapor wells were purged at a rate of approximately 3 to 5 liters per minute instead of one liter per minute as described in the Work Plan. Purging the wells too fast could cause ambient air to leak into the well from the surface and dilute the samples. However, as shown in Table 2-2, oxygen levels in most of the wells were less than oxygen levels in ambient air (21 percent) and decreased while purging. Exceptions include the samples collected at VW14, VW20, MP1, and MP2. When comparing samples in the August and the September sampling rounds, oxygen levels in VW14 and VW20 were more than 5 percent higher in September and in MP1 and MP2 oxygen levels were more than 5 percent higher in August. This may be an indication that these samples were diluted with ambient air due to either an increased rate of purging or an inadequate seal on the well cap.

The Work Plan proposed sampling of 26 existing vapor wells and 14 new vapor wells to be installed by the WDIG. The new vapor wells were not sampled because no new wells were installed until field work for this investigation was completed. Three of the existing vapor wells could not be sampled for the following reasons: (1) VW7 could not located and was probably buried under

Table 2-2
Methane, Carbon Dioxide, and Oxygen Measurements of Soil Gas Purged from the Vapor Wells

Well ID	Depth of Well (ft)	August 1997							September 1997						
		Initial Readings			Final Readings			Volume Purged (Liters)	Initial Readings			Final Readings			Volume Purged (Liters)
		CH_4 (%)	CO_2 (%)	O_2 (%)	CH_4 (%)	CO_2 (%)	O_2 (%)		CH_4 (%)	CO_2 (%)	O_2 (%)	CH_4 (%)	CO_2 (%)	O_2 (%)	
VW1	35	0.0	6.1	12.2	0.0	9.3	9.1	60	0.0	11.0	3.7	0.0	9.5	6.5	55
VW2	35	0.0	15.5	2.5	0.0	16.2	1.4	50	0.4	19.0	0.0	0.6	19.5	0.0	55
VW3	35	0.7	15.6	0.2	0.8	16.7	0.2	54	0.0	9.0	6.5	0.0	10.1	4.0	56
VW4	23	74.6	18.7	1.0	24.0	14.6	1.3	60	25.5	15.8	0.0	24.8	14.3	0.1	55
VW5	29	0.0	16.0	3.0	0.0	16.3	1.9	50	0.0	19.3	0.0	0.0	19.0	0.0	55
VW6	34	0.0	8.5	8.9	0.0	8.5	8.9	50	0.0	3.9	12.7	0.0	4.0	12.6	55
VW8	35	0.3	13.4	4.5	0.1	13.4	4.4	50	0.3	9.0	4.6	0.3	9.1	4.6	50
VW9	23	22.6	2.6	16.7	14.9	2.0	16.7	58	30.0	3.1	13.4	27.8	2.3	13.6	50
VW10	35	0.0	14.8	0.9	0.2	15.2	0.5	45	0.2	11.6	0.7	0.2	11.3	1.0	45
VW11	35	1.7	18.1	0.1	1.3	17.7	0.1	45	0.0	9.1	3.0	0.0	9.1	3.0	45
VW12	34	0.1	10.6	7.9	0.1	10.9	4.0	46	0.0	7.8	7.6	0.0	8.0	7.9	50
VW13	31	0.3	11.6	1.3	0.6	17.0	0.1	55	0.0	14.0	0.0	0.0	14.3	0.0	45
VW14	35	1.0	18.4	0.0	1.7	18.7	0.0	46	0.1	4.7	12.2	0.1	4.7	12.5	50
VW16	34	0.0	7.7	12.7	0.0	7.5	13.0	46	0.0	5.3	12.0	0.0	5.3	12.6	55
VW17	35	0.0	8.8	9.2	0.0	8.9	9.2	45	0.0	6.2	8.7	0.0	6.0	9.0	50
VW18	36	0.0	8.5	10.1	0.3	11.9	5.2	54	1.4	13.0	0.7	1.4	12.2	0.7	45
VW20	35	0.0	16.8	2.5	0.0	16.2	2.7	46	0.0	3.6	14.4	0.0	3.0	15.2	50
VW21	36	0.1	17.6	1.2	0.0	17.6	1.0	46	0.0	15.7	0.0	0.0	16.0	0.0	55
VW22	35	0.0	16.8	2.5	0.0	16.2	2.7	46	0.0	16.3	0.0	0.0	16.3	0.0	50
VW23	36	0.3	17.7	0.3	0.3	17.9	0.1	48	0.2	16.5	0.0	0.2	16.6	0.0	50
VW24	35	0.0	14.4	3.2	0.0	14.3	3.3	48	0.0	12.9	1.8	0.0	12.9	1.9	55
VW25	35	89.9	21.3	0.1	50.0	19.4	0.2	70	51.1	18.0	0.0	41.3	17.7	0.0	50
VW26	35	0.1	11.6	4.4	0.0	12.0	3.4	40	0.1	11.1	1.9	0.2	10.7	2.0	50
MP1	5	0.1	0.9	0.3	0.0	9.3	0.3	12	NA	NA	NA	0.2	11.4	0.0	4
MP1	15	7.0	0.0	21.0	7.9	0.0	20.9	30	Not sampled						
MP2	5	85	0.6	14.3	36	0.2	18.1	26	NA	NA	NA	0.1	9.0	2.0	4
MP2	15	0.1	9.2	6.2	0.1	9.4	6.2	12	NA	NA	NA	75	2.0	0.0	4

grass landscaped at 9483 Greenleaf Avenue; (2) the surface completion for VW15 and portions of the PVC casing was apparently pulled out when clearing the property of weeds; and (3) VW19 could not be located. In 1996, two dual-probe vapor wells (MP1 and MP2) were installed at 9483 Greenleaf Avenue. Although not targeted for sampling in the Work Plan, MP1 and MP2 were also sampled as part of this field investigation in order to provide additional soil gas data at 9483 Greenleaf Avenue.

2.4.2 Sampling from Temporary Soil Gas Probes

The Work Plan proposed collecting soil gas samples from 10 ft bgs. Samples were collected from depths shallower than 10 ft bgs at approximately 21 locations either because of obstructions in the soil or because the soil was too saturated with liquids (see Table 2-1). The Work Plan also proposed collecting soil gas samples at 20 and 30 ft bgs if no VOCs were detected at 10 ft bgs. However, due to the large number of samples necessary to locate and define the VOC plumes at WDI only 21 samples were collected at 20 ft bgs and no samples were collected at 30 ft. Although soil gas data at 20 and 30 ft bgs could be used to help determine the optimal screen intervals for future vapor wells, the primary objectives of the soil gas probes were to provide information regarding potential migration of VOCs in subsurface gas into buildings and to identify potential migration of VOCs in subsurface gas along the site borders. Soil gas probes installed to a depth of 10 ft bgs directly adjacent to buildings and along site borders were adequate for completing these objectives.

2.4.3 In-Business Air Sampling

Based on the results of the 24-hour integrated in-business air samples, the Work Plan proposed collecting 8-hour integrated air samples from the buildings that contained VOCs above action levels. Building surveys and the data from the soil gas probes; however, indicate that a majority of the VOCs detected in the buildings may be due to paints, solvents, and other materials used within the buildings and may not be due to subsurface soil gas migration. Therefore, no 8-hour samples were collected.

The Work Plan proposed the use of a temporary weather station in order to provide wind direction data for background (upwind) samples of ambient air. Background samples of ambient air were collected on site at the corner of Greenleaf Avenue and Los Nietos Road. A temporary weather station was acquired from the USEPA Equipment Management Facility, but did not function

properly. The background location was placed on the southern corner of the site because during the sampling period, the prevailing winds came from that direction (as evidenced by site observations).

3.0 ANALYTICAL RESULTS

The analytical results from the on-site sampling of vapor wells, temporary soil gas probes, and the in-business air are discussed in this section. Analytical results are compared to background levels and USEPA's interim threshold screening levels. USEPA's interim threshold screening levels are based on USEPA ambient air preliminary remediation goals (PRGs) and have been developed for the site in order to protect human health. Table 3-1 presents the USEPA's interim threshold levels for soil gas and in-business air. Due to the size of the data tables presenting the chemistry results for soil gas and ambient air sample, the analytical results are provided in Appendix A.

3.1 VAPOR WELLS

Soil gas samples were collected from 25 vapor wells in August and again in September of 1997 (23 of the 26 original vapor wells and two wells at 9483 Greenleaf Avenue). No soil gas could be drawn from the 15-ft probe of MP1 in September. Table A-1 presents the soil gas results of the vapor wells (Appendix A). Figure 3-1 illustrates the data for the primary chemicals of concern. More than 30 of the target compounds analyzed by FASP and Quanterra were detected in the vapor wells during both sampling events. In addition to the target compounds, more than 75 tentatively identified compounds (TICs) were detected. Most of the TICs detected were non-chlorinated hydrocarbons such as derivatives of butane, pentane, hexane, cyclohexane, and cyclopentane. The estimated concentrations of TICs were more than 1 ppmv in VW4 (37 TICs), VW9 (31 TICs), VW18 (27 TICs), VW21 (1 TIC), and VW25 (5 TICs). The results of the TICs detected are available in the validation reports (Appendix B).

VOCs were detected above USEPA's interim threshold levels in 10 of the 25 wells sampled (VW4, VW8, VW9, VW10, VW14, VW18, VW22, VW23, MP1, and MP2). Vinyl chloride was detected above USEPA's interim threshold level most frequently (VW4, VW8, VW9, VW10, VW14, VW22, VW23, MP1, and MP2), followed by benzene (VW4, VW9, VW10, VW18, VW22, MP1, and MP2), and then TCE (VW22, VW23, and MP2). Chloroform (VW18 and MP1) and 1,2-dibromoethane (VW24 and MP1) were detected above USEPA's interim threshold levels in two wells. Four other VOCs were detected above USEPA's interim threshold levels in one well: tetrachloroethene (VW23), carbon tetrachloride (VW8), xylene (VW9), and 1,2-dichloropropane (VW14). Except for vinyl chloride and benzene, all of the other VOCs were detected above USEPA's interim threshold levels in only one of the two sampling events.

TABLE 3-1
USEPA SOIL GAS AND IN-BUSINESS AIR INTERIM THRESHOLD SCREENING LEVELS FOR WDI SITE CHEMICALS OF CONCERN

Compound	USEPA Soil Gas Threshold Value (ppbv)	USEPA In-Business Air Threshold Value (ppbv)	Site Boundary Threshold Value (ppbv)
Acetone	31,200	312	15,600
Benzene	200	2	100
Carbon tetrachloride	68	0.68	34
Chloroethane	75,200	752	37,600
Chloroform	340	3.4	170
Dibromoethane	6	0.06	3
1,2-Dichloroethane	360	3.6	180
cis-1,2-Dichloroethene	1,860	18.6	930
1,1-Dichloroethane	25,600	256	12,800
1,2-Dichloropropane	186	1.86	93
trans-1,2-Dichloroethene	3,680	36.8	1,840
Ethylbenzene	49,000	490	24,500
Tetrachloroethene (Perc)	1,064	10.6	532
Toluene	21,200	212	10,600
1,1,2-Trichlorethane	440	4.4	220
1,1,1-Trichloroethane	36,800	368	18,400
Trichloroethene	822	8.2	411
Vinyl chloride	25	0.25	12.5
m,p-Xylenes	14,280	142.8	7,140
o-Xylene	14,280	142.8	7,140
Methane	5%	* 1.25%	* 1.25%

* These conservative Threshold Values for methane of 1.25% were established based on the lower explosivity limit (LEL) for methane and the California Integrated Waste Management Board's (CIWMBs) standard for the site boundary (both 5%). The 1.25% threshold value for methane at the site boundary incorporates a conservative safety factor considering the 5% LEL and CIWMB site boundary standard of 5% for methane.

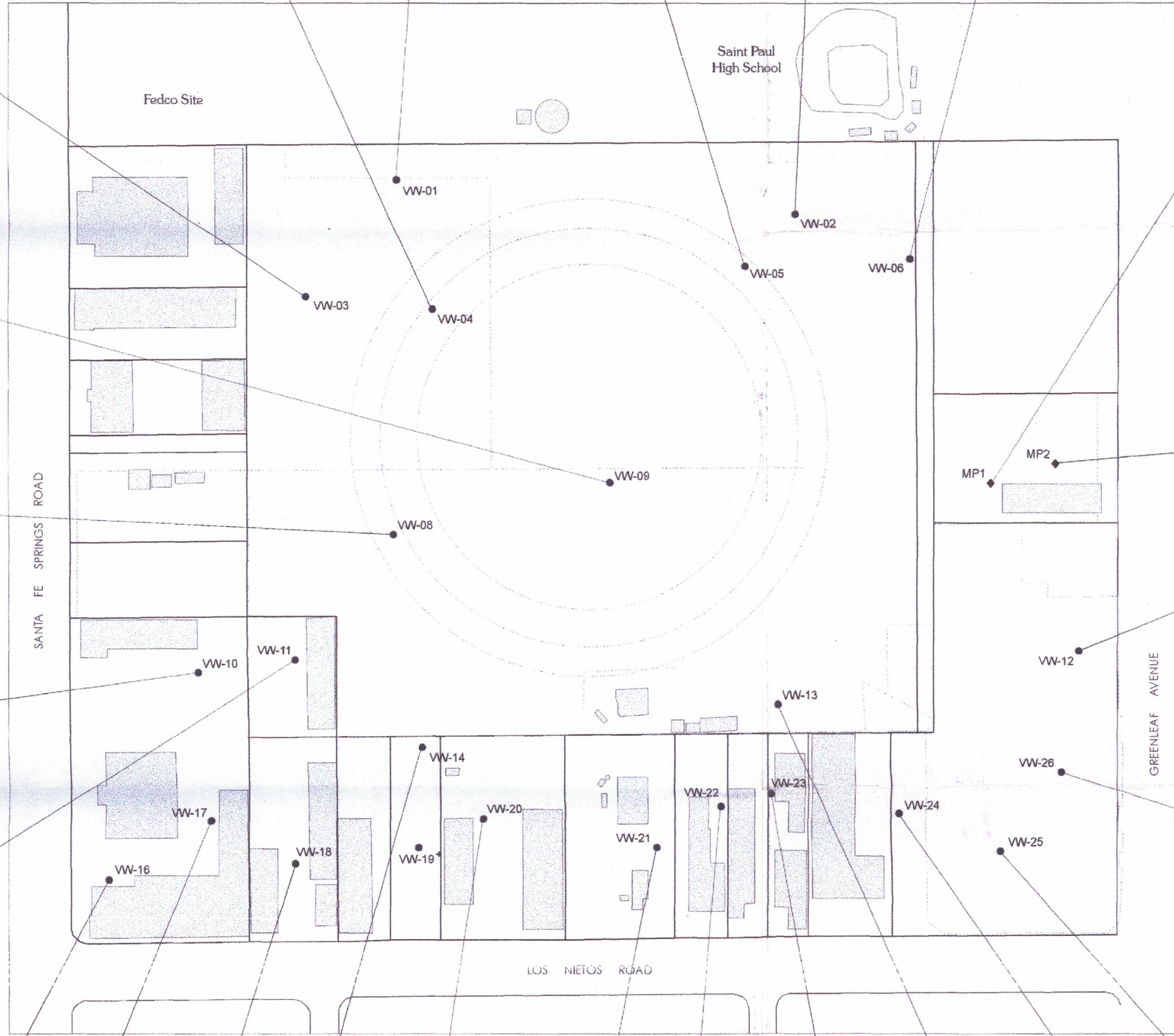
1,1 DCA	ND	ND
cis-1,2 DCE	0.61	ND
CLF	ND	ND
1,1,1 TCA	ND	ND
BENZ	6.4	ND
TCE	1.9	ND
TOL	ND	ND
PCE	25.0	ND
EBENZ	2.6	ND
m&p-XYL	3.6	ND
o-XYL	1.4	ND

VW-09	8/97	9/97
$CLCH_3$	160.0	1300.0
VC	1700.0	1500.0
1,1 DCE	ND	ND
MC	ND	ND
1,1 DCA	ND	ND
cis-1,2 DCE	1300.0	1200.0
CLF	ND	ND
1,1,1 TCA	ND	ND
BENZ	19000.0	9600.0
TCE	310.0	220.0
TOL	17000.0	3800.0
PCE	110.0	ND
EBENZ	7200.0	2700.0
m&p-XYL	23000.0	2500.0
o-XYL	7300.0	2600.0

VW-08	8/97	9/97
$CLCH_3$	ND	ND
VC	140.0	ND
1,1 DCE	ND	ND
MC	ND	ND
1,1 DCA	ND	ND
cis-1,2 DCE	ND	ND
CLF	ND	ND
1,1,1 TCA	ND	ND
BENZ	ND	90.0
TCE	ND	ND
TOL	ND	150.0
PCE	ND	ND
EBENZ	ND	110.0
m&p-XYL	ND	520.0
o-XYL	ND	160.0

VW-10	8/97	9/97
$CLCH_3$	ND	ND
VC	60.0	15.0
1,1 DCE	ND	ND
MC	ND	0.88
1,1 DCA	81.0	46.0
cis-1,2 DCE	52.0	11.0
CLF	ND	0.44
1,1,1 TCA	ND	ND
BENZ	4.6	1.7
TCE	ND	ND
TOL	4.5	71.0
PCE	1.3	1.2
EBENZ	ND	ND
m&p-XYL	ND	6.2
o-XYL	ND	ND

VW-11	8/97	9/97
$CLCH_3$	ND	ND
VC	3.6	ND
1,1 DCE	ND	ND
MC	ND	0.05
1,1 DCA	ND	ND
cis-1,2 DCE	0.82	ND
CLF	ND	ND
1,1,1 TCA	2.1	ND
BENZ	0.84	1.4
TCE	ND	1.1
TOL	1.1	1.6
PCE	0.6	10.0
EBENZ	ND	ND
m&p-XYL	ND	ND
o-XYL	ND	ND



MP-1	8/97		9/97	
	MP-1-05	MP-1-15	MP-1-05	MP-1-15
$CLCH_3$	ND	ND	ND	ND
VC	ND	ND	ND	ND
1,1 DCE	ND	ND	ND	ND
MC	ND	ND	ND	15
1,1 DCA	ND	ND	0.33	ND
cis-1,2 DCE	ND	ND	ND	ND
CLF	ND	ND	0.25	ND
1,1,1 TCA	ND	ND	32.0	ND
BENZ	ND	1700.0	170.0	16
TCE	ND	ND	2.1	10
TOL	ND	ND	0.54	54
PCE	ND	ND	9.4	240
EBENZ	ND	ND	2.8	ND
m&p-XYL	ND	ND	280	40
o-XYL	ND	ND	4.0	ND

MP-2	8/97		9/97	
	MP-2-05	MP-2-15	MP-2-05	MP-2-15
$CLCH_3$	ND	ND	ND	ND
VC	ND	ND	ND	ND
1,1 DCE	ND	ND	ND	ND
MC	ND	ND	15.0	ND
1,1 DCA	ND	ND	ND	ND
cis-1,2 DCE	ND	ND	ND	ND
CLF	ND	ND	ND	ND
1,1,1 TCA	ND	ND	ND	ND
BENZ	260	3800	410.0	13000.0
TCE	ND	ND	10.0	ND
TOL	ND	ND	54.0	110.0
PCE	220	ND	240.0	ND
EBENZ	ND	ND	53.0	700.0
m&p-XYL	520	1000	570.0	5600
o-XYL	ND	ND	ND	83.0

VW-12	8/97	9/97
$CLCH_3$	ND	ND
VC	ND	ND
1,1 DCE	ND	ND
MC	ND	ND
1,1 DCA	ND	ND
cis-1,2 DCE	ND	ND
CLF	ND	ND
1,1,1 TCA	ND	ND
BENZ	ND	ND
TCE	ND	ND
TOL	ND	ND
PCE	32.0	ND
EBENZ	ND	ND
m&p-XYL	ND	ND
o-XYL	ND	ND

VW-26	8/97	9/97
$CLCH_3$	ND	0.41
VC	ND	ND
1,1 DCE	ND	ND
MC	ND	0.53
1,1 DCA	3.0	ND
cis-1,2 DCE	89.0	56.0
CLF	ND	0.36
1,1,1 TCA	1.8	0.36
BENZ	ND	3.3
TCE	110.0	74.0
TOL	ND	1.4
PCE	21.0	9.1
EBENZ	ND	ND
m&p-XYL	ND	ND
o-XYL	ND	ND

Waste Disposal, Inc. Santa Fe Springs, California

1997 Vapor Well Results (ppbv)

- Vapor Wells
- Vapor Monitoring Probe
- Buildings
- Fences
- Parcel Boundaries

ND=Not Detected; see report tables for detection limits achieved for each sample

0 50 100 200 Feet

Figure 3-1: Vapor Well Results for Primary Chemicals of Concern

CDM_vw.cdr 10-30-98

The methane concentration in the vapor wells was measured in the field with an infrared gas analyzer and was above the 5% California Integrated Waste Management Board's (CIWMB) standard in vapor wells VW4, VW9, VW25, MP1 (15-ft), and MP2 (15-ft). Total VOCs measured in the field with a PID ranged from 0 to 448 ppm with the highest concentration measured in VW9 (Table A-1, Appendix A). Total non-methane VOCs measured in 14 of the vapor wells by an off-site laboratory ranged from 17 ppm to 5,400 ppm with the highest concentration measured in VW25 (Table A-1, Appendix A).

3.2 TEMPORARY SOIL GAS PROBES

Temporary soil gas probes were installed from depths ranging from 3 to 20 ft bgs at approximately 186 locations (Figure 2-2). Table A-2 presents the soil gas results from the temporary soil gas probes (Appendix A). Twenty-five of the target compounds analyzed by FASP and Quanterra were detected in the temporary probes (Table A-1, Appendix A). In addition to the target compounds, such as derivatives of butane, pentane, hexane, cyclohexane, and cyclopentane. The estimated concentrations of over 45 TICs were more than 1 ppmv and at GP12 four TICs were estimated at more than 100 ppmv (cis-1,2-dimethylcyclopentane; trans-1,2-dimethylcyclopentane; cyclohexane; and trans-1,3-dimethylcyclohexane). The results of the TICs detected are available in the validation reports (Appendix B).

Figures 3-2a, 3-2b, and 3-2c illustrate the results for methane, benzene, and vinyl chloride, respectively, for the primary chemicals of concern. VOCs were detected above USEPA's soil gas interim threshold levels in 11 of the probes (GP7, GP9, GP12, GP31, GP40, GP41, GP48, GP78, GP172, GP175, GP186). Benzene was detected above its USEPA interim threshold level most frequently (GP7, GP9, GP12, GP40, GP41, GP48, GP172, GP175, and GP186), followed by vinyl chloride (GP9, GP40, GP41, GP78, and GP172), and then chloroform (GP12 and GP175) and tetrachloroethene (GP31 and GP172). Four other VOCs were detected above USEPA's interim threshold levels in one probe: xylene (GP12); 1,2-dichloropropane (GP78); 1,2-dibromoethane (GP78); and 1,2-dichloroethane (GP175).

Four of the probes in which VOCs exceeded USEPA's interim threshold levels are located within 100 ft of buildings on site (GP31, GP78, GP172, GP175). GP31 is located along the site boundary adjacent to the 9483 Greenleaf Avenue facility (Figure 3-3). GP172 and GP175 are located approximately 100 feet east of the building at 12637B Los Nietos Road (Figure 3-4). The USEPA site boundary interim threshold level for tetrachloroethene of 532 ppbv was exceeded at GP31

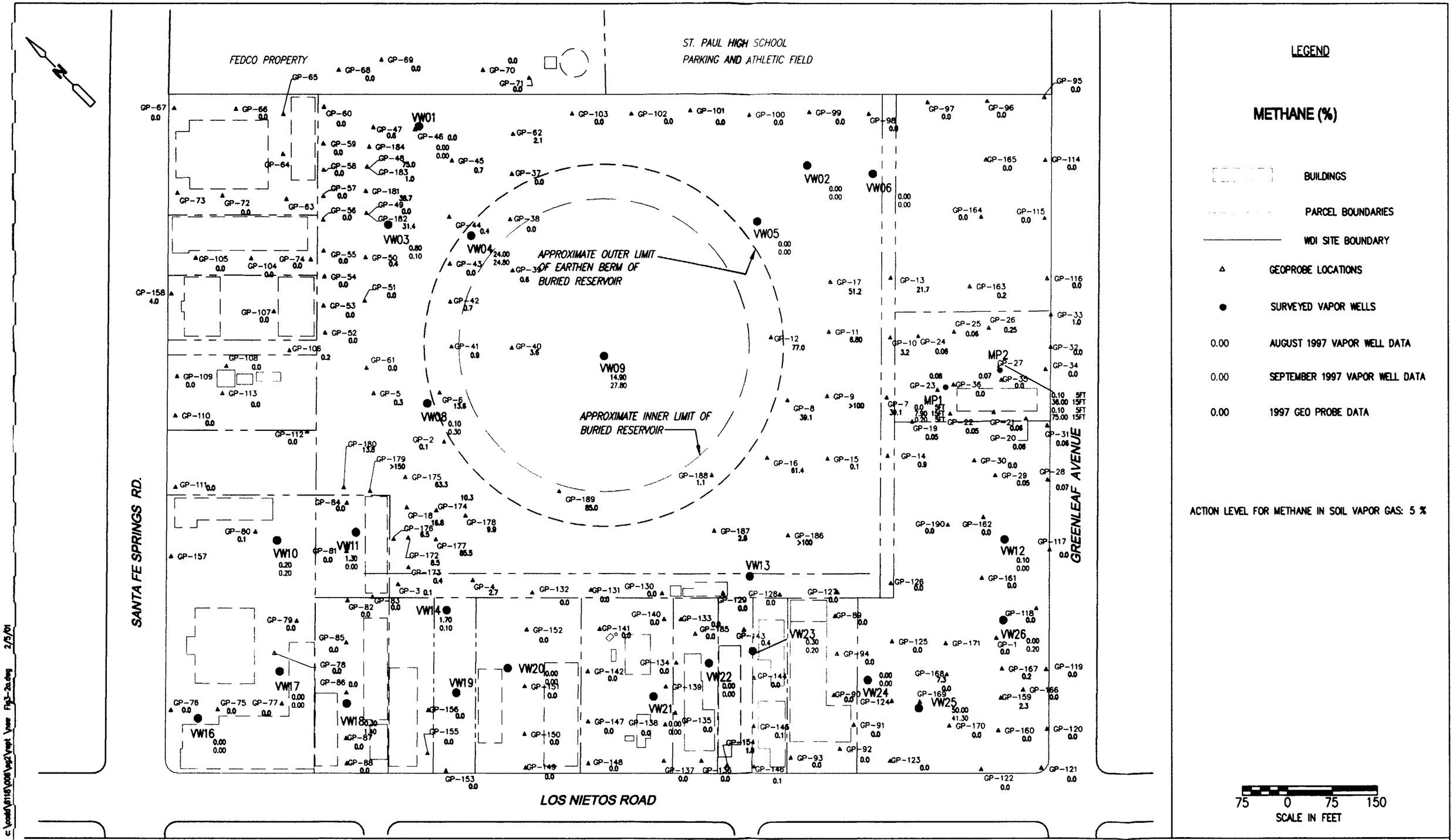
(670 ppbv in August 1997, see Table A-1, Appendix A). GP78 is located near VW17 at the 9756 Santa Fe Springs Road facility. Seven of the probes with VOCs exceeding USEPA's interim threshold levels are not located within 100 ft of any buildings on site (GP7, GP9, GP12, GP40, and GP41, GP48, GP186). These probes are located either within the concrete reservoir (GP40), adjacent to the reservoir (GP12 and GP41), within 100 ft of the reservoir (GP9), or within 200 ft of the reservoir (GP7, GP48, and GP186, see Figures 3-2b and 3-2c, Table A-1, and Figure 2-2).

The methane concentration in each temporary probe was measured in the field with an infrared gas analyzer and was above the 5% California Integrated Waste Management Board standard at 25 of the probe locations (GP6, GP7, GP9, GP11, GP12, GP13, GP16, GP17, GP18, GP26, GP48, GP168, GP172, GP174 - GP182, GP184, GP186, and GP189) shown on Figure 3-2a. The methane concentrations for all the temporary probes are presented in Table 2-1. Eight of the probes exceeding the methane interim threshold level (GP18, GP168, GP172, GP174 - GP180) are located within 100 ft of the building at 12637B Los Nietos Road. None of the other probes are located within 100 feet of any buildings. Total VOCs measured in the field with a PID ranged from 0 to 240 ppm with the highest concentration measured at GP12.

3.3 IN-BUSINESS AIR SAMPLES

3.3.1 Background Samples

For each weekend that in-business air samples were collected, a 24-hour integrated sample of ambient air was collected on site at the corner of Greenleaf Avenue and Los Nietos Road (Figure 2-1). Table A-3 presents the results of these background samples (Appendix A). The concentrations of VOCs detected in the background samples ranged from 0.24 ppbv to 5.2 ppbv. Toluene at 5.2 ppbv was detected at the highest concentration followed by xylene (3.7 ppbv), chloromethane (2.7 ppbv), benzene (2.0 ppbv), 1,2,4-trimethylbenzene (2.3 ppbv), 1,3-dichlorobenzene (1.2 ppbv), and 1,2-dichlorobenzene (1.1 ppbv). The seven other VOCs detected in the background samples were present at concentrations of less than 1.0 ppbv (dichlorofluoromethane; trichlorofluoromethane; methylene chloride; 1,1,1-trichloroethane; tetrachloroethene; ethylbenzene, and 1,4-dichlorobenzene).

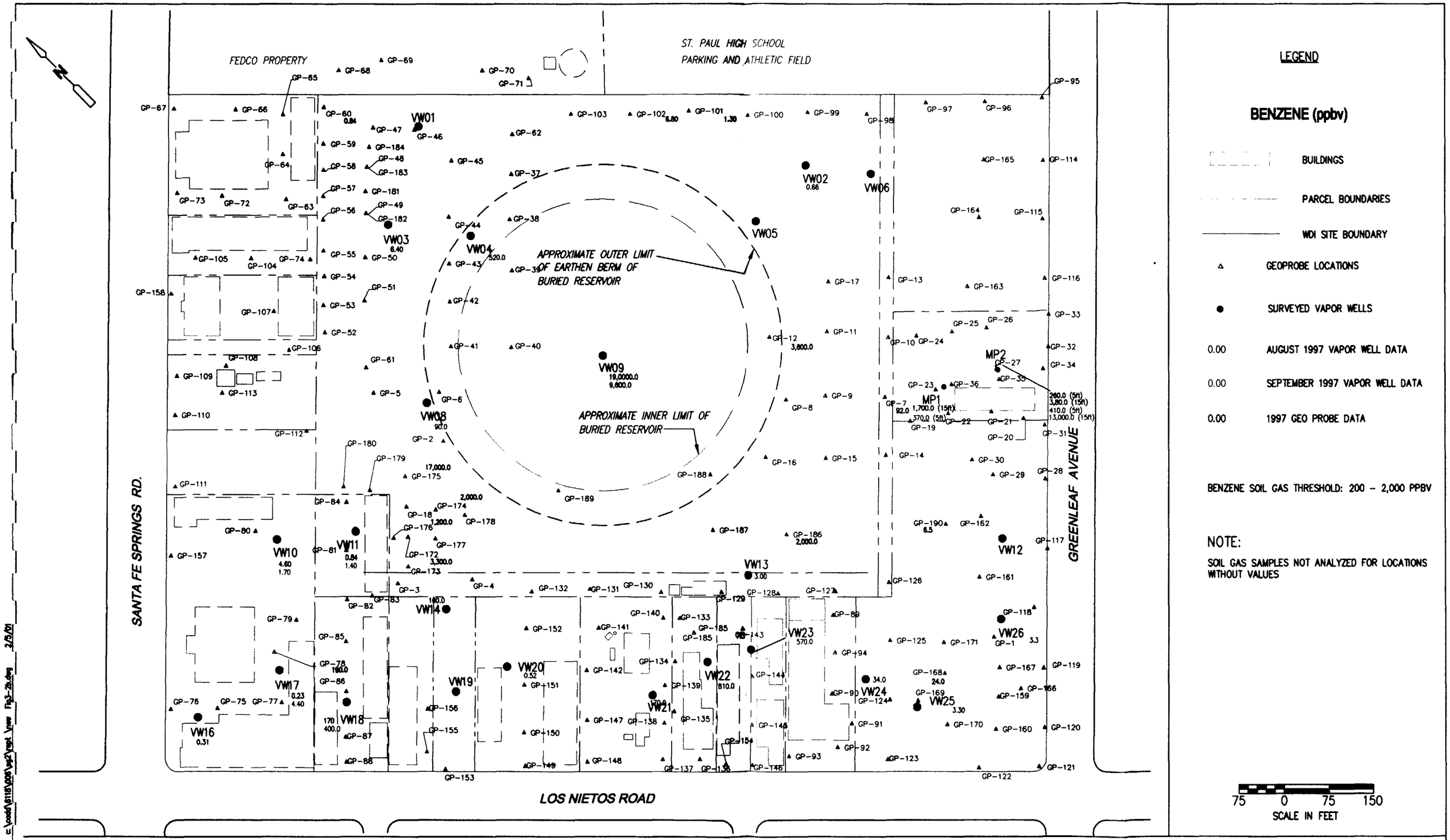


c:\cadd\6118\006\sg2\rept \new Fig3-2a.dwg 2/5/01

CDM Federal Programs Corporation
A Subsidiary of Camp Dresser & McKee Inc.

FIELD MEASUREMENTS FOR METHANE
WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

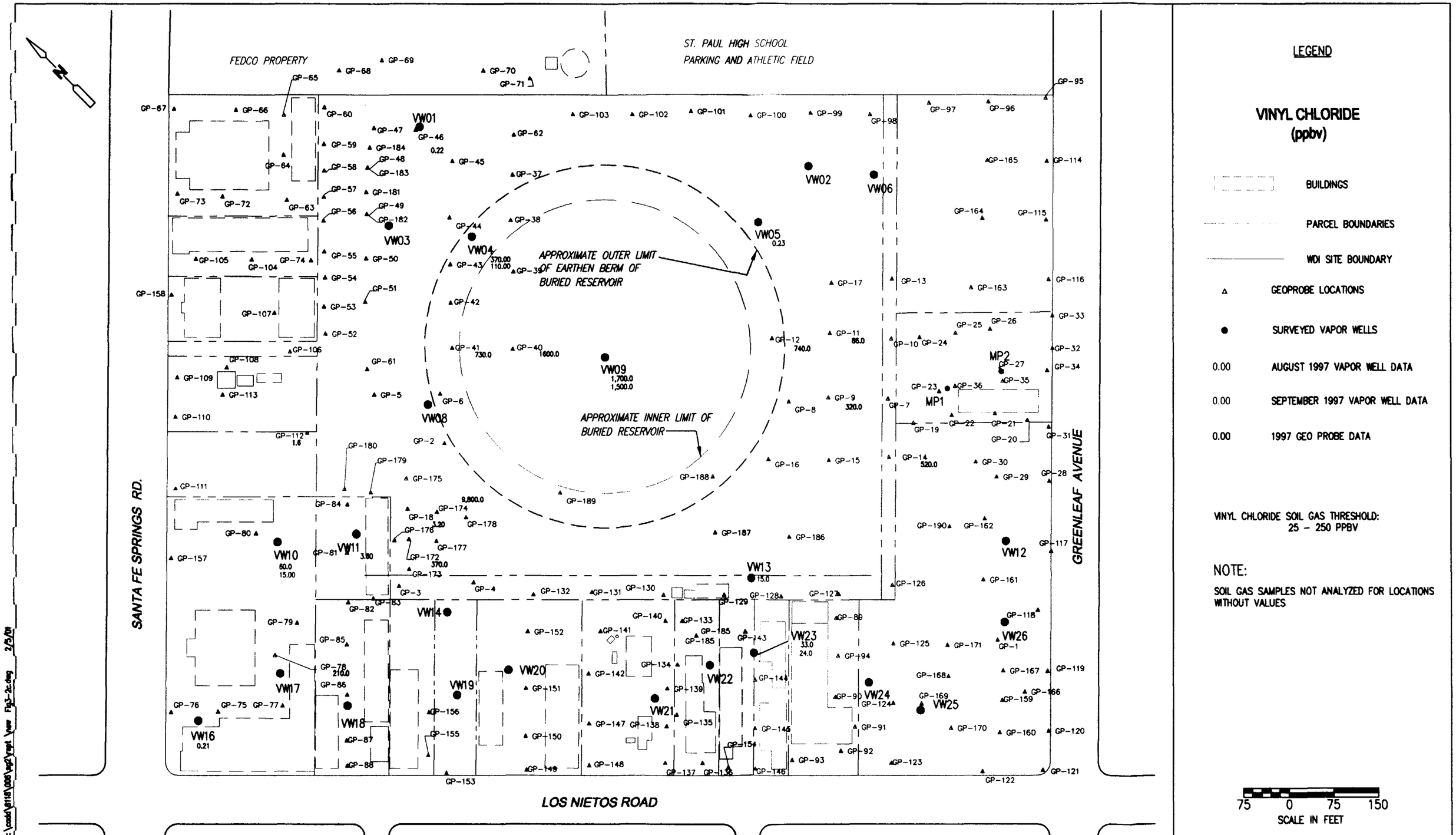
Figure 3-2a



CDM Federal Programs Corporation
A Subsidiary of Camp Dresser & McKee Inc.

ANALYTICAL RESULTS FOR BENZENE
WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

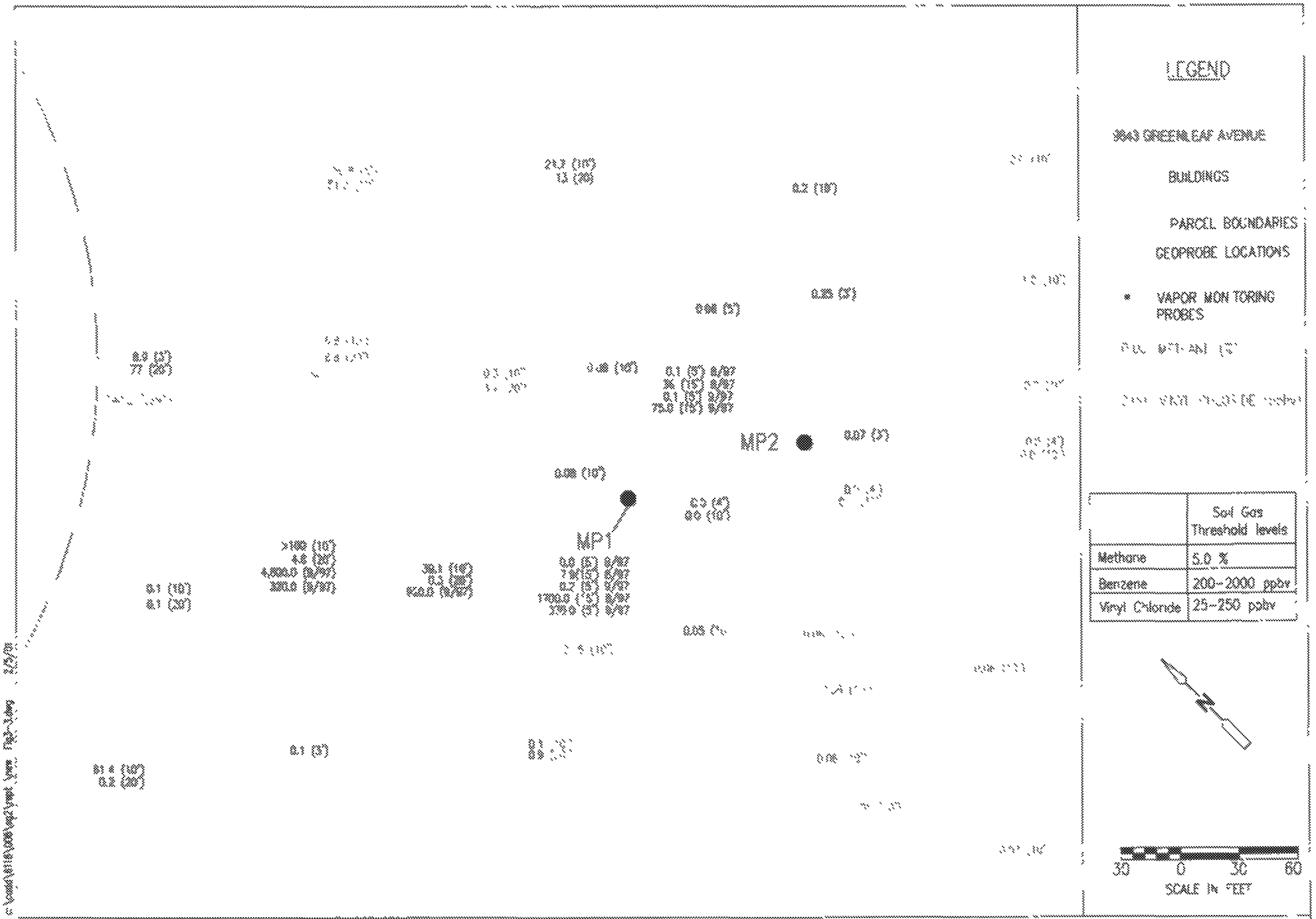
Figure 3-2b



CDM Federal Programs Corporation
A Subsidiary of Camp Dresser & McKee Inc.

ANALYTICAL RESULTS FOR VINYL CHLORIDE
WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

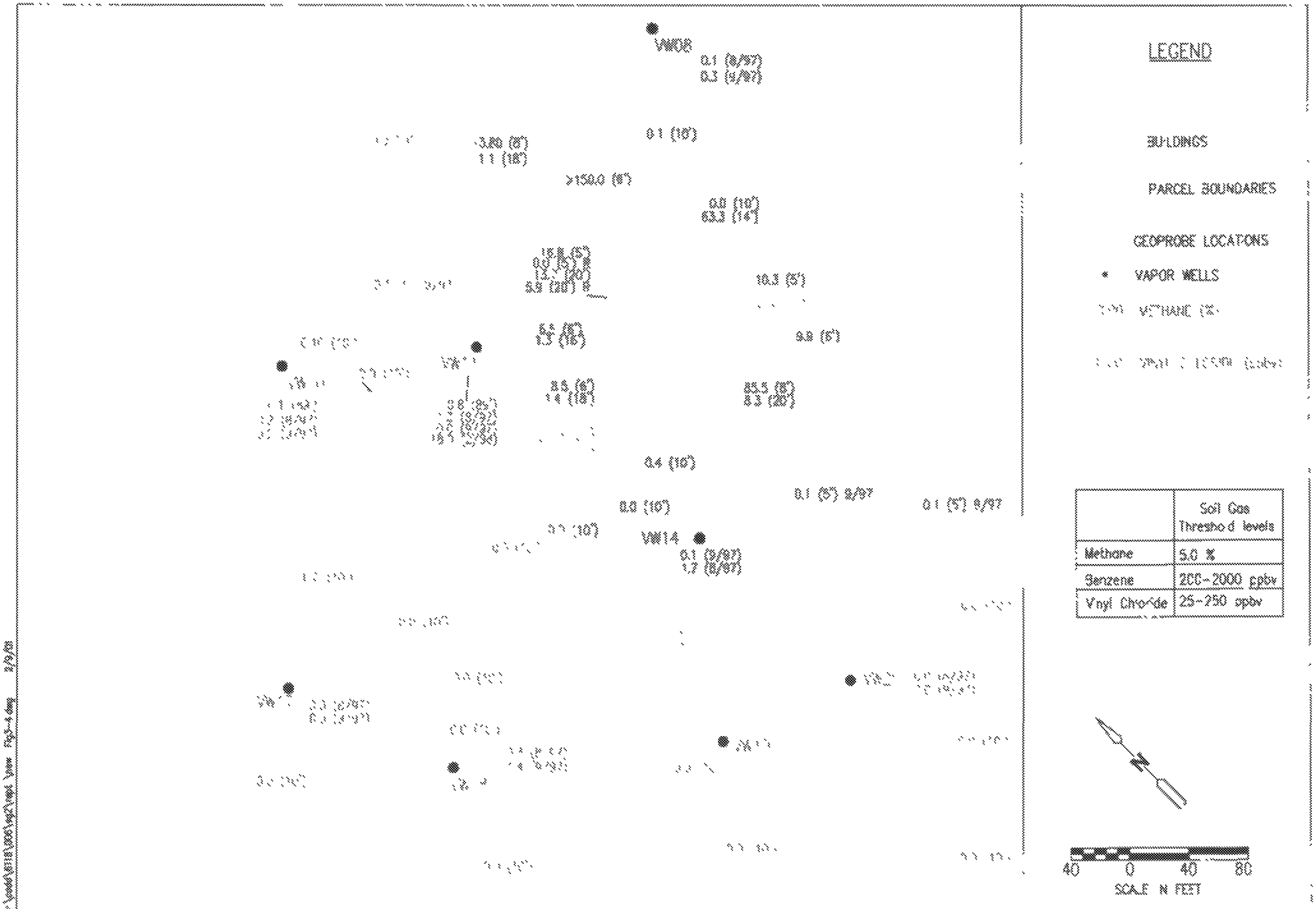
Figure 3-2c



CDM Federal Programs Corporation
A Subsidiary of Camp Dresser & McKee Inc.

SOIL GAS RESULTS FOR
9843 GREENLEAF AVE. AREA
WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

Figure 3-3



	Soil Gas Threshold levels
Methane	5.0 %
Benzene	200-2000 ppbv
Vinyl Chloride	25-250 ppbv

CDM Federal Programs Corporation
A Subsidiary of Camp Dresser & McKee Inc.

SOIL GAS RESULTS FOR
12637B LOS NIETOS ROAD AREA
WASTE DISPOSAL, INC.
SANTA FE SPRINGS, CALIFORNIA

Figure 3-4

3.3.2 In-Business Air Sample Results

In-business air samples were collected from portions of every building at the WDI site, but not from all of the 55 businesses in the 22 buildings present at the site. The analytical results of the 44 in-business air samples collected as part of this field investigation are presented in Table A-4 (Appendix A). Figure 3-5 presents the results for the primary chemicals of concern with the VOCs exceeding USEPA's in-business air interim threshold levels identified in bold. More than 25 VOCs were detected above background concentrations in the in-business air samples. The following compounds were detected above USEPA's in-business air interim threshold values: benzene; toluene; xylene; trichloroethene; tetrachloroethene; and vinyl chloride. Site inspections of the businesses located within the buildings were conducted to determine whether any VOCs detected within the buildings are related to chemical products currently used by the businesses within the buildings. The chemical products used by each business and the VOCs detected in the businesses above background concentrations and USEPA's in-business air interim threshold levels in each building are included in Table 3-2.

Benzene was the chemical detected above its USEPA interim threshold level most frequently. Benzene was also detected above its USEPA interim threshold level in the background samples. The presence of benzene, toluene, and xylene may be due to the use of petroleum products such as gasoline or motor oil. Many of the businesses at the site repair automobiles and store gas cans within the buildings. The presence of trichloroethene, tetrachloroethene, and vinyl chloride in the buildings may be due to the use of solvents. According to the Material Safety Data Sheet (MSDS) provided by Safety-Kleen Environmental Services, as much as 0.2% tetrachloroethene may be present in the Safety-Kleen Recycled 105 Solvent. This solvent also contains detectable amounts of benzene, p-dichlorobenzene, methylene chloride, and trichloroethene. Vinyl chloride was only detected once at the 12635 Los Nietos Road facility. Vinyl chloride was not detected in the duplicate sample at this location.

Waste Disposal, Inc.
Santa Fe Springs, California

1997 In-Business Air
24 Hour Sample Results

** all data is in ppbv unless otherwise indicated*

Action Levels

Methane (CH_4) 12,500 ppm

Total Non-methane Organic Carbon (TNMOC)
** no action level established*

Vinyl Chloride (VC) 0.25-2.5 ppbv

Benzene (Bnz) 2-20 ppbv

Trichloroethene (TCE) 4.4 ppbv

Tetrachloroethene (PCE) 10.6 ppbv

Buildings

Fences

Parcel Boundaries

This figure presents data only for the primary COCs detected during the in-business air sampling. However, other COCs (some of which exceeded USEPA's interim threshold levels) also were detected in certain businesses (see Table 3-2). For locations where there were split samples or duplicates, the maximum values were used.

Figure 3-5: In-Business Air 24 Hour Sample Results

LOVELL CABNETS 9618 Santa Fe Springs Rd. Suite 15	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	0.8
TCE	ND
PCE	ND

ACTION MAINTENANCE 9620 Santa Fe Springs Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	0.4
TCE	0.7
PCE	**12.0**

DRY PRINT 9620 Santa Fe Springs Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	1.0
TCE	ND
PCE	0.2

Gold Coast 9630 Santa Fe Springs Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	**4.0**
TCE	ND
PCE	ND

MERSITS EQUIPMENT 9640 Santa Fe Springs Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	0.9
TCE	ND
PCE	ND

AIR LIQUIDE BLDG #1 9756 Santa Fe Springs Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	0.96
TCE	ND
PCE	0.57

AIR LIQUIDE BLDG #2 9756 Santa Fe Springs Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	0.50
TCE	ND
PCE	ND

AIR LIQUIDE BLDG #3 9756 Santa Fe Springs Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	0.43
TCE	ND
PCE	ND

CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	1.0
TCE	ND
PCE	0.6

CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	1.0
TCE	ND
PCE	0.4

CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	**2.0**
TCE	ND
PCE	0.7

ROLLAND'S WELDING 9608 Santa Fe Springs Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	**32.0**
TCE	ND
PCE	1.0

LIFT TRUCK CONVERTER 9610 Santa Fe Springs Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	**9.0**
TCE	0.5
PCE	3.0

E&L ELECTRIC 9632 Santa Fe Springs Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	ND
TNMOC (ppm)	ND
VC	ND
Bnz	**2.0**
TCE	**14.0**
PCE	1.0

C&E DIE FABRICATIONS 12637B Los Nietos Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	0.73
TCE	ND
PCE	ND

BUFFALO BULLET 12637A Los Nietos Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	0.4
TCE	ND
PCE	ND

D&H LAMINATING 12707 Los Nietos Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	1.4
TCE	ND
PCE	ND

DURANGO PLASTICS 12803 Los Nietos Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	0.7
TCE	2.0
PCE	ND

SOLOMONS PRESS REPAIR 12801 Los Nietos Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	1.0
TCE	ND
PCE	0.2

H&H CONTRACTORS * 12811F Los Nietos Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	
TNMOC (ppm)	
VC	
Bnz	
TCE	
PCE	

** Sampling device malfunctioned and all data were lost.*

STORAGE UNIT 12811A Los Nietos Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	**4.0**
TCE	ND
PCE	0.5

BROTHERS MACHINE 9483 Greenleaf	
CONSTITUENT	VALUE
CH_4 (ppm)	39
TNMOC (ppm)	12
VC	ND
Bnz	1.9
TCE	ND
PCE	1.5

HERNANDEZ AUTO 12811D Los Nietos Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	**17.0**
TCE	ND
PCE	**61.0**

LEO'S LAWNMOWER 12811C Los Nietos Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	**61.0**
TCE	ND
PCE	ND

UPGRADIENT AMBIENT BLANK	
CONSTITUENT	VALUE
CH_4 (ppm)	ND
TNMOC (ppm)	ND
VC	ND
Bnz	**2.0**
TCE	ND
PCE	0.4

R&R SPROUTS 12633 Los Nietos Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	0.6
TCE	ND
PCE	ND

METRO DIESEL 12631 Los Nietos Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	0.8
TCE	ND
PCE	0.8

STANSEL BROTHERS 12635 Los Nietos Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	0.5
Bnz	**6.0**
TCE	0.8
PCE	0.8

BELL AUTO BODY 12645 Los Nietos Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	**3.0**
TCE	ND
PCE	ND

TIMMONS WOOD PROD. 12731 Los Nietos Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	1.0
TCE	0.3
PCE	0.3

PEOPLES 12741 Los Nietos Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	ND
TNMOC (ppm)	ND
VC	ND
Bnz	**3.0**
TCE	0.6
PCE	0.84

DAN RAY 12741 Los Nietos Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	4.5
TNMOC (ppm)	71
VC	ND
Bnz	1.9
TCE	ND
PCE	0.22

CALIFORNIA REAMER 12747 Los Nietos Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	1.0
TCE	ND
PCE	0.4

FOUR C's TRANSMISSION 12807A Los Nietos Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	**2.7**
TCE	ND
PCE	ND

BERT'S AUTO 12809B Los Nietos Rd.	
CONSTITUENT	VALUE
CH_4 (ppm)	--
TNMOC (ppm)	--
VC	ND
Bnz	**17.0**
TCE	ND
PCE	1.8

Table 3-2
Chemical Inventory of Buildings
Waste Disposal Inc. Site

BUSINESS	Chemical products used within the building	Chemicals detected above background concentrations in in-business air (ppbv)
Bert's Automotive 12809B Los Nietos Rd Contact: Bert Lowe Date of Inspection: 11/20/97	Safety-Kleen Solvent Tank (20-gallons), Waste oil (55-gallon drum) The following spray cans were located in the building: Carburetor and Choke Cleaner, Anti-Seize Lubricant, Brake-Parts Cleaner, Sandable Primer, Air Filter Cleaner, Orr-Lac Engine Paint, WD-40 Small cans (less than 1-gallon): grease can, 1-Liter Odorless Paint Thinner, Gasket Sealer, 1-gallon One Lube Antifreeze Coolant, grease guns, Air Filter Oil, Car Cleaner Wax. Note: no chemicals used in office where sample was collected	Methylene Chloride (2.0) **Benzene (17.0) *** Toluene (120) Tetrachloroethane (1.8) Ethylbenzene (19.0) M- & p-xylene (75.0) O-xylene (26.0) Styrene (4.9) 1,3,5-Trimethylbenzene (6.6) 1,2,4-trimethylbenzene (22.0)
Leo's Lawnmowers 12811C Los Nietos Rd Contact Leo Rojas Date of Inspection: 11/20/97	Safety-Kleen Solvent Tank (20-gallons), 2-gallon gas can, SAE Motor Oil (30 1-quart bottles), 2 Cycle Power Equipment Oil (40 to 50 0.4-Liter bottles) The following spray cans were located in the building: Carb Cleaner, WD-40, Brake Parts Cleaner, Gloss Enamel Spray Coating, Paint and Chain Lube, Chain and cable fluid. 15 lawnmowers were located inside the building. Chickens are also raised inside the building. No chemicals were used inside the office where the sample was collected.	Methylene Chloride (8.0) **Benzene (61.0) *** **Toluene (380) *** Ethylbenzene (91.0) **m- &p-Xylene(s) (330) *** o-Xylene (120.0) 1,3,5-Trimethlybenzene (38.0) 1,2,4-Trimethylbenzene (100.0)
Hernandez Auto 12811D Los Nietos Rd Contact: Octavio Hernandez Date of Inspection: 11/20/97	Solvent in small tray to clean auto parts (brand name or specific chemical not known (1-gallon of solvent in gas can), waste oil (5-gallons). 1-gallon paint thinner, 1-gallon primer thinner, 1-gallon antifreeze, 1-gallon SAE 30 motor oil, brake fluid (6 1-Liter cans). The following spray cans were located in the building: spray paint, engine paint, undercoating, WD-40, Engine-Brite, heavy duty engine degreaser. Note: At time of inspection there was a strong odor of paint thinner and a small open tray of parts cleaning solvent present in the building. Mr Hernandez was doing body work on his car which included the removal of paint, patching his car with putty, and painting his car. Mr Hernandez specializes in the repair of engines. The shop is usually repairing a couple vehicles. The sample was collected in the back of the shop and could have been exposed to any of the chemicals used within the building.	Methylene Chloride (38.0) **Benzene (17.0) *** Toluene (150.0) **Tetrachloroethene (61.0) *** Ethylbenzene (27.0) m- &p-Xylene(s) (99.0) o-Xylene (37.0) Styrene (7.6) 1,1,2,2-Tetrachloroethane (1.4) 1,3,5-Trimethlybenzene (10.0) 1,2,4-Trimethylbenzene (29.0) 1,4-Dichlorobenzene (33.0)
12741 Los Nietos Rd. Contact: Dan Wedge Date of Inspection: 11/20/97	Safety-Kleen Solvent Tank (20-gallons) 55-gallon drum of Zep Solvent (DYNA 143) 2-gallons of gas 2 55-gallon drums of waste oil Spray cans of water-based paint According to Dan Wedge, no chemicals are stored or used in the room where the samples were collected.	Methylene Chloride (0.85) 1,1,1-Trichlorethane (30.0) Toluene (15.0) Ethylbenzene (2.4) m- &p-Xylene(s) (9.7) o-Xylene (3.8) Styrene (1.5) 1,3,5-Trimethlybenzene (2.5) 1,2,4-Trimethylbenzene (7.7)

Table 3-2
Chemical Inventory of Buildings
Waste Disposal Inc. Site

BUSINESS	Chemical products used within the building	Chemicals detected above background concentrations in in-business air (ppbv)
D & H Laminating 12707 and 12717 Los Nietos Rd Contact: Irene Garcia - Controller Date of Inspection: 11/20/97	According to Irene Garcia, the only chemical used in their building is the glue used in their laminating process. Irene Garcia said the glue is water-based. She could not find the MSDS for the glue. At the time of the inspection, the following vehicles were used at this business: fork lifts, saws, presses, and glue spreaders. No wood finishing is conducted at this business. The fork-lifts use propane and are serviced here. According to Irene Garcia, no waste oil is stored at this building.	Methylene Chloride (0.61) 1,1,1-Trichlorethane (28.0) Styrene (1.2) 1,2,4-Trimethylbenzene (1.1)
Dry Print Foils 9620 B Santa Fe Springs Rd Contact: Eric Abel Date of Inspection: 11/20/97	This business makes dry print foils for business cards. The primary chemical used at this business is Super 77 Spray Adhesive (bonding agent containing hexane and other hydrocarbons). No paint thinners or solvents are used in this building. Sometimes, not often, this business used paint. No chemicals were used in the office where the in-business air sample was collected.	No data available for this building. Sample was collected at 9618 Santa Fe Springs Rd #8. The business at 9618 was also called dry print, but a new business is now located at 9618 #8.
Action Maintenance 9620 A Santa Fe Springs Rd Contact: Butch Tierney Date of Inspection: 11/20/97	At the time of inspection, the following spray cans were identified: Teflon Lubricant (contains hydrocarbons), Sheen-15 (protective coating and conditioner), Solvent Sprez (nonflammable safety solvent containing chlorinated solvents), Lemon Luster, Red Gasket Maker (100% silicon rubber), Mountain Air Deodorant, Dazzle-A Glass Cleaner, Off-Vandalism Graffiti Remover (contains Toluene), Ban-Rust (contains mineral spirits CAS #64742-88-7). All of the above cans were located in a box in the same room that the in-business air sample was collected. Mr. Tierney does not think the cans were in the room when the sample was collected, but he is not sure. This building also contains a warehouse full of chemicals for mostly janitorial supplies such as WD-40. No open cans are located in the warehouse. Chemicals are only distributed at this business.	Trichlorofluoromethane (0.3) 1,1,2-Trichloro-1,2,2-triflouroethane (0.3) Methylene Chloride (4.0) 1,1,1-Trichlorethane (2.0) Trichloroethene (0.7) Toluene (9.0) **Tetrachloroethene (12.0) *** Styrene (0.3)
9843 Greenleaf Ave. Brothers Machine Shop Contact: Enrique Razo Date of inspection: 1/7/98	According to Enrique Razo, the only chemicals used at their facility is hyraulic oil for their machines (Western Basic Soluble Oil) and diesel fuel for their vehicles. Diesel fuel is stored in one 5-gallon gas can in the north corner of the building. There are three 5-gallon containers of oil stored in plastic buckets inside the building. No MSDS was available for review.	Trichlorofluoromethane (0.4) Methylene Chloride (0.8) Toluene (8.6) Tetrachloroethene (1.5) Ethylbenzene (1.1) m- &p-Xylene(s)(4.4) 1,3,5-Trimethlybenzene (0.2)
9618 #8 Santa Fe Springs Rd. Contact: Roberto Lociano Date of Inspection: 1/7/98	Mr. Lociano opened his business at this location approximately 2 months ago. His business was not operating at this location when the in-business air sample was collected at this building. The business which operated at this location when the sample was collected was called Dry Print.	Dichlorofluoromethane (0.6) Trichlorofluoromethane (0.3) 1,1,2-Trichloro-1,2,2-triflouroethane (0.3) Methylene Chloride (47) 1,1,1-Trichlorethane (2.0) Toluene (12.0) Ethylbenzene (0.8) 1,3,5-Trimethlybenzene (0.2)

Table 3-2
Chemical Inventory of Buildings
Waste Disposal Inc. Site

BUSINESS	Chemical products used within the building	Chemicals detected above background concentrations in in-business air (ppbv)
E & L Electric 9632 Santa Fe Springs Rd Contact: Mike Fitch Date of Inspection: 1/7/98	The main chemicals used at this building are the Safety-Kleen solvent tank and the varnish. The following information was provided in the MSDS for the Safety-Kleen solvent and the varnish: Safety Kleen 105 Solvent Recycled-California Hazardous Components - hydrotreated light petroleum distillates (Petroleum Naphtha (99-100%); Tetrachloroethene (0 - 0.5%); 1,1,1-Trichloroethane (0 - 0.5%). The Safety-Kleen solvent also contains detectable amounts of benzene, carbon tetrachloride, 1,4-dichlorobenzene, dichloroethane, toluene, and trichloroethene. Polyester Resin Solution Hazardous component - organic peroxide (1.0 - 1.4% by weight)	Dichloroflouromethane (0.7) 1,1-Dichloroethene (0.3) Trichloroflouromethane (0.4) Methylene Chloride (1.0) 1,1,1-Trichlorethane (0.91) Benzene (2.0) **Trichloroethene (14.0) *** Toluene (15.0) Tetrachloroethene (1.0) Ethylbenzene (13.0) m- &p-Xylene(s) (23.0) o-Xylene (21.0) 1,3,5-Trimethlybenzene (0.5) 1,2,4-Trimethylbenzene (2.0) 1,2-Dichlorobenzene (1.2)
Mersits Equipment 9640 Santa Fe Springs Rd. Contact: Jim Mersits Date of Inspection: 1/7/98	No chemicals are stored in the office where the SUMMA canister was set, but numerous spray cans were located in the adjacent room. The following spray cans were observed: WD-40, yellow paint (containing acetone, propane, mineral spirits), brake fluid (alkylene glycols), Rust-Oleum, Engine Brite (no chlorinated solvents), Fleck Stone Clear Acrylic Topcoat Gel-Gloss Fibergloss.	Dichloroflouromethane (1.0) Trichloroflouromethane (0.4) Methylene Chloride (3.0) 1,1,1-Trichlorethane (2.0) Toluene (8.0) Ethylbenzene (2.0) o-Xylene (2.0) 1,3,5-Trimethlybenzene (0.3)
California Reamer 12747 Los Nietos Rd. Contact: Dave Neptune Date of Inspection: 1/7/98	According to Dave Neptune, the following chemicals are used at this facility: (1) Ultraflux Silver Brazing Flux, which contains potassium tetraborate, boic acid, daolin, and borax; (2) water soluble coolant, which contains paraffin selective refined component, fatty acid polydiethanol amide, sulfonated oils, oleoyl-sarcoside, 1,2-propylene glycole, boric acd ester, high temperature stabilized chloroparaffin; (3) Cutzol WS-5050 coolant by Rust-Lick Products; (4) Grinding Fluid-water soluble machining fluid containing ethanoline; (6) Lube oil of highly refined base oils; (7) Premium Safety-Kleen 105 Solvent (MSDS not available). During the inspection Mr. Neptune said that when the sample was collected inside this building there were vinyl-based paints, gas, and paint thinner in the same room as the SUMMA canister.	Dichloroflouromethane (0.8) Methylene Chloride (1.0) Tetrachloroethene (0.4) Ethylbenzene (0.8) Styrene (0.4) 1,3,5-Trimethlybenzene (0.3)
9618 #15 Santa Fe Springs Rd. Contact: Date of Inspection: 1/7/98	No one there at time of inspection.	Dichloroflouromethane (0.9) Trichloroflouromethane (0.3) Methlyene Chloride (3.0) 1,1,1-Trichlorethane (28) Toluene (15) Ethylbenzene (1.0) m- &p-Xylene(s) (4.0) Styrene (0.6) 1,3,5-Trimethlybenzene (0.4)

Table 3-2
Chemical Inventory of Buildings
Waste Disposal Inc. Site

BUSINESS	Chemical products used within the building	Chemicals detected above background concentrations in in-business air (ppbv)
Metro Diesel 12631 Los Nietos Rd. Contact: Monty Torres Date of Inspection: 1/7/98	According to Mr. Torres, this facility has a Safety-Kleen Solvent Tank and waste oil. Only Clorox bleach and a bathroom detergent was present in the bathroom that the SUMMA canister was set in. Chemical information was provided by Mr. Torres from the MSDS's. The MSDS information is provided below. Safety-Kleen 105 Parts Washing Solvent (Components): C9-C13 Saturated Hydrocarbon (85%); Toluene (0.5%); Xylene (1.0%); Ethylbenzene (0.5%); C8 + Aromatics (12.0%); 1,1,1-Trichloroethane(<0.5%); Tetrachloroethylene (<0.5%). Calibration Fluid 1487 AW-2 (Components): Petroleum Distillate (60-75%); Straight run midddle distillate (15-40%); other ingredients (1-10%). Safety-Kleen Immersion Cleaner and Cold Parts Cleaner 699 (Components): Aromatic 150 or heavy aromatic naphtha cleaning solvent; N-methyl-2-pyrolidone; Dipropylene glycol; Methyl ether; Monoethanolamine; Oleic acid; water.	Dichloroflouromethane (0.8) Trichloroflouromethane (0.3) Methylene Chloride (210) Chloroform (0.6) Toluene (13.0) Tetrachloroethene (0.8) Ethylbenzene (1.0) m- &p-Xylene(s) (4.0) o-Xylene (2.0) 1,3,5-Trimethlybenzene (0.9) 1,2,4-Trimethylbenzene (3.0)
Buffalo Bullet 12637A Los Nietos Rd. Contact: Date of Inspecton: 11/20/97 and 1/7/97	Only the secretary was there at the time of both inspections.	Trichloroflouromethane (0.3) Methylene Chloride (4.0) 1,1,1-Trichlorethane (3.0) Chlorobenzene (0.6) Ethylbenzene (0.5) Styrene (2.0)
C & E Die Fab 12637B Los Nietos Rd Contact: Mark Ellis Date of Inspection: 11/20/97	15 gallons of cleaning solvent (UN-1255 Petrolube, Inc). Cutting oil, 15 gallons of machine oil, 15 gallons of turbine oil, 15-gallons of Metal Working Fluid (Grade 503), 15 gallons of Soluble Oil, 1-gallon of parts cleaning solvent (open can in warehouse). Note: the in-business air sample was collected in the northeast corner of the warehouse.	Trichloroflouromethane (0.3) Methylene Chloride (5.0) 1,1,1-Trichlorethane (3.0) Toluene (6.9) Tetrachloroethene (0.43)
Air Liquide 9756 Santa Fe Springs Rd. Contact: Eric Tesh Date of Inspection: 1/7/98	At the time of inspection, no one available to provide escort. The secretary provide a business card and suggested talking to Eric Tesh.	Methylene Chloride (1.10) 1,1,1-Trichlorethane (1.90) Toluene (5.7) Tetrachloroethene (0.57) Ethylbenzene (1.0) m- &p-Xylene(s) (4.8) o-Xylene (1.8) 1,2,4-Trimethylbenzene (3.0)
Four C's Transmission 12807A Los Nietos Rd Contact: Julian Nieto Date of Inspection: 11/20/97	Safety-Kleen Solvent Tank (20-gallons). Waste oil (55-gallon drum) The following spray cans were located in the building: Formula 409 All Purpose Cleaner, Son-of-a-gun vinyl protectant, Raid Ant Cleaner, Clean Start, Formula 529 Cleaner, Carb-Chok Cleaner, and Carpet Cleaner. Note: the carpet cleaner was the only chemical used in the office where the sample was collected.	Dichloroflouromethane (3.4) Methylene Chloride (3.6) Benzene (2.7) Toluene (21.0) Ethylbenzene (5.1) m- &p-Xylene(s) (21.0) o-Xylene (8.5) Styrene (1.4) 1,3,5-Trimethlybenzene (4.2) 1,2,4-Trimethylbenzene (12.0)

Table 3-2
Chemical Inventory of Buildings
Waste Disposal Inc. Site

BUSINESS	Chemical products used within the building	Chemicals detected above background concentrations in in-business air (ppbv)
12801 Los Nietos Rd. Contact:? Date of Inspection: 1/7/98	This building is locked and does not appear to be occupied by anyone.	Trichloroflouromethane (0.4) Methylene Chloride (2.0) Toluene (7.0) Chlorobenzene (2.0) Ethylbenzene (2.0) m- &p-Xylene(s) (6.0) o-Xylene (2.0) Styrene (1.0) 1,3,5-Trimethlybenzene (3.0) 1,2,4-Trimethylbenzene (11.0)
Bell Auto Body Contact: Luis Reyna Date of Inspection: 1/7/98	According to Mr. Reyna, their facility mostly uses paint, paint thinner, and various oils including WD-40. The business is an autobody shop and is surrounded by used cars including a car inside the shop.	Dichloroflouromethane (0.9) Trichloroflouromethane (0.3) Methylene Chloride (1.0) Benzene (3.0) Toluene (81) Ethylbenzene (7.0) m- &p-Xylene(s) (23.0) o-Xylene (7.0) 1,3,5-Trimethlybenzene (0.2) 1,2,4-Trimethylbenzene (2.0)
Lift Truck Converter (Duplicate Sample) 9610 Santa Fe Springs Rd. Contact: Date of Inspection: 1/7/98	This business uses a paint booth, oil, grease, and Safety-Kleen 105 Recycled Solvent.	Dichloroflouromethane (1.0) Trichloroflouromethane (0.3) Methylene Chloride (11.0) 1,1,1-Trichlorethane (1.6) **Benzene (6.0) *** Trichloroethene (0.3) Toluene (48) Tetrachloroethene (3.0) Ethylbenzene (7.0) m- &p-Xylene(s) (24.0) o-Xylene (9.0) 1,3,5-Trimethlybenzene (3.0) 1,2,4-Trimethylbenzene (9.0)
Lift Truck Converter 9610 Santa Fe Springs Rd. Contact: Date of Inspection:	This business uses a paint booth, oil, grease, and Safety-Kleen 105 Recycled Solvent.	Dichloroflouromethane (1.0) Trichloroflouromethane (0.3) 1,1,2-Trichloro-1,2,2-triflouroethane (0.3) Methylene Chloride (19.0) **Benzene (9.0) *** 1,2-Dichloroethane (0.2) Trichloroethene (0.5) Toluene (75) Tetrachloroethene (3.0) Ethylbenzene (11.0) m- &p-Xylene(s) (45.0) o-Xylene (16.0) 1,3,5-Trimethlybenzene (5.0) 1,2,4-Trimethylbenzene (15.0)

Table 3-2
Chemical Inventory of Buildings
Waste Disposal Inc. Site

BUSINESS	Chemical products used within the building	Chemicals detected above background concentrations in in-business air (ppbv)
9608 Santa Fe Springs Rd. Contact: Roland Date of Inspection: 1/7/98	The tenant was not there at the time of the inspection. The tenant uses this building to store paint. Various types of paints such as acrylic latex enamel and semi-gloss enamel were observed in the building by looking through the window. No paint thinner was seen in the building.	Dichloroflouromethane (1.0) Trichloroflouromethane (0.3) Methylene Chloride (60) **Benzene (32.0) *** 1,2-Dichloroethane (0.6) 1,2-Dichloropropane (0.4) **Toluene (250) *** Tetrachloroethene (1.0) Ethylbenzene (39.0) m- &p-Xylene(s) (150) o-Xylene (58.0) Styrene (2.0) 1,1,2,2-Tetrachloroethane (10.0) 1,3,5-Trimethlybenzene (18.0) 1,2,4-Trimethylbenzene (73.0)
Durango Designs Contact: Luciano Casillas Date of Inspection: 1/7/98	Chemicals used at this facility include paint thinner (mineral spirits), acetone, and Weld-On Solvent Cement Acrylic (contains mostly methylene chloride). A glass cleaner called Kleenwaste Brillianize is also used. Chemicals are stored in a locker located on the opposite side from where the SUMMA canister was set.	Dichloroflouromethane (1.0) Trichloroflouromethane (0.4) Chloroform (1.0) 1,1,1-Trichlorethane (1.0) Trichloroethene (2.0) Toluene (41.0) Ethylbenzene (0.5) Styrene (0.5) 1,3,5-Trimethlybenzene (0.4) 1,2,4-Trimethylbenzene (2.0) 1,4-Dichlorobenzene (4.0)
R & R Sprouts 12633 Los Nietos Rd. Contact: Date of Inspection: 1/7/98	This business grows alfalfa sprouts for juice bars. The only chemicals used at this business is chlorine bleach to clean tanks. No solvents or oils are used in this building.	Dichloroflouromethane (1.0) Trichloroflouromethane (0.7) Methylene Chloride (2.0) Styrene (0.3) 1,3,5-Trimethlybenzene (0.3)
Stansel Brothers 12635 Los Nietos Rd. Contact: Vernon Stansell Date of Inspection: 1/7/98	According to Mr. Stansell, their business uses acetone, cutting oil, WD-40, Sup-'N'-Kleen Aerosol (contains isobutane, ethylene glycol, and monbutyl ether. Mr. Stansell provided the MSDS's for other chemicals used at his business. The following information was provided in the MSDS's: Zep ESP (General Purpose Cleaner) - contains d-propylene glycol methyl ether (<5%). Shell Tetlus Oil 32 (industrial oil) - contains Shell Tellus Oil and solvent refined, hydrotreated heavy paraffinic distillate. Shell Tonna Oil 68 (lubricating oil) - contains Shell Tonna Oil 68; catalytic dewaxed heavy paraffinic distillate; and hydrotreated heavy paraffinic distillate. Dromus B (solvent refined petroleum grade). Garia Oil (cutting oil) (8% fatty oil). 1-k-Kerosene (may contain sulfur and benzene)	Dichloroflouromethane (7.0) **Vinyl Chloride (0.5) *** Trichloroflouromethane (1.0) Methylene Chloride (2.0) Chloroform (0.2) 1,1,1-Trichlorethane (3.0) Carbon tetrachloride (0.5) **Benzene (6.0) *** Trichloroethene (0.8) Toluene (66.0) Tetrachloroethene (0.8) Ethylbenzene (8.0) o-Xylene (12.0) Styrene (1.0) 1,1,2,2-Tetrachloroethane (1.0) 1,3,5-Trimethlybenzene (3.0) 1,2,4-Trimethylbenzene (12.0)

Table 3-2
Chemical Inventory of Buildings
Waste Disposal Inc. Site

BUSINESS	Chemical products used within the building	Chemicals detected above background concentrations in in-business air (ppbv)
Stansel Brothers (Duplicate Sample) 12635 Los Nietos Rd. Contact: Vernon Stansell Date of Inspection: 1/7/98	According to Mr. Stansell, their business uses acetone, cutting oil, WD-40, Sup-'N'-Kleen Aerosol (contains isobutane, ethylene glycol, and monbutyl ether. Mr. Stansell provided the MSDS's for other chemicals used at his business. The following information was provided in the MSDS's: Zep ESP (General Purpose Cleaner) - contains d-propylene glycol methyl ether (<5%). Shell Tetlus Oil 32 (industrial oil) - contains Shell Tellus Oil and solvent refined, hydrotreated heavy paraffinic distillate. Shell Tonna Oil 68 (lubricating oil) - contains Shell Tonna Oil 68; catalytic dewaxed heavy paraffinic distillate; and hydrotreated heavy paraffinic distillate. Dromus B (solvent refined petroleum grade). Garia Oil (cutting oil) (8% fatty oil). 1-k-Kerosene (may contain sulfur and benzene)	Dichloroflouromethane (6.0) Trichloroflouromethane (0.6) Methylene Chloride (2.0) Chloroform (0.2) 1,1,1-Trichlorethane (3.0) **Benzene (6.0) *** Toluene (62.0) Tetrachloroethene (0.4) Ethylbenzene (9.0) m- &p-Xylene(s) (35.0) o-Xylene (13.0) Styrene (0.4) 1,3,5-Trimethlybenzene (4.0) 1,2,4-Trimethylbenzene (12.0)
Timmons Wood Products Contact: Date of Inspection: 1/7/98	No one there at time of inspection.	Dichloroflouromethane (1.0) Chloromethane (1.0) Bromomethane (0.2) Trichloroflouromethane (0.6) Methylene Chloride (2.0) 1,1,1-Trichlorethane (8.0) Trichloroethene (0.6) Toluene (140) 1,1,2-Trichloroethane (0.3) Ethylbenzene (8.0) m- &p-Xylene(s) (5.0) o-Xylene (5.0) 1,3,5-Trimethlybenzene (0.4)
9618 #12 Santa Fe Springs Rd. Contact: Date of Inspection:	Missed this building when conducting inspections.	Dichloroflouromethane (0.9) Chloromethane (6.0) Bromomethane (0.2) Trichloroflouromethane (0.4) 1,1,2-Trichloro-1,2,2-triflouroethane (0.3) Methylene Chloride (1.0) Benzene (2.0) **Toluene (440) *** Tetrachloroethene (0.7) Ethylbenzene (0.7) Styrene (0.4) 1,3,5-Trimethlybenzene (0.3)
9618 #10 Santa Fe Springs Rd. Contact: Rigo Zobarrobias Date of Inspection: 1/7/98	Mr. Zobarrobias opened his business at this location approximately 2 months ago. His business was not operating at this building when the sample was collected.	Dichloroflouromethane (0.8) Trichloroflouromethane (0.4) Methylene Chloride (1.0) Toluene (7.0) Tetrachloroethene (0.4) Ethylbenzene (0.5) 1,3,5-Trimethlybenzene (0.3)

* - These compounds were detected at concentrations above the USEPA in-business air interim threshold screening levels, which are presented in Table 3-1 and in the Subsurface Gas Contingency Plan (CDM Federal, 1997).

4.0 QUALITY ASSURANCE/QUALITY CONTROL

This field investigation adhered to sampling procedures described in the *Field Sampling and Analysis Plan* and quality assurance/quality control requirements described in the *Quality Assurance Project Plan*, which are included as Appendix A and D, respectively, of the *Subsurface Gas Contingency Plan* (CDM Federal, 1997). All data analyzed by FASP, Quanterra, and the USEPA Region 9 Laboratory were validated by the USEPA Environmental Services Assistance Team (ESAT) and Science Applications, Inc. (SAIC). ESAT and SAIC validated the data according to guidelines presented in the USEPA document *Contract Laboratory Program National Functional Guidelines for Organic Review* (USEPA, 1984). Data validation reports are provided in Appendix B. An evaluation of the data quality is provided below.

4.1 EXISTING VAPOR WELLS

Soil gas samples collected from the vapor wells were analyzed by FASP and Quanterra. The data validation results are presented in Appendix B. Many of the results have been qualified with a "J" qualifier indicating the concentrations are approximate. No data have been rejected. During data validation, methylene chloride and acetone were identified as laboratory and field contaminants. Duplicate samples were collected at VW4 and VW9 in September 1997 and at VW4, VW10, VW11, VW13, VW22, and VW24 in August 1997 (see Table A-1 in Appendix A). With the exception of the results for VW9, VOC concentrations in the primary samples and the duplicate samples were similar. The most notable differences between the primary and duplicate samples were observed at VW9 (primary/duplicate): cis-1,2-dichloroethene (1629 ppbv/93 ppbv); 2-butanone(1375 ppbv/624U); and bromodichloromethane (1183 ppbv/55U). Discrepancies were also observed for VW9 in the duplicate for the confirmation sample analyzed by Quanterra. Chlorobenzene was detected at a concentration of 300 ppbv in the confirmation sample and was not detected (90U) in the confirmation duplicate. These laboratories may have had difficulty analyzing the samples collected at VW9 due to the high VOC concentrations present in this well.

Confirmation samples were collected at VW9, VW16, VW21, and VW23 in August 1997 and at VW10, VW11, VW14, VW16, VW17, VW18, VW20, VW22, VW23, VW24, VW25, VW26, MP1, and MP2 in September 1997 (see Table 3-2 in Appendix B). These samples were analyzed by Quanterra in order to confirm the results by FASP. With the exception of the results at VW9 and VW18, the Quanterra reporting limits were lower than the FASP reporting limits. This often resulted in VOCs being detected by Quanterra, but not by FASP. Discrepancies between Quanterra

and FASP results were also found for many VOCs detected above the reporting limits. Some of the most notable discrepancies between the primary and confirmation samples were observed at the following wells (primary/confirmation): VW9 (ethyl benzene 85U/6300 ppbv and 1,3,5,-trimethylbenzene 61U/2600 ppbv), VW18 (chloroform 75U/**820 ppbv**), VW22 (chloromethane 6200 ppb/42U; benzene **6400 ppbv**/21U; and xylene 1100 ppbv/210U), VW23 (tetrachloroethene 1088 ppbv/26 ppbv), MP1-05 (benzene **370 ppb**/5.1 ppbv), and MP2-05 (chloromethane 140 ppbv/3.4U; and benzene **410 ppbv**/16 ppbv). The VOC concentrations highlighted in bold were above soil gas interim threshold levels established by USEPA in the *Subsurface Gas Contingency Plan*. The reasons for these discrepancies are unknown.

As described in Section 2.4.1, based on the oxygen levels measured while purging the wells, the samples collected at MP1 and MP2 in August and the samples collected at VW14 and VW20 in September may be diluted with ambient air due to either an increased rate of purging or an inadequate surface seal on the well. The analytical results for these samples, therefore, may be lower than the actual concentrations and should be considered more qualitative than quantitative.

4.2 TEMPORARY SOIL GAS PROBES

Soil gas samples collected from temporary probes were analyzed by a screening laboratory (Onsite Environmental). If VOCs were detected in samples by the screening laboratory, the FASP laboratory confirmed the results of the screening laboratory (see Table 3-3 in Appendix B). FASP analyzed duplicate samples at GP9, GP21, GP57, GP98, GP112, GP125, GP140, GP143, GP172, and GP175. The only notable differences between the primary and duplicate samples were observed at GP172 and GP175. The concentration of two VOCs were significantly different in GP172: tetrachloroethene (1300 ppbv in primary, 78U in duplicate) and o-xylene (1220 ppbv in primary, 91 ppbv in duplicate). For the sample collected from 15 ft at GP175, VOC concentrations were significantly higher for nine VOCs detected in the duplicate sample. It should be noted that when the sample at GP175 was collected, a very low flow rate was drawn from the Amatek pump making sample collection difficult. This was probably due to the soils being saturated with liquids.

Samples collected at GP12, GP18, GP112, GP143, GP168, and GP172 were analyzed by Quanterra to confirm the results by FASP. The only significant differences between the FASP and Quanterra results were observed at GP12 and GP172. At GP12 differences between Quanterra and FASP results were observed for the following compounds (Quanterra/FASP): chloroform (8400 ppbv/150U) and xylene (19,000 ppbv/4,700 ppbv). At GP172 differences between Quanterra and

FASP results were observed for the following compounds (Quanterra/FASP): chloromethane (1,900 ppbv/37U); tetrachloroethene (1,300 ppbv/78U); and o-xylene (92U/1,220 ppbv). The duplicate sample analyzed by FASP for GP172 had similar concentrations for tetrachloroethene and o-xylene.

4.3 IN-BUSINESS AIR SAMPLING

In-business air samples were analyzed by either Quanterra or the USEPA Region 9 lab. All data have been validated with the validation results presented in (Appendix B). Many of the results have been qualified with a "J" qualifier indicating the concentrations are approximate. No data have been rejected. Methylene chloride was identified as a laboratory and field contaminant. Duplicates were collected at eight locations (see Table 3-5 in Appendix B). No significant differences were observed between the primary samples and the duplicate samples.

The final vacuum in the SUMMA canisters for many indoor air samples was more than a negative 5-inches of mercury. Since the air flow through the flow controllers to the SUMMA canisters is unpredictable at vacuums greater than a negative 5-inches of mercury, the samples collected in SUMMA canisters with more than a negative 5-inches of mercury should be considered more as grab samples than 24-hour integrated air samples.

4.4 CONFIRMATION OF METHANE MEASUREMENTS IN THE FIELD

Methane concentrations were measured in the temporary soil gas probes, vapor wells, and inside the buildings with a Landtec GA-90 infrared gas analyzer. These field measurements were confirmed with samples analyzed by Quanterra. The limit of detection for the Landtec GA-90 was 0.1%, while Quanterra typically had a methane reporting limit of 0.0034%. No methane was detected above 0.1% inside any of the buildings on site. Table 4-1 compares the results of the field measurements and the confirmation samples. When methane was detected, the concentrations measured in the field were always greater the lab results. In addition, methane concentrations measured by the Landtec GA-90 for a few soil gas samples were over 100% (GP9, GP179, and GP186). This is an indication that the Landtec GA-90 is detecting compounds at the site with a similar infrared wavelength band as methane and thus responding as if methane was present. Therefore, the methane concentrations measured in the field by the Landtec GA-90 should reflect total explosive gases and not the actual methane concentration for the well.

Table 4-1
Comparison of Field Measurements of Methane to Laboratory Results
Waste Disposal Inc. Site

Vapor Wells				
			Methane (%)	
Sample Location	Sample ID	Sample Date	Field	Lab
VW4	SYN466	8/1/97	24	17
VW4 (Dup)	SYN467	8/1/97	24	12
VW21	SYN480	8/6/97	0	0
VW25	SYN461	7/31/97	50	36
VW26	SYN462	7/31/97	0	0
VW1	SYN526	9/16/17	0	0
VW3	SYN527	9/16/97	0.1	0.03
VW9	SYN560	9/16/97	27.8	2.3
VW10	SYN561	9/16/97	0.2	0.1
VW11	SYN562	9/16/97	0	0.0
VW11(2)	SYN563	9/16/97	0	0.0
VW12	SYN528	9/15/97	0	0.0
VW13	SYN529	9/15/97	0	0.0
VW16	SYN566	9/17/97	0	0.0
VW17	SYN530	9/15/97	0	0.0
VW20	SYN567	9/17/97	0	0.0
VW22	SYN572	9/17/97	0	0.0
VW22(2)	SYN573	9/17/97	0	0.0
VW23	SYN565	9/16/97	0.2	0.17
VW24	SYN574	9/18/97	0	0.0
VW25	SYN526	9/15/97	41.3	26
VW26	SYN527	9/15/97	0.2	0.0
MP-1-05	SYN571	9/17/97	0.2	0.0
Geoprobes				
			Methane (%)	
Sample Location	Sample ID	Sample Date	Field	Lab
GP12	SYN495	8/19/97	77	7.1
GP18	SYN504	8/29/97	0	0.0
GP112	SYN507	9/3/97	0	0.0
GP143	SYN509	9/8/97	0.4	0.0
GP168	SYN525	9/10/97	7.3	4.8
GP172	SYN520	9/11/97	8.5	2.8
GP172 (dup)	SYN521	9/11/97	8.5	2.6

5.0 CONCLUSIONS

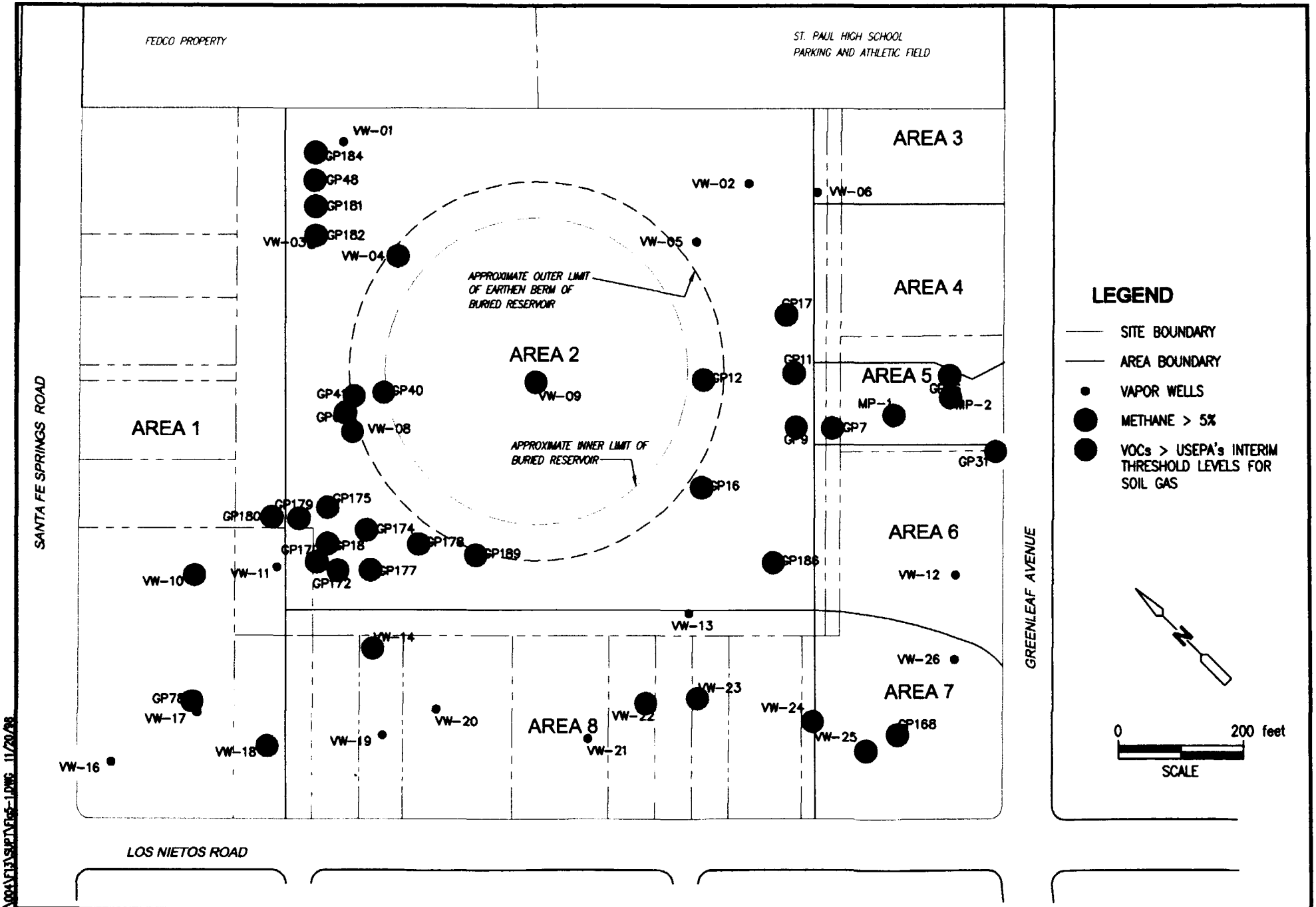
This report presents the results of implementation of the *Subsurface Gas Contingency Plan, Waste Disposal, Inc. Superfund Site, Santa Fe Springs, California*. The *Subsurface Gas Contingency Plan* investigation was designed and implemented by USEPA in 1997. It involved the sampling of the existing soil vapor monitoring well network at the WDI site, installation and sampling of temporary soil gas monitoring probes, and collection of in-business air data for analysis of volatile chemicals of concern for the WDI site. The existing vapor well monitoring network consists of 25 accessible wells of the 28 wells installed by EPA in 1988 (one well had been destroyed and two were buried) and four sampling probes installed in 1995 by a business owner of one parcel along Greenleaf Avenue. These wells were sampled in August and September of 1997. In August 1997, USEPA installed temporary soil gas probes at depths ranging from 3 to 20 ft bgs at approximately 186 locations. Approximately 210 field measurements of soil gas for methane and total VOCs were made to determine gas migration patterns. At some locations samples were collected at both 10 and 20 feet below ground surface. At 104 locations, samples were collected for analysis of the composition of the gas for site VOCs. In-business air samples were collected from business located within the 22 buildings at the site, with multiple samples being collected from some buildings containing several businesses.

USEPA established, within the Contingency Plan, soil gas interim threshold screening levels based on USEPA ambient air preliminary remediation goals (PRGs). The USEPA interim threshold levels have been established for the major VOCs identified at the site at concentrations to be protective of human health. A comparison of the interim threshold levels with soil gas concentrations for VOCs and methane shows that interim threshold levels have been exceeded at several locations at the site. A summary of the VOCs detected in soil gas and the locations interim threshold levels are exceeded is presented in Table 5-1. Figure 5-1 illustrates the locations of the site where interim threshold levels were exceeded, based on the results of this study. VOCs were detected above soil gas interim threshold levels in 10 wells and 11 temporary probes. Methane was above the 5% interim threshold level in five vapor wells and 26 probes. In addition to the VOCs listed in Table 5-1, more than 75 tentatively identified compounds (TICs) were reported by the laboratories performing the analyses. Most of the TICs detected were non-chlorinated hydrocarbons such as derivatives of butane, pentane, hexane, cyclohexane, and cyclopentane. The TICs reflect hydrocarbons present in the drilling mud and oil field wastes disposed of at the site.

TABLE 5-1
SOIL GAS RESULTS SUMMARY
SUBSURFACE GAS CONTINGENCY PLAN
WASTE DISPOSAL INC. SITE

Chemical	Soil Gas Threshold Level (ppbv)	Vapor Wells Frequency of Detection	Vapor Wells Maximum Conc (ppbv)	Temporary Probes Frequency of Detection	Temporary Probes Maximum Conc (ppbv)	Locations that soil gas threshold levels are exceeded
Dichlorofluoromethane		2/81	1.1	0/104	ND	
Chloromethane		14/81	6200E	16/104	14,000	
Vinyl chloride	25	21/81	1700	16/104	1600	VW4, VW8, VW9, VW10, VW14 VW22, VW23, MP1, MP2, GP9 GP40, GP41, GP78, GP172
Bromomethane		0/81	ND	1/104	5	
Chloroethane	75,200	1/81	60J	1/104	238	
1,1-Dichloroethene		9/81	86J	3/104	280	
Trichlorofluoromethane		8/81	60	0/104	ND	
Acetone	31,200	30/44	6414B	77/94	29000B	
Methylene Chloride		18/81	580J	7/104	240	
trans-1,2-Dichloroethene	3,680	7/81	58J	0/104	ND	
1,1-Dichloroethane	25,600	16/81	658	1/104	240	
cis-1,2-Dichloroethene	1,860	17/81	1629	9/104	240	
2-Butanone		3/36	89	36/94	6020B	
Chloroform	340	17/81	820	5/104	8400	VW18, MP1, GP12, GP175
1,1,1-Trichloroethane	36,800	18/81	3100	6/104	1900E	
Carbon Tetrachloride	68	1/81	78	0/104	ND	VW8
Benzene	200	41/81	19,000	39/104	31,000E	VW4, VW9, VW10, VW18, VW22 MP1, MP2, GP7, GP9, GP12, GP40 GP41, GP48, GP172, GP175, GP186
1,2-Dichloroethane	360	7/81	293	6/104	430	GP175
Trichloroethene	822	40/81	2200	13/104	790	VW22, VW23, MP2
Bromodichloromethane		4/38	1183	NA	NA	
1,2-Dichloropropane	186	4/81	215	2/104	230	VW14, GP78
Toluene	21,200	40/81	17,000	31/104	16,000E	
1,1,2-Trichloroethane	440	1/81	12.0J	0/104	ND	
Dibromochloromethane		1/81	21J	0/94	ND	
Tetrachloroethene	1,064	42/81	1088	21/104	1700D	VW23, GP31, GP172
1,2-Dibromoethane (EDB)	6	3/81	285	1/104	140	VW24, MP1, GP78
Chlorobenzene		8/81	300	11/104	160	
Ethylbenzene	49,000	23/81	7200	29/104	12,000	
m- & p-Xylene	14280	26/81	23,000	30/104	19,000J	VW9, GP12
o-Xylene	14,280	14/81	7300	19/104	3400	
Styrene		1/81	201	NA	NA	
1,1,2,2-Tetrachloroethane		1/81	0.77	1/104	76	
1,3,5-Trimethylbenzene		6/50	2700	NA	NA	
1,2,4-Trimethylbenzene		8/37	5000	NA	NA	
1,3-Dichlorobenzene		1/81	0.78	0/104	ND	
1,4-Dichlorobenzene		3/81	0.92	8/104	76	
1,2-Dichlorobenzene		8/81	57	10/104	49	

NA - not analyzed
ND - not detected
B - Compound detected in the associated laboratory blank
J - Approximate concentration
E - Qualifier defined in validation report.



CDM Federal Programs Corporation
A Subsidiary of Camp Dresser & McKee Inc.

Location of Exceedences of USEPA's Interim Threshold Levels
Waste Disposal Inc., Santa Fe Springs, California

Figure 5-1

C:\CADD\6118\004\F13\SUPT\Fig5-1.DWG 11/20/98

Benzene was the VOC of concern most frequently reported above its soil gas interim threshold level (9 probes/7 wells), followed by vinyl chloride (5 probes/9 wells), chloroform (2 probes/2 wells), tetrachloroethene (2 probes/1 well), and 1,2-dibromoethane (1 probe/2 wells). Other VOCs detected above soil gas interim threshold levels include xylene; 1,2-dichloropropane; 1,2-dichloroethane; and carbon tetrachloride. Vinyl chloride and benzene were the only VOCs detected above interim threshold levels in the vapor wells in both the September and August sampling events. The USEPA site boundary interim threshold level for tetrachloroethene of 532 ppbv was exceeded at GP31 during one sampling event (concentration of 670 ppbv in August 1997). This is the only location where interim threshold levels were exceeded along the site boundary.

In order to determine whether methane or VOCs from soil gas have migrated into the buildings on-site, in-business air samples were collected from inside the 22 occupied buildings present at the site. Methane was not detected above 50 ppm (0.005%) inside any of the buildings. More than 25 VOCs were detected above background concentrations in the in-business air samples. The following compounds were detected above in-business USEPA interim threshold values: benzene; toluene; xylene; trichloroethene; tetrachloroethene; and vinyl chloride. Benzene was the chemical detected above interim threshold levels most frequently. The presence of benzene, toluene, and xylene may be due to the use of petroleum products such as gasoline or motor oil by the businesses on site. Many of the businesses at the site repair automobiles and store gas cans within the buildings. The presence of trichloroethene, tetrachloroethene, and vinyl chloride in the buildings may be due to the use of solvents and manufacturing processes. Several businesses on site use a Safety-Kleen Recycled 105 Solvent and, according to the Material Safety Data Sheet (MSDS) provided by Safety-Kleen Environmental Services, as much as 0.2% tetrachloroethene may be present in the Safety-Kleen Recycled 105 Solvent. This solvent also contains detectable amounts of benzene, p-dichlorobenzene, methylene chloride, and trichloroethene. Vinyl chloride was only detected once at the building at 12635 Los Nietos Road. Vinyl chloride was not detected in the duplicate sample at this location. The chemical products used as part of the business operations on site are a more likely source of the VOCs detected within the buildings than the soil gas at the site.

The USEPA soil gas interim threshold levels outlined in the USEPA *Subsurface Gas Contingency Plan* included measures for performing more frequent monitoring of in-business air quality or the placement of additional permanent monitoring probes near buildings for locations where the interim thresholds were exceeded near buildings. The recommendation from the findings of this study is to perform monthly in-business air sampling for buildings near the exceedences and to install

monitoring probes at the buildings between the building and the buried wastes. Structures requiring more frequent air monitoring due to the proximity of the building to vapor wells or temporary probe samples exceeding interim threshold criteria include 12635, 12637A, 12637B, 12801 (when reoccupied), and 12811F Los Nietos Road; and 9843 Greenleaf Avenue. These recommendations were discussed with WDIG representatives during technical meetings starting during the fall of 1997. The WDIG began implementing the expansion of the soil gas monitoring network during December 1997. In February 1998 the WDIG implemented in-business air sampling of buildings near buried wastes. In July 1998, USEPA installed additional soil vapor monitoring wells at compliance points near site buildings.

6.0 REFERENCES

CDM Federal Programs Corporation, 1997. *Subsurface Gas Contingency Plan, Waste Disposal, Inc. Superfund Site, Santa Fe Springs, California*. July 1997.

EBASCO Services Incorporated, 1989. *Final Subsurface-Gas Characterization Report, Waste Disposal Inc*. EPA Contract 68-01-7250. May 1989.

TRC Environmental Solutions, Inc., 1996a. *Predesign/Intermediate Design Report, Waste Disposal, Inc. Superfund Site.*

_____, 1996b. *Pre-Final Design Report, Waste Disposal, Inc. Superfund Site.*

_____, 1997. *Draft RD Investigative Activities Work Plan, Waste Disposal, Inc. Superfund Site*, May 1997.

United States Environmental Protection Agency, 1993. *Feasibility Study Report for Soils and Subsurface Gas, Waste Disposal, Inc. Superfund Site, Santa Fe Springs, California.*

_____, 1994. *Contract Laboratory Program National Functional Guidelines for Organic Review.*

APPENDIX A

ANALYTICAL RESULTS FOR SOIL VAPOR WELLS, TEMPORARY PROBES, AND IN-BUSINESS AIR

Table A-1
Soil Gas Results from Vapor Wells
Waste Disposal Inc. Site

Vapor Well ID	VW1				VW1				VW1(2)				VW2			
Sample Date	8/1/97				9/16/17				9/16/97				8/1/97			
Screen Interval	3-35				5-35				5-35				5-35			
Field Methane (%)	0				0				0				0			
Field PID VOCs (ppm)	19.5				0				0				7.1			
Lab Methane (ppm)					3.8											
Lab Non-CH4 VOCs (ppm)					26											
Laboratory	Quanterra				Quanterra				EPA Reg 9				Quanterra			
Laboratory Parameter	Result	Qual	Val	Com	Result	Qual	Val	Com	Result	Qual	Val	Com	Result	Qual	Val	Com
	(ppbv)				(ppbv)				(ppbv)				(ppbv)			
					Sample not analyzed for VOCs by Quanterra											
Dichlorodifluoromethane	1.0	u							75	U			1.0	u		
Chloromethane	**0.55**								180	U			0.4	u		
Vinyl Chloride	**0.22**								140	U			0.2	u		
1,2-Dichloro-1,1,2,2- tetrachlorofluoroethane	1.0	u		d					NR				1.0	u		
Bromomethane	1.0	u							95	U			1.0	u		
Chloroethane	1.0	u							140	U			1.0	u		
1,1-Dichloroethene	0.2	u							93	U			0.2	u		
Trichlorofluoromethane	**1.1**								66	U			1.0	u		
1,1,2-Trichloro-1,2,2- trifluoroethane	1.0	u							NR				1.0	u		
Acetone	NR								**490**	jb			NR			
Carbon Disulfide	NR								120	U			NR			
Methylene chloride	0.9	ug		g					110	U			0.5	ug		g
trans-1,2-Dichloroethene	0.2	u							93	U			0.2	u		
1,1-Dichloroethane	0.2	u							91	U			0.2	u		
cis-1,2-Dichloroethene	0.2	u							93	U			0.2	u		
2-Butanone	NR								630	u			NR			
Chloroform	**0.63**								76	U			0.2	u		
1,1,1-Trichloroethane	**0.21**								68	U			**0.21**			
Carbon tetrachloride	0.2	u							59	U			0.2	u		
Benzene	2.1	u		g					120	U			**0.66**			
1,2-Dichloroethane	0.83	u		g					91	U			0.2	u		
Trichloroethene	0.20	u							69	U			0.2	u		
Bromodichloromethane	NR								55	U			NR			
1,2-Dichloropropane	0.48	u		g					82	U		G	0.2	u		
cis-1,3-Dichloropropene	0.2	ug							82	U			0.3	ug		g
Toluene	**3.1**								98	U			**3.5**			
trans-1,3-Dichloropropene	0.2	u							82	u			0.2	u	j	b
1,1,2-Trichloroethane	0.2	u							68	U			0.2	u	j	b
Dibromochloromethane	NR								43	U			NR			
4-Methyl-2-Pentanone	NR								450	u			NR			
Tetrachloroethene	**6.00**								55	U			**0.94**		j	b
1,3-Dichloropropane	NR								80	U			NR			
2-Hexanone	NR								450	u			NR			
1,2-Dibromoethane (EDB)	0.2	u							48	U			0.2	u	j	b
Chlorobenzene	0.2	ug							80	U			1.1	ug	j	bg
Ethylbenzene	1.0	u							85	U			**1.4**		j	b
m- & p- Xylene(s)	2.0	u							170	U			**3.8**		j	b
o-Xylene	1.0	u							85	U			**1.6**		j	b
Styrene	1.0	u							87	U			1.0	u	j	b
Bromoform	NR								36	U			NR			
1,1,2,2-Tetrachloroethane	0.2	u							54	U			0.2	u	j	b
1,3,5-Trimethylbenzene	1.0	u							NR				1.0	u	j	b
1,2,4-Trimethylbenzene	1.0	u							NR				1.0	u	j	b
1,2,3-Trichloropropane	NR								61	U			NR			
1,3-Dichlorobenzene	0.2	u							62	U			0.2	u	j	b
1,4-Dichlorobenzene	0.2	u							62	U			0.2	u	j	b
1,2-Dichlorobenzene	0.20	u							62	U			0.23	ug	j	bg
1,2-Dibromo-3-chloropropane	NR								38	U			NR			

Table A-1
Soil Gas Results from Vapor Wells
Waste Disposal Inc. Site

Vapor Well ID	VW2				VW3				VW3				VW3(2)			
Sample Date	9/18/97				8/1/97				9/16/97				9/16/97			
Screen Interval	5-35				5-35				5-35				5-35			
Field Methane (%)	0.6				0.8				0.1				0.1			
Field PID VOCs (ppm)	0				12.9				0				0			
Lab Methane (ppm)									290							
Lab Non-CH4 VOCs (ppm)									38							
Laboratory	EPA Reg 9				Quanterra				Quanterra				EPA Reg 9			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
									Sample not analyzed for VOCs by Quanterra							
Dichlorodifluoromethane	74	u			1.0	u		l					75	U		
Chloromethane	180	u			**23.0**			gi					180	U		
Vinyl Chloride	140	u			0.20	u		i					140	U		
1,2-Dichloro-1,1,2,2- tetrachlorofluoroethane	NR				1.0	u		di					NR			
Bromomethane	94	u			1.0	u		i					95	U		
Chloroethane	140	u			1.0	u		i					140	U		
1,1-Dichloroethene	92	u			0.2	u		i					93	U		
Trichlorofluoromethane	65	u			1.0	u		i					66	U		
1,1,2-Trichloro-1,2,2- trifluoroethane	NR				1.0	u		i					NR			
Acetone	770	u			NR								260	jb		
Carbon Disulfide	120	u			NR								120	U		
Methylene chloride	110	u			0.2	u		l					110	U		
trans-1,2-Dichloroethene	92	u			0.2	u		i					93	U		
1,1-Dichloroethane	91	u			0.2	u		i					91	U		
cis-1,2-Dichloroethene	92	u			**0.61**			ai					93	U		
2-Butanone	620	u			NR								630	u		
Chloroform	75	u			0.2	u		i					76	U		
1,1,1-Trichloroethane	67	u			0.2	u		i					68	U		
Carbon tetrachloride	58	u			0.2	u		i					59	U		
Benzene	110	u			**6.4**			i					120	U		
1,2-Dichloroethane	91	u			0.2	u		i					91	U		
Trichloroethene	68	u			**1.90**			i					69	U		
Bromodichloromethane	55	u			NR								55	U		
1,2-Dichloropropane	81	u			0.98	u		gi					82	U		G
cis-1,3-Dichloropropene	81	u			0.2	u		i					82	U		
Toluene	97	u			0.3	u		gi					98	U		
trans-1,3-Dichloropropene	81	u			0.2	u		gi					82	U		
1,1,2-Trichloroethane	67	u			0.2	u		i					68	U		
Dibromochloromethane	43	u			NR								43	U		
4-Methyl-2-Pentanone	450	u			NR								450	u		
Tetrachloroethene	54	u			**25.0**			ai					55	U		
1,3-Dichloropropane	79	u			NR								80	U		
2-Hexanone	450	u			NR								450	u		
1,2-Dibromoethane (EDB)	48	u			**0.46**			ai					48	U		
Chlorobenzene	80	u			0.20	u		l					80	U		
Ethylbenzene	84	u			**2.4**			ai					85	U		
m- & p- Xylene(s)	170	u			**3.4**			ai					170	U		
o-Xylene	84	u			**1.4**			ai					85	U		
Styrene	86	u			1.0	u		i					87	U		
Bromoform	35	u			NR								36	U		
1,1,2,2-Tetrachloroethane	53	u			0.20	u		l					54	U		
1,3,5-Trimethylbenzene	NR				1.0	u		i					NR			
1,2,4-Trimethylbenzene	NR				1.0	u		i					NR			
1,2,3-Trichloropropane	61	u			NR								61	U		
1,3-Dichlorobenzene	61	u			0.2	u		l					62	U		
1,4-Dichlorobenzene	61	u			**0.22**			ai					62	U		
1,2-Dichlorobenzene	61	u			**0.67**			ai					62	U		
1,2-Dibromo-3-chloropropane	38	u			NR								38	U		

Table A-1
Soil Gas Results from Vapor Wells
Waste Disposal Inc. Site

Vapor Well ID	VW4				VW4 (Dup)				VW4				VW4(2)			
Sample Date	8/1/97				8/1/97				9/17/97				9/17/97			
Screen Interval	6-23				6-23				6-23				6-23			
Field Methane (%)	24				24				24.8				24.8			
Field PID VOCs (ppm)	113				113				0.4				0.4			
Lab Methane (ppm)	160000			h	120000											
Lab Non-CH4 VOCs (ppm)	10000			h	6200											
Laboratory	Quanterra				Quanterra				EPA Reg 9				EPA Reg 9			
Laboratory Parameter	Result	Qual	Val	Com	Result	Qual	Val	Com	Result	Qual	Val	Com	Result	Qual	Val	Com
	(ppbv)				(ppbv)				(ppbv)				(ppbv)			
Dichlorodifluoromethane	440.0	u		ei	440.0	u		ei	75	U			75	U		
Chloromethane	170.0	u		ei	170.0	u		ei	180	U			180	U		
Vinyl Chloride	**370.0**		j	ahi	240.0	u		hi	87	L	J	AH	110	L	J	AH
1,2-Dichloro-1,1,2,2- tetrachlorofluoroethane	440.0	u		dei	440.0	u		dei	NR				NR			
Bromomethane	440.0	u		ei	440.0	u		ei	95	U			95	U		
Chloroethane	440.0	u		ei	440.0	u		ei	140	U			140	U		
1,1-Dichloroethene	87.0	u		ei	87.0	u		ei	93	U			93	U		
Trichlorofluoromethane	440.0	u		ei	440.0	u		ei	66	U			66	U		
1,1,2-Trichloro-1,2,2- trifluoroethane	440.0	u		ei	440.0	u		ei	NR				NR			
Acetone	NR				NR				780	u			780	u		
Carbon Disulfide	NR				NR				120	U			120	U		
Methylene chloride	340.0	u		gi	300.0	u		gi	110	U			110	U		
trans-1,2-Dichloroethene	87.0	u		ei	87.0	u		ei	93	U			93	U		
1,1-Dichloroethane	87.0	u		ei	87.0	u		ei	91	U			91	U		
cis-1,2-Dichloroethene	87.0	u		ei	87.0	u		ei	93	U			93	U		
2-Butanone	NR				NR				630	u			630	u		
Chloroform	87.0	u		ei	87.0	u		ei	76	U			76	U		
1,1,1-Trichloroethane	87.0	u		ei	87.0	u		ei	68	U			68	U		
Carbon tetrachloride	87.0	u		ei	87.0	u		ei	59	U			59	U		
Benzene	1800.0	u		gi	1300.0	u		gi	410		J	A	520		J	A
1,2-Dichloroethane	640.0	u		gi	640.0	u		gi	91	U			91	U		
Trichloroethene	87.00	u		ei	87.00	u		ei	69	U			69	U		
Bromodichloromethane	NR				NR				55	U			55	U		
1,2-Dichloropropane	380.0	u		gi	380.0	u		gi	82	U			82	U		G
cis-1,3-Dichloropropene	87.0	u		ei	87.0	u		ei	82	U			82	U		
Toluene	**320.0**			di	**390.0**			di	98	U			98	U		
trans-1,3-Dichloropropene	87.0	u		ei	87.0	u		ei	82	U			82	U		
1,1,2-Trichloroethane	87.0	u		ei	87.0	u		ei	68	U			68	U		
Dibromochloromethane	NR				NR				43	U			43	U		
4-Methyl-2-Pentanone	NR				NR				450	u			450	u		
Tetrachloroethene	87.0	u		ei	87.0	u		ei	55	U			55	U		
1,3-Dichloropropane	NR				NR				80	U			80	U		
2-Hexanone	NR				NR				450	u			450	u		
1,2-Dibromoethane (EDB)	87.0	u		ei	87.0	u		ei	48	U			48	U		
Chlorobenzene	380.0	u		gi	300.0	u		gi	80	U			80	U		
Ethylbenzene	440.0	u		ei	440.0	u		ei	85	U			85	U		
m- & p- Xylene(s)	870.0	u		ei	870.0	u		ei	170	U			170	U		
o-Xylene	440.0	u		ei	440.0	u		ei	85	U			85	U		
Styrene	440.0	u		ei	440.0	u		ei	87	U			87	U		
Bromoform	NR				NR				36	U			36	U		
1,1,2,2-Tetrachloroethane	87.0	u		ei	87.0	u		ei	54	U			54	U		
1,3,5-Trimethylbenzene	440.0	u		ei	440.0	u		ei	NR				NR			
1,2,4-Trimethylbenzene	440.0	u		ei	440.0	u		ei	NR				NR			
1,2,3-Trichloropropane	NR				NR				61	U			61	U		
1,3-Dichlorobenzene	87.0	u		ei	87.0	u		ei	62	U			62	U		
1,4-Dichlorobenzene	87.0	u		ei	87.0	u		ei	62	U			62	U		
1,2-Dichlorobenzene	87.0	u		ei	87.0	u		ei	62	U			62	U		
1,2-Dibromo-3-chloropropane	NR				NR				38	U			38	U		

Table A-1
Soil Gas Results from Vapor Wells
Waste Disposal Inc. Site

Vapor Well ID	VW5				VW5				VW6				VW6			
Sample Date	8/1/97				9/18/97				7/31/97				9/18/97			
Screen Interval	4-29				4-29				4-34				4-34			
Field Methane (%)	0				0				0				0			
Field PID VOCs (ppm)	3.5				0				23.3				0			
Lab Methane (ppm)																
Lab Non-CH4 VOCs (ppm)																
Laboratory	Quanterra				EPA Reg 9				Quanterra				EPA Reg 9			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	1.0	u	j	b	74	u			1.0	u			74	u		
Chloromethane	0.4	u	j	b	180	u			0.4	u			180	u		
Vinyl Chloride	**0.23**		j	b	140	u			0.2	u			140	u		
1,2-Dichloro-1,1,2,2- tetrachlorofluoroethane	1.0	u	j	b	NR				1.0	u			NR			
Bromomethane	1.0	u	j	b	94	u			1.0	u			94	u		
Chloroethane	1.0	u	j	b	140	u			1.0	u			140	u		
1,1-Dichloroethene	0.2	u	j	b	92	u			0.2	u			92	u		
Trichlorofluoromethane	1.0	u	j	b	65	u			1.0	u			65	u		
1,1,2-Trichloro-1,2,2- trifluoroethane	1.0	u	j	b	NR				1.0	u			NR			
Acetone	NR				730	jb			NR				430	jb		
Carbon Disulfide	NR				120	u			NR				120	u		
Methylene chloride	**2.4**		j	bf	110	u			**0.4**			g	110	u		
trans-1,2-Dichloroethene	0.2	u	j	b	92	u			0.2	u			92	u		
1,1-Dichloroethane	0.2	u	j	b	91	u			0.2	u			91	u		
cis-1,2-Dichloroethene	0.2	u	j	b	92	u			0.2	u			92	u		
2-Butanone	NR				620	u			NR				620	u		
Chloroform	**3.1**		j	b	75	u			0.2	u			75	u		
1,1,1-Trichloroethane	0.2	u	j	b	67	u			0.2	u			67	u		
Carbon tetrachloride	0.2	u	j	b	58	u			0.2	u			58	u		
Benzene	0.2	u	j	ab	110	u			0.2	u			110	u		
1,2-Dichloroethane	0.2	u	nj	b	91	u			0.2	u			91	u		
Trichloroethene	**0.32**		j	ab	68	u			0.2	u			68	u		
Bromodichloromethane	NR				55	u			NR				55	u		
1,2-Dichloropropane	**0.74**		j	abc	81	u			0.2	u			81	u		
cis-1,3-Dichloropropene	0.2	u	j	b	81	u			0.2	u			81	u		
Toluene	**1.0**		j	ab	97	u			**1.4**				97	u		
trans-1,3-Dichloropropene	0.2	u	j	ab	81	u			0.2	u			81	u		
1,1,2-Trichloroethane	**12.0**		j	ab	67	u			0.2	u			67	u		
Dibromochloromethane	**NR**				43	u			NR				43	u		
4-Methyl-2-Pentanone	NR				450	u			NR				450	u		
Tetrachloroethene	**120.0**		j	ab	54	u			**0.5**				54	u		
1,3-Dichloropropane	NR				79	u			NR				79	u		
2-Hexanone	NR				450	u			NR				450	u		
1,2-Dibromoethane (EDB)	0.2	u	j	ab	48	u			0.2	u			48	u		
Chlorobenzene	**0.74**		j	ab	80	u			0.2	u			80	u		
Ethylbenzene	**1.0**		j	ab	84	u			1.0	u			84	u		
m- & p- Xylene(s)	2.0	u	j	ab	170	u			2.0	u			170	u		
o-Xylene	1.0	u	j	ab	84	u			1.0	u			84	u		
Styrene	1.0	u	j	ab	86	u			1.0	u			86	u		
Bromoform	NR				35	u			NR				35	u		
1,1,2,2-Tetrachloroethane	**0.77**		j	ab	53	u			0.2	u			53	u		
1,3,5-Trimethylbenzene	1.0	u	j	ab	NR				1.0	u			NR			
1,2,4-Trimethylbenzene	1.0	u	j	ab	NR				1.0	u			NR			
1,2,3-Trichloropropane	NR				61	u			NR				61	u		
1,3-Dichlorobenzene	0.2	u	j	ab	61	u			0.2	u			61	u		
1,4-Dichlorobenzene	0.2	u	j	ab	61	u			0.2	u			61	u		
1,2-Dichlorobenzene	0.2	u	j	ab	61	u			0.2	u			61	u		
1,2-Dibromo-3-chloropropane	NR				38	u			NR				38	u		

Table A-1
Soil Gas Results from Vapor Wells
Waste Disposal Inc. Site

Vapor Well ID	VW8				VW8				VW9				VW9 (Dup)			
Sample Date	8/5/97				9/16/97				8/5/97				8/5/97			
Screen Interval	5-35				5-35				5-23				5-25			
Field Methane (%)	0.1				0.3				14.9				14.9			
Field PID VOCs (ppm)	47.3				21				448				448			
Lab Methane (ppm)																
Lab Non-CH4 VOCs (ppm)																
Laboratory	EPA FASP				EPA Reg 9				EPA FASP				EPA FASP			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	74	U			75	U			74	U			74	U		
Chloromethane	180	U			180	U			300		J	A	360		J	A
Vinyl Chloride	**140**	U			140	U			**1000**		J	A	**1300**		J	A
1,2-Dichloro-1,1,2,2- tetrachlorofluoroethane	NR				NR				NR				NR			
Bromomethane	95	U			95	U			95	U			95	U		
Chloroethane	140	U			140	U			140	U			140	U		
1,1-Dichloroethene	93	U			93	U			93	U			93	U		
Trichlorofluoromethane	65	U			66	U			65	U			65	U		
1,1,2-Trichloro-1,2,2- trifluoroethane	NR				NR				NR				NR			
Acetone	**3287**	b			910	b			774	u			774	u		
Carbon Disulfide	120	U			120	U			120	U			120	U		
Methylene chloride	110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	93	U			93	U			93	U			**51**	L	J	AJ
1,1-Dichloroethane	91	U			91	U			**91**	U			**91**	U		
cis-1,2-Dichloroethene	93	U			93	U			**1200**	D			**1300**	D		
2-Butanone	624	u			630	u			**1375**				624	u		
Chloroform	75	U			76	U			**75**	U			**75**	U		
1,1,1-Trichloroethane	67	U			68	U			67	U			67	U		
Carbon tetrachloride	58	U			59	U			58	U			58	U		
Benzene	120	U			90	L	J	H	**10000**	D			**11000**	D		
1,2-Dichloroethane	91	U			91	U			**270**				**290**		J	A
Trichloroethene	68	U			69	U			**190**		J	A	**290**		J	AJ
Bromodichloromethane	55	U			55	U			**55**	U			55	U		
1,2-Dichloropropane	80	L	J	IJ	82	U		G	80	L	J	AIJ	80	L	J	AIJ
cis-1,3-Dichloropropene	81	U			82	U			81	U			81	U		
Toluene	98	U			150				**4500**	D	J	AJ	**4800**	D	J	AJ
trans-1,3-Dichloropropene	81	U			82	U			81	U			81	U		
1,1,2-Trichloroethane	67	U			68	U			67	U			67	U		
Dibromochloromethane	43	U			43	U			43	U			43	U		
4-Methyl-2-Pentanone	NR				450	u			NR				NR			
Tetrachloroethene	54	U			55	U			**54**	U			**30**	L	J	AJ
1,3-Dichloropropane	80	U			80	U			80	U			80	U		
2-Hexanone	NR				450	u			NR				NR			
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			48	U		
Chlorobenzene	80	U			80	U			80	U			**80**	U		
Ethylbenzene	85	U			110				900	LD	J	AJ	870	LD	J	AJ
m- & p- Xylene(s)	85	U			520				**2900**	D	J	AJ	**2900**	D	J	AJ
o-Xylene	85	U			160		J	E	**690**	LD	J	AJ	**660**	LD	J	AJ
Styrene	86	U			87	U			86	U			86	U		
Bromoform	36	U			36	U			36	U			36	U		
1,1,2,2-Tetrachloroethane	54	U			54	U			54	U			54	U		
1,3,5-Trimethylbenzene	61	u			NR				61	u			61	u		
1,2,4-Trimethylbenzene	NR				NR				NR				NR			
1,2,3-Trichloropropane	61	U			61	U			61	U			61	U		
1,3-Dichlorobenzene	120	U			62	U			120	U			120	U		
1,4-Dichlorobenzene	61	U			62	U			61	U			61	U		
1,2-Dichlorobenzene	61	U			62	U			**55**	L	J	AJ	**57**	L	J	AJ
1,2-Dibromo-3-chloropropane	38	U			38	U			38	U			38	U		

Table A-1
Soil Gas Results from Vapor Wells
Waste Disposal Inc. Site

Vapor Well ID	VW9				VW9 (Dup)				VW9				VW9(2)			
Sample Date	8/5/97				8/5/97				9/16/97				9/16/97			
Screen Interval	5-25				5-25				5-23				5-25			
Field Methane (%)									27.8				27.8			
Field PID VOCs (ppm)									230				230			
Lab Methane (ppm)									23000							
Lab Non-CH4 VOCs (ppm)									13000							
Laboratory	Quanterra				Quanterra				Quanterra				EPA Reg 9			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
									Sample not analyzed for VOCs by Quanterra							
Dichlorodifluoromethane	450	u		b	450	u		b					75	U		
Chloromethane	180	u		b	180	u		b					**1300**	D	J	A
Vinyl Chloride	**1700**				**1700**								**1500**		J	A
1,2-Dichloro-1,1,2,2- tetrachlorofluoroethane	450	u		b	450	u		b					NR			
Bromomethane	450	u		b	450	u		b					95	U		
Chloroethane	450	u		b	450	u		b					140	U		
1,1-Dichloroethene	90	u		b	90	u		b					93	U		
Trichlorofluoromethane	450	u		b	450	u		b					66	U		
1,1,2-Trichloro-1,2,2- trifluoroethane	450	u		b	450	u		b					NR			
Acetone	NR				NR								780	u		
Carbon Disulfide	NR				NR								120	U		
Methylene chloride	150	u		c	450	u		c					110	U		
trans-1,2-Dichloroethene	90	u		b	90	u		b					58	L	J	AH
1,1-Dichloroethane	90	u		b	90	u		b					91	U		
cis-1,2-Dichloroethene	1300	u		c	1400	u		c					1200	D	J	A
2-Butanone	NR				NR								630	u		
Chloroform	90	u		b	90	u		b					86	u		
1,1,1-Trichloroethane	90	u		b	90	u		b					68	U		
Carbon tetrachloride	90	u		b	90	u		b					59	U		
Benzene	**15000**			d	**19000**			ad					9600	D	J	A
1,2-Dichloroethane	90	u		b	90	u		b					290		J	A
Trichloroethene	**280**				**310**			a					220		J	A
Bromodichloromethane	NR				NR								55	U		
1,2-Dichloropropane	1800	u		c	2300	u		c					82	U		G
cis-1,3-Dichloropropene	90	u		b	90	u		b					82	U		
Toluene	**14000**				**17000**			a					3800	D	J	A
trans-1,3-Dichloropropene	360	u		c	90	u		b					82	U		
1,1,2-Trichloroethane	90	u		b	90	u		b					68	U		
Dibromochloromethane	NR				NR								43	U		
4-Methyl-2-Pentanone	NR				NR								450	u		
Tetrachloroethene	90	u		b	**110**								55	U		
1,3-Dichloropropane	NR				NR								80	U		
2-Hexanone	NR				NR								450	u		
1,2-Dibromoethane (EDB)	90	u		b	90	u		b					48	U		
Chlorobenzene	**300**				90	u		b					80	U		
Ethylbenzene	**6300**				**7200**								2700	DE	J	AE
m- & p- Xylene(s)	**22000**				**23000**								2500	D	J	AE
o-Xylene	**6500**				**7300**								2600	D	J	AE
Styrene	450	u		b	490	u		c					87	U		
Bromoform	NR				NR								36	U		
1,1,2,2-Tetrachloroethane	90	u		b	1500	u		c					54	U		
1,3,5-Trimethylbenzene	**2600**				**2700**								NR			
1,2,4-Trimethylbenzene	**4900**				**5000**								NR			
1,2,3-Trichloropropane	NR				NR								61	U		
1,3-Dichlorobenzene	90	u		b	90	u		b					62	U		
1,4-Dichlorobenzene	90	u		b	90	u		b					62	U		
1,2-Dichlorobenzene	90	u		b	90	u		b					62	U		
1,2-Dibromo-3-chloropropane	NR				NR								38	U		

Table A-1
Soil Gas Results from Vapor Wells
Waste Disposal Inc. Site

Vapor Well ID	VW10				VW10				VW10(2)				VW10(3)			
Sample Date	8/4/97				9/16/97				9/16/97				9/16/97			
Screen Interval	5-35				5-35				5-30				5-35			
Field Methane (%)	0.2				0.2				0.2				0.2			
Field PID VOCs (ppm)	8.8				0.1				0.2				0.2			
Lab Methane (ppm)					790											
Lab Non-CH4 VOCs (ppm)					66											
Laboratory	Quanterra				Quanterra				EPA Reg 9				EPA Reg 9			
Laboratory Parameter	Result	Qual	Val	Com	Result	Qual	Val	Com	Result	Qual	Val	Com	Result	Qual	Val	Com
	(ppbv)				(ppbv)				(ppbv)				(ppbv)			
Dichlorodifluoromethane	5.6	u		d	2	u		e	75	U			75	U		
Chloromethane	2.2	u		d	0.8	u		e	180	U			180	U		
Vinyl Chloride	**60**				15				140	U			140	U		
1,2-Dichloro-1,1,2,2- tetrachlorofluoroethane	5.6	u		d	2	u		e	NR							
Bromomethane	5.6	u		d	2	u		e	95	U			95	U		
Chloroethane	5.6	u		d	2	u		e	140	U			140	U		
1,1-Dichloroethene	1.1	u		d	0.4	u		e	93	U			93	U		
Trichlorofluoromethane	5.6	u		d	2	u		e	66	U			66	U		
1,1,2-Trichloro-1,2,2- trifluoroethane	5.6	u		d	2	u		e	NR							
Acetone	NR				NR				620	jb			jb			
Carbon Disulfide	NR				NR				120	U			120	U		
Methylene chloride	1.5	u		e	0.88			dg	110	U			110	U		
trans-1,2-Dichloroethene	1.1	u		d	0.4	u		e	93	U			93	U		
1,1-Dichloroethane	**81**				46				91	U			91	U		
cis-1,2-Dichloroethene	**52**				11				93	U			93	U		
2-Butanone	NR				NR				630	u			u			
Chloroform	1.1	u		d	0.44			d	76	U			76	U		
1,1,1-Trichloroethane	1.1	u		d	0.4	u		e	68	U			68	U		
Carbon tetrachloride	1.1	u		d	0.4	u		e	59	U			59	U		
Benzene	**4.6**				1.7				120	U			120	U		
1,2-Dichloroethane	1.1	u		d	0.4	u		e	91	U			91	U		
Trichloroethene	1.1	u		d	0.4	u		e	69	U			69	U		
Bromodichloromethane	NR				NR				55	U			55	U		
1,2-Dichloropropane	1.1	u		d	0.4	u		e	82	U		G	82	U		
cis-1,3-Dichloropropene	1.1	u		d	0.4	u		e	82	U			82	U		
Toluene	**4.5**			c	3.4				71	L	J	H	49	L	J	AH
trans-1,3-Dichloropropene	1.1	u		d	0.4	u		e	82	U			82	U		
1,1,2-Trichloroethane	1.1	u		d	0.4	u		e	68	U			68	U		
Dibromochloromethane	NR				NR				43	U			43	U		
4-Methyl-2-Pentanone	NR				NR				450	u			u			
Tetrachloroethene	**1.3**				1.2			d	55	U			55	U	UJ	A
1,3-Dichloropropane	NR				NR				80	U			80	U	UJ	A
2-Hexanone	NR				NR				450	u			u			
1,2-Dibromoethane (EDB)	1.1	u		d	0.4	u		e	48	U			48	U	UJ	A
Chlorobenzene	4.7	u		e	0.4	u		e	80	U			80	U	UJ	A
Ethylbenzene	5.6	u		d	2	u		e	85	U			85	U	UJ	A
m- & p- Xylene(s)	11	u		d	6.2				170	U			170	U	UJ	A
o-Xylene	5.6	u		d	2	u		e	85	U			85	U	UJ	A
Styrene	5.6	u		d	2	u		e	87	U			87	U	UJ	A
Bromoform	NR				NR				36	U			36			
1,1,2,2-Tetrachloroethane	1.1	u		d	0.4	u		e	54	U			54	U	UJ	A
1,3,5-Trimethylbenzene	5.6	u		d	2	u		e	NR							
1,2,4-Trimethylbenzene	5.6	u		d	4.6			d	NR							
1,2,3-Trichloropropane	NR				NR				61	U			61	U	UJ	A
1,3-Dichlorobenzene	1.1	u		d	0.78				62	U			62	U	UJ	A
1,4-Dichlorobenzene	1.1	u		d	0.4	u		e	62	U			62	U	UJ	A
1,2-Dichlorobenzene	1.1	u		d	8				62	U			62	U	UJ	A
1,2-Dibromo-3-chloropropane	NR				NR				38	U			38	U	UJ	A

Table A-1
Soil Gas Results from Vapor Wells
Waste Disposal Inc. Site

Vapor Well ID	VW11				VW11				VW11(2)				VW11(3)			
Sample Date	8/4/97				9/16/97				9/16/97				9/16/97			
Screen Interval	5-35				5-35				5-35				5-35			
Field Methane (%)	2.3				0				0.0				0			
Field PID VOCs (ppm)	4.8				0				2.0				0			
Lab Methane (ppm)					24			f	16			f				
Lab Non-CH4 VOCs (ppm)					51				45							
Laboratory	Quanterra				Quanterra				Quanterra				EPA Reg 9			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	2	u		df	2.3	u		e	2.1	u		e	75	U		
Chloromethane	0.8	u		df	0.9	u		e	0.84	u		e	180	U		
Vinyl Chloride	**3.6**			f	0.45	u		e	0.42	u		e	140	U		
1,2-Dichloro-1,1,2,2- tetrachlorofluoroethane	2	u		df	2.3	u		e	2.1	u		e	NR			
Bromomethane	2	u		df	2.3	u		e	2.1	u		e	95	U		
Chloroethane	2	u		df	2.3	u		e	2.1	u		e	140	U		
1,1-Dichloroethene	0.4	u		df	0.45	u		e	0.42	u		e	93	U		
Trichlorofluoromethane	2	u		df	2.3	u		e	2.1	u		e	66	U		
1,1,2-Trichloro-1,2,2- trifluoroethane	2	u		df	2.3	u		e	2.1	u		e	NR			
Acetone	NR				NR				NR				1000	b		
Carbon Disulfide	NR				NR				NR				120	U		
Methylene chloride	0.87	u		ef	0.65		j	bdg	0.52		j	bdg	110	U		
trans-1,2-Dichloroethene	0.4	u		df	0.45	u		e	0.42	u		e	93	U		
1,1-Dichloroethane	0.4	u		df	0.45	u		e	0.42	u		e	91	U		
cis-1,2-Dichloroethene	**0.82**			f	0.45	u		e	0.42	u		e	93	U		
2-Butanone	NR				NR				NR				630	u		
Chloroform	0.4	u		df	0.45	u		e	0.42	u		e	76	U		
1,1,1-Trichloroethane	**2.1**			f	0.45	u		e	0.42	u		e	68	U		
Carbon tetrachloride	0.4	u		df	0.45	u		e	0.42	u		e	59	U		
Benzene	**0.84**			f	1.4			f	0.81			f	120	U		
1,2-Dichloroethane	0.4	u		df	0.45	u		e	0.42	u		e	91	U		
Trichloroethene	1.2	u		ef	1.3				1.1				69	U		
Bromodichloromethane	NR				NR				NR				55	U		
1,2-Dichloropropane	0.4	u		df	0.45	u		e	0.42	u		e	82	U		G
cis-1,3-Dichloropropene	0.4	u		df	0.45	u		e	0.42	u		e	82	U		
Toluene	**1.1**			cf	1.3			d	1.6			d	98	U		
trans-1,3-Dichloropropene	0.4	u		df	0.45	u		e	0.42	u		e	82	U		
1,1,2-Trichloroethane	0.4	u		df	0.71	u		h	0.42	u		h	68	U		
Dibromochloromethane	NR				NR				NR				43	U		
4-Methyl-2-Pentanone	NR				NR				NR				450	u		
Tetrachloroethene	**6.6**		j	af	18		j	c	15		j	c	55	U		
1,3-Dichloropropane	NR				NR				NR				80	U		
2-Hexanone	NR				NR				NR				450	u		
1,2-Dibromoethane (EDB)	0.4	u		df	0.45	u		e	0.42	u		e	48	U		
Chlorobenzene	0.4	u		df	0.45	u		e	0.42	u		e	80	U		
Ethylbenzene	2	u		df	2.3	u		e	2.1	u		e	85	U		
m- & p- Xylene(s)	4	u		df	4.5	u		e	4.2	u		e	170	U		
o-Xylene	2	u		df	2.3	u		e	2.1	u		e	85	U		
Styrene	2	u		df	2.3	u		e	2.1	u		e	87	U		
Bromoform	NR				NR				NR				36	U		
1,1,2,2-Tetrachloroethane	0.4	u		d	0.45	u		e	0.42	u		e	54	U		
1,3,5-Trimethylbenzene	2	u		d	2.3	u		e	2.1	u		e	NR			
1,2,4-Trimethylbenzene	2	u		d	2.3	u		e	2.1	u		e	NR			
1,2,3-Trichloropropane	NR				NR				NR				61	U		
1,3-Dichlorobenzene	0.4	u		d	0.45	u		e	0.42	u		e	62	U		
1,4-Dichlorobenzene	0.4	u		d	0.92		j	cdf	0.45		j	cdf	62	U		
1,2-Dichlorobenzene	0.4	u		d	0.45	u		e	0.42	u		e	62	U		
1,2-Dibromo-3-chloropropane	NR				NR				NR				38	U		

Table A-1
Soil Gas Results from Vapor Wells
Waste Disposal Inc. Site

Vapor Well ID	VW12				VW12				VW12(2)				VW13			
Sample Date	8/14/97				9/15/97				9/15/97				7/31/97			
Screen Interval	4-34				4-34				4-34							
Field Methane (%)	0.1				0				0				0.6			
Field PID VOCs (ppm)	4				0.3				0.3				8.1			
Lab Methane (ppm)					12	u		a								
Lab Non-CH4 VOCs (ppm)					30											
Laboratory	EPA FASP				Quanterra				EPA Reg 9				Quanterra			
Laboratory Parameter	Result	Qual	Val	Com	Result	Qual	Val	Com	Result	Qual	Val	Com	Result	Qual	Val	Com
	(ppbv)				(ppbv)				(ppbv)				(ppbv)			
					Sample not analyzed for VOCs by Quanterra											
Dichlorodifluoromethane	74	U							75	U			5.8	u		f
Chloromethane	180	U							180	U			2.3	u		f
Vinyl Chloride	140	U							140	U			**15.0**			
1,2-Dichloro-1,1,2,2- tetrachlorofluoroethane	NR								NR				5.8	u		df
Bromomethane	94	U							95	U			5.8	u		f
Chloroethane	140	U	UJ	F					140	U	UJ	F	5.8	u		f
1,1-Dichloroethene	93	U							93	U			**12.0**			
Trichlorofluoromethane	65	U							66	U			5.8	u		f
1,1,2-Trichloro-1,2,2- trifluoroethane	NR								NR				5.8	u		f
Acetone	510	jb							780	u			NR			
Carbon Disulfide	120	U							120	U			NR			
Methylene chloride	110	U							100	U			1.2	u		f
trans-1,2-Dichloroethene	93	U							93	U			**10.0**			
1,1-Dichloroethane	91	U							91	U			1.2	u		f
cis-1,2-Dichloroethene	93	U							93	U			**110.0**			
2-Butanone	620	u							630	u			NR			
Chloroform	75	U							76	U			1.2	u		f
1,1,1-Trichloroethane	67	U							68	U			1.2	u		f
Carbon tetrachloride	58	U							59	U			1.2	u		f
Benzene	110	U							120	U			**3.0**			
1,2-Dichloroethane	91	U							91	U			1.2	u		f
Trichloroethene	68	U							69	U			**27.0**			
Bromodichloromethane	55	U							55	U			NR			
1,2-Dichloropropane	81	U		H					80	U		J	1.2	u		f
cis-1,3-Dichloropropene	81	U							81	U			1.2	u		f
Toluene	97	U							98	U			**4.9**			d
trans-1,3-Dichloropropene	81	U							81	U			1.2	u		f
1,1,2-Trichloroethane	67	U							68	U			1.2	u		f
Dibromochloromethane	43	U							43	U			NR			
4-Methyl-2-Pentanone	NR								450	u			NR			
Tetrachloroethene	**32**	K	J	K					54	U			1.2	u		f
1,3-Dichloropropane	79	U							80	U			NR			
2-Hexanone	NR								450	u			NR			
1,2-Dibromoethane (EDB)	48	U							48	U			1.2	u		f
Chlorobenzene	80	U							80	U			1.2	u		f
Ethylbenzene	85	U							85	U			5.8	u		f
m- & p- Xylene(s)	170	U							170	U			12.0	u		f
o-Xylene	85	U							85	U			5.8	u		f
Styrene	86	U							87	U			5.8	u		f
Bromoform	35	U							36	U			NR			
1,1,2,2-Tetrachloroethane	53	U							54	U			1.2	u		f
1,3,5-Trimethylbenzene	NR								NR				5.8	u		f
1,2,4-Trimethylbenzene	NR								NR				5.8	u		f
1,2,3-Trichloropropane	61	U							61	UU			NR			
1,3-Dichlorobenzene	61	U							61	U			1.2	u		f
1,4-Dichlorobenzene	61	U							61	U			1.2	u		f
1,2-Dichlorobenzene	61	U							61	U			1.2	u		f
1,2-Dibromo-3-chloropropane	38	U							38	U			NR			

Table A-1
Soil Gas Results from Vapor Wells
Waste Disposal Inc. Site

Vapor Well ID	VW13				VW13(2)				VW13(3)				VW14			
Sample Date	9/15/97				9/15/97				9/15/97				8/7/97			
Screen Interval																
Field Methane (%)	0				0				0				1.7			
Field PID VOCs (ppm)	0.3				0.3				0.3				45.5			
Lab Methane (ppm)	53												1.1			
Lab Non-CH4 VOCs (ppm)	45															
Laboratory	Quanterra				EPA Reg 9				EPA Reg 9				EPA FASP			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
	Sample not analyzed for VOCs by Quanterra															
Dichlorodifluoromethane					75	U			75	U			74	U		
Chloromethane					180	U			180	U			180	U		
Vinyl Chloride					140	U			140	U			**140**	U		
1,2-Dichloro-1,1,2,2- tetrachlorofluoroethane					NR				NR				NR			
Bromomethane					95	U			95	U			95	U		
Chloroethane					140	U	UJ	J	140	U	UJ	F	140	U		
1,1-Dichloroethene					93	U			93	U			**93**	U		
Trichlorofluoromethane					66	U			66	U			65	U		
1,1,2-Trichloro-1,2,2- trifluoroethane					NR				NR				NR			
Acetone					430	jb			690	jb			**6414**	b		
Carbon Disulfide					120	U			120	U			**120**	U		
Methylene chloride					110	U			110	U			110	U		
trans-1,2-Dichloroethene					93	U			93	U			**93**	U		
1,1-Dichloroethane					91	U			91	U			79	L	J	AJ
cis-1,2-Dichloroethene					93	U			93	U			93	U		
2-Butanone					630	u			630	u			NR			
Chloroform					76	U			76	U			**75**	U		
1,1,1-Trichloroethane					68	U			68	U			67	U		
Carbon tetrachloride					59	U			59	U			58	U		
Benzene					120	U			120	U			100	L	J	J
1,2-Dichloroethane					91	U			91	U			**91**	U		
Trichloroethene					69	U			69	U			**68**	U		
Bromodichloromethane					55	U			55	U			**55**	U		
1,2-Dichloropropane					80	U			80	U		J	**79**	L	J	IJ
cis-1,3-Dichloropropene					81	U			81	U			81	U		
Toluene					98	U			98	U			97	U		
trans-1,3-Dichloropropene					81	U			81	U			81	U		
1,1,2-Trichloroethane					68	U			68	U			67	U		
Dibromochloromethane					43	U			43	U			43	U		
4-Methyl-2-Pentanone					450	u			450	u			NR			
Tetrachloroethene					54	U			54	U			**54**	U		
1,3-Dichloropropane					80	U		J	80	U			79	U		
2-Hexanone					450	u			450	u			NR			
1,2-Dibromoethane (EDB)					48	U			48	U			48	U		
Chlorobenzene					80	U			80	U			**80**	U		
Ethylbenzene					85	U			85	U			**850**			
m- & p- Xylene(s)					170	U			170	U			**1500**			
o-Xylene					85	U			85	U			85	U		
Styrene					87	U			87	U			**86**	U		
Bromoform					36	U			36	U			36	U		
1,1,2,2-Tetrachloroethane					54	U			54	U			54	U		
1,3,5-Trimethylbenzene					NR				NR				61	u		
1,2,4-Trimethylbenzene					NR				NR				NR			
1,2,3-Trichloropropane					61	U			61	U			61	U		
1,3-Dichlorobenzene					61	U			61	U			120	U		
1,4-Dichlorobenzene					61	U			61	U			61	U		
1,2-Dichlorobenzene					61	U			61	U			**61**	U		
1,2-Dibromo-3-chloropropane					38	U			38	U			38	U		

Table A-1
Soil Gas Results from Vapor Wells
Waste Disposal Inc. Site

Vapor Well ID	VW14				VW14(2)				VW15				VW16			
Sample Date	9/17/97				9/17/97				Surface				8/6/97			
Screen Interval																
Field Methane (%)	0.1				0.1				Not Servicable				0			
Field PID VOCs (ppm)	9.1				9.1								23			
Lab Methane (ppm)	150															
Lab Non-CH4 VOCs (ppm)	240															
Laboratory	Quanterra				EPA Reg 9								EPA FASP			
Laboratory Parameter	Result	Qual	Val	Com	Result	Qual	Val	Com	Result	Qual	Val	Com	Result	Qual	Val	Com
	(ppbv)				(ppbv)				(ppbv)				(ppbv)			
Dichlorodifluoromethane	17	u		h	75	U							74			
Chloromethane	6.7	u		h	180	U							180	U	UJ	F
Vinyl Chloride	3.4	u		h	140	U							140	U	UJ	F
1,2-Dichloro-1,1,2,2- tetrachlorofluoroethane	17	u		h	NR								NR			
Bromomethane	17	u		h	95	U							95	U	UJ	F
Chloroethane	17	u		eh	140	U							140	U		
1,1-Dichloroethene	3.4	u		h	93	U							93	U		
Trichlorofluoromethane	17	u		h	66	U							65	U		
1,1,2-Trichloro-1,2,2- trifluoroethane	17	u		h	NR								NR			
Acetone	NR				520	jb							**1994**	b		
Carbon Disulfide	NR				120	U							**120**	U		
Methylene chloride	9.4			eg	110	U							110	U		
trans-1,2-Dichloroethene	3.4	u		eh	93	U							93	U		
1,1-Dichloroethane	51				91	U							91	U		
cis-1,2-Dichloroethene	5.1				93	U							93	U		
2-Butanone	NR				630	u							NR			
Chloroform	3.4	u		h	76	U							75	U		
1,1,1-Trichloroethane	3.4	u		h	68	U							67	U		
Carbon tetrachloride	3.4	u		h	59	U							58	U		
Benzene	9.3				120	U							120	U		
1,2-Dichloroethane	3.4	u		h	91	U							91	U		
Trichloroethene	10				69	U							**370**			
Bromodichloromethane	NR				55	U							55	U		
1,2-Dichloropropane	130				82	U		G					80	L	J	IJ
cis-1,3-Dichloropropene	3.4	u		h	82	U							81	U		
Toluene	6.8				98	U							98	U		
trans-1,3-Dichloropropene	3.4	u		h	82	U							81	U		
1,1,2-Trichloroethane	3.4	u		h	68	U							67	U		
Dibromochloromethane	NR				43	U							43	U		
4-Methyl-2-Pentanone	NR				450	u							NR			
Tetrachloroethene	16			e	55	U							54	U		
1,3-Dichloropropane	NR				80	U							80	U		
2-Hexanone	NR				450	u							NR			
1,2-Dibromoethane (EDB)	3.4	u		h	48	U							48	U		
Chlorobenzene	3.4	u		h	80	U							80	U		
Ethylbenzene	30				85	U							85	U		
m- & p- Xylene(s)	140				170	U							85	U		
o-Xylene	17	u		eh	85	U							85	U		
Styrene	17	u		h	87	U							86	U		
Bromoform	NR				36	U							36	U		
1,1,2,2-Tetrachloroethane	3.4	u		h	54	U							54	U		
1,3,5-Trimethylbenzene	640				NR								61	u		
1,2,4-Trimethylbenzene	140				NR								NR			
1,2,3-Trichloropropane	NR				61	U							61	U		
1,3-Dichlorobenzene	3.4	u			62	U							120	U		
1,4-Dichlorobenzene	3.4	u		h	62	U							61	U		
1,2-Dichlorobenzene	4			h	62	U							61	U		
1,2-Dibromo-3-chloropropane	NR				38	U							38	U		

Table A-1
Soil Gas Results from Vapor Wells
Waste Disposal Inc. Site

Vapor Well ID	VW16				VW16				VW16(2)				VW17			
Sample Date	8/6/97				9/17/97				9/17/97				8/4/97			
Screen Interval																
Field Methane (%)	0				0				0				0			
Field PID VOCs (ppm)	23				0.5				0.5				3			
Lab Methane (ppm)					3.4	u		h								
Lab Non-CH4 VOCs (ppm)					17	u		h								
Laboratory	Quanterra				Quanterra				EPA Reg 9				Quanterra			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	**1.1**				8.4	u		h	75	U			1.4	u		
Chloromethane	0.4	u			3.4	u		h	180	U			0.4	u		
Vinyl Chloride	**0.21**				1.7	u		h	140	U			0.2	u		
1,2-Dichloro-1,1,2,2- tetrachlorofluoroethane	1.0	u			8.4	u		h	NR				1	u		
Bromomethane	1.0	u			8.4	u		h	95	U			1	u		
Chloroethane	1.0	u			8.4	u		h	140	U			1	u		
1,1-Dichloroethene	**15.0**				7				93	U			**2.8**			
Trichlorofluoromethane	**4.6**				8.4	u		h	66	U			**2.9**			
1,1,2-Trichloro-1,2,2- trifluoroethane	1.0	u			8.4	u		h	NR				1	u		
Acetone	NR				NR				780	u			NR			
Carbon Disulfide	NR				NR				120	U			NR			
Methylene chloride	**0.32**				1.8			eg	110	U			0.42	u		bc
trans-1,2-Dichloroethene	0.2	u			1.7	u		h	93	U			0.2	u		
1,1-Dichloroethane	**2.8**				1.7	u		h	91	U			0.2	u		
cis-1,2-Dichloroethene	**0.25**				1.7	u		h	93	U			**0.2**			
2-Butanone	NR				NR				630	u			NR			
Chloroform	**4.3**				2.8			e	76	U			**0.44**			
1,1,1-Trichloroethane	**18.0**				13				68	U			**270**			
Carbon tetrachloride	0.2	u			1.7	u		h	59	U			0.2	u		
Benzene	**0.31**				1.7	u		h	120	U			**0.23**			
1,2-Dichloroethane	0.2	u			1.7	u		h	91	U			0.2	u		
Trichloroethene	**160.0**	e			220				190				**8.4**			
Bromodichloromethane	NR				NR				55	U			NR			
1,2-Dichloropropane	0.2	u			1.7	u		h	82	U	G		0.2	u		
cis-1,3-Dichloropropene	0.2	u			1.7	u		h	82	U			0.2	u		
Toluene	**4.4**				2.5	u		h	98	U			**2.9**			
trans-1,3-Dichloropropene	0.2	u			1.7	u		h	82	U			0.2	u		
1,1,2-Trichloroethane	0.2	u			1.7	u		h	68	U			0.2	u		
Dibromochloromethane	NR				NR				43	U			NR			
4-Methyl-2-Pentanone	NR				NR				450	u			NR			
Tetrachloroethene	**6.2**				5			e	55	U			**21**			
1,3-Dichloropropane	NR				NR				80	U			NR			
2-Hexanone	NR				NR				450	u			NR			
1,2-Dibromoethane (EDB)	0.2	u			1.7	u		h	48	U			0.2	u		
Chlorobenzene	0.2	u			1.7	u		h	80	U			0.2	u		
Ethylbenzene	1.0	u			8.4	u		h	85	U			1	u		
m- & p- Xylene(s)	2.0	u			17	u		h	170	U			2	u		
o-Xylene	1.0	u			8.4	u		h	85	U			1	u		
Styrene	1.0	u			8.4	u		h	87	U			1	u		
Bromoform	NR				NR				36	U			NR			
1,1,2,2-Tetrachloroethane	0.2	u			1.7	u		h	54	U			0.2	u		
1,3,5-Trimethylbenzene	1.0	u			8.4	u		h	NR				1	u		
1,2,4-Trimethylbenzene	1.0	u			8.4	u		eh	NR				1	u		
1,2,3-Trichloropropane	NR				NR				61	U			NR			
1,3-Dichlorobenzene	0.2	u			1.7	u		h	62	U			0.2	u		
1,4-Dichlorobenzene	0.2	u			1.7	u		h	62	U			0.2	u		
1,2-Dichlorobenzene	0.2	u			1.7	u		h	62	U			**0.92**			
1,2-Dibromo-3-chloropropane	NR				NR				38	U			NR			

Table A-1
Soil Gas Results from Vapor Wells
Waste Disposal Inc. Site

Vapor Well ID	VW17				VW17(2)				VW18				VW18			
Sample Date	9/15/97				9/15/97				8/4/97				9/16/97			
Screen Interval																
Field Methane (%)	0				0				0.3				1.4			
Field PID VOCs (ppm)	0				0				97				45.3			
Lab Methane (ppm)	6.9	u	j	alt					34	u						
Lab Non-CH4 VOCs (ppm)	29								1800							
Laboratory	Quanterra				EPA Reg 9				Quanterra				Quanterra			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	8.7	u	j	cf	75	U			42	u		df	840	u		e
Chloromethane	3.5	u		f	180	U			17	u		df	340	u		e
Vinyl Chloride	1.7	u		f	140	U			8.4	u		df	170	u		e
1,2-Dichloro-1,1,2,2- tetrachlorofluoroethane	8.7	u		f	NR				42	u		df	840	u		e
Bromomethane	8.7	u		f	95	U			42	u		df	840	u		e
Chloroethane	8.7	u		f	140	U	UJ	F	42	u		df	840	u		e
1,1-Dichloroethene	3.4				93	U			8.4	u		df	170	u		e
Trichlorofluoromethane	8.7	u		f	66	U			42	u		df	840	u		e
1,1,2-Trichloro-1,2,2- trifluoroethane	8.7	u		f	NR				42	u		df	840	u		e
Acetone	NR				350	jb			NR				NR			
Carbon Disulfide	NR				120	U			NR				NR			
Methylene chloride	2	u	j	ce	110	U			320	u		ef	230		j	a
trans-1,2-Dichloroethene	1.7	u		f	93	U			8.4	u		df	170	u		e
1,1-Dichloroethane	1.7	u		f	91	U			8.4	u		df	170	u		e
cis-1,2-Dichloroethene	1.7	u		f	93	U			8.4	u		df	170	u		e
2-Butanone	NR				630	u			NR				NR			
Chloroform	1.7	u		f	76	U			8.4	u		df	820			
1,1,1-Trichloroethane	290				200				**34**		j	af	170	u		e
Carbon tetrachloride	1.7	u		f	59	U			8.4	u		df	170	u		e
Benzene	4.4			d	120	U			**170**			f	400			
1,2-Dichloroethane	1.7	u		f	91	U			**26**			f	170	u		e
Trichloroethene	8.4			d	69	U			8.4	u		df	170	u		e
Bromodichloromethane	NR				55	U			NR				NR			
1,2-Dichloropropane	1.7	u		f	80	U		J	240	u		ef	170	u		e
cis-1,3-Dichloropropene	1.7	u		f	81	U			8.4	u		df	170	u		e
Toluene	2.6	u		f	98	U			**23**			cf	350		j	a
trans-1,3-Dichloropropene	1.7	u		f	81	U			8.4	u		df	170	u		e
1,1,2-Trichloroethane	1.7	u		f	68	U			8.4	u		df	170	u		e
Dibromochloromethane	NR				43	U			NR				NR			
4-Methyl-2-Pentanone	NR				450	u			NR				NR			
Tetrachloroethene	23	u			54	U			**8.7**			f	170	u		e
1,3-Dichloropropane	NR				80	U			NR				NR			
2-Hexanone	NR				450	u			NR				NR			
1,2-Dibromoethane (EDB)	1.7	u		f	48	U			8.4	u		df	170	u		e
Chlorobenzene	1.7	u		f	80	U			8.4	u		df	170	u		e
Ethylbenzene	8.7	u		f	85	U			**52**			f	840	u		e
m- & p- Xylene(s)	17	u		f	170	U			**140**			f	1700	u		e
o-Xylene	8.7	u		f	85	U			42	u		df	840	u		e
Styrene	8.7	u		f	87	U			42	u		df	840	u		e
Bromoform	NR				36	U			NR				NR			
1,1,2,2-Tetrachloroethane	1.7	u		f	54	U			8.4	u		df	170	u		e
1,3,5-Trimethylbenzene	8.7	u		f	NR				**46**			f	840	u		e
1,2,4-Trimethylbenzene	8.7	u		f	NR				**48**			f	840	u		e
1,2,3-Trichloropropane	NR				61	U			NR				NR			
1,3-Dichlorobenzene	1.7	u		f	61	U			8.4	u		df	170	u		e
1,4-Dichlorobenzene	1.7	u		f	61	U			8.4	u		df	170	u		e
1,2-Dichlorobenzene	1.7	u		f	61	U			8.4	u		df	170	u		e
1,2-Dibromo-3-chloropropane	NR				38	U			NR				NR			

Table A-1
Soil Gas Results from Vapor Wells
Waste Disposal Inc. Site

Vapor Well ID	VW18(2)				VW20				VW20				VW20(2)			
Sample Date	9/16/97				8/7/97				9/17/97				9/17/97			
Screen Interval																
Field Methane (%)	1.4				0				0				0			
Field PID VOCs (ppm)	45.3				12.5				0				0			
Lab Methane (ppm)									3.4	u		h				
Lab Non-CH4 VOCs (ppm)									17	u		h				
Laboratory	EPA Reg.9				EPA FASP				Quanterra				EPA Reg 9			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	75	U			74	U			1		j	de	75	U		
Chloromethane	180	U			180	U			0.4	u	j	d	180	U		
Vinyl Chloride	140	U			140	U			0.2	u	j	d	140	U		
1,2-Dichloro-1,1,2,2- tetrachlorofluoroethane	NR				NR				1	u	j	d	NR			
Bromomethane	95	U			95	U			1	u	j	d	95	U		
Chloroethane	140	U			140	U			1	u	j	de	140	U		
1,1-Dichloroethene	93	U			93	U			0.2	u	j	d	93	U		
Trichlorofluoromethane	66	U			65	U			1	u	j	d	66	U		
1,1,2-Trichloro-1,2,2- trifluoroethane	NR				NR				1	u	j	d	NR			
Acetone	780	u			**940**	b			NR				810	b		
Carbon Disulfide	120	U			**120**	U			NR				120	U		
Methylene chloride	110	U			110	U			2.7		j	dg	110	U		
trans-1,2-Dichloroethene	93	U			93	U			0.2	u	j	de	93	U		
1,1-Dichloroethane	91	U			91	U			0.37		j	d	91	U		
cis-1,2-Dichloroethene	93	U			93	U			0.2	u	j	d	93	U		
2-Butanone	630	u			NR				NR				310	j		
Chloroform	76	U			75	U			0.2		j	d	76	U		
1,1,1-Trichloroethane	41	L	J	H	67	U			0.96		j	d	68	U		
Carbon tetrachloride	59	U			58	U			0.2	u	j	d	59	U		
Benzene	310				110	U			0.52				120	U		
1,2-Dichloroethane	91	U			91	U			0.2	u			91	U		
Trichloroethene	69	U			**36**	U			1.7				69	U		
Bromodichloromethane	55	U			55	U			NR				55	U		
1,2-Dichloropropane	82	U		G	79	L	J	IJ	0.25				82	U		G
cis-1,3-Dichloropropene	82	U			81	U			0.2	u			82	U		
Toluene	98	U			97	U	UJ	A	0.3	u			98	U		
trans-1,3-Dichloropropene	82	U			81	U			0.2	u			82	U		
1,1,2-Trichloroethane	68	U			67	U			0.2	u			68	U		
Dibromochloromethane	43	U			43	U			NR				43	U		
4-Methyl-2-Pentanone	450	u			NR				NR				450	u		
Tetrachloroethene	55	U			160		J	A	77				48	L		
1,3-Dichloropropane	80	U			79	U	UJ	A	NR				80	U		
2-Hexanone	450	u			NR				NR				450	u		
1,2-Dibromoethane (EDB)	48	U			48	U	UJ	A	0.2	u			48	U		
Chlorobenzene	80	U			80	U	UJ	A	0.2	u			80	U		
Ethylbenzene	55	L	J	H	85	U	UJ	A	1	u			85	U		
m- & p- Xylene(s)	130	L	J	H	85	U	UJ	A	2	u			170	U		
o-Xylene	85	U			85	U	UJ	A	1	u		e	85	U		
Styrene	87	U			86	U	UJ	A	1	u			87	U		
Bromoform	36	U			36	U			NR				36	U		
1,1,2,2-Tetrachloroethane	54	U			54	U	UJ	A	0.2	u			54	U		
1,3,5-Trimethylbenzene	NR				61	u			1.6			e	NR			
1,2,4-Trimethylbenzene	NR				NR				1	u		e	NR			
1,2,3-Trichloropropane	61	U			61	U	UJ	A	NR				61	U		
1,3-Dichlorobenzene	62	U			120	U	UJ	A	0.2	u			62	U		
1,4-Dichlorobenzene	62	U			61	U	UJ	A	0.2	u			62	U		
1,2-Dichlorobenzene	62	U			61	U	UJ	A	0.2	u			62	U		
1,2-Dibromo-3-chloropropane	38	U			38	U	UJ	A	NR				38	U		

Table A-1
Soil Gas Results from Vapor Wells
Waste Disposal Inc. Site

Vapor Well ID	VW21				VW21				VW21				VW21(2)			
Sample Date	8/6/97				8/6/97				9/18/97				9/18/97			
Screen Interval																
Field Methane (%)	0				0				0				0			
Field PID VOCs (ppm)	31.5				31.5				0				0			
Lab Methane (ppm)					35	u		c								
Lab Non-CH4 VOCs (ppm)					100	u		c								
Laboratory	EPA FASP				Quanterra				Quanterra				EPA Reg 9			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	74	U			17	u		c	240				74	u		
Chloromethane	180	U	UJ	F	7	u		c	56	u		c	180	u		
Vinyl Chloride	140	U	UJ	F	3.5	u		c	28	u		c	140	u		
1,2-Dichloro-1,1,2,2- tetrachlorofluoroethane	NR				17	u		c	140	u		c	NR			
Bromomethane	95	U	UJ	F	17	u		c	140	u		c	94	u		
Chloroethane	140	U			17	u		c	140	u		bc	140	u		
1,1-Dichloroethene	93	U			3.5	u		c	28	u		c	92	u		
Trichlorofluoromethane	65	U			17	u		c	860				65	u		
1,1,2-Trichloro-1,2,2- trifluoroethane	NR				17	u		c	140	u		c	NR			
Acetone	**1317**	b			NR				NR				470	jb		
Carbon Disulfide	**120**	U			NR				NR				120	u		
Methylene chloride	110	U			**3.5**			d	580		j	a	110	u		
trans-1,2-Dichloroethene	93	U			3.5	u		c	28	u		bc	92	u		
1,1-Dichloroethane	91	U			3.5	u		c	28	u		c	91	u		
cis-1,2-Dichloroethene	93	U			3.5	u		c	28	u		c	92	u		
2-Butanone	NR				NR				NR				620	u		
Chloroform	75	U			3.5	u		c	35				75	u		
1,1,1-Trichloroethane	67	UU			3.5	u		c	3100				67	u		
Carbon tetrachloride	58	U			3.5	u		c	28	u		c	58	u		
Benzene	120	U			3.5	u		c	170				110	u		
1,2-Dichloroethane	91	U			3.5	u		c	28	u		c	91	u		
Trichloroethene	**540**				**410**				29				320			
Bromodichloromethane	55	U			NR				NR				55	u		
1,2-Dichloropropane	80	L	J	IJ	3.5	u		c	28	u		c	81	u		
cis-1,3-Dichloropropene	81	U			3.5	u		c	28	u		c	81	u		
Toluene	98	U			5.2	u		c	1800			a	97	u		
trans-1,3-Dichloropropene	81	U			3.5	u		c	28	u		c	81	u		
1,1,2-Trichloroethane	67	U			3.5	u		c	28	u		c	67	u		
Dibromochloromethane	43	U			NR				NR				43	u		
4-Methyl-2-Pentanone	NR				NR				NR				450	u		
Tetrachloroethene	54	U			**27**				52			b	54	u		
1,3-Dichloropropane	80	U			NR				NR				79	u		
2-Hexanone	NR				NR				NR				450	u		
1,2-Dibromoethane (EDB)	48	U			3.5	u		c	28	u		c	48	u		
Chlorobenzene	80	U			3.5	u		c	40				80	u		
Ethylbenzene	85	U			17	u		c	140	u		c	84	u		
m- & p- Xylene(s)	85	U			35	u		c	510				170	u		
o-Xylene	85	U			17	u		c	150			b	84	u		
Styrene	86	U			17	u		c	140	u		c	86	u		
Bromoform	36	U			NR				NR				35	u		
1,1,2,2-Tetrachloroethane	54	U			3.5	u		c	28	u		c	53	u		
1,3,5-Trimethylbenzene	61	u			17	u		c	140	u		bc	NR			
1,2,4-Trimethylbenzene	NR				17	u		c	140			b	NR			
1,2,3-Trichloropropane	61	U			NR				NR				61	u		
1,3-Dichlorobenzene	120	U			3.5	u		c	28	u		c	61	u		
1,4-Dichlorobenzene	61	U			3.5	u		c	28	u		c	61	u		
1,2-Dichlorobenzene	61	U			3.5	u		c	28	u		c	61	u		
1,2-Dibromo-3-chloropropane	38	U			NR				NR				38	u		

Table A-1
Soil Gas Results from Vapor Wells
Waste Disposal Inc. Site

Vapor Well ID	VW22				VW22				VW22(2)				VW22(3)			
Sample Date	8/7/97				9/17/97				9/17/97				9/17/97			
Screen Interval																
Field Methane (%)	0				0				0				0			
Field PID VOCs (ppm)	20.1				1.1				1.1				1.1			
Lab Methane (ppm)					3.4	u		h	3.4	u		h				
Lab Non-CH4 VOCs (ppm)					21				24							
Laboratory	EPA FASP				Quanterra				Quanterra				EPA Reg 9			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	74	U			110	u		h	140	u		h	75	U		J
Chloromethane	**180**	U			42	u		h	56	u		h	180	U		J
Vinyl Chloride	**140**	U			21	u		h	28	u		h	140	U		J
1,2-Dichloro-1,1,2,2- tetrachfuoroethane	NR				110	u		h	140	u		h	NR			
Bromomethane	95	U			110	u		h	140	u		h	95	U		J
Chloroethane	140	U			110	u		eh	140	u		h	140	U		J
1,1-Dichloroethene	**93**	U			21	u		h	28	u		h	93	U		J
Trichlorofluoromethane	65	U			110	u		h	140	u		h	66	U		J
1,1,2-Trichloro-1,2,2- trifluoroethane	NR				110	u		h	140	u		h	NR			
Acetone	**1002**	b			NR				NR				780	u		
Carbon Disulfide	**120**	U			NR				NR				120	U		J
Methylene chloride	110	U			34		j	beh	48		j	be	110	U		J
trans-1,2-Dichloroethene	93	U			21	u		eh	28	u		h	93	U		J
1,1-Dichloroethane	91	U			21	u		h	28	u		h	91	U		J
cis-1,2-Dichloroethene	93	U			21	u		h	28	u		h	93	U		J
2-Butanone	NR				NR				NR				630	u		
Chloroform	75	U			21	u		h	28	u		h	76	U		J
1,1,1-Trichloroethane	67	U			21	u		h	28	u		h	68	U		J
Carbon tetrachloride	58	U			21	u		h	28	u		h	59	U		J
Benzene	110	U			21	u		h	28	u		h	810	LD	J	AHJ
1,2-Dichloroethane	91	U			21	u		h	28	u		h	94		J	AJ
Trichloroethene	**1800**				2200				2100				840	D	J	AJ
Bromodichloromethane	55	U			NR				NR				55	U		J
1,2-Dichloropropane	79	L	J	IJ	21	u		h	28	u		h	82	U		GJ
cis-1,3-Dichloropropene	81	U			21	u		h	28	u		h	82	U		J
Toluene	97	U			190		j	bh	80		j	b	98	U		J
trans-1,3-Dichloropropene	81	U			21	u		h	28	u		h	82	U		J
1,1,2-Trichloroethane	67	U			21	u		h	28	u		h	68	U		J
Dibromochloromethane	43	U			NR				NR				43	U		J
4-Methyl-2-Pentanone	NR				NR				NR				450	u		
Tetrachloroethene	**150**				160				140			e	550	UD		J
1,3-Dichloropropane	79	U			NR				NR				80	U		J
2-Hexanone	NR				NR				NR				450	u		
1,2-Dibromoethane (EDB)	48	U			21	u		h	28	u		h	48	U		J
Chlorobenzene	80	U			21	u		h	28	u		h	80	U		J
Ethylbenzene	85	U			110	u		h	140	u		h	850	UD		J
m- & p- Xylene(s)	85	U			210	u		h	280	u		h	1700	UD		J
o-Xylene	85	U			110	u		eh	140	u		h	85	U		J
Styrene	86	U			110	u		h	140	u		h	87	U		J
Bromoform	36	U			NR				NR				36	U		J
1,1,2,2-Tetrachloroethane	54	U			21	u		h	28	u		h	54	U		J
1,3,5-Trimethylbenzene	61	u			110	u		eh	140	u		h	NR			
1,2,4-Trimethylbenzene	NR				110	u		eh	140	u		eh	NR			
1,2,3-Trichloropropane	641	U			NR				NR				61	U		J
1,3-Dichlorobenzene	120	U			21	u		h	28	u		h	62	U		J
1,4-Dichlorobenzene	61	U			21	u		h	28	u		h	62	U		J
1,2-Dichlorobenzene	61	U			21	u		h	28	u		h	62	U		J
1,2-Dibromo-3-chloropropane	38	U			NR				NR				38	U		J

Table A-1
Soil Gas Results from Vapor Wells
Waste Disposal Inc. Site

Vapor Well ID	VW23				VW23				VW23				VW23(2)			
Sample Date	8/6/97				8/6/97				9/16/97				9/16/97			
Screen Interval																
Field Methane (%)	0.3				0.3				0.2				0.2			
Field PID VOCs (ppm)	37				37				0.4				0.4			
Lab Methane (ppm)									1700							
Lab Non-CH4 VOCs (ppm)									59							
Laboratory	EPA FASP				Quanterra				Quanterra				EPA Reg 9			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	74	U			42	u		c	8.4	u		e	75	U		
Chloromethane	180	U	UJ	F	17	u		c	3.4	u		e	180	U		
Vinyl Chloride	140	U	UJ	F	33				24				140	U		
1,2-Dichloro-1,1,2,2- tetrachfuoroethane	NR				42	u		c	8.4	u		e	NR			
Bromomethane	95	U	UJ	F	42	u		c	8.4	u		e	95	U		
Chloroethane	140	U			42	u		c	8.4	u		e	140	U		
1,1-Dichloroethene	60	L			35				35				93	U		
Trichlorofluoromethane	65	U			42	u		c	8.4	u		e	66	U		
1,1,2-Trichloro-1,2,2- trifluoroethane	NR				42	u		c	8.4	u		e	NR			
Acetone	2161	b			NR				NR				780	u		
Carbon Disulfide	120	U	J	J	NR				NR				120	U		
Methylene chloride	110	U			20	u		e	4	u		h	110	U		
trans-1,2-Dichloroethene	60	L	J	J	45				40				93	U		
1,1-Dichloroethane	91	U			25				19				91	U		
cis-1,2-Dichloroethene	170				140				140				79	L	J	H
2-Butanone	NR				NR				NR				630	u		
Chloroform	75	U			8.4	u		c	2.4			d	76	U		
1,1,1-Trichloroethane	67	U			8.4	u		c	1.7	u		e	68	U		
Carbon tetrachloride	58	U			8.4	u		c	1.7	u		e	59	U		
Benzene	120	U			8.4	u		c	5.7				120	U		
1,2-Dichloroethane	91	U			8.4	u		c	1.7	u		e	91	U		
Trichloroethene	1200				720				820				710			
Bromodichloromethane	55	U			NR				NR				55	U		
1,2-Dichloropropane	80	L	J	IJ	8.4	u		c	1.7	u		e	82	U	G	
cis-1,3-Dichloropropene	81	U			8.4	u		c	1.7	u		e	82	U		
Toluene	98	U			17			b	2.5	u		e	98	U		
trans-1,3-Dichloropropene	81	U			8.4	u		c	1.7	u		e	82	U		
1,1,2-Trichloroethane	67	U			8.4	u		c	1.7	u		e	68	U		
Dibromochloromethane	43	U			NR				NR				43	U		
4-Methyl-2-Pentanone	NR				NR				NR				450	u		
Tetrachloroethene	30	L	J	J	26				38				55	U		
1,3-Dichloropropane	80	U			NR				NR				80	U		
2-Hexanone	NR				NR				NR				450	u		
1,2-Dibromoethane (EDB)	48	U			8.4	u		c	1.7	u		e	48	U		
Chlorobenzene	80	U			8.4	u		c	1.7	u		e	80	U		
Ethylbenzene	85	U			42	u		c	8.4	u		e	85	U		
m- & p- Xylene(s)	85	U			84	u		c	17	u		e	170	U		
o-Xylene	85	U			42	u		c	8.4	u		e	85	U		
Styrene	86	U			42	u		c	8.4	u		e	87	U		
Bromoform	36	U			NR				NR				36	U		
1,1,2,2-Tetrachloroethane	54	U			8.4	u		c	1.7	u		e	54	U		
1,3,5-Trimethylbenzene	61	u			42	u		c	8.4	u		e	NR			
1,2,4-Trimethylbenzene	NR				42	u		c	8.4	u		de	NR			
1,2,3-Trichloropropane	61	U			NR				NR				61	U		
1,3-Dichlorobenzene	120	U			8.4	u		c	1.7	u		e	62	U		
1,4-Dichlorobenzene	61	U			8.4	u		c	1.7	u		e	62	U		
1,2-Dichlorobenzene	61	U			8.4	u		c	1.7	u		e	62	U		
1,2-Dibromo-3-chloropropane	38	U			NR				NR				38	U		

Table A-1
Soil Gas Results from Vapor Wells
Waste Disposal Inc. Site

Vapor Well ID	VW24				VW24				VW24(2)				VW24(3)			
Sample Date	8/5/97				9/18/97				9/18/97				9/18/97			
Screen Interval																
Field Methane (%)	0				0				0				0			
Field PID VOCs (ppm)	10.9				0				0				0			
Lab Methane (ppm)					3.4	u		c								
Lab Non-CH4 VOCs (ppm)					17	u		c								
Laboratory	EPA FASP				Quanterra				EPA Reg 9				EPA Reg 9			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	74	U			1	u			74	u			74	u		
Chloromethane	180	U			0.41				180	u			180	u		
Vinyl Chloride	140	U			0.2	u			140	u			140	u		
1,2-Dichloro-1,1,2,2- tetrachfuoroethane	NR				1	u			NR				NR			
Bromomethane	95	U			1	u			94	u			94	u		
Chloroethane	140	U			1	u		b	140	u			140	u		
1,1-Dichloroethene	93	U			0.2	u			92	u			92	u		
Trichlorofluoromethane	63	U			2				65	u			65	u		
1,1,2-Trichloro-1,2,2- trifluoroethane	NR				1	u			NR				NR			
Acetone	**2254**	b			NR				140	jb			770	u		
Carbon Disulfide	**120**	U			NR				120	u			120	u		
Methylene chloride	110	U			0.53			bd	110	u			110	u		
trans-1,2-Dichloroethene	**93**	U			0.2	u		bd	92	u			92	u		
1,1-Dichloroethane	91	U			0.2	u			91	u			91	u		
cis-1,2-Dichloroethene	93	U			0.2	u			92	u			92	u		
2-Butanone	**315**	j			NR				620	u			620	u		
Chloroform	75	U			0.36				75	u			75	u		
1,1,1-Trichloroethane	67	U			0.36				67	u			67	u		
Carbon tetrachloride	58	U			0.2	u			58	u			58	u		
Benzene	120	U			3.3				34	j			110	u		
1,2-Dichloroethane	91	U			0.2	u			91	u			91	u		
Trichloroethene	68	U			5.8				68	u			68	u		
Bromodichloromethane	55	U			NR				55	u			55	u		
1,2-Dichloropropane	80	L	J	IJ	0.2	u			81	u			81	u		
cis-1,3-Dichloropropene	81	U			0.2	u			81	u			81	u		
Toluene	98	U	UJ	A	1.4				97	u			97	u		
trans-1,3-Dichloropropene	81	U			0.2	u			81	u			81	u		
1,1,2-Trichloroethane	67	U			0.2	u			67	u			67	u		
Dibromochloromethane	43	U			NR				43	u			43	u		
4-Methyl-2-Pentanone	NR				NR				450	u			450	u		
Tetrachloroethene	**54**	U	UJ	A	9.1				54	u			54	u		
1,3-Dichloropropane	80	U	UJ	A	NR				79	u			79	u		
2-Hexanone	NR				NR				450	u			450	u		
1,2-Dibromoethane (EDB)	**30**	U	J	AJ	0.2	u			48	u			48	u		
Chlorobenzene	**80**	U	UJ	A	0.2	u			80	u			80	u		
Ethylbenzene	85	U	UJ	A	1	u			84	u			84	u		
m- & p- Xylene(s)	85	U	UJ	A	2	u			170	u			170	u		
o-Xylene	85	U	UJ	A	1	u		b	84	u			84	u		
Styrene	86	U	UJ	A	1	u			86	u			86	u		
Bromoform	36	U			NR				35	u			35	u		
1,1,2,2-Tetrachloroethane	54	U	UJ	A	0.2	u			53	u			53	u		
1,3,5-Trimethylbenzene	61	u			1	u		b	NR				NR			
1,2,4-Trimethylbenzene	NR				1	u		b	NR				NR			
1,2,3-Trichloropropane	61	U	UJ	A	NR				61	u			61	u		
1,3-Dichlorobenzene	120	U	UJ	A	0.2	u			61	u			61	u		
1,4-Dichlorobenzene	61	U	UJ	A	0.2	u			61	u			61	u		
1,2-Dichlorobenzene	61	U	UJ	A	0.2	u			61	u			61	u		
1,2-Dibromo-3-chloropropane	38	U	UJ	A	NR				38	u			38	u		

Table A-1
Soil Gas Results from Vapor Wells
Waste Disposal Inc. Site

Vapor Well ID	VW25				VW25				VW25(2)				VW26			
Sample Date	7/31/97				9/15/97				9/15/97				7/31/97			
Screen Interval																
Field Methane (%)	50				41.3				41.3				0			
Field PID VOCs (ppm)	23.9				50				50				39.9			
Lab Methane (ppm)	360000			c	200000		g						35	u		f
Lab Non-CH4 VOCs (ppm)	5200				5400								100	u		f
Laboratory	Quanterra				Quanterra				EPA Reg 9				Quanterra			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
					Sample not analyzed for VOCs by Quanterra											
Dichlorodifluoromethane	90	u		f					75	U			6.2	u		f
Chloromethane	36	u		f					180	U			2.5	u		f
Vinyl Chloride	18	u		df					140	U			1.2	u		f
1,2-Dichloro-1,1,2,2- tetrachfuoroethane	90	u		df					NR				6.2	u		f
Bromomethane	90	u		f					95	U			6.2	u		f
Chloroethane	90	u		f					140	U	UJ	F	6.2	u		f
1,1-Dichloroethene	18	u		f					93	U			1.2	u		f
Trichlorofluoromethane	90	u		f					66	U			6.2	u		f
1,1,2-Trichloro-1,2,2- trifluoroethane	90	u		f					NR				6.2	u		f
Acetone	NR								780	u			NR			
Carbon Disulfide	NR								120	U			NR			
Methylene chloride	35	u		f					10	U			1.2	u		f
trans-1,2-Dichloroethene	18	u		f					93	U			1.2	u		f
1,1-Dichloroethane	18	u		f					91	U			**3.0**			
cis-1,2-Dichloroethene	18	u		f					93	U			**89.0**			
2-Butanone	NR								630	u			NR			
Chloroform	18	u		f					76	U			1.2	u		f
1,1,1-Trichloroethane	18	u		f					68	U			**1.8**			
Carbon tetrachloride	18	u		f					59	U			1.2	u		f
Benzene	18	u	j	b					120	U			1.2	u		f
1,2-Dichloroethane	18	u		f					91	U			1.2	u		f
Trichloroethene	18	u		f					69	U			**110.0**			
Bromodichloromethane	NR								55	U			NR			
1,2-Dichloropropane	18	u		f					80	U		J	1.2	u		f
cis-1,3-Dichloropropene	18	u		f					81	U			1.2	u		f
Toluene	**32**		j	bd					98	U			1.9	u		f
trans-1,3-Dichloropropene	27	u		e					81	U			1.2	u		f
1,1,2-Trichloroethane	18	u		f					68	U			1.2	u		f
Dibromochloromethane	NR								43	U			NR			
4-Methyl-2-Pentanone	NR								450	u			NR			
Tetrachloroethene	18	u		f					54	U			**21.0**			
1,3-Dichloropropane	NR								80	U			NR			
2-Hexanone	NR								450	u			NR			
1,2-Dibromoethane (EDB)	18	u		f					48	U			1.2	u		f
Chlorobenzene	18	u		f					80	U			1.2	u		f
Ethylbenzene	90	u	j	a					74	L	J	Al	6.2	u		f
m- & p- Xylene(s)	190	u	j	b					170	U			12.0	u		f
o-Xylene	90	u	j	b					85	U			6.2	u		f
Styrene	90	u		f					87	U			6.2	u		f
Bromoform	NR								36	U			NR			
1,1,2,2-Tetrachloroethane	18	u		f					54	U			1.2	u		f
1,3,5-Trimethylbenzene	90	u		f					NR				6.2	u		f
1,2,4-Trimethylbenzene	90	u		f					NR				6.2	u		f
1,2,3-Trichloropropane	NR								61	u			NR			
1,3-Dichlorobenzene	18	u		f					61	U			1.2	u		f
1,4-Dichlorobenzene	18	u		f					61	U			1.2	u		f
1,2-Dichlorobenzene	18	u		f					61	U			1.2	u		f
1,2-Dibromo-3-chloropropane	NR								38	U			NR			

Table A-1
Soil Gas Results from Vapor Wells
Waste Disposal Inc. Site

Vapor Well ID	VW26				VW26(2)				MP-1-05				MP-1-05			
Sample Date	9/15/97				9/15/97				8/7/97				9/17/97			
Screen Interval									3-5				3-5			
Field Methane (%)	0.2				0.2				0				0.2			
Field PID VOCs (ppm)	2.3				2.3				16.5				4.7			
Lab Methane (ppm)	35		nj	b									48			
Lab Non-CH4 VOCs (ppm)	52												17	u		h
Laboratory	Quanterra				EPA Reg 9				EPA FASP				Quanterra			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
	Sample not analyzed for VOCs by Quanterra															
Dichlorodifluoromethane					75	U			74	U			1	u	j	a
Chloromethane					180	U			180	U			0.4	u	j	a
Vinyl Chloride					140	U			140	U			0.2	u	j	a
1,2-Dichloro-1,1,2,2- tetrachfuoroethane					NR				NR				1	u	j	a
Bromomethane					95	U			95	U			1	u	j	a
Chloroethane					140	U	UJ	F	140	U			1	u	j	a
1,1-Dichloroethene					93	U			93	U			0.2	u	j	a
Trichlorofluoromethane					66	U			65	U			4		j	a
1,1,2-Trichloro-1,2,2- trifluoroethane					NR				NR				1	u	j	a
Acetone					610	jb			**894**	b			NR			
Carbon Disulfide					120	U			**120**	U			NR			
Methylene chloride					110	U			110	U			0.2	u	j	ac
trans-1,2-Dichloroethene					93	U			93	U			0.2	u	j	a
1,1-Dichloroethane					91	U			91	U			0.33		j	a
cis-1,2-Dichloroethene					56	L	J	I	93	U			0.2	u	j	a
2-Butanone					630	u			623	u			NR			
Chloroform					76	U			75	U			0.25		j	a
1,1,1-Trichloroethane					68	U			67	U			32		j	a
Carbon tetrachloride					59	U			58	U			0.2	u	j	ae
Benzene					120	U			110	U			5.1		j	a
1,2-Dichloroethane					91	U			91	U			0.2	u	j	a
Trichloroethene					74				68	U			2.3		j	a
Bromodichloromethane					55	U			55	U			NR			
1,2-Dichloropropane					80	U		J	79	L	J	IJ	1.3	u	j	af
cis-1,3-Dichloropropene					81	U			81	U			0.2	u	j	a
Toluene					98	U			97	U			0.54		j	a
trans-1,3-Dichloropropene					81	U			81	U			0.2	u	j	a
1,1,2-Trichloroethane					68	U			67	U			0.2	u	j	a
Dibromochloromethane					43	U			43	U			NR			
4-Methyl-2-Pentanone					450	u			NR				NR			
Tetrachloroethene					54	u			54	U			9.4		j	a
1,3-Dichloropropane					80	U			79	U			NR			
2-Hexanone					450	u			NR				NR			
1,2-Dibromoethane (EDB)					48	U			48	U			0.2	u	j	a
Chlorobenzene					80	U			80	U			0.2	u	j	a
Ethylbenzene					85	U			85	U			2.8		j	a
m- & p- Xylene(s)					170	U			85	U			26		j	a
o-Xylene					85	U			85	U			4		j	ae
Styrene					87	U			86	U			1	u	j	ae
Bromoform					36	U			36	U			NR			
1,1,2,2-Tetrachloroethane					54	U			54	U			0.2	u	j	a
1,3,5-Trimethylbenzene					NR				61	u			3.3		j	a
1,2,4-Trimethylbenzene					NR				NR				7.8		j	a
1,2,3-Trichloropropane					61	U			61	U			NR			
1,3-Dichlorobenzene					61	U			120	U			0.2	u	j	a
1,4-Dichlorobenzene					61	U			61	U			0.2	u	j	a
1,2-Dichlorobenzene					61	U			61	U			0.2	u	j	a
1,2-Dibromo-3-chloropropane					38	U			38	U			NR			

Table A-1
Soil Gas Results from Vapor Wells
Waste Disposal Inc. Site

Vapor Well ID	MP-1-05(2)				MP-1-15				MP-2-05				MP-2-05			
Sample Date	9/17/97				8/7/97				8/7/97				9/17/97			
Screen Interval	3-5				10-15				3-5				3-5			
Field Methane (%)	0.2				7.9				0.1				0.1			
Field PID VOCs (ppm)	4.7				40.3				43.5				15			
Lab Methane (ppm)													3.4	u		h
Lab Non-CH4 VOCs (ppm)													19			
Laboratory	EPA Reg 9				EPA FASP				EPA FASP				Quanterra			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	75	U			74	U			74	U			8.4	u		h
Chloromethane	180	U			**180**	U	UJ	F	**180**	U	UJ	F	3.4	u		h
Vinyl Chloride	140	U			**140**	U	UJ	F	**140**	U	UJ	F	1.7	u		h
1,2-Dichloro-1,1,2,2- tetrachfuoroethane	NR				NR				NR				8.4	u		h
Bromomethane	95	U			95	U			95	U			8.4	u		h
Chloroethane	140	U			140	U			140	U			8.4	u		h
1,1-Dichloroethene	93	U			93	U			93	U			1.7	u		h
Trichlorofluoromethane	66	U			65	U			65	U			8.4	u		h
1,1,2-Trichloro-1,2,2- trifluoroethane	NR				NR				NR				8.4	u		h
Acetone	750	jb			**2247**	b			**592**	bj			NR			
Carbon Disulfide	120	U			**120**	U			**120**	U			NR			
Methylene chloride	110	U			**110**	U			110	U			15		j	b
trans-1,2-Dichloroethene	93	U			93	U			93	U			1.7	u		h
1,1-Dichloroethane	91	U			**91**	U			91	U			1.7	u		h
cis-1,2-Dichloroethene	93	U			93	U			93	U			1.7	u		h
2-Butanone	630	u			623	u			623	u			NR			
Chloroform	76	U			**75**	U			75	U			1.7	u		h
1,1,1-Trichloroethane	22	L	J	H	67	U			67	U			1.7	u		h
Carbon tetrachloride	59	U			58	U			58	U			1.7	u		h
Benzene	370				**1700**	E	J	L	**260**				16			
1,2-Dichloroethane	91	U			91	U			91	U			1.7	u		h
Trichloroethene	69	U			**68**	U			**68**	U			10			
Bromodichloromethane	55	U			**55**	U			55	U			NR			
1,2-Dichloropropane	82	U		G	79	L	J	IJ	79	L	J	IJ	1.7	u		h
cis-1,3-Dichloropropene	82	U			81	U			81	U			1.7	u		h
Toluene	98	U			**97**	U			97	U			54			
trans-1,3-Dichloropropene	82	U			81	U			81	U			1.7	u		h
1,1,2-Trichloroethane	68	U			67	U			67	U			1.7	u		h
Dibromochloromethane	43	U			73	U			43	U			NR			
4-Methyl-2-Pentanone	450	u			NR				NR				NR			
Tetrachloroethene	55	U			**54**	U			**220**				240			
1,3-Dichloropropane	80	U			79	U			79	U			NR			
2-Hexanone	450	u			NR				NR				NR			
1,2-Dibromoethane (EDB)	48	U			**48**	U			48	U			1.7	u		h
Chlorobenzene	80	U			**80**	U			80	U			1.7	u		h
Ethylbenzene	85	U			**85**	U			85	U			8.4	u		h
m- & p- Xylene(s)	280				**85**	U			**520**				40			
o-Xylene	85	U			85	U			85	U			8.4	u		h
Styrene	87	U			86	U			86	U			8.4	u		h
Bromoform	36	U			36	U			36	U			NR			
1,1,2,2-Tetrachloroethane	54	U			54	U			54	U			1.7	u		h
1,3,5-Trimethylbenzene	NR				61	u			61	u			640	u		
1,2,4-Trimethylbenzene	NR				NR				NR				140			
1,2,3-Trichloropropane	61	U			61	U			61	U			NR			
1,3-Dichlorobenzene	62	U			120	U			120	U			3.4	u		h
1,4-Dichlorobenzene	62	U			61	U			61	U			3.4	u		h
1,2-Dichlorobenzene	62	U			61	U			61	U			4	u		
1,2-Dibromo-3-chloropropane	38	U			38	U			38	U			NR			

Table A-1
Soil Gas Results from Vapor Wells
Waste Disposal Inc. Site

Vapor Well ID	MP-2-05(2)				MP-2-15				MP-2-15			
Sample Date	9/17/97				8/7/97				9/17/97			
Screen Interval	10-15				10-15				10-15			
Field Methane (%)	0.1				36				75			
Field PID VOCs (ppm)	15				74.5				41.3			
Lab Methane (ppm)												
Lab Non-CH4 VOCs (ppm)												
Laboratory	EPA Reg 9				EPA FASP				EPA Reg 9			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	75	U			74	U			75	U		
Chloromethane	180	U			180	U			180	U		
Vinyl Chloride	140	U			140	U			140	U		
1,2-Dichloro-1,1,2,2- tetrachfuoroethane	NR				NR				NR			
Bromomethane	95	U			95	U			95	U		
Chloroethane	140	U			140	U			140	U		
1,1-Dichloroethene	93	U			93	U			93	U		
Trichlorofluoromethane	66	U			65	U			66	U		
1,1,2-Trichloro-1,2,2- trifluoroethane	NR				NR				NR			
Acetone	780	u			**6414**	b			780	u		
Carbon Disulfide	120	U			**120**	U			120	U		
Methylene chloride	110	U			110	U			110	U		
trans-1,2-Dichloroethene	93	U			93	U			93	U		
1,1-Dichloroethane	91	U			91	U			91	U		
cis-1,2-Dichloroethene	93	U			93	U			93	U		
2-Butanone	630	u			623	u			630	u		
Chloroform	76	U			75	U			76	U		
1,1,1-Trichloroethane	68	U			67	U			68	U		
Carbon tetrachloride	59	U			58	U			59	U		
Benzene	410				**3800**	D			13000	D	J	A
1,2-Dichloroethane	91	U			91	U			240		J	A
Trichloroethene	69	U			68	U			69	U		
Bromodichloromethane	55	U			**55**	U			55	U		
1,2-Dichloropropane	82	U		G	79	L	IJ		82	U		G
cis-1,3-Dichloropropene	82	U			81	U			82	U		
Toluene	98	U			97	U			110		J	A
trans-1,3-Dichloropropene	82	U			81	U			82	U		
1,1,2-Trichloroethane	68	U			67	U			68	U		
Dibromochloromethane	43	U			43	U			43	U		
4-Methyl-2-Pentanone	450	u			NR				450	u		
Tetrachloroethene	190				54	U			55	U		
1,3-Dichloropropane	80	U			79	U			80	U		
2-Hexanone	450	u			NR				450	u		
1,2-Dibromoethane (EDB)	48	U			48	U			48	U		
Chlorobenzene	80	U			80	U			80	U		
Ethylbenzene	53	L	J	H	**85**	U			700		J	A
m- & p- Xylene(s)	570				**1000**	D	J	A	5600	E	J	A
o-Xylene	85	U			85	U			83	L	J	AEH
Styrene	87	U			86	U			87	U		
Bromoform	36	U			36	U			36	U		
1,1,2,2-Tetrachloroethane	54	U			54	U			54	U		
1,3,5-Trimethylbenzene	NR				61	u			NR			
1,2,4-Trimethylbenzene	NR				NR				NR			
1,2,3-Trichloropropane	61	U			61	U			61	U		
1,3-Dichlorobenzene	62	U			120	U			62	U		
1,4-Dichlorobenzene	62	U			61	U			62	U		
1,2-Dichlorobenzene	62	U			61	U			62	U		
1,2-Dibromo-3-chloropropane	38	U			38	U			38	U		

Table A-1
Soil Gas Results from Vapor Wells
Waste Disposal Inc. Site

Shaded Cells indicate VOCs exceed threshold values.	
Qual = Qualifier. Data qualifiers given by the lab.	
Val = Validator. Data qualifiers given by lab during data validation.	
Com = Comments. Comments regarding data quality; provided in data validation reports.	
Data Qualifier Definitions	
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
L	Indicates results which fall below the reporting limit. Results are estimated and are condidered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit if quantitation necessary to accurately and precisely measure the analyte in the sample.

Table A-2
Soil Gas Results from Temporary Probes
Waste Disposal Inc. Site

Geoprobe ID	GP1				GP2				GP3				GP4				GP6				GP7				GP7(2)			
Sample Date	8/14/97				8/15/97				8/15/97				8/15/97				8/15/97				8/18/97				8/18/97			
Sample Depth	20				10				10				10				10				10				20			
Site Location	Area 7				Area 2				Area 2				Area 2				Area 2				Area 2				Area 2			
Lab Methane (%)	0.1				0.1				0.1				0.1				13.6				39.1				0.3			
Lab PID VOCs (ppm)	2				9				3.1				3.1				74.5				10.5				7			
Lab Methane (ppm)																												
Lab Non-CH4 VOCs (ppm)																												
Laboratory	FASP				FASP				FASP				FASP				FASP				FASP				FASP			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	74	U			74	U			74	U			74	U			74	U		L	150	U		L	74	u		
Chloromethane	180	U			180	U			180	U			180	U			180	U		L	1100			L	180	u		
Vinyl chloride	140	U			140	U			140	U			140	U			140	U		L	290	U		L	140	u		
Bromomethane	94	U			95	U			95	U			95	U			95	U		L	190	U		L	94	u		
Chloroethane	140	U	UJ	F	140	U			140	U			140	U			140	U		FL	280	U	UJ	FL	140	u	UJ	F
1,1-Dichloroethene	93	U			93	U			93	U			93	U			93	U		L	180	U		L	92	u		
Trichlorofluoromethane	65	U			65	U			65	U			65	U			65	U		L	130	U		L	65	u		
Acetone	1400	b			1600				1600				1200				1200				1500	u			770	u		
Methylene chloride	110	U			110	U			110	U			110	U			110	U		L	210	U		L	110	u		
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		L	180	U		L	92	u		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91	U		L	180	U		L	91	u		
cis-1,2-Dichloroethene	230				93	U			93	U			93	U			93	U			130	L	J	KL	92	u		
2-Butanone	620	u			620	u			620	u			620	u			620	u			1200	u			620	u		
Chloroform	75	U			75	U			75	U			75	U			75	U			150	U		L	75	u		
1,1,1-Trichloroethane	67	U			67	U			67	U			67	U			67	U			130	U		L	67	u		
Carbon tetrachloride	58	U			58	U			58	U			58	U			58	U			120	U		L	58	u		
Benzene	110	U			110	U			110	U			110	U			110	U			250			L	920		J	A
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91	U			180	U		L	91	u		
Trichloroethene	210				68	U			68	U			68	U			68	U			140	U		L	68	u		
1,2-Dichloropropane	81	U		H	81	U		H	81	U		H	81	U		H	81	U		H	160	U		HL	81	u		H
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U			110	U		L	55	u		
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U			160	U		L	81	u		
Toluene	97	U			97	U			97	U			97	U			97	U			190	U		L	97	jb		
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U			160	U		L	81	u		
1,1,2-Trichloroethane	67	U			67	U			67	U			67	U			67	U			130	U		L	67	u		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U			86	U		L	43	u		
Tetrachloroethene	54	U			54	U			54	U			54	U			54	U			110	U		L	54	u		
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			48	U			48	U			95	U		L	48	u		
Chlorobenzene	80	U			80	U			80	U			80	U			80	U			160	U		L	80	u		
Ethylbenzene	85	U			85	U			85	U			85	U			85	U			170	U		L	85		J	A
m- & p- Xylene(s)	170	U			170	U			170	U			170	U			110	L	J	AK	340	U		L	170		J	A
o-Xylene	85	U			85	U			85	U			85	U			85	U			170	U		L	84	u		
Styrene	86	U			86	U			86	U			86	U			86	U			170	U		L	86	u		
1,1,2,2-Tetrachloroethane	53	U			54	U			54	U			54	U			54	U			110	U		L	53	u		
1,3-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U			120	U	UJ	FL	61	u	UJ	F
1,4-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U			120	U		L	61	u		
1,2-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U			120	U		L	61	u		

Table A-2
Soil Gas Results from Temporary Probes
Waste Disposal Inc. Site

Geoprobe ID	GP9				GP9				GP9				GP9				GP10				GP11				GP11(2)			
Sample Date	8/18/97				8/18/97				9/12/97				9/12/97				8/18/97				8/19/97				8/19/97			
Sample Depth	10				20												10				10				20			
Site Location	Area 2				Area 2												Area 2				Area 2				Area 2			
Lab Methane (%)	> 100				4.8												0.3				6.8				6.8			
Lab PID VOCs (ppm)	11				20												30				7				29.1			
Lab Methane (ppm)																												
Lab Non-CH4 VOCs (ppm)																												
Laboratory	FASP				FASP				FASP				FASP				FASP				FASP				FASP			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	740	U		K	74	U			75	u			75	U			74	U			74	U			74	U		
Chloromethane	1800	U		K	180	U			350				180	U			180	U			180	U			93	L	J	J
Vinyl chloride	1400	U		K	140	U			320				320		J	A	140	U			140	U			86	L	J	J
Bromomethane	940	U		K	94	U			96	u			95	U			94	U			94	U			94	U		
Chloroethane	1400	U		K	140	U			140	u			140	U	UJ	F	140	U			140	U	UJ	F	140	U	UJ	F
1,1-Dichloroethene	920	U		K	92	U			94	u			93	U			92	U			92	U			92	U		
Trichlorofluoromethane	650	U		K	65	U			66	u			66	U			65	U			65	U			65	U		
Acetone	7700	u			770	u			780	u			780	u			1400	b			770	u			770	u		
Methylene chloride	1100	U		K	110	U			110	u			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	920	U		K	92	U			94	u			93	U			92	U			92	U			92	U		
1,1-Dichloroethane	910	U		K	91	U			92	u			92	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene	920	U		K	81	L	J	J	94	u			93	U			92	U			92	U			49	L	J	J
2-Butanone	6200	u			620	u			630	u			630	u			620	u			620	u			620	u		
Chloroform	750	U		K	75	U			76	u			76	U			75	U			75	U			75	U		
1,1,1-Trichloroethane	670	U		K	67	U			68	u			68	U			67	U			67	U			67	U		
Carbon tetrachloride	580	U		K	58	U			59	u			59	U			58	U			58	U			58	U		
Benzene	1500			K	110	U			4800	de			4300	DE	J	K	110	U			110	U			110	U		
1,2-Dichloroethane	910	U		K	91	U			92	u			92	U			91	U			91	U			91	U		
Trichloroethene	680	U		K	68	U			69	u			69	U			68	U			68	U			68	U		
1,2-Dichloropropane	810	U		HK	81	U		H	82	u			80	U		J	81	U		H	81	U		H	81	U		H
Bromodichloromethane	550	U		K	55	U			55	u			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	810	U		K	81	U			82	u			82	U			81	U			81	U			81	U		
Toluene	970	U		K	97	U			94	j			86	L	J	AI	97	U			94	U			97	U		
trans-1,3-Dichloropropene	810	U		K	81	U			82	u			82	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	670	U		K	67	U			68	u			68	U			67	U			67	U			67	U		
Dibromochloromethane	430	U		K	43	U			44	u			44	U			43	U			43	U			43	U		
Tetrachloroethene	540	U		K	54	U			55	u			55	U			54	U			54	U			54	U		
1,2-Dibromoethane (EDB)	480	U		K	48	U			48	u			48	U			48	U			48	U			48	U		
Chlorobenzene	800	U		K	80	U			63	j			65	L	J	AI	80	U			80	U			80	U		
Ethylbenzene	4900			K	70	L	J	J	170				120		J	AI	470				120		J	F	84	U	UJ	F
m- & p- Xylene(s)	3900			K	170	U			49	j			170	U			150	L	J	J	170	U	UJ	F	170	U	UJ	F
o-Xylene	570	L	J	EFJK	84	U	UJ	F	92				90		J	AE	84	U	UJ	F	84	U	UJ	F	84	U	UJ	F
Styrene	860	U	UJ	FK	86	U	UJ	F	87	u			87	U			86	U	UJ	F	86	U	UJ	F	86	U	UJ	F
1,1,2,2-Tetrachloroethane	530	U		K	53	U			54	u			54	U			53	U			53	U	UJ	F	53	U	UJ	F
1,3-Dichlorobenzene	610	U		K	61	U			62	u			62	U			61	U			61	U	UJ	F	61	U	UJ	F
1,4-Dichlorobenzene	610	U		K	61	U			43	j			52	L	J	AI	61	U			61	U	UJ	F	61	U	UJ	F
1,2-Dichlorobenzene	610	U		K	61	U			22	j			62	U			61	U			61	U	UJ	F	61	U	UJ	F

Table A-2
Soil Gas Results from Temporary Probes
Waste Disposal Inc. Site

Geoprobe ID	GP12				GP12(2)				GP12(3)				GP14				GP14(2)				GP18				GP18			
Sample Date	8/19/97				8/19/97				8/19/97				8/20/97				8/20/97				8/20/97				8/20/97			
Sample Depth	3				20				20				10				20				10				20			
Site Location	Area 2				Area 2								Area 2				Area 2				Area 2				Area 2			
Lab Methane (%)	8.9				77				77				0.1				0.9				81.4				0.2			
Lab PID VOCs (ppm)	0				240				240				3.9				3.2				3.4				4.1			
Lab Methane (ppm)									71000																			
Lab Non-CH4 VOCs (ppm)									27000																			
Laboratory	FASP				FASP				Quanterra				FASP				FASP				FASP				FASP			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	74	U			150	U		K	6700	u		f	74	U			74	U			150	U		L	74	U		
Chloromethane	180	U			350	U		K	2700	u		f	180	U			180	U			350	U		L	180	U		
Vinyl chloride	740				520		J	AK	1300	u		f	140	U			520				290	U		L	140	U		
Bromomethane	94	U			190	U		K	6700	u		f	94	U			94	U			190	U		L	94	U		
Chloroethane	140	U	UJ	F	280	U	UJ	FK	6700	u		f	140	U	UJ	E	140	U	UJ	E	280	U	UJ	EL	140	U	UJ	E
1,1-Dichloroethene	92	U			180	U		K	1300	u		f	92	U			92	U			180	U		L	92	U		
Trichlorofluoromethane	65	U			130	U		K	6700	u		f	65	U			62	U			130	U		L	65	U		
Acetone	1500	b			1540	u			NR				1300	b			770				1500				1400	b		
Methylene chloride	110	U			210	U		K	2700		j	be	110	U			110	U			210	U		L	110	U		
trans-1,2-Dichloroethene	92	U			180	U		K	1300	u		f	92	U			92	U			180	U		L	92	U		
1,1-Dichloroethane	91	U			180	U		K	1300	u		f	90	U			280				180	U		L	90	U		
cis-1,2-Dichloroethene	92	U			180	U		K	1300	u		f	92	U			240				180	U		L	92	U		
2-Butanone	620	u			1240	u			NR				620	u			620	u			1200	u			620	u		
Chloroform	75	U			150	U		K	2700				75	U			75	U			150	U		L	75	U		
1,1,1-Trichloroethane	67	U			130	U		K	1300	u		f	67	U			67	U			130	U		L	67	U		
Carbon tetrachloride	58	U			120	U		K	1300	u		f	58	U			58	U			120	U		L	58	U		
Benzene	240				3600	D	J	AK	3600				110	U			110	U			230	U		L	110	U		
1,2-Dichloroethane	91	U			180	U		K	1300	u			90	U			54	L	J	K	180	U		L	90	U		
Trichloroethene	68	U			140	U		K	1300	u		f	68	U			68	U			140	U		L	68	U		
1,2-Dichloropropane	81	U		H	160	U		HK	1300	u		f	81	U		H	81	U		H	160	U		HL	81	U		H
Bromodichloromethane	55	U			110	U		K	NR				55	U			55	U			110	U		L	55	U		
cis-1,3-Dichloropropene	81	U			160	U		K	1300	u		f	81	U			81	U			160	U		L	81	U		
Toluene	97	U			190	U		K	2000	u	j	be	97	U			97	U			190	U		L	97	U		
trans-1,3-Dichloropropene	81	U			160	U		K	1300	u	j	df	81	U			81	U			16	U		L	81	U		
1,1,2-Trichloroethane	67	U			130	U		K	1300	u	j	df	67	U			67	U			130	U		L	67	U		
Dibromochloromethane	43	U			86	U		K	NR				43	U			43	U			86	U		L	43	U		
Tetrachloroethene	54	U			110	U		K	1300	u	j	df	54	U			54	U			110	U		L	54	U		
1,2-Dibromoethane (EDB)	48	U			95	U		K	1300	u	j	df	48	U			48	U			95	U		L	48	U		
Chlorobenzene	80	U			160	U		K	1300	u	j	df	80	U			80	U			160	U		L	80	U		
Ethylbenzene	84	U	UJ	F	8100	D	J	AFK	11000		j	d	84	U			84	U			220		J	AL	84	U		
m- & p- Xylene(s)	170	U	UJ	F	9300	D	J	AFK	18000		j	d	170	U			170	U			180	L	J	AKL	170	U		
o-Xylene	84	U	UJ	F	170	U	UJ	FK	6700	u	j	df	84	U			84	U			170	U		L	84	U		
Styrene	86	U	UJ	F	170	U	UJ	FK	6700	u	j	df	86	U			86	U			170	U		L	86	U		
1,1,2,2-Tetrachloroethane	53	U	UJ	F	110	U	UJ	FK	1300	u	j	df	53	U			53	U			110	U		L	53	U		
1,3-Dichlorobenzene	61	U	UJ	F	120	U	UJ	FK	1300	u	j	df	61	U			61	U			120	U		L	61	U		
1,4-Dichlorobenzene	61	U	UJ	F	120	U	UJ	FK	1300	u	j	df	61	U			61	U			120	U		L	61	U		
1,2-Dichlorobenzene	61	U	UJ	F	120	U	UJ	FK	1300	u	j	df	61	U			61	U			120	U		L	61	U		

Table A-2
Soil Gas Results from Temporary Probes
Waste Disposal Inc. Site

Geoprobe ID	GP18				GP18(2)				GP18 (3)				GP19				GP20				GP21				GP21(2)			
Sample Date	8/29/97				8/29/97				8/29/97				8/21/97				8/21/97				8/21/97				8/21/97			
Sample Depth	5				20								10				10				10				10			
Site Location	Area 2				Area 2				Area 2				Area 6				Area 5				Area 5				Area 5			
Lab Methane (%)	0				5.9								0.05				0.06				0.06				0.06			
Lab PID VOCs (ppm)	14.3				107								2.4				6.5				0.5				0.5			
Lab Methane (ppm)									34	u		e																
Lab Non-CH4 VOCs (ppm)									100	u	j	be																
Laboratory	FASP				FASP				Quanterra				FASP				FASP				FASP				FASP			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	75	U			75	U			1.0	u			74	U			74	U			74	U			74	U		
Chloromethane	180	U			180	U			0.40	u			180	U			180	U			180	U			180	U		
Vinyl chloride	140	U			140	U			3.2			d	140	U			140	U			140	U			140	U		
Bromomethane	95	U			95	U			1.0	u	j	a	94	U			94	U			94	U			94	U		
Chloroethane	140	U	UJ	F	140	U	UJ	F	1.0	u			140	U	UJ	E	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E
1,1-Dichloroethene	93	U			93	U			0.20	u			92	U			92	U			92	U			92	U		
Trichlorofluoromethane	66	U			66	U			1.0	u			65	U			65	U			65	U			65	U		
Acetone	1300	b			29000	b			NR				1400	b			2300	b			2300	b			2300	b		
Methylene chloride	110	U			110	U			0.65		j	acf	110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	93	U			93	U			0.20	u			92	U			92	U			92	U			92	U		
1,1-Dichloroethane	91	U			91	U			0.20	u			91	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene	93	U			93	U			0.20	u			92	U			92	U			92	U			92	U		
2-Butanone	300	j			620	u			NR				620	u			620	u			620	u			620	u		
Chloroform	96	U			76	U			0.29			d	75	U			75	U			75	U			75	U		
1,1,1-Trichloroethane	68	U			68	U			0.33			d	67	U			67	U			67	U			67	U		
Carbon tetrachloride	59	U			59	U			0.20	u			58	U			58	U			58	U			58	U		
Benzene	120	U			1200	D			3.2			d	110	U			110	U			110	U			110	U		
1,2-Dichloroethane	91	U			91	U			0.20	u			91	U			91	U			91	U			91	U		
Trichloroethene	69	U			69	U			7.8			d	68	U			68	U			68	U			68	U		
1,2-Dichloropropane	81	U		I	81	U		I	0.20	u			81	U		H	81	U		H	81	U		H	81	U		H
Bromodichloromethane	55	U			55	U			NR				55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U			81	U			0.20	u			81	U			81	U			81	U			81	U		
Toluene	98	U			1600	D			3.9				97	U			97	U			97	U			97	U		
trans-1,3-Dichloropropene	81	U			81	U			0.20	u			81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	68	U			68	U			0.20	u			67	U			67	U			67	U			67	U		
Dibromochloromethane	43	U			43	U			NR				43	U			43	U			43	U			43	U		
Tetrachloroethene	54	U			54	U			17.0			d	54	U			27	L	J	K	54	U			54	U		
1,2-Dibromoethane (EDB)	48	U			48	U			0.20	u			48	U			48	U			48	U			48	U		
Chlorobenzene	80	U			80	U			0.47				80	U			80	U			80	U			80	U		
Ethylbenzene	85	U			330				1.4				84	U			84	U			84	U			84	U		
m- & p- Xylene(s)	170	U			1300				4.5				170	U			170	U			170	U			170	U		
o-Xylene	85	U			460				2.1				84	U			84	U			84	U			84	U		
Styrene	87	U			87	U			1.0	u			86	U			86	U			86	U			86	U		
1,1,2,2-Tetrachloroethane	54	U			54	U			0.20	u			53	U			53	U			53	U			53	U		
1,3-Dichlorobenzene	61	U			61	U			0.20	u			61	U			61	U			61	U			61	U		
1,4-Dichlorobenzene	61	U			61	U			0.20	u			61	U			61	U			61	U			61	U		
1,2-Dichlorobenzene	61	U			61	U			0.20	u			61	U			61	U			61	U			61	U		

Table A-2
Soil Gas Results from Temporary Probes
Waste Disposal Inc. Site

Geoprobe ID	GP22				GP23				GP24				GP28				GP29				GP30				GP31			
Sample Date	8/21/97				8/21/97				8/21/97				8/22/97				8/22/97				8/22/97				8/22/97			
Sample Depth	10				10				10				10				10				10				10			
Site Location	Area 5				Area 5				Area 5				Area 8				Area 8				Area 8				Area 8			
Lab Methane (%)	0.05				0.079				0.059				0.074				0.05				0.055				0.063			
Lab PID VOCs (ppm)	0.6				5.41				7				0				0.4				0.2				2			
Lab Methane (ppm)																												
Lab Non-CH4 VOCs (ppm)																												
Laboratory	FASP				FASP				FASP				FASP				FASP				FASP				FASP			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	74	U			74	U			74	U			74	U			74	U			74	U			74	U		
Chloromethane	180	U			180	U			180	U			180	U			180	U			180	U			180	U		
Vinyl chloride	140	U			140	U			140	U			140	U			140	U			140	U			140	U		
Bromomethane	94	U			94	U			94	U			95	U			94	U			94	U			94	U		
Chloroethane	140	U	UJ	E	140	U	UJ	U	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E
1,1-Dichloroethene	92	U			92	U			92	U			93	U			92	U			92	U			92	U		
Trichlorofluoromethane	65	U			65	U			65	U			66	U			65	U			65	U			65	U		
Acetone	2300	b			2300	b			2300	b			1800	b			2400	b			2400	b			2400	b		
Methylene chloride	110	U			110	U			110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	92	U			92	U			92	U			93	U			92	U			92	U			92	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			90	U			90	U			90	U		
cis-1,2-Dichloroethene	92	U			92	U			92	U			93	U			92	U			92	U			92	U		
2-Butanone	620	u			620	u			620	u			470	jb			580	jb			580	jb			580	jb		
Chloroform	75	U			75	U			75	U			75	U			75	U			75	U			75	U		
1,1,1-Trichloroethane	67	U			67	U			67	U			67	U			67	U			67	U			67	U		
Carbon tetrachloride	58	U			58	U			58	U			59	U			58	U			58	U			58	U		
Benzene	110	U			110	U			110	U			120	U			110	U			110	U			110	U		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			90	U			90	U			90	U		
Trichloroethene	68	U			68	U			68	U			69	U			68	U			68	U			68	U		
1,2-Dichloropropane	81	U		H	81	U		H	81	U		H	81	U	UJ	EH	81	U	UJ	EH	81	U	UJ	EH	81	U	UJ	RH
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U			81	U			81	U		
Toluene	97	U			97	U			97	U			98	U			97	U			97	U			97	U		
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	67	U			67	U			67	U			67	U			67	U			67	U			67	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U			43	U			43	U		
Tetrachloroethene	54	U			54	U			54	U			190				54	U			54	U			670			
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			48	U			48	U			48	U			48	U		
Chlorobenzene	80	U			80	U			80	U			80	U			80	U			80	U			80	U		
Ethylbenzene	84	U			84	U			84	U			85	U			84	U			84	U			84	U		
m- & p- Xylene(s)	170	U			170	U			170	U			170	U			170	U			170	U			170	U		
o-Xylene	84	U			84	U			84	U			85	U			84	U			84	U			84	U		
Styrene	86	U			86	U			86	U			86	U			86	U			86	U			86	U		
1,1,2,2-Tetrachloroethane	53	U			53	U			53	U			54	U			53	U			53	U			53	U		
1,3-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U			61	U			61	U		
1,4-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U			61	U			61	U		
1,2-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U			61	U			61	U		

Table A-2
Soil Gas Results from Temporary Probes
Waste Disposal Inc. Site

Geoprobe ID	GP31				GP34				GP36				GP39				GP40				GP41				GP42			
Sample Date	8/22/97				9/23/97				9/23/97				8/27/97				8/27/97				8/27/97				8/27/97			
Sample Depth					4				4				10				5				5				8			
Site Location	Area 6				Area 5				Area 5				Area 2				Area 2				Area 2				Area 2			
Lab Methane (%)					0				0				0.5				3.6				0.9				0.7			
Lab PID VOCs (ppm)					0				0				40.5				7				100				180			
Lab Methane (ppm)	3.4	u	j	ab																								
Lab Non-CH4 VOCs (ppm)	58	u	j	ac																								
Laboratory	Quanterra				FASP				FASP				FASP				FASP				FASP				FASP			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane					75	u			75	u			75	U			75	U			75	U			74	U		
Chloromethane					180	u			180	u			180	U	J	F	180	U	J	F	180	U	J	F	180	U	J	F
Vinyl chloride					150	u			150	u			140	U			1600				730				140	U		
Bromomethane					96	u			96	u			95	U			95	U			95	U			95	U		
Chloroethane					140	u			140	u			140	U			140	U			140	U			140	U		
1,1-Dichloroethene					94	u			94	u			93	U			93	U			93	U			93	U		
Trichlorofluoromethane					66	u			66	u			66	U			66	U			66	U			66	U		
Acetone					780	u			2200	b			2100	b			3200	b			2800				2500	b		
Methylene chloride					110	u			110	u			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene					94	u			94	u			93	U			93	U			93	U			93	U		
1,1-Dichloroethane					92	u			92	u			91	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene					94	u			94	u			93	U			93	U			150				93	U		
2-Butanone					630	u			630	u			470	jb			610	jb			900	b			520	jb		
Chloroform					76	u			76	u			76	U			76	U			76	U			76	U		
1,1,1-Trichloroethane					68	u			68	u			68	U			68	U			68	U			68	U		
Carbon tetrachloride					59	u			59	u			59	U			59	U			59	U			59	U		
Benzene					120	u			120	u			130				480				300				120	U		
1,2-Dichloroethane					92	u			92	u			91	U			91	U			91	U			91	U		
Trichloroethene					69	u			69	u			69	U			69	U			180				69	U		
1,2-Dichloropropane					82	u			82	u			80	U			80	U			80	U			80	U		
Bromodichloromethane					55	u			55	u			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene					82	u			82	u			81	U			81	U			81	U			81	U		
Toluene					99	u			99	u			98	U			130				210				98	U		
trans-1,3-Dichloropropene					82	u			82	u			81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane					68	u			68	u			68	U			68	U			68	U			68	U		
Dibromochloromethane					44	u			44	u			43	U			43	U			43	U			43	U		
Tetrachloroethene					55	u			55	u			54	U			54	U			35	L	J	H	54	U		
1,2-Dibromoethane (EDB)					48	u			48	u			48	U			48	U			18	U			48	U		
Chlorobenzene					81	u			81	u			80	U			80	U			80	U			80			
Ethylbenzene					86	u			86	u			81	L	J	H	150				70	L	J	H	85	U		
m- & p- Xylene(s)					170	u			170	u			100	L	J	H	120	L	J	H	200				170	U		
o-Xylene					86	u			86	u			85	U	J	E	77	L	J	EH	47	L	J	EH	85	U	J	E
Styrene					87	u			87	u			87	U			87	U			84	U			87	U		
1,1,2,2-Tetrachloroethane					54	u			54	u			54	U			54	U			54	U			54	U		
1,3-Dichlorobenzene					62	u			62	u			61	U			61	U			61	U			61	U		
1,4-Dichlorobenzene					62	u			62	u			61	U			61	U			61	U			61	U		
1,2-Dichlorobenzene					62	u			62	u			61	U			61	U			61	U			61	U		

Table A-2
Soil Gas Results from Temporary Probes
Waste Disposal Inc. Site

Geoprobe ID	GP43				GP47				GP48				GP52				GP57				GP57(2)				GP62			
Sample Date	8/27/97				8/27/97				8/27/97				8/27/97				8/27/97				8/27/97				8/28/97			
Sample Depth	5				10				10				10				10				10							
Site Location	Area 2				Area 2				Area 2				Area 1				Area 1				Area 1							
Lab Methane (%)	0				0.5				75				0				0				0							
Lab PID VOCs (ppm)	0.1				0				170				0				0				0							
Lab Methane (ppm)																												
Lab Non-CH4 VOCs (ppm)																												
Laboratory	FASP				FASP				FASP				FASP				FASP				FASP				FASP			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	74	U			74	U			74	U			74	U			74	U			74	U			74	U		
Chloromethane	180	U	J	F	180	U			180	U			180	U			180	U			180	U			180	U		
Vinyl chloride	140	U			140	U			140	U			140	U			140	U			140	U			140	U		
Bromomethane	95	U			95	U			95	U			95	U			95	U			95	U			95	U		
Chloroethane	140	U			140	U			140	U			140	U			140	U			140	U			140	U		
1,1-Dichloroethene	93	U			93	U			93	U			93	U			93	U			93	U			93	U		
Trichlorofluoromethane	66	U			66	U			66	U			66	U			66	U			66	U			66	U		
Acetone	2500	b			2500	b			2500	b			2500	b			2500	b			2500	b			2500	b		
Methylene chloride	110	U			110	U			110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U			93	U			93	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U			93	U			93	U		
2-Butanone	520	jb			520	jb			520	jb			520	jb			520	jb			520	jb			520	jb		
Chloroform	76	U			76	U			76	U			76	U			76	U			76	U			76	U		
1,1,1-Trichloroethane	68	U			68	U			68	U			68	U			68	U			68	U			68	U		
Carbon tetrachloride	59	U			59	U			59	U			59	U			59	U			59	U			59	U		
Benzene	120	U			120	U			8500				120	U			120	U			120	U			120	U		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91	U			91	U			91	U		
Trichloroethene	69	U			69	U			69	U			69	U			69	U			69	U			69	U		
1,2-Dichloropropane	80	U			80	U			80	U			80	U			80	U			80	U			80	U		
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U			81	U			81	U		
Toluene	98	U			98	U			260		J	A	98	U			98	U			98	U			98	U		
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U			68	U			68	U			68	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U			43	U			43	U		
Tetrachloroethene	54	U			54	U			54	U			54	U			54	U			54	U			54	U		
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			48	U			48	U			48	U			48	U		
Chlorobenzene	80	U			80	U			80	U			80	U			80	U			80	U			80	U		
Ethylbenzene	85	U			85	U			2000				85	U			85	U			85	U			85	U		
m- & p- Xylene(s)	170	U			170	U			1500		J	AE	170	U			170	U			170	U			170	U		
o-Xylene	85	U	J	E	85	U	J	E	460		F	AE	85	U	J	E	85	U	J	E	85	U	J	E	85	U	J	E
Styrene	87	U			87	U			87	U			87	U			87	U			87	U			87	U		
1,1,2,2-Tetrachloroethane	54	U			54	U			54	U			54	U			54	U			54	U			54	U		
1,3-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U			61	U			61	U		
1,4-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U			61	U			61	U		
1,2-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U			61	U			61	U		

Table A-2
Soil Gas Results from Temporary Probes
Waste Disposal Inc. Site

Geoprobe ID	GP66-010				GP71				GP72				GP74				GP75				GP77				GP78			
Sample Date	8/28/97				8/28/97				8/28/97				8/28/97				8/28/97				8/28/97				8/28/97			
Sample Depth																					10				10			
Site Location																					Area 1				Area 1			
Lab Methane (%)																					0				0			
Lab PID VOCs (ppm)																					0				0			
Lab Methane (ppm)																												
Lab Non-CH4 VOCs (ppm)																												
Laboratory	FASP				FASP				FASP				FASP				FASP				FASP				FASP			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	74	U			74	U			74	U			74	U			74	U			75	U		L	75	U		L
Chloromethane	180	U			180	U			180	U			180	U			180	U			180	U		L	180	U		L
Vinyl chloride	140	U			140	U			140	U			140	U			140	U			140	U		L	210			L
Bromomethane	95	U			95	U			95	U			95	U			95	U			95	U		L	95	U		L
Chloroethane	140	U			140	U			140	U			140	U			140	U			140	U	UJ	FL	140	U	UJ	FL
1,1-Dichloroethene	93	U			93	U			93	U			93	U			93	U			61	L	J	JL	61	L	J	JL
Trichlorofluoromethane	66	U			66	U			66	U			66	U			66	U			66	U		L	66	U		L
Acetone	2500	b			2500	b			2500	b			2500	b			2500	b			920	b			1300	b		
Methylene chloride	110	U			110	U			110	U			110	U			110	U			110	U		L	240			L
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U			86	L	J	H	93	U		L	93	U		L
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91	U			91	U		L	250			L
cis-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U			93	U		L	93	U		L
2-Butanone	520	jb			520	jb			520	jb			520	jb			520	jb			170	j			290	j		
Chloroform	76	U			76	U			76	U			76	U			76	U			76	U		L	230			L
1,1,1-Trichloroethane	68	U			68	U			68	U			68	U			68	U			1900	E	J	LM	450			L
Carbon tetrachloride	59	U			59	U			59	U			59	U			59	U			59	U		L	59	U		L
Benzene	120	U			120	U			120	U			120	U			120	U			120	U		L	190			L
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91	U			91	U		L	91	U		L
Trichloroethene	69	U			69	U			69	U			69	U			69	U			790			L	230			L
1,2-Dichloropropane	80	U			80	U			80	U			80	U			80	U			81	U		IL	230			IL
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U			55	U		L	55	U		L
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U			81	U		L	81	U		L
Toluene	98	U			98	U			49	L	J	H	98	U	J	A	98	U			98	U		L	210		J	AL
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U			81	U		L	81	U		L
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U			68	U			68	U		L	68	U		L
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U			43	U		L	43	U		L
Tetrachloroethene	35	L	J	AH	34	L	J	AH	54	U			54	U	J	A	54	U			33	L	J	JL	280		J	AL
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			48	U	J	A	48	U			48	U		L	140		J	AL
Chlorobenzene	80	U			80	U			80	U			80	U	J	A	80	U			80	U		L	160		J	AL
Ethylbenzene	85	U			85	U			85	U			85	U	J	A	85	U			85	U		L	85	U		L
m- & p- Xylene(s)	170	U			170	U			170	U			170	U	J	A	170	U			170	U		L	170	U		L
o-Xylene	85	U	J	E	85	U	J	E	85	U	J	E	85	U	J	AE	85	U	J	E	85	U		L	85	U		L
Styrene	87	U			87	U			87	U			87	U	J	A	87	U			87	U		L	87	U		L
1,1,2,2-Tetrachloroethane	54	U			54	U			54	U			54	U	J	A	54	U			54	U		L	54	U		L
1,3-Dichlorobenzene	61	U			61	U			61	U			61	U	J	A	61	U			61	U		L	61	U		L
1,4-Dichlorobenzene	61	U			61	U			61	U			61	U	J	A	61	U			61	U		L	61	U		L
1,2-Dichlorobenzene	61	U			61	U			61	U			61	U	J	A	61	U			61	U		L	61	U		L

Table A-2
Soil Gas Results from Temporary Probes
Waste Disposal Inc. Site

Geoprobe ID	GP80				GP84				GP86				GP92				GP92(2)			
Sample Date	8/28/97				8/29/97				8/29/97				9/2/97				9/2/97			
Sample Depth					10				10				10				20			
Site Location					Area 1				Area 1				Area 8				Area 8			
Lab Methane (%)					0				0				0				0			
Lab PID VOCs (ppm)									0				0				0			
Lab Methane (ppm)																				
Lab Non-CH4 VOCs (ppm)																				
Laboratory	FASP				FASP				FASP				FASP				FASP			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	74	U			75	U			75	U			75	U			75	U		
Chloromethane	130	U			180	U			180	U			180	U			180	U		
Vinyl chloride	140	U			140	U			140	U			140	U			140	U		
Bromomethane	95	U			95	U			95	U			95	U			95	U		
Chloroethane	130	L	J	H	140	U	UJ	F	140	U	UJ	F	140	U			140	U		
1,1-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
Trichlorofluoromethane	66	U			66	U			66	U			66	U			66	U		
Acetone	**2500**	b			**910**				**1000**	b			**1900**				**1300**			
Methylene chloride	110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene	89	L	J	H	93	U			93	U			93	U			93	U		
2-Butanone	**520**	jb			**210**	j			**300**	j			**210**	j			620	u		
Chloroform	76	U			76	U			76	U			76	U			76	U		
1,1,1-Trichloroethane	68	U			68	U			68	U			68	U			68	U		
Carbon tetrachloride	59	U			59	U			59	U			59	U			59	U		
Benzene	120	U			120	U			120	U			120	U			120	U		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
Trichloroethene	69	U			69	U			69	U			69	U			69	U		
1,2-Dichloropropane	80	U			81	U		I	81	U		I	81	U		I	81	U		I
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
Toluene	98	U			**54**	U	J	J	**98**	U			98	U			98	U		
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U			68	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U		
Tetrachloroethene	54	U			54	U			54	U			54	U			54	U		
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			48	U			48	U		
Chlorobenzene	80	U			80	U			80	U			80	U			80	U		
Ethylbenzene	85	U			85	U			85	U			85	U			85	U		
m- & p- Xylene(s)	170	U			**170**	U			170	U			170	U			170	U		
o-Xylene	85	U	J	E	85	U			85	U			85	U			85	U		
Styrene	87	U			87	U			87	U			87	U			87	U		
1,1,2,2-Tetrachloroethane	54	U			54	U			54	U			54	U			54	U		
1,3-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,4-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,2-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		

Table A-2
Soil Gas Results from Temporary Probes
Waste Disposal Inc. Site

Geoprobe ID	GP93				GP93				GP94				GP95				GP98				GP98(2)				GP98(3)			
Sample Date	9/2/97				9/2/97				9/2/97				9/2/97				9/2/97				9/2/97				9/2/97			
Sample Depth	10				20				10				10				20				20				10			
Site Location	Area 8				Area 8				Area 8				Area 3				Area 2				Area 2				Area 2			
Lab Methane (%)	0				0				0				0				0				0				0			
Lab PID VOCs (ppm)	0				0				0				0				0				0				0			
Analysis Date	9/2/97				9/2/97				9/2/97				9/2/97				9/2/97				9/2/97				9/2/97			
Lab Methane (ppm)																												
Lab Non-CH4 VOCs (ppm)																												
Laboratory	FASP				FASP				FASP				FASP				FASP				FASP				FASP			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	75	U			75	U			75	U			75	U			75	U			75	U			75	U		
Chloromethane	180	U			180	U			180	U			180	U			180	U			180	U			180	U		
Vinyl Chloride	140	U			140	U			140	U			140	U			140	U			140	U			140	U		
Bromomethane	95	U			95	U			95	U			95	U			95	U			95	U			95	U		
Chloroethane	140	U			140	U			140	U			140	U			140	U			140	U			140	U		
1,1-Dichloroethene	93	U			93	U			93	U			93	U			93	U			93	U			93	U		
Trichlorofluoromethane	66	U			66	U			66	U			66	U			66	U			66	U			66	U		
Acetone	**960**				**1500**				**590**				**2900**				**810**				**850**				**760**	j		
Methylene chloride	110	U			110	U			110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U			93	U			93	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U			93	U			93	U		
2-Butanone	620	u			620	u			620	u			**370**	u			**200**	j			620	u			620	u		
Chloroform	76	U			76	U			76	U			76	U			76	U			76	U			76	U		
1,1,1-Trichloroethane	68	U			68	U			68	U			68	U			68	U			68	U			68	U		
Carbon tetrachloride	59	U			59	U			59	U			59	U			59	U			59	U			59	U		
Benzene	120	U			120	U			120	U			120	U			120	U			120	U			120	U		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91	U			91	U			91	U		
Trichloroethene	69	U			**180**				69	U			69	U			69	U			69	U			69	U		
1,2-Dichloropropane	81	U		I	81	U		I	81	U		I	81	U		I	81	U		I	81	U		I	81	U		I
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U	UJ	F	81	U	UJ	F	81	U	UJ	F	81	U	UJ	F
Toluene	98	U			98	U			98	U			98	U			98	U			98	U			98	U		
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U			68	U			68	U			68	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U			43	U			43	U		
Tetrachloroethene	54	U			54	U			54	U			54	U			54	U			54	U			**230**			
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			45	U			48	U			48	U			48	U		
Chlorobenzene	80	U			80	U			80	U			80	U			80	U			80	U			80	U		
Ethylbenzene	85	U			85	U			85	U			85	U			85	U			85	U			85	U		
m- & p- Xylene(s)	170	U			170	U			170	U			170	U			170	U			170	U			170	U		
o-Xylene	85	U			85	U			85	U			85	U			85	U			85	U			85	U		
Styrene	87	U			87	U			87	U			87	U			87	U			87	U			87	U		
1,1,2,2-Tetrachloroethane	54	U			36	U			54	U			54	U			54	U			54	U			54	U		
1,3-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U			61	U			61	U		
1,4-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U			61	U			61	U		
1,2-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U			61	U			61	U		

Table A-2
Soil Gas Results from Temporary Probes
Waste Disposal Inc. Site

Geoprobe ID	GP101				GP102				GP106				GP108				GP108(2)				GP112				GP112(2)			
Sample Date	9/2/97				9/2/97				9/3/97				9/3/97				9/3/97				9/3/97				9/3/97			
Sample Depth	20				20				10				10				20				10				10			
Site Location	Area 2				Area 2				Area 1				Area 1				Area 1				Area 1				Area 1			
Lab Methane (%)	0				0				0				0				0				0				0			
Lab PID VOCs (ppm)	0				1.2				0				0				0				0				0			
Analysis Date	9/2/97				9/2/97				9/3/97				9/3/97				9/3/97				9/3/97				9/3/97			
Lab Methane (ppm)					36	u		c																				
Lab Non-CH4 VOCs (ppm)					110	u	j	ac																				
Laboratory	Quanterra				Quanterra				FASP				FASP				FASP				FASP				FASP			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	1	u			1.8	u		c	75	U			75	U			75	U			75	U			75	U		
Chloromethane	0.47	u			0.72	u		c	180	U			180	U			180	U			180	U			180	U		
Vinyl Chloride	0.20	u			0.36	u		c	140	U			140	U			140	U			140	U			140	U		
Bromomethane	1	u	j	a	1.8	u	j	ac	95	U			95	U			95	U			95	U			95	U		
Chloroethane	1	u			1.8	u		c	140	U			140	U			140	U	UJ	E	140	U			140	U		
1,1-Dichloroethene	0.20	u			0.36	u		c	93	U			93	U			93	U			93	U			93	U		
Trichlorofluoromethane	1	u			1.8	u		c	66	U			66	U			66	U			66	U			66	U		
Acetone	NR				NR				2600	b			2600	b			2600	b			2600	b			2600	b		
Methylene chloride	0.44	u		bd	0.8			bd	110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	0.20	u			0.36	u		c	93	U			93	U			93	U			93	U			93	U		
1,1-Dichloroethane	0.20	u			0.36	u		c	91	U			91	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene	0.20	u			0.36	u		c	93	U			93	U			93	U			93	U			93	U		
2-Butanone	NR				NR				380	j			380	j			380	j			380	j			380	j		
Chloroform	0.20	u			0.36	u		c	75	U			75	U			75	U			75	U			75	U		
1,1,1-Trichloroethane	0.20	u			0.36	u		c	68	U			68	U			68	U			68	U			68	U		
Carbon tetrachloride	0.20	u			0.36	u		c	59	U			59	U			59	U			59	U			59	U		
Benzene	1.30				6.8				120	U			120	U			120	U			120	U			120	U		
1,2-Dichloroethane	0.20	u			0.36	u		c	91	U			91	U			91	U			91	U			91	U		
Trichloroethene	0.84				0.36	u		c	69	U			69	U			69	U			69				69	U		
1,2-Dichloropropane	0.20	u			0.36	u		c	81	U		F	81	U		F	81	U		F	81	U		F	81	U		F
Bromodichloromethane	NR				NR				55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	0.20	u			0.36	u		c	81	U			81	U			81	U			81	U			81	U		
Toluene	2.8				1.4				98	U	UJ	A	98	U			98	U			98	U			98	U		
trans-1,3-Dichloropropene	0.20	u			0.36	u		c	81	U			81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	0.20	u			0.36	u		c	68	U			68	U			68	U			68	U			68	U		
Dibromochloromethane	NR				NR				43	U			43	U			43	U			43	U			43	U		
Tetrachloroethene	2				4.1				54	U	UJ	A	54	U			54	U			54	U			54	U		
1,2-Dibromoethane (EDB)	0.20	u			0.36	u		c	48	U	UJ	A	48	U			48	U			48	U			48	U		
Chlorobenzene	0.20	u			0.48				80	U	UJ	A	80	U			80	U			80	U			80	U		
Ethylbenzene	1.5				24				85	U	UJ	A	85	U			85	U			85	U			85	U		
m- & p- Xylene(s)	2.6				26				170	U	UJ	A	170	U			170	U			170	U			170	U		
o-Xylene	1.1				3.7				85	U	UJ	A	85	U			85	U			85	U			85	U		
Styrene	1	u			1.8	u		c	87	U	UJ	A	87	U			87	U			87	U			87	U		
1,1,2,2-Tetrachloroethane	0.20	u			0.36	u		c	54	U	UJ	A	54	U			54	U			54	U			54	U		
1,3-Dichlorobenzene	0.20	u			0.36	u		c	61	U	UJ	A	61	U			61	U			61	U			61	U		
1,4-Dichlorobenzene	0.5				0.36	u		c	61	U	UJ	A	61	U			61	U			61	U			61	U		
1,2-Dichlorobenzene	0.30				0.81				61	U	UJ	A	61	U			61	U			61	U			61	U		

Table A-2
Soil Gas Results from Temporary Probes
Waste Disposal Inc. Site

Geoprobe ID	GP112(3)				GP116				GP124				GP125				GP125(2)				GP129				GP130			
Sample Date	9/3/97				9/4/97				9/4/97				9/4/97				9/4/97				9/4/97				9/4/97			
Sample Depth					10				10				10				10				10				10			
Site Location	Area 1				Area 4				Area 7				Area 7				Area 7				Area 8				Area 8			
Lab Methane (%)					0				0				0				0				0				0			
Lab PID VOCs (ppm)					0.2				0				0				0				0				0			
Analysis Date	9/3/97				9/4/97				9/4/97				9/4/97				9/4/97				9/4/97				9/4/97			
Lab Methane (ppm)	58	u		cd																								
Lab Non-CH4 VOCs (ppm)	170	u		cd																								
Laboratory	Quanterra				FASP				FASP				FASP				FASP				FASP				FASP			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	1.0	u			75	U			75	U			75	U			75	u			75	U			75	U		
Chloromethane	**0.69**				180	U			180	U			180	U			180	u			180	U			180	U		
Vinyl Chloride	**1.6**				140	U			140	U			140	U			140	u			140	U			140	U		
Bromomethane	1.0	u			95	U			95	U			95	U			95	u			95	U			95	U		
Chloroethane	1.0	u	j	a	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E	140	u	UJ	E	140	U	UJ	E	140	U	UJ	E
1,1-Dichloroethene	0.20	u		b	93	U			93	U			93	U			93	u			93	U			93	U		
Trichlorofluoromethane	1.0	u			66	U			66	U			66	U			66	u			66	U			66	U		
Acetone	NR				**220**	b			**1900**	b			**1400**	b			**1600**	b			**2400**	b			**1900**	b		
Methylene chloride	**1.3**			be	110	U			110	U			110	U			110	u			110	U			110	U		
trans-1,2-Dichloroethene	0.20	u			93	U			93	U			93	U			93	u			93	U			93	U		
1,1-Dichloroethane	0.20	u			91	U			91	U			91	U			91	u			91	U			91	U		
cis-1,2-Dichloroethene	**0.26**				93	U			93	U			93	U			93	u			93	U			93	U		
2-Butanone	NR				**550**	bj			**510**	bj			**450**	bj			**480**	bj			**560**	bj			**620**	bj		
Chloroform	0.20	u			76	U			76	U			76	U			76	u			76	U			76	U		
1,1,1-Trichloroethane	**0.36**				68	U			68	U			68	U			68	u			68	U			68	U		
Carbon tetrachloride	0.20	u			59	U			59	U			59	U			59	u			59	U			59	U		
Benzene	**2.0**				120	U			120	U			120	U			120	u			120	U			120	U		
1,2-Dichloroethane	0.20	u			91	U			91	U			91	U			91	u			91	U			91	U		
Trichloroethene	0.20	u			69	U			69	U			69	U			69	u			170				69	U		
1,2-Dichloropropane	0.20	u			81	U		G	81	U		G	81	U		G	81	u		G	81	U		G	81	U		G
Bromodichloromethane	NR				55	U			55	U			55	U			55	u			55	U			55	U		
cis-1,3-Dichloropropene	0.20	u			81	U			81	U			81	U			81	u			81	U			81	U		
Toluene	**3.5**				98	U	UJ	A	98	U			98	U	UJ	A	98	u			98	U			98	U		
trans-1,3-Dichloropropene	0.20	u			81	U			81	U			81	U			81	u			81	U			81	U		
1,1,2-Trichloroethane	0.20	u			68	U			68	U			68	U			68	u			68	U			68	U		
Dibromochloromethane	NR				43	U			43	U			43	U			43	u			43	U			43	U		
Tetrachloroethene	**0.50**				54	U	UJ	A	54	U			54	U	UJ	A	54	u			54	U			54	U		
1,2-Dibromoethane (EDB)	0.20	u			48	U	UJ	A	48	U			48	U	UJ	A	48	u			48	U			85	U		
Chlorobenzene	0.20	u			80	U	UJ	A	80	U			80	U	UJ	A	80	u			80	U			170	U		
Ethylbenzene	2.6				85	U	UJ	A	85	U			85	U	UJ	A	85	u			85	U			85	U		
m- & p- Xylene(s)	**9.8**				170	U	UJ	A	170	U			170	U	UJ	A	170	u			170	U			170	U		
o-Xylene	**4.1**				85	U	UJ	A	85	U			85	U	UJ	A	85	u			85	U			85	U		
Styrene	1.0	u			87	U	UJ	A	87	U			87	U	UJ	A	87	u			87	U			87	U		
1,1,2,2-Tetrachloroethane	0.20	u			54	U	UJ	A	54	U			54	U	UJ	A	54	u			54	U			54	U		
1,3-Dichlorobenzene	0.20	u			61	U	UJ	A	61	U			61	U	UJ	A	61	u			61	U			61	U		
1,4-Dichlorobenzene	0.20	u			61	U	UJ	A	61	U			61	U	UJ	A	61	u			61	U			61	U		
1,2-Dichlorobenzene	0.20	u			61	U	UJ	A	61	U			61	U	UJ	A	61	u			61	U			61	U		

Table A-2
Soil Gas Results from Temporary Probes
Waste Disposal Inc. Site

Geoprobe ID	GP132				GP133				GP139				GP140				GP140(2)				GP141				GP143			
Sample Date	9/5/97				9/5/97				9/5/97				9/5/97				9/5/97				9/5/97				9/8/97			
Sample Depth	10				10				10				10				10				10				10			
Site Location	Area 8				Area 8				Area 8				Area 8				Area 8				Area 8				Area 8			
Lab Methane (%)	0				0				0				0				0				0				0.4			
Lab PID VOCs (ppm)	0				0				0				0				0				0				173			
Analysis Date	9/5/97				9/5/97				9/5/97				9/5/97				9/5/97				9/5/97				9/8/97			
Lab Methane (ppm)																					5							
Lab Non-CH4 VOCs (ppm)																					18	u		a				
Laboratory	FASP				FASP				FASP				FASP				FASP				Quanterra				FASP			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	75	U			75	U			75	U			75	U			75	U							75	U		
Chloromethane	180	U			180	U			180	U			180	U			180	U							180	U		
Vinyl Chloride	140	U			140	U			140	U			140	U			140	U							140	U		
Bromomethane	95	U			95	U			95	U			95	U			95	U							95	U		
Chloroethane	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E					140	U	UJ	E
1,1-Dichloroethene	93	U			93	U			93	U			93	U			93	U							93	U		
Trichlorofluoromethane	66	U			66	U			66	U			66	U			66	U							66	U		
Acetone	1200	b			1200	b			1200	b			1200	b			1200	b							970	b		
Methylene chloride	110	U			110	U			110	U			110	U			110	U							110	U		
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U							93	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91	U							91	U		
cis-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U							93	U		
2-Butanone	620	bj			620	bj			620	bj			620	bj			620	bj							620	u		
Chloroform	76	U			76	U			76	U			76	U			76	U							76	U		
1,1,1-Trichloroethane	68	U			68	U			68	U			68	U			68	U							68	U		
Carbon tetrachloride	59	U			59	U			59	U			59	U			59	U							59	U		
Benzene	120	U			120	U			120	U			120	U			120	U							120	U		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91	U							91	U		
Trichloroethene	69	U			69	U			69	U			69	U			69	U							69	U		
1,2-Dichloropropane	81	U		G	81	U		G	81	U		G	81	U		G	81	U		G					82	U		
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U							55	U		
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U							82	U		
Toluene	98	U			98	U			98	U			98	U			98	U	UJ	A					98	U		
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U							82	U		
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U			68	U							68	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U							43	U		
Tetrachloroethene	55	U			55	U			55	U			55	U			55	U	UJ	A					55	U	UJ	E
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			48	U			48	U	UJ	A					48	U		
Chlorobenzene	80	U			80	U			80	U			80	U			80	U	UJ	A					80	U		
Ethylbenzene	85	U			85	U			85	U			85	U			85	U	UJ	A					85	U		
m- & p- Xylene(s)	170	U			170	U			170	U			170	U			170	U	UJ	A					170	U		
o-Xylene	85	U			85	U			85	U			85	U			85	U	UJ	A					85	U		
Styrene	87	U			87	U			87	U			87	U			87	U	UJ	A					87	U		
1,1,2,2-Tetrachloroethane	54	U			54	U			54	U			54	U			54	U	UJ	A					54	U		
1,3-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U	UJ	A					62	U		
1,4-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U	UJ	A					62	U		
1,2-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U	UJ	A					62	U		

Table A-2
Soil Gas Results from Temporary Probes
Waste Disposal Inc. Site

Geoprobe ID	GP143(2)				GP143(3)				GP150				GP151				GP152				GP153				GP154			
Sample Date	9/8/97				9/8/97				9/8/97				9/8/97				9/8/97				9/8/97				9/8/97			
Sample Depth	10								10				10				10				10				10			
Site Location	Area 8								Area 8				Area 8				Area 8				Area 8				Area 8			
Lab Methane (%)	0.4								0				0				0				0				1			
Lab PID VOCs (ppm)	173								0				0				0				0				146			
Analysis Date	9/8/97				9/8/97				9/8/97				9/8/97				9/8/97				9/8/97				9/8/97			
Lab Methane (ppm)					11	u		a																				
Lab Non-CH4 VOCs (ppm)					360																							
Laboratory	FASP				Quanterra				FASP				FASP				FASP				FASP				FASP			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	75	U			8.4	u		d	75	U			75	U			75	U			75	U			75	U		
Chloromethane	180	U			3.4	u		d	180	U			180	U			180	U			180	U			180	U		
Vinyl Chloride	140	U			1.7	u		d	140	U			140	U			140	U			140	U			140	U		
Bromomethane	95	U			8.4	u	j	bd	95	U			95	U			95	U			95	U			95	U		
Chloroethane	140	U	UJ	E	8.4	u		cd	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E	140	U	UJ	F
1,1-Dichloroethene	93	U			1.7	u		d	93	U			93	U			93	U			93	U			93	U		
Trichlorofluoromethane	66	U			8.4	u		d	66	U			66	U			66	U			66	U			66	U		
Acetone	970	b			NR				970	b			970	b			970	b			970	b			910	b		
Methylene chloride	110	U			3.5			ce	110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	93	U			1.7	u		d	93	U			93	U			93	U			93	U			93	U		
1,1-Dichloroethane	91	U			1.7	u		d	91	U			91	U			91	U			91	U			92	U		
cis-1,2-Dichloroethene	93	U			1.7	u		d	93	U			93	U			93	U			93	U			93	U		
2-Butanone	620	u			NR				620	u			620	u			620	u			620	u			620	u		
Chloroform	76	U			1.7	u		d	76	U			76	U			76	U			76	U			76	U		
1,1,1-Trichloroethane	68	U			2.4				68	U			68	U			68	U			68	U			68	U		
Carbon tetrachloride	59	U			1.7	u			59	U			59	U			59	U			59	U			59	U		
Benzene	120	U			7.3				120	U			120	U			120	U			120	U			120	U		
1,2-Dichloroethane	91	U			1.7	u		d	91	U			91	U			91	U			91	U			92	U		
Trichloroethene	69	U			1.7	u		d	69	U			69	U			69	U			69	U			69	U		
1,2-Dichloropropane	82	U		G	1.7	u		d	82	U		G	82	U		G	82	U		G	82	U		G	80	U		J
Bromodichloromethane	55	U			NR				55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	82	U			1.7	u		d	82	U			82	U			82	U			82	U			82	U		
Toluene	98	U			18.0				98	U			98	U			98	U			98	U			96	U	UJ	A
trans-1,3-Dichloropropene	82	U			1.7	u		d	82	U			82	U			82	U			82	U			82	U		
1,1,2-Trichloroethane	68	U			1.7	u		d	68	U			68	U			68	U			68	U			68	U		
Dibromochloromethane	43	U			NR				43	U			43	U			43	U			43	U			43	U		
Tetrachloroethene	55	U	UJ	E	1.7	u		d	55	U	UJ	E	55	U	UJ	E	55	U	J	RH	55	U	UJ	E	55	U	UJ	A
1,2-Dibromoethane (EDB)	48	U			1.7	u		d	48	U			48	U			48	U			48	U			48	U	UJ	A
Chlorobenzene	80	U			1.7	u		d	80	U			80	U			80	U			80	U			80	U	UJ	A
Ethylbenzene	85	U			8.4	u		d	85	U			85	U			85	U			85	U			85	U	UJ	A
m- & p- Xylene(s)	170	U			17.0	u		d	170	U			170	U			170	U			170	U			170	U	UJ	A
o-Xylene	85	U			8.4	u		d	85	U			85	U			85	U			85	U			85	U	UJ	A
Styrene	87	U			8.4	u		d	87	U			87	U			87	U			87	U			87	U	UJ	A
1,1,2,2-Tetrachloroethane	54	U			1.7	u		d	54	U			54	U			54	U			54	U			54	U	UJ	A
1,3-Dichlorobenzene	62	U			1.7	u		d	62	U			62	U			62	U			62	U			62	U	UJ	A
1,4-Dichlorobenzene	62	U			1.7	u		d	62	U			62	U			62	U			62	U			62	U	UJ	A
1,2-Dichlorobenzene	62	U			1.7	u		d	62	U			62	U			62	U			62	U			62	U	UJ	A

Table A-2
Soil Gas Results from Temporary Probes
Waste Disposal Inc. Site

Geoprobe ID	GP159				GP159				GP168				GP168(2)				GP172				GP172(2)				GP172(3)			
Sample Date	9/9/97				9/9/97				9/10/97				9/10/97				9/11/97				9/11/97				9/11/97			
Sample Depth	10								5				5				6				6				6			
Site Location	Area 7				Area 7				Area 7				Area 7				Area 2				Area 2				Area 2			
Lab Methane (%)	2.3								7.3				7.3				8.5				8.5				8.5			
Lab PID VOCs (ppm)	64.5								109.5				109.5				135.1				135.1				135.1			
Analysis Date	9/9/97				9/9/97				9/10/97				9/10/97				9/11/97				9/11/97				9/11/97			
Lab Methane (ppm)					7600			a					48000				28000			h	26000							
Lab Non-CH4 VOCs (ppm)					1700			a					2200				2500				2400							
Laboratory	FASP				Quanterra				FASP				Quanterra				Quanterra				Quanterra				FASP			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	74	U							75	U			110	u		d	94	u		d	92	u		d	250	u		
Chloromethane	180	U							180	U			45	u		d	37	u		d	37	u		d	1900	j		
Vinyl Chloride	140	U							140	U			23	u		d	270				260				370	j		
Bromomethane	94	U							95	U			110	u	j	bd	94	u		d	92	u		d	310	u		
Chloroethane	140	U	UJ	F					140	U			110	u	j	cd	94	u		d	92	u		d	460	u		
1,1-Dichloroethene	92	U							93	U			23	u		d	19	u		d	18	u		d	310	u		
Trichlorofluoromethane	65	U							66	U			110	u		d	94	u		d	92	u		d	220	u		
Acetone	4700	b							910	b			NR				NR				NR				3800			
Methylene chloride	110	U							110	U			53		j	ac	41	u	j	be	38	u	j	be	350	u		
trans-1,2-Dichloroethene	92	U							93	U			23	u		d	19	u		d	18	u		d	310	u		
1,1-Dichloroethane	91	U							92	U			23	u		d	19	u		d	18	u		d	300	u		
cis-1,2-Dichloroethene	92	U							93	U			23	u		d	19	u		d	18	u		d	310	u		
2-Butanone	990	u							620	u			NR				NR				NR				2100	u		
Chloroform	75	U							76	U			46		j	a	19	u		d	18	u		d	250	u		
1,1,1-Trichloroethane	67	U							68	U			23	u		d	19	u		d	18	u		d	220	u		
Carbon tetrachloride	58	U							59	U			23	u		d	19	u		d	18	u		d	190	u		
Benzene	110	U							120	U			24				1500				1400				3200			
1,2-Dichloroethane	91	U							92	U			23	u		d	36				34				300	u		
Trichloroethene	68	U							69	U			23	u		d	35				35				230	u		
1,2-Dichloropropane	81	U		J					80	U	J		23	u		d	250	u		e	31	u		e	270	u		
Bromodichloromethane	850	U							55	U			NR				NR				NR				230			
cis-1,3-Dichloropropene	81	U							82	U			23	u		d	19	u		d	18	u		d	270	u		
Toluene	97	U							98	U			46		j	a	300		j	a	350		j	a	500	u		
trans-1,3-Dichloropropene	81	U							82	U			23	u		d	19	u		d	18	u		d	270	u		
1,1,2-Trichloroethane	67	U							68	U			23	u		d	19	u		d	18	u		d	220	u		
Dibromochloromethane	43	U							43	U			NR				NR				NR				140	u		
Tetrachloroethene	54	U							55	U			23	u		d	1300				1300				78	u		
1,2-Dibromoethane (EDB)	48	U							48	U			23	u		d	19	u		d	18	u		d	160	u		
Chlorobenzene	80	U							80	U			23	u		d	99				98				270	u		
Ethylbenzene	84	U							85	U			110	u		d	94	u		d	92	u		d	280	u		
m- & p- Xylene(s)	170	U							170	U			230	u		d	190	u		d	180	u		d	190	j		
o-Xylene	84	U							85	U			110	u		d	94	u		d	92	u		d	1220	j		
Styrene	86	U							87	U			110	u		d	94	u		d	92	u		d	290	u		
1,1,2,2-Tetrachloroethane	53	U							54	U			23	u		d	19	u		d	18	u		d	180	u		
1,3-Dichlorobenzene	61	U							62	U			23	u		d	19	u		d	18	u		d	200	u		
1,4-Dichlorobenzene	61	U							62	U			23	u		d	75			c	76			c	200	u		
1,2-Dichlorobenzene	61	U							62	U			23	u		d	48				49				200	u		

Table A-2
Soil Gas Results from Temporary Probes
Waste Disposal Inc. Site

Geoprobe ID	GP172(4)				GP172				GP172				GP174				GP175				GP175(2)				GP175(3)			
Sample Date	9/11/97				9/11/97				9/11/97				9/11/97				9/11/97				9/11/97				9/11/97			
Sample Depth	6												5				10				15				15			
Site Location	Area 2												Area 2				Area 2				Area 2				Area 2			
Lab Methane (%)	8.5												10.3				0				63.3				63.3			
Lab PID VOCs (ppm)	135.1												113.1				2.3				52.7				52.7			
Analysis Date	9/11/97				9/11/97				9/11/97				9/11/97				9/11/97				9/11/97				9/11/97			
Lab Methane (ppm)																												
Lab Non-CH4 VOCs (ppm)																												
Laboratory	FASP				FASP				FASP				FASP				FASP				FASP				FASP			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	74	u			75	U			75	U			75	U			74	u			74	u			75	U		
Chloromethane	2100				180	U			180	U			180	U			1300				1200				180	U		
Vinyl Chloride	340				280				350				9800	D			140	u			140	u			150	U		
Bromomethane	94	u			95	U			95	U			95	U			94	u			94	u			95	U		
Chloroethane	140	u			140	U	UJ	F	140	U	UJ	F	140	U	UJ	F	140	u			140	u			140	U	UJ	F
1,1-Dichloroethene	92	u			93	U			93	U			93	U			92	u			92	u			93	U		
Trichlorofluoromethane	65	u			66	U			66	U			66	U			65	u			65	u			66	U		
Acetone	930				28000				2100				770	u			770	u			770	u			1200			
Methylene chloride	110	u			110	U			110	U			110	U			110	u			110	u			110	U		
trans-1,2-Dichloroethene	92	u			93	U			93	U			200				92	u			92	u			93	U		
1,1-Dichloroethane	91	u			92	U			92	U			92	U			91	u			91	u			92	U		
cis-1,2-Dichloroethene	92	u			93	U			93	U			210				92	u			92	u			93	U		
2-Butanone	620	u			620	u			620	u			620	u			620	u			620	u			620	u		
Chloroform	75	u			76	U			76	U			76	U			75	u			75	u			76	U		
1,1,1-Trichloroethane	67	u			68	U			68	U			68	U			67	u			67	u			68	U		
Carbon tetrachloride	58	u			59	U			59	U			59	U			58	u			58	u			59	U		
Benzene	1600	e			1600	D			3300	D			2000	D			400				1600	e			17000	DE	J	AK
1,2-Dichloroethane	91	u			92	U			92	U			92	U			91	u			27	j			92	U		
Trichloroethene	43	j			41	L	J	I	43	L	J	I	57	L	J	I	68	u			68	u			69	U		
1,2-Dichloropropane	81	u			80	U		J	80	U		J	80	U		J	81	u			81	u			80	U		J
Bromodichloromethane	220				55	U			55	U			55	U			130				150				55	U		
cis-1,3-Dichloropropene	81	u			82	U			82	U			82	U			81	u			81	u			82	U		
Toluene	250				100				270		J	A	740	D	J	A	530				770				7800	D	J	A
trans-1,3-Dichloropropene	81	u			82	U			82	U			82	U			81	u			81	u			82	U		
1,1,2-Trichloroethane	67	u			68	U			68	U			68	U			67	u			67	u			68	U		
Dibromochloromethane	43	u			44	U			44	U			44	U			43	u			43	u			44	U		
Tetrachloroethene	1300	e			1100	D			790	L	J	AI	55	U			54	u			54	u			55	U		
1,2-Dibromoethane (EDB)	48	u			48	U			48	U	UJ	A	48	U			48	u			48	u			48	U		
Chlorobenzene	44	j			46	L	J	I	44	L	J	AI	81	U			80	u			80	u			81	U		
Ethylbenzene	110				85	U			110		J	A	1900	E	J	AK	23	j			42	j			3500	D	J	AK
m- & p- Xylene(s)	120	j			170	U			120	L	J	AI	400		J	A	32	j			61	j			4700	D	J	AK
o-Xylene	91				43	L	J	EI	92		J	AE	380	U	J	AE	84	u			21	j			3400	D	J	AEK
Styrene	86	u			87	U			87	U	A	A	87	U			86	u			86	u			87	U		
1,1,2,2-Tetrachloroethane	53	u			54	U			54	U	A	A	54	U			53	u			53	u			54	U		
1,3-Dichlorobenzene	61	u			62	U			62	U	A	A	62	U			61	u			61	u			62	U		
1,4-Dichlorobenzene	29	j			39	U	J	I	62	U	A	A	62	U			61	u			61	u			62	U		
1,2-Dichlorobenzene	18	j			62	U			92	U	A	A	62	U			61	u			61	u			62	U		

Table A-2
Soil Gas Results from Temporary Probes
Waste Disposal Inc. Site

Geoprobe ID	GP180				GP185				GP186				GP190			
Sample Date	9/12/97				9/23/97				9/23/97				9/22/97			
Sample Depth	8				8				10							
Site Location	Area 1				Area 8											
Lab Methane (%)	13.8				0				>100							
Lab PID VOCs (ppm)	8.5				0				13.8							
Analysis Date	9/12/97				9/23/97				9/23/97							
Lab Methane (ppm)													9.8			
Lab Non-CH4 VOCs (ppm)													20			
Laboratory	FASP				FASP				FASP				Quanterra			
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorodifluoromethane	75	U			75	u			380	u			5	u		d
Chloromethane	180	U			180	u			900	u			2	u		d
Vinyl Chloride	140	U			150	u			730	u			1	u		d
Bromomethane	95	U			96	u			480	u			5			d
Chloroethane	140	U	UJ	F	140	u			700	u			5	u		de
1,1-Dichloroethene	93	U			94	u			470	u			1	u		d
Trichlorofluoromethane	66	U			66	u			330	u			5	u		d
Acetone	920	b			3000	b			3900	u			NR			
Methylene chloride	110	U			110	u			530	u			2.3		j	ae
trans-1,2-Dichloroethene	93	U			94	u			470	u			5	u		de
1,1-Dichloroethane	92	U			92	u			460	u			1	u		d
cis-1,2-Dichloroethene	93	U			94	u			470	u			1	u		d
2-Butanone	630	u			630	u			3200	u			NR			
Chloroform	76	U			76	u			380	u			1	u		d
1,1,1-Trichloroethane	68	U			68	u			340	u			1.7			
Carbon tetrachloride	59	U			59	u			300	u			1	u		d
Benzene	120	U			120	u			2000				6.5			
1,2-Dichloroethane	92	U			92	u			460	u			1	u		d
Trichloroethene	69	U			620				350	u			1	u		d
1,2-Dichloropropane	80	U		J	82	u			410	u			1	u		d
Bromodichloromethane	55	U			55	u			280	u			NR			
cis-1,3-Dichloropropene	82	U			82	u			410	u			1	u		d
Toluene	140		J	A	99	u			625				17			
trans-1,3-Dichloropropene	82	U			82	u			410	u			1	u		d
1,1,2-Trichloroethane	68	U			68	u			340	u			1	u		d
Dibromochloromethane	44	U			44	u			220	u			NR			e
Tetrachloroethene	55	U	UJ	A	63				270	u			1.2			d
1,2-Dibromoethane (EDB)	48	U	UJ	A	48	u			240	u			1	u		d
Chlorobenzene	81	U	UJ	A	81	u			400	u			1	u		
Ethylbenzene	85	U	UJ	A	86	u			1900				25			
m- & p- Xylene(s)	170	U	UJ	A	170	u			2700				96			
o-Xylene	85	U	UJ	A	86	u			890				31			
Styrene	87	U	UJ	A	87	u			440	u			5	u		d
1,1,2,2-Tetrachloroethane	54	U	UJ	A	54	u			270	u			1	u		d
1,3-Dichlorobenzene	62	U	UJ	A	62	u			310	u			1	u		d
1,4-Dichlorobenzene	62	U	UJ	A	62	u			310	u			1	u		d
1,2-Dichlorobenzene	62	U	UJ	A	62	u			310	u			1	u		d

Table A-2
Soil Gas Results from Temporary Probes
Waste Disposal Inc. Site

Shaded Cells indicate VOCs exceed threshold values.

Qual = Qualifier. Data qualifiers given by the lab.
Val = Validator. Data qualifiers given by lab during data validation.
Com = Comments. Comments regarding data quality; provided in data validation reports.

Data Qualifier Definitions	
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
L	Indicates results which fall below the reporting limit. Results are estimated and are condidered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit if quantitation necessary to accurately and precisely measure the analyte in the sample.

Table A-3
Analytical Results of Ambient Air Samples (Background)
Waste Disposal Inc. Site

Sample Location	Corner of Greenleaf/ Los Nietos				Corner of Greenleaf/ Los Nietos				Corner of Greenleaf/ Los Nietos				Corner of Greenleaf/ Los Nietos			
Sampling Period	8/3-8/4/97				8/10/97				8/18/97				9/15/97			
Sample ID	SYN539				SYN549				SYN493 BG				SYN557			
Laboratory	EPA Reg 9				EPA Reg 9				Quanterra				Quanterra			
Lab Methane (ppm)																
Lab Total Non-Methane Organic Carbon (TNMOC) (ppm)																
Laboratory Parameter	Result	Qual	Val	Com	Result	Qual	Val	Com	Result	Qual	Val	Com	Result	Qual	Val	Com
	(ppbv)				(ppbv)				(ppbv)				(ppbv)			
Dichlorofluoromethane	1.0	u			**0.5**	L	J	AF	1.3	u		G	**0.7**	L	J	F
Chloromethane	1.0	u			**0.5**	L	J	AF	0.51	u		G	**0.5**	L	J	F
Vinyl chloride	1.0	u			1	u	J	A	0.25	u		G	1	u	J	
1,2-Dichloro-1,1,2,2- tetrafluoroethane	1.0	u			1	u	J	A	1.3	u		G	1	u	J	
Bromomethane	1.0	u			1	u	J	A	1.3	u		G	1	u	J	
Chloroethane	1.0	u			1	u	J	A	1.3	u		G	1	u	J	
1,1-Dichloroethene	1.0	u			1	u	J	A	0.25	u		G	1	u	J	
Trichlorofluoromethane	1.0	u			**0.3**	L	J	AF	1.3	u		G	**0.3**	L	J	F
1,1,2-Trichloro-1,2,2- trifluoroethane	1.0	u			1	u	J	A	1.3	u		G	1	u	J	
Methylene chloride	0.4	L	J	DE	0.6	u	J	ADE	0.77	u	J	AF	1	u	J	DE
trans-1,2-Dichloroethene	NR				NR				0.25	u		G	NR			
1,1-Dichloroethane	1.0	u			1	u	J	A	0.25	u		G	1	u	J	
cis-1,2-Dichloroethene	1.0	u			1	u	J	A	0.25	u		G	1	u	J	
Chloroform	1.0	u			1	u	J	A	0.25	u		G	1	u	J	
1,1,1-Trichloroethane	1.0	u			1	u	J	A	0.25	u		G	**0.9**	L	J	F
Carbon tetrachloride	1.0	u			1	u	J	A	0.25	u		G	1	u	J	
Benzene	1.0	u			**0.5**		J	AF	**1.2**				**2**		J	
1,2-Dichloroethane	1.0	u			1	u	J	A	0.25	u		G	1	u	J	
Trichloroethene	1.0	u			1	u	J	A	0.25	u		G	1	u	J	
1,2-Dichloropropane	1.0	u			1	u	J	A	0.25	u		G	1	u	J	
cis-1,3-Dichloropropene	1.0	u			1	u	J	A	0.25	u		G	1	u	J	
Toluene	1.0	u			**1**		J	AF	**5.2**				**4**		J	
trans-1,3-Dichloropropene	1.0	u			1	u	J	A	0.25	u	J	CG	1	u	J	
1,1,2-Trichloroethane	1.0	u			1	u	J	A	0.25	u	J	CG	1	u	J	
Tetrachloroethene	1.0	u			1	u	J	A	0.25	u	J	CG	**0.4**	L	J	F
1,2-Dibromoethane (EDB)	1.0	u			1	u	J	A	0.25	u	J	CG	1	u	J	
Chlorobenzene	1.0	u			1	u	J	A	0.25	u	J	CG	1	u	J	
Ethylbenzene	1.0	u			1	u	J	A	1.3	u	J	CG	**0.5**	L	J	F
m- & p- Xylene(s)	1.0	u			**0.4**		J	AF	**3.7**		J	C	**2**		J	
o-Xylene	1.0	u			**0.3**		J	AF	**1.5**		J	C	**0.6**	L	J	F
Styrene	1.0	u			1	u	J	A	1.3	u	J	CG	1	u	J	
1,1,2,2-Tetrachloroethane	1.0	u			1	u	J	A	0.25	u	J	CG	1	u	J	
1,3,5-Trimethylbenzene	1.0	u			1	u	J	A	1.3	u	J	CG	1	u	J	
1,2,4-Trimethylbenzene	1.0	u			**0.3**		J	AF	**2.3**		J	C	**0.5**	L	J	F
1,3-Dichlorobenzene	1.0	u			1	u	J	A	0.25	u	J	CG	1	u	J	B
1,4-Dichlorobenzene	1.0	u			1	u	J	A	0.25	u	J	CG	1	u	J	B
1,2-Dichlorobenzene	1.0	u			1	u	J	A	0.25	u	J	CG	1	u	J	
Hexachloro-1,3-butadiene	NR				1	u	J	C	NR				NR			

Table A-3
Analytical Results of Ambient Air Samples (Background)
Waste Disposal Inc. Site

Sample Location	Corner of Greenleaf/ Los Nietos				Corner of Greenleaf/ Los Nietos				Corner of Greenleaf/ Los Nietos				Corner of Greenleaf/ Los Nietos			
Sampling Period	8/25/97				9/22/97				8/24-8/25/97				9/21-9/22/97			
Sample ID	SYN503				SYN582				SYN518				SYN581			
Laboratory	Quanterra				Quanterra				Quanterra				Quanterra			
Lab Methane (ppm)	46	u		f					39	u	j	cf	3.6	u	j	bd
Lab Total Non-Methane Organic Carbon (TNMOC) (ppm)	140	u		f					120	u	j	cf	18	u	j	bd
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorofluoromethane	1	u			1.00	u	J	B	1.0	u	J	c	1.00	u	J	B
Chloromethane	0.4	u			0.40	u	J	B	**2.70**		J	c	**0.54**		J	B
Vinyl Chloride	0.2	u			0.20	u	J	B	0.2	u	J	c	0.20	u	J	B
1,2-Dichloro-1,1,2,2- tetrafluoroethane	1	u			1.00	u	J	B	1.0	u	J	c	1.00	u	J	B
Bromomethane	1	u			1.00	u	J	B	1.0	u	J	c	1.00	u	J	B
Chloroethane	1	u			1.00	u	J	B	1.0	u	J	bc	1.00	u	J	BE
1,1-Dichloroethene	0.2	u			0.20	u	J	B	0.2	u	J	c	0.20	u	J	B
Trichlorofluoromethane	1	u			1.00	u	J	B	1.0	u	J	c	1.00	u	J	B
1,1,2-Trichloro-1,2,2- trifluoroethane	1	u			1.00	u	J	B	1.0	u	J	c	1.00	u	J	B
Methylene chloride	0.21			AD	**0.24**		J	ABE	**0.77**		J	acd	**0.87**		J	ABE
trans-1,2-Dichloroethene	0.2	u			0.20	u	J	B	0.2	u	J	c	0.20	u	J	BE
1,1-Dichloroethane	0.2	u			0.20	u	J	B	0.2	u	J	c	0.20	u	J	B
cis-1,2-Dichloroethene	0.2	u			0.20	u	J	B	0.2	u	J	c	0.20	u	J	B
Chloroform	0.2	u			0.20	u	J	B	0.2	u	J	c	0.20	u	J	B
1,1,1-Trichloroethane	0.2	u			0.20	u	J	B	**0.24**		J	c	**0.44**		J	BF
Carbon tetrachloride	0.2	u			0.20	u	J	B	0.2	u	J	c	0.20	u	J	B
Benzene	0.2	u			0.20	u	J	B	**1.0**		J	c	**1.40**		J	B
1,2-Dichloroethane	0.2	u			0.20	u	J	B	0.2	u	J	c	0.20	u	J	B
Trichloroethene	0.2	u			0.20	u	J	B	0.2	u	J	c	0.20	u	J	B
1,2-Dichloropropane	0.2	u			0.20	u	J	B	0.2	u	J	c	0.20	u	J	B
cis-1,3-Dichloropropene	0.2	u			0.20	u	J	B	0.2	u	J	c	0.20	u	J	B
Toluene	0.3	u			0.30	u	J	B	**2.1**		J	c	**4.30**		J	B
trans-1,3-Dichloropropene	0.2	u			0.20	u	J	B	0.2	u	J	c	0.20	u	J	B
1,1,2-Trichloroethane	0.2	u			0.20	u	J	B	0.2	u	J	c	0.20	u	J	B
Tetrachloroethene	0.2	u			0.20	u	J	B	0.20	u	J	c	**0.24**		J	BEF
1,2-Dibromoethane (EDB)	0.2	u			0.20	u	J	B	0.2	u	J	c	0.20	u	J	B
Chlorobenzene	0.2	u			0.20	u	J	B	0.2	u	J	c	0.20	u	J	B
Ethylbenzene	1	u			1.00	u	J	B	1.0	u	J	c	1.00	u	J	B
m- & p- Xylene(s)	2	u			2.00	u	J	B	1.0	u	J	c	**2.20**		J	B
o-Xylene	1	u			1.00	u	J	BE	1.0	u	J	c	1.00	u	J	BEF
Styrene	1	u			1.00	u	J	B	1.0	u	J	c	1.00	u	J	B
1,1,2,2-Tetrachloroethane	0.2	u			0.20	u	J	B	0.2	u	J	c	0.20	u	J	B
1,3,5-Trimethylbenzene	1	u			1.00	u	J	BE	1.0	u	J	c	1.00	u	J	BE
1,2,4-Trimethylbenzene	1	u			1.00	u	J	B	1.0	u	J	c	**1.10**		J	BE
1,3-Dichlorobenzene	0.2	u			0.20	u	J	B	**1.2**		J	c	0.20	u	J	B
1,4-Dichlorobenzene	0.2	u			0.20	u	J	B	0.2	u	J	c	**0.36**		J	BF
1,2-Dichlorobenzene	0.2	u			0.20	u	J	B	0.2	u	J	c	**1.10**		J	BF
Hexachloro-1,3-Butadene	NR								1	u	J	A	NR			

Table A-3
Analytical Results of Ambient Air Samples (Background)
Waste Disposal Inc. Site

	Shaded Cells indicate VOCs exceed threshold values.	
	Qual = Qualifier. Data qualifiers given by the lab.	
	Val = Validator. Data qualifiers given by lab during data validation.	
	Com = Comments. Comments regarding data quality; provided in data validation reports.	
	Data Qualifier Definitions	
	J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
	L	Indicates results which fall below the reporting limit. Results are estimated and are condidered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.
	U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
	UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit if quantitation necessary to accurately and precisely measure the analyte in the sample.

Table A-4
Analytical Results of Indoor Air Samples
Waste Disposal Inc. Site

Sample Location	Brothers Machine 9483 Greenleaf				Brothers Machine 9483 Greenleaf				Brothers Machine 9483 Greenleaf				Brothers Machine (dup) 9483 Greenleaf				Metro Diesel 12631 Los Nietos Rd.				R&R Sprouts 12633 Los Nietos Rd.				Stanley Brothers 12635 Los Nietos Rd.				Stanley Brothers (dup) 12635 Los Nietos Rd.			
Sampling Period	8/3-8/4/97				8/3-8/4/97				8/24-8/25/97				8/24-8/25/97				8/10-8/11/97				8/24-8/25/97				9/14-9/15/97				9/14-9/16/97			
Sample ID	SYN471				SYN539				SYN497				SYN498				SYN544				SYN517				SYN551				SYN552			
Laboratory	Quanterra				EPA Reg 9				Quanterra				Quanterra				EPA Reg 9				EPA Reg 9				EPA Region 9				EPA Region 9			
Methane (ppm)	39								34	u	J	CF	39	u	J	CF																
TNMOC	12								100	u	J	CF	120	u	J	CF																
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorofluoromethane	1.0	u			0.6	L	j	F	1.0	u	J	C	1.0	u	J	C	**0.8**	L	J	F	**1**				**7**		J	A	**8**			
Chloromethane	**1.5**				2				**0.55**		J	C	**0.44**		J	C	**0.5**	L	J	F	**0.6**	L	J	F	1		J	A	**0.9**	L	J	F
Vinyl chloride	0.2	u			1	u	u		0.2	u	J	C	0.2	u	J	C	1	u			1	u	u		**0.5**	L	J	AF	1	u		
1,2-Dichloro-1,1,2,2-tetrafluoroethane	1.0				1	u	u		1.0	u	J	C	1.0	u	J	C	1	u			1	u	u		1	u	J	A	1	u		
Bromomethane	1.0	u			1	u	u		1.0	u	J	C	1.0	u	J	C	1	u			1	u	u		1	u	J	A	1	u		
Chloroethane	1.0	u			1	u	u		1.0	u	J	C	1.0	u	J	BC	1	u			1	u	u		1	u	J	A	1	u		
1,1-Dichloroethene	0.2	u			1	u	u		0.2	u	J	C	0.2	u	J	C	1	u			1	u	u		1	u	J	A	1	u		
Trichlorofluoromethane	1.0	u			0.4	L	J	F	1.0	u	J	C	1.0	u	J	C	**0.3**	L	J	F	**0.7**	L	J	F	**1**		J	A	**0.6**	L	J	F
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	u			1	u	u		1.0	u	J	C	1.0	u	J	C	1	u			1	u	J	B	1	u	J	AB	1	u	J	
Methylene chloride	**0.7**			BC	0.8		J	DE	**0.5**		J	ACD	**0.51**		J	ACD	**370**				**7**				**2**		J	ADE	**2**		J	
trans-1,2-Dichloroethene	0.2	u			NR				0.2	u	J	C	0.2	u	J	C	NR				NR				NR				NR			
1,1-Dichloroethane	0.2	u			1	u			0.2	u	J	C	0.2	u	J	C	1	u			1	u	u		1	u	J	A	1	u		
cis-1,2-Dichloroethene	0.2	u			1	u			0.2	u	J	C	0.2	u	J	C	1	u			1	u	u		1	u	J	A	1	u		
Chloroform	0.2	u			1	u			0.2	u	J	C	0.2	u	J	C	**0.6**	L	J	F	1	u	u		**0.2**	L	J	AF	**0.2**	L	J	F
1,1,1-Trichloroethane	**0.32**			C	0.3	L	J	F	**0.22**		J	C	**0.22**		J	C	**0.6**	L	J	F	1	u	u		**3**		J	A	**3**			
Carbon tetrachloride	0.2	u			1	u			0.2	u	J	C	0.2	u	J	C	1	u			1	u	u		**0.5**	L	J	AF	1	u		
Benzene	**1.9**				1				**0.60**		J	C	**0.58**		J	C	**0.8**	L	J	F	**0.6**	L	J	F	**6**		J	A	**6**			
1,2-Dichloroethane	0.2	u			1	u			0.2	u	J	C	0.2	u	J	C	1	u			1	u	u		1	u	J	A	1	u		
Trichloroethene	0.2	u			1	u			0.2	u	J	C	0.2	u	J	C	1	u			1	u	u		**0.8**	L	J	AF	1	u		
1,2-Dichloropropane	0.2	u			1	u			0.2	u	J	C	0.2	u	J	C	1	u			1	u	u		1	u	J	A	1	u		
cis-1,3-Dichloropropene	0.2	u			1	u			0.2	u	J	C	0.2	u	J	C	1	u			1	u	u		1	u	J	A	1	u		
Toluene	**8.6**				7				**2.0**		J	C	**1.8**		J	C	**13**				**2**				**66**		J	A	**62**			
trans-1,3-Dichloropropene	0.2	u			1	u			0.2	u	J	C	0.2	u	J	C	1	u			1	u	u		1	u	J	A	1	u		
1,1,2-Trichloroethane	0.2	u			1	u			0.2	u	J	C	0.2	u	J	C	1	u			1	u	u		1	u	J	A	1	u		
Tetrachloroethene	**1.5**				0.5	L	J	F	**0.25**		J	C	**0.23**		J	C	**0.8**	L	J	F	1	u	u		**0.8**	L	J	AF	**0.4**	L	J	F
1,2-Dibromoethane (EDB)	0.2	u			1	u			0.2	u	J	C	0.2	u	J	C	1	u			1	u	u		1	u	J	A	1	u		
Chlorobenzene	0.2	u			1	u			0.2	u	J	C	0.2	u	J	C	1	u			1	u	u		1	u	J	A	1	u		
Ethylbenzene	**1.1**				0.6	L	J	F	1.0	u	J	C	1.0	u	J	C	**1**				**0.3**	L	J	F	**8**		J	A	**9**			
m- & p- Xylene(s)	**4.4**				2				2.0	u	J	C	2.0	u	J	C	**4**				**1**	L	J	F	**33**		J	A	**35**			
o-Xylene	**1.3**				0.8	L	J	F	1.0	u	J	C	1.0	u	J	C	**2**				**0.4**	L	J	F	**12**		J	A	**13**			
Styrene	1.0	u			0.5	j	J	F	1.0	u	J	C	1.0	u	J	C	1	u			**0.3**	L	J	F	**1**		J	A	**1**	j		
1,1,2,2-Tetrachloroethane	0.2	u			1	u			0.2	u	J	C	0.2	u	J	C	1	u			1	u	u		**1**		J	A	**0.4**	L	J	F
1,3,5-Trimethylbenzene	1.0	u			0.2	L	J	F	1.0	u	J	C	1.0	u	J	C	**0.9**	L		F	**0.3**	L	J	F	**3**		J	A	**4**			
1,2,4-Trimethylbenzene	1.0	u			0.6	L	J		1.0	u	J	C	1.0	u	J	C	**3**				**1**				**12**		J	A	**12**			
1,3-Dichlorobenzene	0.2	u			1	u			0.2	u	J	C	0.2	u	J	C	1	u			1	u	J	B	1	u	J	AB	1	u	J	B
1,4-Dichlorobenzene	0.2	u			1	u			**0.63**		J	C	**0.70**		J	C	1	u			1	u	u		1	u	J	AB	1	u	J	B
1,2-Dichlorobenzene	0.2	u			1	u			0.2	u	J	C	0.2	u	J	C	1	u			1	u	u		1	u	J	A	1	u		
Hexachloro-1,3-butadiene	NR				1	u			NR				NR				NR				1	u	J	C	1	u	J	AC	1	u	J	C

Table A-4
Analytical Results of Indoor Air Samples
Waste Disposal Inc. Site

Sample Location	Buffalo Bullet 12637A Los Nietos Rd.				C&E Die Fab 12637B Los Nietos Rd.				C&E Die Fab (dup) 12637B Los Nietos Rd.				C&E Die Fab 12637B Los Nietos Rd.				C&E Die Fab (dup) 12637B Los Nietos Rd.				Bell Auto Body 12645 Los Nietos				D&H Laminating 12707 Los Nietos Rd.				Timmons Wood Products 12731 Los Nietos Rd.			
Sampling Period	8/10-8/11/97				8/10-8/11/97				8/10-8/11/97				8/24-8/25/97				8/24-8/25/97				8/24-8/25/97				8/17-8/18/97				9/14-9/15/97			
Sample ID	SYN545				SYN546				SYN547				SYN501				SYN502				SYN511				SYN492				SYN553			
Laboratory	EPA Reg 9				EPA Reg 9				EPA Reg 9				Quanterra				Quanterra				EPA Region 9				Quanterra				EPA Region 9			
Methane (ppm)													46	u		f	44	u		f												
TNMOC													140	u		f	130	u		f												
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorofluoromethane	0.6	L	J	AF	0.5	L	J	F	0.5	L	J	F	1.0	u			1.0	u			0.9	L	J	F	1.0	u	J	E	1			
Chloromethane	0.5	L	J	AF	0.5	L	J	F	0.5	L	J	F	1.6				1.50				2				0.63		J	EF	0.8	L	J	F
Vinyl chloride	1	u	J	A	1	u			1	u		A	0.2	u			0.2	u			1	u			0.2	u	J	EF	1	u	u	
1,2-Dichloro-1,1,2,2-tetrafluoroethane	1	u	J	A	1	u			1	u		A	1.0	u			1.0	u			1	u			1.0	u	J	E	1	u	u	
Bromomethane	1	u	J	A	1	u			1	u		A	1.0	u	J	B	1.0	u			1	u			1.0	u	J	E	0.2	L	J	F
Chloroethane	1	u	J	A	1	u			1	u		A	1.0	u			1.0	u	J	B	1	u			1.0	u	J	E	1	u	u	
1,1-Dichloroethene	1	u	J	A	1	u			1	u		A	0.2	u			0.2	u			1	u			0.2	u	J	E	1	u	u	
Trichlorofluoromethane	0.3	L		AF	0.3	L	J	F	0.3	L	J	F	1.0	u			1.0	u			0.3	L	J	F	1.0	u	J	E	0.6	L	J	F
1,1,2-Trichloro-1,2,2-trifluoroethane	1	u		A	1	u			1	u		A	1.0	u			1.0	u			1	u	J	B	1.0	u	J	E	1	u	J	B
Methylene chloride	4		J	ADE	4			DE	5			A	1.20	u	J	AB	1.10		J	A	1	b	J	DE	0.61	u	J	AEF	2		J	DE
trans-1,2-Dichloroethene	NR				NR				NR				0.2	u			0.2	u			NR				0.2	u	J	E	NR			
1,1-Dichloroethane	1	u		A	1	u			1	u		A	0.2	u			0.2	u			1	u			0.2	u	J	E	1	u	u	
cis-1,2-Dichloroethene	1	u		A	1	u			1	u		A	0.2	u			0.2	u			1	u			0.2	u	J	E	1	u	u	
Chloroform	1	u		A	1	u			1	u		A	0.2	u			0.2	u			1	u			0.2	u	J	E	1	u	u	
1,1,1-Trichloroethane	3		J	A	3				2			A	0.64				0.65				0.7	L	J	F	0.2		J	E	0.8	L	J	F
Carbon tetrachloride	1	u		A	1				1	u		A	0.2	u			0.2	u			1	u			0.2	u	J	E	1	u	u	
Benzene	0.4	L	J	AF	0.3	L	J	F	0.3	L	J	AF	0.73				0.61				3				1.4		J	E	1			
1,2-Dichloroethane	1	u		A	1	u			1	u		A	0.2	u			0.2	u			1	u			0.2	u	J	E	1		u	
Trichloroethene	1	u		A	1	u			1	u		A	0.2	u			0.2	u			1	u			0.2	u	J	E	0.3	L	J	F
1,2-Dichloropropane	1	u		A	1	u			1	u		A	0.2	u			0.2	u			1	u			0.2	u	J	E	1	u	u	
cis-1,3-Dichloropropene	1	u		A	1	u			1	u		A	0.2	u			0.2	u			1	u			0.2	u	J	E	1	u	u	
Toluene	1		J	A	1	u			2			A	6.9				5.7				81				3.0		J	E	140			
trans-1,3-Dichloropropene	1	u		A	1	u			1	u		A	0.2	u			0.2	u			1	u			0.2	u	J	E	1	u	u	
1,1,2-Trichloroethane	1	u		A	1	u			1	u		A	0.2	u			0.2	u			1	u			0.2	u	J	E	0.3	L	J	F
Tetrachloroethene	1	u		A	1	u			1	u		A	0.2	u			0.2	u			1	u			0.2	u	J	E	0.3	L	J	F
1,2-Dibromoethane (EDB)	1	u		A	1	u			1	u		A	0.2	u			0.2	u			1	u			0.2	u	J	E	1	u	u	
Chlorobenzene	0.6	L	J	AF	1	u			1	u		A	0.2	u			0.2	u			1	u			0.2	u	J	E	1	u	u	
Ethylbenzene	0.5	L	J	AF	0.4	L	J	F	0.4	L	J	F	1.0	u			1.0	u			7				1.0	u	J	E	8			
m- & p- Xylene(s)	1		J	AF	1	L	J	F	1			A	2.4				3.3				23				2.0	u	J	E	25			
o-Xylene	0.4	L	J	AF	0.4	L	J	F	0.4	L	J	F	1.0	u			1.0				7				1.0	u	J	E	5			
Styrene	2		J	A	1	u			1	u		A	1.0	u			1.0	u			1				1.2		J	E	1	u	u	
1,1,2,2-Tetrachloroethane	1	u		A	1	u			1	u		A	0.2	u			0.2	u			1	u			0.2	u	J	E	1	u	u	
1,3,5-Trimethylbenzene	1	u		A	1	u			1	u		A	1.0	u			1.0	u			0.2	L	J	F	1.0	u	J	E	0.4	L	J	F
1,2,4-Trimethylbenzene	0.4	L	J	AF	0.5	L	J	F	0.5	L	J	F	1.0	u			1.0	u			2				1.1		J	BE	1			
1,3-Dichlorobenzene	1	u		A	1	u			1	u		A	0.2	u			0.2	u			1	u	J	B	0.2	u	J	E	1	u	J	B
1,4-Dichlorobenzene	1	u		A	1	u			1	u		A	0.20	u			0.20	u			1	u			0.2	u	J	E	1	u	J	B
1,2-Dichlorobenzene	1	u		A	1	u			1	u		A	0.2	u			0.2	u			1	u			0.2	u	J	BE	1	u	u	
Hexachloro-1,3-butadiene	NR			A	NR				NR				NR				NR				1	u	J	C	NR				1	u	J	C

Table A-4
Analytical Results of Indoor Air Samples
Waste Disposal Inc. Site

Sample Location	Dan Ray 12741 Los Nietos Rd.				Dan Ray (dup) 12741 Los Nietos Rd.				Peoples 12741 Los Nietos				California Reamer 12747 Los Nietos Rd.				Solomons Press Repair 12801 Los Nietos Rd.				Durango Plastics 12803 Los Nietos Rd.				Four C's Transmission 12807A Los Nietos Rd.				Bert's Auto 12809B Los Nietos Rd.			
Sampling Period	8/17-8/18/97				8/17-8/18/97				9/21-9/22/1997				8/3-8/4/97				8/24-8/25/97				8/24-8/25/1997				8/17-8/18/97				8/17-8/18/97			
Sample ID	SYN490				SYN491				SYN577				SYN537				SYN510				SYN515				SYN487				SYN486			
Laboratory	Quanterra				Quanterra				Quanterra				EPA Reg 9				EPA Reg 9				EPA Region 9				Quanterra				Quanterra			
Methane (ppm)	4.5		J	E	3.7		J	E	3.4	u	J	BD																				
TNMOC	71		J	E	65		J	E	17	u	J	BD																				
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorofluoromethane	1.0	u	J	E	1.0	u	J	E	3.5		J	B	0.8	L	J	F	2			A	0.7	L	J	F	3.4		J	E	3.7	u		G
Chloromethane	0.60		J	E	0.61		J	E	0.8	u	J	BD	2.0				0.6	L	J	AF	0.8	L	J	F	0.61		J	E	1.5	u		G
Vinyl chloride	0.2	u	J	E	0.2	u	J	E	0.4	u	J	BD	1.0	u	u		1	u		A	1	u			0.2	u	J	E	0.73	u		G
1,2-Dichloro-1,1,2,2-tetrafluoroethane	1.0	u	J	E	1.0	u	J	E	2	u	J	BD	1.0	u	u		1	u		A	1	u			1.0	u	J	E	3.7	u		G
Bromomethane	1.0	u	J	E	1.0	u	J	E	2	u	J	BD	1.0	u	u		1	u		A	1	u			1.0	u	J	E	3.7	u		G
Chloroethane	1.0	u	J	E	1.0	u	J	E	2	u	J	BDE	1.0	u	u		1	u		A	1	u			1.0	u	J	E	3.7	u		G
1,1-Dichloroethene	0.2	u	J	E	0.2	u	J	E	0.4	u	J	BD	1.0	u	u		1	u		A	1	u			0.2	u	J	E	0.73	u		G
Trichlorofluoromethane	1.0	u	J	E	1.0	u	J	E	12		J	B	1.0				0.4	L	J	AF	0.4	L	J	F	1.0	u	J	E	3.7	u		G
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	u	J	E	1.0	u	J	E	2	u	J	BD	1.0	u	u		1	u	J	AB	1	u	J	B	1.0	u	J	E	3.7	u		G
Methylene chloride	0.83	u	J	AEF	0.85	u	J	AEF	8.3		J	B	1.0	u	J	DE	2		J	ADE	42				3.6		J	E	2.0	u	J	AF
trans-1,2-Dichloroethene	0.2	u	J	E	0.2	u	J	E	0.4	u	J	BDE	NR				NR				NR				0.2	u	J	E	0.73	u		G
1,1-Dichloroethane	0.2	u	J	E	0.2	u	J	E	0.4	u	J	BD	1.0	u	u		1	u		A	1	u			0.2	u	J	E	0.73	u		G
cis-1,2-Dichloroethene	0.2	u	J	E	0.2	u	J	E	0.4	u	J	BD	1.0	u	u		1	u		A	1	u			0.2	u	J	E	0.73	u		G
Chloroform	0.2	u	J	E	0.2	u	J	E	0.62		J	B	1.0	u	u		1	u		A	0.3	L	J	F	0.2	u	J	E	0.73	u		G
1,1,1-Trichloroethane	30.0		J	E	28.0		J	E	45		J	B	0.3	L	J	F	0.8	L	J	A	0.3	L	J	F	0.27		J	E	0.73	u		G
Carbon tetrachloride	0.2	u	J	E	0.2	u	J	E	0.4	u	J	BD	1.0	u	u		1	u		A	1	u			0.2	u	J	E	0.73	u		G
Benzene	1.7		J	E	1.9		J	E	2.6		J	B	1.0				1			A	0.7	L	J	F	2.7		J	E	17.0			
1,2-Dichloroethane	0.2	u	J	E	0.2	u	J	E	0.4	u	J	BD	1.0	u	u		1	u		A	1	u			0.2	u	J	E	0.73	u		G
Trichloroethene	0.2	u	J	E	0.2	u	J	E	0.53		J	B	1.0	u	u		1	u		A	2				0.2	u	J	E	0.73	u		G
1,2-Dichloropropane	0.2	u	J	E	0.2	u	J	E	0.4	u	J	BD	1.0	u	u		1	u		A	1	u			0.2	u	J	E	0.73	u		G
cis-1,3-Dichloropropene	0.2	u	J	E	0.2	u	J	E	0.4	u	J	BD	1.0	u	u		1	u		A	1	u			0.2	u	J	E	0.73	u		G
Toluene	13.0		J	E	15.0		J	E	25		J	B	5.0				7			A	41				21.0		J	E	120.0			
trans-1,3-Dichloropropene	0.2	u	J	E	0.2	u	J	E	0.4	u	J	BD	1.0	u	u		1	u		A	1	u			0.2	u	J	E	0.73	u		G
1,1,2-Trichloroethane	0.2	u	J	E	0.2	u	J	E	0.4	u	J	BD	1.0	u	u		1	u		A	1	u			0.2	u	J	E	0.73	u		G
Tetrachloroethene	0.21		J	E	0.22		J	E	0.84		J	BE	0.4	L	J	F	0.2	L		AF	1	u			0.20	u	J	E	1.8			
1,2-Dibromoethane (EDB)	0.2	u	J	E	0.2	u	J	E	0.4	u	J	BD	1.0	u	u		1	u		A	1	u			0.2	u	J	E	0.73	u		G
Chlorobenzene	0.2	u	J	E	0.2	u	J	E	0.68		J	B	1.0	u	u		2			A	1	u			0.2	u	J	E	0.73	u		G
Ethylbenzene	2.1		J	E	2.4		J	E	2		J	B	0.8	L	J	F	2			A	0.5	L	J	F	5.1		J	E	19.0			
m- & p- Xylene(s)	8.3		J	E	9.7		J	E	7.7		J	B	2.0				6			A	2				21.0		J	E	75.0			
o-Xylene	3.2		J	E	3.8		J	E	2.4		J	BD	1.0				2			A	0.8	L	J	F	8.5		J	E	26.0			
Styrene	1.5		J	E	1.5		J	E	2	u	J	BD	0.4	L	J	F	1			A	0.5	L	J	F	1.4		J	E	4.9			
1,1,2,2-Tetrachloroethane	0.2	u	J	E	0.2	u	J	E	0.4	u	J	BD	1.0	u	u		1	u		A	1	u			0.2	u	J	E	0.73	u		G
1,3,5-Trimethylbenzene	2.2		J	E	2.5		J	E	2	u	J	BDE	0.3	L	J	F	3			A	0.4	L	J	F	4.2		J	E	6.6			
1,2,4-Trimethylbenzene	6.7		J	E	7.7		J	E	2.2		J	BE	1.0				11			A	2				12.0		J	E	22.0			
1,3-Dichlorobenzene	0.2	u	J	E	0.2	u	J	E	0.4	u	J	BD	1.0	u	u		1	u		AB	1	u	J	B	0.2	u	J	E	0.73	u		G
1,4-Dichlorobenzene	0.2	u	J	E	0.2	u	J	E	0.4	u	J	BD	1.0	u	u		1	u		A	4				0.2	u	J	E	0.99			
1,2-Dichlorobenzene	0.2	u	J	E	0.2	u	J	E	0.4	u	J	BD	1.0	u	u		1	u		A	1	u			0.36		J	E	0.73	u		G
Hexachloro-1,3-butadiene	NR				NR				NR				1		u		1	u		AC	1	u	J	C	NR				NR			

Table A-4
Analytical Results of Indoor Air Samples
Waste Disposal Inc. Site

Sample Location	Leo's Lawnmower 12811C Los Nietos Rd.				Hernandez Auto 12814D Los Nietos Rd.				Rolland's Welding 9608 Santa Fe Spgs. Rd.				Lift Truck Converter 9610 Santa Fe Spgs. Rd.				Lift Truck Converter (dup) 9610 Santa Fe Spgs. Rd.				Vacant 9618 #8 Santa Fe Spgs.				Vacant 9618 #10 Santa Fe Spgs.				Vacant (dup) 9618 #10 Santa Fe Spgs.			
Sampling Period	8/17-8/18/97				8/17-8/18/97				8/24-8/25/97				8/24-8/25/97				8/24-8/25/97				9/14-9/15/97				9/14-9/15/97				9/14-9/15/97			
Sample ID	SYN488				SYN489				SYN514				SYN512				SYN513				SYN556				SYN555				SYN558			
Laboratory	Quanterra				Quanterra				EPA Reg 9				EPA Reg 9				EPA Region 9				EPA Region 9				EPA Region 9				EPA Region 9			
Methane (ppm)																																
TNMOC																																
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorofluoromethane	8.4	u	J	EG	5.7	u		G	1				1				1		J	A	0.7	L	J	F	0.8	L	J	F	0.6	L	J	AF
Chloromethane	3.40	u	J	EG	2.30	u		G	0.6	L	J	F	0.6	L	J	F	0.5	L	J	AF	0.5	L	J	F	0.6	L	J	F	0.5	L	J	AF
Vinyl chloride	1.7	u	J	EG	1.1	u		G	1	u			1	u			1	u	J	A	1	u			1	u			1	u	J	A
1,2-Dichloro-1,1,2,2-tetrafluoroethane	8.4	u	j	EG	5.7	u		G	1	u		lf	1	u			1	u	J	A	1	u			1	u			1	u	J	A
Bromomethane	8.4	u	J	EG	5.7	u		G	1	u			1	u		F	1	u	J	A	1	u			1	u			1	u	J	A
Chloroethane	8.4	u	J	EG	5.7	u		G	1	u			1	u			1	u	J	A	1	u			1	u			1	u	J	A
1,1-Dichloroethene	1.7	u	J	EG	1.1	u		G	1	u			1	u			1	u	J	A	1	u			1	u			1	u	J	A
Trichlorofluoromethane	8.4	u	J	EG	5.7	u		G	0.3	L	J	F	0.3	L	J	F	0.3	L	J	AF	0.3	L	J	F	0.4	L	J	F	0.3	L	J	AF
1,1,2-Trichloro-1,2,2-trifluoroethane	8.4	u	J	EG	5.7	u		G	1	u	J	B	1	u	J	B	0.3	L	J	BF	1	u	J	B	1	u	J	B	1	u	J	AB
Methylene chloride	8.0		J	AEF	38.0				63				11				19		J	A	1	u	J	DE	1	u	J	DE	1	bj	J	ADE
trans-1,2-Dichloroethene	1.7	u	J	EG	1.1	u		G	NR				NR				NR				NR				NR				NR			
1,1-Dichloroethane	1.7	u	J	EG	1.1	u		G	1	u			1	u			1	u	J	A	1	u			1	u			1	u	J	A
cis-1,2-Dichloroethene	1.7	u	J	EG	1.1	u		G	1	u			1	u			1	u	J	A	1	u			1	u			1	u	J	A
Chloroform	1.7	u	J	EG	1.1	u		G	1	u			1	u			1	u	J	A	1	u			1	u			1	u	J	A
1,1,1-Trichloroethane	1.7	u	J	EG	1.1	u		G	1	u			0.6	L	J	F	0.5	L	J	AF	0.3	L	J	F	0.4	L	J	F	0.3	L	J	AF
Carbon tetrachloride	1.7	u	J	EG	1.1	u		G	1	u			1	u			1	u	J	A	1	u			1	u			1	u	J	A
Benzene	61.0		J	E	17.0				32				6				9		J	A	1				1				1		J	A
1,2-Dichloroethane	1.7	u	J	EG	1.1	u		G	0.6	L	J	F	1				0.2	j	J	AF	1	u			1	u			1	u	J	A
Trichloroethene	1.7	u	J	EG	1.1	u		G	1	u			0.3	L	J	F	0.5	j	J	AF	1	u			1	u			1	u	J	A
1,2-Dichloropropane	1.7	u	J	EG	1.2				0.4	L	J	F	1	u			1	u	J	A	1	u			1	u			1	u	J	A
cis-1,3-Dichloropropene	1.7	u	J	EG	1.1	u		G	1	u			1	u			1	u	J	A	1	u			1	u			1	u	J	A
Toluene	380.0		J	EG	150.0				240				48				75		J	A	6				7				6	L	J	AF
trans-1,3-Dichloropropene	1.7	u	J	EG	1.1	u		G	1	u			1	u			1	u	J	A	1	u			1	u			1	u	J	A
1,1,2-Trichloroethane	1.7	u	J	EG	1.1	u		G	1	u			1	u			1	u	J	A	1	u			1	u			1	u	J	A
Tetrachloroethene	1.70	u	J	EG	61.0				1				3				3		J	A	0.6	L	J	F	0.4	L	J	F	0.3	L	J	AF
1,2-Dibromoethane (EDB)	1.7	u	J	EG	1.1	u		G	1	u			1	u			1	u	J	A	1	u			1	u			1	u	J	A
Chlorobenzene	1.7	u	J	EG	1.2				1	u			1	u			1	u	J	A	1	u			1	u			1	u	J	A
Ethylbenzene	91.0		J	E	27.0				39				7				11		J	A	0.4	L	J	F	0.5	L	J	F	0.5	L	J	AF
m- & p- Xylene(s)	330.0		J	E	99.0				150				24				45		J	A	2				2				2		J	A
o-Xylene	120.0		J	E	37.0				58				9				16		J	A	0.5	L	J	F	0.7	L	J	F	0.6	L	J	AF
Styrene	8.4	u	J	EG	7.6				2				1	u			0.6	L	J	AF	1	u			1	u			1	u	J	A
1,1,2,2-Tetrachloroethane	1.7	u	J	EG	1.4				10				1	u			2		J	A	1	u			1	u			1	u	J	A
1,3,5-Trimethylbenzene	38.0		J	E	10.0				18				3				5		J	A	1	u			0.3	j	J	F	0.3	L	J	AF
1,2,4-Trimethylbenzene	100.0		J	E	29.0				73				9				15		J	A	0.5	L	J	F	0.8	j	J	F	0.7	L	J	AF
1,3-Dichlorobenzene	1.7	u	J	EG	1.1	u		G	1	u	J	B	1	u	J	B	1	u	J	AB	1	u	J	B	1	u	J	B	1	u	J	AB
1,4-Dichlorobenzene	1.7	u	J	EG	33.0				0.2	L	J	F	1	u			3.4	L	J	AF	1	u	J	B	1	u	J	B	1	u	J	AB
1,2-Dichlorobenzene	1.7	u	J	EG	1.1	u		G	0.5	L	J	F	1				1		J	A	1	u			1	u			1	u	J	A
Hexachloro-1,3-butadiene	NR				NR				1	u	J	C	1		J	C	1	u	J	AC	1	u	J	C	1	u	J	C	1	u	J	AC

Table A-4
Analytical Results of Indoor Air Samples
Waste Disposal Inc. Site

Sample Location	Vacant 9618 #12 Santa Fe Spgs				Lovell Cabinets 9618 #15 Santa Fe Spgs				Action Maintenance 9620 Santa Fe Spgs				Dry Print 9620 Santa Fe Spgs				E&L Electric 9632 Santa Fe Spgs				E&L Electric 9632 Santa Fe Spgs				E&L Electric (dup) 9632 Santa Fe Spgs				Merritt Equipment 9640 Santa Fe Springs Rd.			
Sampling Period	9/14-9/15/97				8/10-8/11/97				8/3-8/4/97				8/3-8/4/97				8/3-8/4/97				8/24-8/25/97				8/24-8/25/97				8/3-8/4/97			
Sample ID	SYN554				SYN542				SYN533				SYN534				SYN535				SYN499				SYN500				SYN536			
Laboratory	EPA Region 9				EPA Reg 9				EPA Region 9				EPA Reg 9				EPA Region 9				Quanterra				Quanterra				EPA Reg 9			
Methane (ppm)																					48	u			34	u	J	df				
TNMOC																					140	u			100	u	J	df				
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorofluoromethane	0.9	L	J	F	0.9	L	J	F	1.0		J	A	0.6	L	J	F	0.7	L	J	AF	1.0	u			1.0	u	J	C	1.0			A
Chloromethane	6		J		1				0.6	L	J	AF	0.6	L	J	F	0.6	L	J	AF	0.54				0.55		J	C	1.0			A
Vinyl chloride	1	u			1	u			1.0	u	J	A	1.0	u			1.0	u		A	0.2	u			0.2	u	J	C	1.0	u		A
1,2-Dichloro-1,1,2,2-tetrafluoroethane	1	u			1	u			1.0	u	J	A	1.0	u			1.0	u		A	1.0	u			1.0	u	J	C	1.0	u		A
Bromomethane	0.2	L	J	F	1	u			1.0	u	J	A	1.0	u			1.0	u		A	1.0	u			1.0	u	J	C	1.0	u		A
Chloroethane	1	u			1	u			1.0	u	J	A	1.0	u			1.0	u		A	1.0	u	J	B	1.0	u	J	BC	1.0	u		A
1,1-Dichloroethene	1	u			1	u			1.0	u	J	A	1.0	u			0.3	L	J	AF	0.2	u			0.2	u	J	C	1.0	u		A
Trichlorofluoromethane	0.4	L	J	F	0.3	L	J	F	0.3	L	J	AF	0.3	L	J	F	0.4	L	J	AF	1.0	u			1.0	u	J	C	0.4		J	AF
1,1,2-Trichloro-1,2,2-trifluoroethane	1	u	J	B	1	u			0.3	u	J	AF	0.3	L			1.0	u		A	1.0	u			1.0	u	J	C	1.0	u		A
Methylene chloride	1		J	DE	3		J	DE	4.0		J	ADE	47.0				1.0	u	J	ADE	0.50	u	J	AD	0.51	u	J	ACD	5.0			A
trans-1,2-Dichloroethene	NR				NR				NR				NR				NR				0.2	u			0.2	u	J	C	NR			
1,1-Dichloroethane	1	u			1	u			1.0	u	u	A	1.0	u			1.0	u		A	0.2	u			0.2	u	J	C	1.0	u		A
cis-1,2-Dichloroethene	1	u			1	u			1.0	u	u	A	1.0	u			1.0	u		A	0.2	u			0.2	u	J	C	1.0	u		A
Chloroform	1	u			1	u			1.0	u	u	A	1.0	u			1.0	u		A	0.2	u			0.2	u	J	C	1.0	u		A
1,1,1-Trichloroethane	0.6	L	J	F	28		J	G	2.0		J	A	2.0				0.6	L	J	AF	0.54				0.91		J	C	2.0			A
Carbon tetrachloride	1	u			1	u			1.0	u	J	A	1.0	u			1.0	u		A	0.2	u			0.2	u	J	C	1.0	u		A
Benzene	2				0.8	L	J	F	0.4	L	J	AF	1.0		J		2.0			A	0.58				0.57		J	C	0.9		J	AF
1,2-Dichloroethane	1	u			1	u			1.0	u	J	A	1.0	u			1.0	u		A	0.2	u			0.2	u	J	C	1.0	u		A
Trichloroethene	1	u			1	u			0.7	L	J	AF	1.0	u			14.0			A	0.3				0.2	u	J	C	1.0	u		A
1,2-Dichloropropane	1	u			1	u			1.0	u	J	A	1.0	u			1.0	u		A	0.2	u			0.2	u	J	C	1.0	u		A
cis-1,3-Dichloropropene	1	u			1	u			1.0	u	J	A	1.0	u			1.0	u		A	0.2	u			0.2	u	J	C	1.0	u		A
Toluene	440				15				9.0		J	A	12.0				15.0			A	5.0				4.3		J	C	8.0			A
trans-1,3-Dichloropropene	1	u			1	u			1.0	u	u	A	1.0	u			1.0	u		A	0.2	u			0.2	u	J	C	1.0	u		A
1,1,2-Trichloroethane	1	u			1	u			1.0	u	u	A	1.0	u			1.0	u		A	0.2	u			0.2	u	J	C	1.0	u		A
Tetrachloroethene	0.7	L	J	F	1	u			12.0		J	A	0.2	L	J	F	1.0			A	0.66				0.43		J	C	1.0	u		A
1,2-Dibromoethane (EDB)	1	u			1	u			1.0	u	J	A	1.0	u			1.0	u		A	0.2	u			0.2	u	J	C	1.0	u		A
Chlorobenzene	1	u			1	u			1.0	u	J	A	1.0	u			1.0	u		A	0.2	u			0.2	u	J	C	1.0	u		A
Ethylbenzene	0.7	L	J	F	1				0.3	L	J	AF	0.8	L	J	F	13.0			A	1.0	u			1.0	u	J	C	2.0			A
m- & p- Xylene(s)	3				4				0.4	L	J	AF	3.0				45.0			A	2.7				2.5		J	C	6.0			A
o-Xylene	0.9	L	J	F	0.6	L	J	F	0.3	L	J	AF	1.0				21.0			A	1.0	u			1.0	u	J	C	2.0			A
Styrene	0.4	L	J	F	1	u			0.3	L	J	AF	0.4	L	J	F	1.0	u		A	1.0	u			1.0	u	J	C	1.0	u		A
1,1,2,2-Tetrachloroethane	1	u			1	u			0.3	L	J	AF	1.0	u			1.0	u		A	0.2	u			0.2	u	J	C	1.0	u		A
1,3,5-Trimethylbenzene	0.3	L	J	F	0.4	L	J	F	1.0	u	J	A	0.3	L	J	F	0.5	L	J	AF	1.0	u			1.0	u	J	C	0.3		J	AF
1,2,4-Trimethylbenzene	0.9	L	J	F	0.7	L	J	F	0.6	L	J	AF	0.6	L	J	F	2.0			A	1.0	u			1.0	u	J	C	0.7		J	AF
1,3-Dichlorobenzene	1	u	J	B	1	u			1.0	u		A	1.0	u			1.0	u		A	0.2	u			0.2	u	J	C	1.0	u		A
1,4-Dichlorobenzene	1	u	J	B	1	u			0.5	L	J	AF	1.0	u			1.0	u		A	0.51			e	0.20	u	J	CE	1.0	u		A
1,2-Dichlorobenzene	1	u			1	u			0.5	L	J	AF	1.0	u			1.0	u		A	1.2				0.2	u	J	C	1.0	u		A
Hexachloro-1,3-butadiene	1	u	J	C	NR				NR				NR				NR				NR				NR				NR			A

Table A-4
Analytical Results of Indoor Air Samples
Waste Disposal Inc. Site

Sample Location	Air Liquide Bldg #1 9756 Santa Fe Spgs.				Air Liquide Bldg. #3 9756 Santa Fe Spgs.				Air Liquide Bldg. #2 9756 Santa Fe Spgs. Rd.				Upgradient Ambient Blank				Upgradient Ambient Blank				Upgradient Ambient Blank				Upgradient Ambient Blank				Upgradient Ambient Blank			
Sampling Period	8/17-8/18/97				8/17-8/18/97				8/17-8/18/97				8/24-8/25/97				9/21-9/22/97				8/10/97				8/3-8/4/97				8/17-8/18/97			
Sample ID	SYN483				SYN484				SYN485				SYN518				SYN581				SYN549				SYN557				SYN493			
Laboratory	Quanterra				Quanterra				Quanterra				Quanterra				Quanterra				EPA Reg. 9				EPA Reg. 9				Quanterra			
Methane (ppm)													39	u	J	cf	3.6	u		bd												
TNMOC													120	u	J	cf	18	u		bd												
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorofluoromethane	1.0	u	J	E	1.0	u	J	E	1.0	u	J	E	1.0	u	J	c	1.00	u	J	B	0.5	L	J	AF	0.7	L	J	F	1.3	u		G
Chloromethane	0.46		J	E	0.46		J	EF	0.41		J	E	2.70		J	c	0.54		J	B	0.5	L	J	AF	0.5	L	J	F	0.51	u		G
Vinyl chloride	0.2	u	J	E	0.2	u	J	E	0.2	u	J	E	0.2	u	J	c	0.20	u	J	B	1	u	J	A	1	u	J		0.25	u		G
1,2-Dichloro-1,1,2,2-tetrafluoroethane	1.0	u	J	E	1.0	u	J	E	1.0	u	J	E	1.0	u	J	c	1.00	u	J	B	1	u	J	A	1	u	J		1.3	u		G
Bromomethane	1.0	u	J	E	1.0	u	J	E	1.0	u	J	E	1.0	u	J	c	1.00	u	J	B	1	u	J	A	1	u	J		1.3	u		G
Chloroethane	1.0	u	J	E	1.0	u	J	E	1.0	u	J	E	1.0	u	J	bc	1.00	u	J	BE	1	u	J	A	1	u	J		1.3	u		G
1,1-Dichloroethene	0.2	u	J	E	0.2	u	J	E	0.2	u	J	E	0.2	u	J	c	0.20	u	J	B	1	u	J	A	1	u	J		0.25	u		G
Trichlorofluoromethane	1.0	u	J	E	1.0	u	J	E	1.0	u	J	E	1.0	u	J	c	1.00	u	J	B	0.3	L	J	AF	0.3	L	J	F	1.3	u		G
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	u	J	E	1.0	u	J	E	1.0	u	J	E	1.0	u	J	c	1.00	u	J	B	1	u	J	A	1	u	J		1.3	u		G
Methylene chloride	1.10	u	J	AE	0.49	u	J	AEF	0.49	u	J	AEF	0.77		J	acd	0.87		J	ABE	0.6	u	J	ADE	1	u	J	DE	0.77	u	J	AF
trans-1,2-Dichloroethene	0.2	u	J	E	0.2	u	J	E	0.2	u	J	E	0.2	u	J	c	0.20	u	J	BE	NR				NR				0.25	u		G
1,1-Dichloroethane	0.2	u	J	E	0.2	u	J	E	0.2	u	J	E	0.2	u	J	c	0.20	u	J	B	1	u	J	A	1	u	J		0.25	u		G
cis-1,2-Dichloroethene	0.2	u	J	E	0.2	u	J	E	0.2	u	J	E	0.2	u	J	c	0.20	u	J	B	1	u	J	A	1	u	J		0.25	u		G
Chloroform	0.2	u	J	E	0.2	u	J	E	0.2	u	J	E	0.2	u	J	c	0.20	u	J	B	1	u	J	A	1	u	J		0.25	u		G
1,1,1-Trichloroethane	1.90		J	E	0.60		J	EF	1.20		J	E	0.24		J	c	0.44		J	BF	1	u	J	A	0.9	L	J	F	0.25	u		G
Carbon tetrachloride	0.2	u	J	E	0.2	u	J	E	0.2	u	J	E	0.2	u	J	c	0.20	u	J	B	1	u	J	A	1	u	J		0.25	u		G
Benzene	0.96		J	E	0.43		J	EF	0.50		J	E	1.0		J	c	1.40		J	B	0.5		J	AF	2		J		1.2			
1,2-Dichloroethane	0.2	u	J	E	0.2	u	J	E	0.2	u	J	E	0.2	u	J	c	0.20	u	J	B	1	u	J	A	1	u	J		0.25	u		G
Trichloroethene	0.2	u	J	E	0.2	u	J	E	0.2	u	J	E	0.2	u	J	c	0.20	u	J	B	1	u	J	A	1	u	J		0.25	u		G
1,2-Dichloropropane	0.2	u	J	E	0.2	u	J	E	0.2	u	J	E	0.2	u	J	c	0.20	u	J	B	1	u	J	A	1	u	J		0.25	u		G
cis-1,3-Dichloropropene	0.2	u	J	E	0.2	u	J	E	0.2	u	J	E	0.2	u	J	c	0.20	u	J	B	1	u	J	A	1	u	J		0.25	u		G
Toluene	5.7		J	E	1.3		J	EF	2.4		J	E	2.1		J	c	4.30		J	B	1		J	AF	4		J		5.2			
trans-1,3-Dichloropropene	0.2	u	J	E	0.2	u	J	E	0.2	u	J	E	0.2	u	J	c	0.20	u	J	B	1	u	J	A	1	u	J		0.25	u	J	CG
1,1,2-Trichloroethane	0.2	u	J	E	0.2	u	J	E	0.2	u	J	E	0.2	u	J	c	0.20	u	J	B	1	u	J	A	1	u	J		0.25	u	J	CG
Tetrachloroethene	0.57		J	E	0.20	u	J	E	0.20	u	J	E	0.20	u	J	c	0.24		J	BEF	1	u	J	A	0.4	L	J	F	0.25	u	J	CG
1,2-Dibromoethane (EDB)	0.2	u	J	E	0.2	u	J	E	0.2	u	J	E	0.2	u	J	c	0.20	u	J	B	1	u	J	A	1	u	J		0.25	u	J	CG
Chlorobenzene	0.2	u	J	E	0.2	u	J	E	0.2	u	J	E	0.2	u	J	c	0.20	u	J	B	1	u	J	A	1	u	J		0.25	u	J	CG
Ethylbenzene	1.0		J	E	1.0	u	J	E	1.0	u	J	E	1.0	u	J	c	1.00	u	J	B	1	u	J	A	0.5	L	J	F	1.3	u	J	CG
m- & p- Xylene(s)	4.8		J	E	2.0	u	J	E	2.0	u	J	E	1.0	u	J	c	2.20		J	B	0.4		J	AF	2		J		3.7		J	C
o-Xylene	1.8		J	E	1.0	u	J	E	1.0	u	J	E	1.0	u	J	c	1.00	u	J	BEF	0.3		J	AF	0.6	L	J	F	1.5		J	C
Styrene	1.0	u	J	E	1.0	u	J	E	1.0	u	J	E	1.0	u	J	c	1.00	u	J	B	1	u	J	A	1	u	J		1.3	u	J	CG
1,1,2,2-Tetrachloroethane	0.2	u	J	E	0.2	u	J	E	0.2	u	J	E	0.2	u	J	c	0.20	u	J	B	1	u	J	A	1	u	J		0.25	u	J	CG
1,3,5-Trimethylbenzene	1.0	u	J	E	1.0	u	J	E	1.0	u	J	E	1.0	u	J	c	1.00	u	J	BE	1	u	J	A	1	u	J		1.3	u	J	CG
1,2,4-Trimethylbenzene	3.0		J	E	1.0	u	J	BE	1.0	u	J	E	1.0	u	J	c	1.10		J	BE	0.3		J	AF	0.5	L	J	F	2.3		J	C
1,3-Dichlorobenzene	0.2	u	J	E	0.2	u	J	E	0.2	u	J	E	1.2		J	c	0.20	u	J	B	1	u	J	A	1	u	J	B	0.25	u	J	CG
1,4-Dichlorobenzene	0.35		J	E	0.2	u	J	E	0.66		J	E	0.2	u	J	c	0.36		J	BF	1	u	J	A	1	u	J	B	0.25	u	J	CG
1,2-Dichlorobenzene	0.2	u	J	E	0.2	u	J	BE	0.2	u	J	E	0.2	u	J	c	1.10		J	BF	1	u	J	A	1	u	J		0.25	u	J	CG
Hexachloro-1,3-butadiene	NR				NR				NR				NR				NR				1	u	J	A	1	u	J	C	NR			

Table A-4
Analytical Results of Indoor Air Samples
Waste Disposal Inc. Site

Sample Location	Equipment Blank				Equipment Blank				Equipment Blank				Equipment Blank			
Sampling Period	9/21-9/22/97				8/17-8/18/97				8/3-8/4/97				8/17-8/18/97			
Sample ID	SYN582				SYN494				SYN539				SYN503			
Laboratory	Quanterra				Quanterra				EPA Reg 9							
Methane (ppm)													46	u		F
TNMOC													140	u		F
Laboratory Parameter	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com	Result (ppbv)	Qual	Val	Com
Dichlorofluoromethane	1.00	u	J	B	1	u			1.0	u			1	u		
Chloromethane	0.40	u	J	B	0.4	u			1.0	u			0.4	u		
Vinyl chloride	0.20	u	J	B	0.2	u			1.0	u			0.2	u		
1,2-Dichloro-1,1,2,2-tetrafluoroethane	1.00	u	J	B	1	u			1.0	u			1	u		
Bromomethane	1.00	u	J	B	1	u			1.0	u			1	u		
Chloroethane	1.00	u	J	B	1	u			1.0	u			1	u		
1,1-Dichloroethene	0.20	u	J	B	0.2	u			1.0	u			0.2	u		
Trichlorofluoromethane	1.00	u	J	B	1.0				1.0	u			1	u		
1,1,2-Trichloro-1,2,2-trifluoroethane	1.00	u	J	B	1	u			1.0	u			1	u		
Methylene chloride	**0.24**		J	ABE	**0.23**			AF	0.4	L	J	DE	0.21			AD
trans-1,2-Dichloroethene	0.20	u	J	B	0.2				NR				0.2	u		
1,1-Dichloroethane	0.20	u	J	B	0.2	u			1.0	u			0.2	u		
cis-1,2-Dichloroethene	0.20	u	J	B	0.2	u			1.0	u			0.2	u		
Chloroform	0.20	u	J	B	0.2	u			1.0	u			0.2	u		
1,1,1-Trichloroethane	0.20	u	J	B	0.2	u			1.0	u			0.2	u		
Carbon tetrachloride	0.20	u	J	B	0.2	u			1.0	u			0.2	u		
Benzene	0.20	u	J	B	0.2	u			1.0	u			0.2	u		
1,2-Dichloroethane	0.20	u	J	B	0.2	u			1.0	u			0.2	u		
Trichloroethene	0.20	u	J	B	0.2	u			1.0	u			0.2	u		
1,2-Dichloropropane	0.20	u	J	B	0.2	u			1.0	u			0.2	u		
cis-1,3-Dichloropropene	0.20	u	J	B	0.2	u			1.0	u			0.2	u		
Toluene	0.30	u	J	B	0.2	u			1.0	u			0.3	u		
trans-1,3-Dichloropropene	0.20	u	J	B	0.2	u			1.0	u			0.2	u		
1,1,2-Trichloroethane	0.20	u	J	B	0.2	u			1.0	u			0.2	u		
Tetrachloroethene	0.20	u	J	B	0.2	u			1.0	u			0.2	u		
1,2-Dibromoethane (EDB)	0.20	u	J	B	0.2	u			1.0	u			0.2	u		
Chlorobenzene	0.20	u	J	B	0.2	u			1.0	u			0.2	u		
Ethylbenzene	1.00	u	J	B	1.0	u			1.0	u			1	u		
m- & p- Xylene(s)	2.00	u	J	B	2.0	u			1.0	u			2	u		
o-Xylene	1.00	u	J	BE	1.0	u			1.0	u			1	u		
Styrene	1.00	u	J	B	1.0	u			1.0	u			1	u		
1,1,2,2-Tetrachloroethane	0.20	u	J	B	0.2	u			1.0	u			0.2	u		
1,3,5-Trimethylbenzene	1.00	u	J	BE	1.0	u			1.0	u			1	u		
1,2,4-Trimethylbenzene	1.00	u	J	B	1.0	u			1.0	u			1	u		
1,3-Dichlorobenzene	0.20	u	J	B	0.2	u			1.0	u			0.2	u		
1,4-Dichlorobenzene	0.20	u	J	B	0.2	u			1.0	u			0.2	u		
1,2-Dichlorobenzene	0.20	u	J	B	0.2	u			1.0	u			0.2	u		
Hexachloro-1,3-butadiene	NR				NR				NR				NR			

Table A-4
Analytical Results of Indoor Air Samples
Waste Disposal Inc. SIte

Shaded Cells indicate VOCs exceed threshold values.	
Qual = Qualifier. Data qualifiers given by the lab	
Val = Validator. Data qualifiers given by lab during data validation.	
Com = Comments. Comments regarding data quality; provided in data validation reports.	
Data Qualifier Definitions	
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
L	Indicates results which fall below the reporting limit. Results are estimated and are condidered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit if quantitation necessary to accurately and precisely measure the analyte in the sample.

APPENDIX B

VALIDATION REPORTS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

Indoor Air

February 5, 1998

MEMORANDUM

SUBJECT: Review of Analytical Data

FROM: Mathew C. Plate, Chemist
Quality Assurance Program (QAP), PMD-3

THROUGH: Vance S. Fong, P.E., Manager
Quality Assurance Program (QAP), PMD-3

TO: Andria Benner, Remedial Project Manager
Az/CA Cleanup Section, SFD-7-1

Attached are comments resulting from QAP Region IX review of the following analytical data:

SITE:	Waste Disposal Inc.
EPA SSI NO.:	C1
CERCLIS ID NO.:	CAD980884357
CASE/SAS NO.:	R97S46
SDG NO.:	SYN510
LABORATORY:	Region IX
ANALYSIS:	TO15
SAMPLE NO.:	8 Air (see Case Summary)
COLLECTION DATE:	August 25, 1997
REVIEWER:	Mathew C. Plate QAP, PMD-3/USEPA

If there are any questions, please contact me at (415)744-1493.

Attachment

cc: Brenda Bettencourt, PMD-2

Printed on Recycled Paper

Data Validation Report

Case No.: R97S46
Site: Waste Disposal Inc.
Laboratory: Region IX
Reviewer: Mathew C. Plate, QAP, PMD-3/USEPA
Date: February 5, 1998

I. Case Summary

SAMPLE INFORMATION:

VOA Sample Numbers:	SYN510, SYN511, SYN512, SYN513, SYN514, SYN515, SYN516 and SYN517
Concentration and Matrix:	Air
Analysis:	TO-15 by GC/MS
Collection Date:	August 25, 1997
Sample Receipt Date:	August 26, 1997
Analysis Date:	September 4 through 5, 1997; and September 16, 1997

FIELD QC:

Trip Blanks (TB):	None Identified
Field Blanks (FB):	None Identified
Equipment Blanks (EB):	SYN516
Background Samples (BG):	None Identified
Field Duplicates (D1):	SYN512 and SYN513

METHOD BLANKS AND ASSOCIATED SAMPLES:

0904BLK:	SYN510, SYN511, SYN512, SYN513, SYN514, SYN515, SYN516, SYN517, 0904LCS1 and 0904LCS2
0905BLK:	SYN511DL, SYN512DL, SYN513DL, SYN514DL1, SYN515DL, SYN510DL and 0905LCS
0916BLK:	SYN514DL2 and 0916LCS

TABLES:

1A:	Analytical Results with Qualifications
1B:	Data Qualifiers

TPO ACTION:

SAMPLING ISSUES: None.

OTHER: None.

TPO ATTENTION:

SAMPLING ISSUES: Several samples had final collection pressures greater than -3" Hg. Samples with more than -3" Hg may only be valid as grab samples and should not be treated as integrated samples.

OTHER: None.

ADDITIONAL COMMENTS:

The analytical results with qualifications are listed in Table 1A. This report was prepared in accordance with EPA document "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", February 1994, and EPA Method TO-15 were used for guidance in preparation of this report. **This TO-15 data, analyzed by the EPA Region 9 Laboratory, followed a Client Request Form (CRF) which meets the requirements of method TO-15. Additional samples from this event were spilt to a second laboratory, Quanterra, analyzed and under a second CRF with additional quality control requirements, and validated based upon these additional requirements.**

II. Validation Summary

	VOA Acceptable/Comment	
HOLDING TIMES/PRESERVATION	[NO]	[A,O]
GC/MS TUNE/GC PERFORMANCE	[YES]	[K]
CALIBRATIONS	[YES]	[B,C,H]
FIELD QC	[YES]	[ ]
LABORATORY BLANKS	[YES]	[D]
LABORATORY CONTROL SPIKE	[YES]	[L,M]
LABORATORY DUPLICATES	[YES]	[ ]
INTERNAL STANDARDS	[YES]	[ ]
COMPOUND IDENTIFICATION	[YES]	[I,J]
COMPOUND QUANTITATION	[YES]	[F,G]
SYSTEM PERFORMANCE	[YES]	[ ]

III. Introduction

Eight (8) air samples from the Waste Disposal Inc. site were submitted to the EPA Region IX laboratory for TO-15, GC/MS analyses on August 26, 1997.

IV. Validity and Comments

A) Due to sample collection problems, the following detected results and reporting limits are estimated (J,UJ) (see Table 1A):

- All analytes in samples SYN513.

The final collection pressure, for this sample, was greater than -3" Hg. Samples with more than -3" Hg may only be valid as grab samples and should not be treated as integrated samples.

Additionally, sample SYN510 had more than the targeted pressure of -5" Hg. Based on the professional judgement of the reviewer, data for this sample has not been estimated, however the effect on the data of this discrepancy is unknown.

B) Due to high relative standard deviations(%RSDs) in the initial calibrations, the detected results and quantitation limits for the following analytes are estimated (J,UJ) (see Table 1A):

- 1,3-Dichlorobenzene in all samples and method blanks.
- 1,4-Dichlorobenzene in all samples and method blanks.
- 1,2,4-Trichlorobenzene in all samples and method blanks.

The Initial Calibration demonstrates that the instrument is capable of acceptable performance at the beginning of the analytical sequence and of producing a linear calibration curve.

Percent relative standard deviations of 31%, 31%, 32% and 58% were observed for 1,2,2-Trichloro-1,2,2-Trifluoroethane, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene and 1,2,4-Trichlorobenzene, respectively, in the initial calibration performed on September 3, 1997. These values exceed the <30% QC advisory validation criteria.

C) Due to high percent differences (%D) between the continuing calibration and average initial calibration relative response factors, the detected results and quantitation limits for the following analytes are estimated (J,UJ) (see Table 1A):

- 1,2,4-Trichlorobenzene in all samples and method blank 0904BLK.
- Hexachloro-1,3-butadiene in all samples and method blank 0904BLK.

The continuing calibration checks the instrument performance daily and produces the relative response factors used for quantitation of each target analyte.

Percent differences of 43% and 36% were observed for 1,2,4-Trichlorobenzene and Hexachloro-1,3-butadiene, respectively, in the continuing calibration performed on September 04, 1997. These values exceeded the ±30% QC criterion.

D) Due to method blank and trip blank contamination, the results reported in Table 1A for the following analyte is estimated (UJ):

- Methylene Chloride in samples SYN510 and SYN511.

A laboratory method blank is reagent air carried through the same analytical procedures as the field samples. The laboratory method blank is used to determine the level of contamination introduced by the laboratory during analysis.

The method blanks analyzed on September 4, 1997, September 5, 1997 and September 16, 1997 had 0.4, 0.7 and 0.5 ppbv, respectively, of Methylene Chloride. Methylene Chloride in the samples listed above is considered non-detected and estimated (UJ) and quantitation limits have been increased according to the blank qualification rules presented below. The method blanks analyzed on September 4, 1997 and September 5, 1997 had 0.3 and 0.2 ppbv, respectively, of 1,2,4-Trichlorobenzene. Because 1,2,4-Trichlorobenzene was not detected in any samples no results were effected. The method blank analyzed on September 5, 1997 had levels of Dichlorodifluoromethane and Toluene of 0.2 and 0.3 ppbv, respectively, however because only a dilutions were analyzed on this day no data was effected.

An equipment blank is reagent air that has been collected as a sample using decontaminated sampling equipment. The intent of an equipment blank is to monitor for contamination introduced by the sampling activity, although any laboratory introduced contamination will also be present.

The equipment blank analyzed on September 4, 1997 had 0.4 ppbv of Methylene Chloride. Methylene Chloride in the samples listed above is considered non-detected and estimated (UJ) and quantitation limits have been increased according to the blank qualification rules presented below.

No positive results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in any associated blank for the common laboratory contaminants or 5 times the amount for other compounds. If the sample result is greater than the CRQL, the quantitation limit is raised to the sample result (UJ). If the sample result is less than the CRQL, the result is reported as non-detected (UJ) at the CRQL.

E) Canister certifications were not included in this package. As a result, possible canister contamination could not be evaluated. In the reviews professional judgement the effect of this omission, although unknown, is probably minimal. This is because significant canister certification problems were not seen for any of the other canisters supplied for this sampling event.

F) The following results are estimated and flagged (J) (see Table 1A):

- All results below the Contract Required Quantitation Limits.

Results below the Contract Required Quantitation Limits (CRQL) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.

G) The laboratory used different standard concentration calculations for the instrument calibration and the LCS standards. The initial calibration and continuing calibration standards were calculated using the vendor's "Requested Gas Concentration." The LCS was calculated using the vendor's "Analyzed Concentration." It is recommended that the laboratory use the most representative of these two values consistently in all calculations. In the reviewer's opinion the effect of this inconsistency on data quality is minimal.

H) The primary standard used for instrument calibration on September 3, 1997 and calibration verification on September 17 and 23, 1997 was outside of the vendor listed expiration date of August 24, 1997. In the reviewer's judgement the standard supplier has taken a conservative approach by specifying a six month life for pressurized gaseous standards. The effect of this deviation on data quality is minimal, however it should be noted.

I) The number of tentatively identified compounds (TICs - compounds detected by the GC/MS system during sample analysis which are not on the target compound list) identified has been limited by the laboratory to 9. In these samples more than 9 TICs could be present, therefore the laboratory's assignment of TICs may not be comprehensive. If TIC data is being used to make site decisions it is recommended that a more comprehensive TIC search be requested.

J) Due to confirmation problems, the detected results for the following analyte have been estimated at the detection limit (UJ) or considered presumptively present and estimated (NJ) (see Table 1A):

- Styrene in samples SYN512, SYN513 and SYN514.
- 1,1,2-Trichloroethane in sample SYN514.
- 1,1,2,2-Tetrachloroethane in samples SYN510, SYN512, SYN513 and SYN514.

Analyte identification is confirmed by a combination of gas chromatographic (GC) retention time and mass spectrometer (MS) ion pattern.

The MS ion patterns for above analytes could not confirm their presence. This was most likely caused by sample matrix interferences. Where the level detected is at or below the contract required detection limit (CRQL) these results are reported as estimated and non-detected detection limit(UJ). Where the level detected is above the contract required detection limit these results are reported as presumptively present and estimated (NJ).

K) USEPA Method TO-15 states in section 3.7.3.2 "The mass spectrum of BFB must be acquired in the following manner. Three scans (the peak apex scan and the scans immediately preceding and following the apex) are acquired and averaged." However, the laboratory averaged all scans of the BFB peak to acquire the BFB spectrum. In the reviewer's opinion this does not significantly impact on data quality.

L) Due to low LCS recoveries, the detected results for the following analytes have been estimated at the detection limit (UJ) (see Table 1A):

- 1,3-Dichlorobenzene in all samples and blanks.
- 1,2-Dichlorobenzene in all samples and blanks.
- 1,4-Dichlorobenzene in all samples and blanks.

Analysis of laboratory control samples (LCSs) provides information on method performance. The LCS analyzed on September 5 and 16, 1997 had 1,2-Dichlorobenzene recoveries of 68% and 68%, respectively, which were below the percent recovery QC criteria (70-130%). Based on these results and calibration performance of Dichlorobenzenes on this instrument all Dichlorobenzenes have been estimated at the detection limit.

M) The analytical sequence logs, "runlogs," produced were computer printouts of the data system sequence file. These logs did not document information such as standard traceability, analysis date and time, dilution information, etc.

N) Laboratory canister receipt pressures were not measured by the laboratory. Because receipt pressures readings were not collected by the laboratory sample preservation could not be verified.

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (SYN510)
Site: WDI
Laboratory: Region 9, Richmond
Reviewer: Mathew C. Plate, USEPA/QAP
Date: February 5, 1998

Analysis: GC/MS TO15
Matrix: Air

Concentration in ppbv

Station Location	SYN510				SYN511				SYN512				SYN513				SYN514			
Sample I.D.	SYN510				SYN511				SYN512 D1				SYN513 D1				SYN514			
Date of Collection	08/25/97				08/25/97				08/25/97				08/25/97				08/25/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifuloromethane	2			A	0.9	L	J	F	1				1		J	A	0.9	L	J	F
1,2-Dichloro-1,1,2,2-Tetrafluoromethane	1	U		A	1	U			1	U			1	U	J	A	1	U		
Chloromethane	0.6	L	J	AF	2				0.6	L	J	F	0.5	L	J	AF	0.7	L	J	F
Vinyl Chloride	1	U		A	1	U			1	U			1	U	J	A	1	U		
Bromomethane	1	U		A	1	U			1	U		F	1	U	J	A	1	U		
Chloroethane	1	U		A	1	U			1	U			1	U	J	A	1	U		
Trichlorofluoromethane	0.4	L	J	AF	0.3	L	J	F	0.3	L	J	F	0.3	L	J	AF	0.3	L	J	F
1,1-Dichloroethene	1	U		A	1	U			1	U			1	U	J	A	1	U		
1,1,2-Trichloro-1,2,2-Trifluoroethane	1	U	J	AB	1	U	J	B	1	U	J	B	0.3	L	J	ABF	1	U	J	B
Methylene Chloride	2	U	J	AD	1	U	J	D	11				19		J	A	63			
1,1-Dichloroethane	1	U		A	1	U			1	U			1	U	J	A	1	U		
cis-1,2-Dichloroethene	1	U		A	1	U			1	U			1	U	J	A	1	U		
Chloroform	1	U		A	1	U			1	U			1	U	J	A	1	U		
1,1,1-Trichloroethane	0.8	L	J	A	0.7	L	J	F	0.6	L	J	F	0.5	L	J	AF	1	U		
Carbon Tetrachloride	1	U		A	1	U			1	U			1	U	J	A	1	U		
Benzene	1			A	3				6				9		J	A	32			
1,2-Dichloroethane	1	U		A	1	U			1	U			0.2	L	J	AF	0.6	L	J	F
Trichloroethylene	1	U		A	1	U			0.3	L	J	F	0.5	L	J	AF	1	U		
1,2-Dichloropropane	1	U		A	1	U			1	U			1	U	J	A	0.4	L	J	F
cis-1,3-Dichloropropene	1	U		A	1	U			1	U			1	U	J	A	1	U		
Toluene	7			A	81				48				75		J	A	250			
trans-1,3-Dichloropropene	1	U		A	1	U			1	U			1	U	J	A	1	U		
1,1,2-Trichloroethane	1	U		A	1	U			1	U			1	U	J	A	1	U	J	J
Tetrachloroethene	0.2	L	J	AF	1	U			3				3		J	A	1			
1,2-Dibromoethane	1	U		A	1	U			1	U			1	U	J	A	1	U		
Chlorobenzene	3			A	1	U			1	U			1	U	J	A	1	U		
Ethyl Benzene	2			A	7				7				11		J	A	39			
m,p-Xylene	6			A	23				24				45		J	A	150			
o-Xylene	2			A	7				9				16		J	A	58			
Styrene	1			A	1				1	U	J	J	1	U	J	AFJ	2		NJ	J
1,1,2,2-Tetrachloroethane	1	U	J	AJ	1	U			1	U	J	J	2		NJ	AJ	10		NJ	J
1,3,5-Trimethylbenzene	3			A	0.7	L	J	F	3				5		J	A	18			
1,2,4-Trimethylbenzene	11			A	2				9				15		J	A	73			
1,3-Dichlorobenzene	1	U	J	ABL	1	U	J	BL	1	U	J	BL	1	U	J	ABL	1	U	J	BL
1,4-Dichlorobenzene	1	U	J	AL	1	U	J	L	1	U	J	L	0.4	L	J	AFL	0.2	L	J	FL
1,2-Dichlorobenzene	1	U	J	AL	1	U	J	L	1	U	J	L	1		J	AL	0.5	L	J	FL
1,2,4-Trichlorobenzene	1	U	J	ABC	1	U	J	B	1	U	J	B	1	U	J	AB	1	U	J	B
Hexachloro-1,3-Butadiene	1	U	J	AC	1	U	J	C	1	U	J	C	1	U	J	AC	1	U	J	C

Val-Validity Refer to Data Qualifiers in Table 1B.

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank

TB-Trip Blank, BG-Background Sample

D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (SYN510)
Site: WDI
Laboratory: Region 9, Richmond
Reviewer: Mathew C. Plate, USEPA/QAP
Date: February 5, 1998

Analysis: GC/MS TO15
Matrix: Air

Concentration in ppbv

Station Location	SYN515				SYN516				SYN517				Method Blank				Method Blank			
Sample I.D.	SYN515				SYN516 EB				SYN517											
Date of Collection	08/25/97				08/25/97				08/25/97				09/04/97				09/05/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv				ppbv			
Dichlorodifluoromethane	0.7	L	J	F	1	U			1				1	U			0.2	L	J	DF
1,2-Dichloro-1,1,2,2-Tetrafluoroethane	1	U			1	U			1	U			1	U			1	U		
Chloromethane	0.8	L	J	F	1	U			0.6	L	J	F	1	U			1	U		
Vinyl Chloride	1	U			1	U			1	U			1	U			1	U		
Bromomethane	1	U			1	U			1	U			1	U			1	U		
Chloroethane	1	U			1	U			1	U			1	U			1	U		
Trichlorofluoromethane	0.4	L	J	F	1	U			0.7	L	J	F	1	U			1	U		
1,1-Dichloroethene	1	U			1	U			1	U			1	U			1	U		
1,1,2-Trichloro-1,2,2-Trifluoroethane	1	U	J	B	1	U	J	B	1	U	J	B	1	U	J	B	1	U	J	B
Methylene Chloride	42				0.4	L	J	DF	7				0.4	L	J	DF	0.7	L	J	F
1,1-Dichloroethane	1	U			1	U			1	U			1	U			1	U		
cis-1,2-Dichloroethene	1	U			1	U			1	U			1	U			1	U		
Chloroform	0.3	L	J	F	1	U			1	U			1	U			1	U		
1,1,1-Trichloroethane	0.3	L	J	F	1	U			1	U			1	U			1	U		
Carbon Tetrachloride	1	U			1	U			1	U			1	U			1	U		
Benzene	0.7	L	J	F	1	U			0.6	L	J	F	1	U			1	U		
1,2-Dichloroethane	1	U			1	U			1	U			1	U			1	U		
Trichloroethylene	2				1	U			1	U			1	U			1	U		
1,2-Dichloropropane	1	U			1	U			1	U			1	U			1	U		
cis-1,3-Dichloropropene	1	U			1	U			1	U			1	U			1	U		
Toluene	41				1	U			2				1	U			0.3	L	J	DF
trans-1,3-Dichloropropene	1	U			1	U			1	U			1	U			1	U		
1,1,2-Trichloroethane	1	U			1	U			1	U			1	U			1	U		
Tetrachloroethene	1	U			1	U			1	U			1	U			1	U		
1,2-Dibromoethane	1	U			1	U			1	U			1	U			1	U		
Chlorobenzene	1	U			1	U			1	U			1	U			1	U		
Ethyl Benzene	0.5	L	J	F	1	U			0.3	L	J	F	1	U			1	U		
m,p-Xylene	2				2	U			1	L	J	F	2	U			2	U		
o-Xylene	0.8	L	J	F	1	U			0.4	L	J	F	1	U			1	U		
Styrene	0.5	L	J	F	1	U			0.3	L	J	F	1	U			1	U		
1,1,2,2-Tetrachloroethane	1	U			1	U			1	U			1	U			1	U		
1,3,5-Trimethylbenzene	0.4	L	J	F	1	U			0.3	L	J	F	1	U			1	U		
1,2,4-Trimethylbenzene	2				1	U			1				1	U			1	U		
1,3-Dichlorobenzene	1	U	J	BL	1	U	J	BL	1	U	J	BL	1	U	J	BL	1	U	J	BL
1,4-Dichlorobenzene	4		J	L	1	U	J	L	1	U	J	L	1	U	J	L	1	U	J	L
1,2-Dichlorobenzene	1	U	J	L	1	U	J	L	1	U	J	L	1	U	J	L	1	U	J	L
1,2,4-Trichlorobenzene	1	U	J	B	1	U	J	B	1	U	J	B	0.3	L	J	BDF	0.2	L	J	BDF
Hexachloro-1,3-Butadiene	1	U	J	C	1	U	J	C	1	U	J	C	1	U	J	C	1	U		

Val-Validity Refer to Data Qualifiers in Table 1B.

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank

TB-Trip Blank, BG-Background Sample

D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (SYN510)
Site: WDI
Laboratory: Region 9, Richmond
Reviewer: Mathew C. Plate, USEPA/QAP
Date: February 5, 1998

Analysis: GC/MS TO15
Matrix: Air

Concentration in ppbv

Station Location Sample I.D. Date of Collection	Method Blank 09/16/97				CRQL
Analyte	ppbv		Val	Com	ppbv
Dichlorodifuloromethane	1	U			1
1,2-Dichloro-1,1,2,2-Tetrafluoromethane	1	U			1
Chloromethane	1	U			1
Vinyl Chloride	1	U			1
Bromomethane	1	U			1
Chloroethane	1	U			1
Trichlorofluoromethane	1	U			1
1,1-Dichloroethene	1	U			1
1,1,2-Trichloro-1,2,2-Trifluoromethane	1	U	J	B	1
Methylene Chloride	0.5	L	J	DF	1
1,1-Dichloroethane	1	U			1
cis-1,2-Dichloroethene	1	U			1
Chloroform	1	U			1
1,1,1-Trichloroethane	1	U			1
Carbon Tetrachloride	1	U			1
Benzene	1	U			1
1,2-Dichloroethane	1	U			1
Trichloroethylene	1	U			1
1,2-Dichloropropane	1	U			1
cis-1,3-Dichloropropene	1	U			1
Toluene	1	U			1
trans-1,3-Dichloropropene	1	U			1
1,1,2-Trichloroethane	1	U			1
Tetrachloroethene	1	U			1
1,2-Dibromoethane	1	U			1
Chlorobenzene	1	U			1
Ethyl Benzene	1	U			1
m,p-Xylene	2	U			2
o-Xylene	1	U			1
Styrene	1	U			1
1,1,2,2-Tetrachloroethane	1	U			1
1,3,5-Trimethylbenzene	1	U			1
1,2,4-Trimethylbenzene	1	U			1
1,3-Dichlorobenzene	1	U	J	BL	1
1,4-Dichlorobenzene	1	U	J	BL	1
1,2-Dichlorobenzene	1	U	J	BL	1
1,2,4-Trichlorobenzene	1	U	J	B	1
Hexachloro-1,3-Butadiene	1	U	J	C	1

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
CRQL-Contract Required Quantitation Limit
N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank
TB-Trip Blank, BG-Background Sample
D-Dilution

TABLE 1B
DATA QUALIFIERS

The definitions of the following qualifiers are prepared according to the EPA draft document, "National Functional Guidelines for Organic Data Review," February 1994.

NO QUALIFIERS indicate that the data are acceptable both qualitatively and quantitatively.

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

Date: 2/10/97

MEMORANDUM

SUBJECT: Reviewing and Reporting of Tentatively Identified Compounds (TICs) from GC/MS Analyses in Data Validation Reports

FROM: Mathew C. Plate, Chemist Mathew C. Plate
QA Program, PMD-3

THROUGH: Vance S. Fong, P.E., Chief Vance S. Fong
QA Program, PMD-3

TO: Region IX Data Users

The QA Program reports tentatively identified compounds (TICs), from GC/MS analyses conducted by a non-contract lab program (non-CLP) lab, by annotating copies of TIC reporting forms, for the undiluted analysis of each sample. The forms are evaluated for spurious or mis-identified data and then attached to their respective GC/MS data validation report.

TICs are compounds detected, with a response of 10% or greater than that of the nearest internal standard, not included in the calibration mix. TICs are identified solely by comparison of their unique mass spectra to a spectral library. TIC concentration estimates are associated with a high degree of uncertainty (sometimes varying from the actual concentration by an order of magnitude or more).

TIC data provides the data user with additional information on compounds possibly present in addition to target analytes. In some instances compounds initially reported as TICs are added to the analytes of interest for a particular site, and are specifically analyzed for in subsequent analysis events.

Due to the subjectiveness of TIC identifications, for assistance please contact me at (415) 744-1493 or Dawn Richmond at (415) 744-1494.

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
SYN510

Laboratory Name: EPA Region 9
Case Number: R97S25
Site: WDI
Matrix: Ambient Air

Date Collected: 08/25/97
Date Analyzed: 09/04/97
Sample Delivery Group:: SYN510

CAS NO.	RETENTION TIME	COMPOUND NAME	EST. CONC. PPBV	Q
1	5.22	Propane	76	NJ
2	5.73	Isobutane	14	NJ
3	6.18	Butane	14	NJ
4	7.77	Butane, 2-methyl	7	NJ
5	10.35	Acetone	10	NJ
6	12.40	Propane, 2-methoxy-2-methyl	7	NJ
7	15.40	2-Butanone	6	NJ
8	16.14	Furan, tetrahydro-	7	NJ
9	29.66	Unknown Alkane	10	NJ
10				

NJ-All compounds are tentatively identified and concentrations are estimated based on a response factor of 1 relative to the nearest internal standard.

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
SYN511

Laboratory Name: EPA Region 9
Case Number: R97S25
Site: WDI
Matrix: Ambient Air

Date Collected: 08/25/97
Date Analyzed: 09/04/97
Sample Delivery Group:: SYN510

CAS NO.	RETENTION TIME	COMPOUND NAME	EST. CONC. PPBV	Q
1	6.18	Butane	11	NJ
2	7.79	Butane, 2-methyl	40	NJ
3	8.63	Pentane	19	NJ
4	10.32	Acetone	130	NJ
5	11.06	Isopropanol	280	NJ
6	11.55	Pentane, 2-methyl-	15	NJ
7	12.36	Propane, -2-methoxy-2-methyl-	34	NJ
8	15.40	2-Butanone	16	NJ
9	24.71	Acetic acid ester	12	NJ
10				

NJ-All compounds are tentatively identified and concentrations are estimated based on a response factor of 1 relative to the nearest internal standard.

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
SYN512

Laboratory Name: EPA Region 9
Case Number: R97S25
Site: WDI
Matrix: Ambient Air

Date Collected: 08/25/97
Date Analyzed: 09/04/97
Sample Delivery Group:: SYN510

CAS NO.	RETENTION TIME	COMPOUND NAME	EST. CONC. PPBV	Q
1	6.20	Butane	16	NJ
2	7.81	Butane, 2-methyl	100	NJ
3	8.65	Pentane	44	NJ
4	12.39	Propane, 2-metyoxy-2-methyl-	99	NJ
5	13.14	Hexane	22	NJ
6	14.91	Cyclopentane, methyl-	22	NJ
7	17.84	Unknown Alkane	17	NJ
8	29.67	Unknown Alkane	22	NJ
9	32.05	Unknown Alkane	16	NJ
10				

NJ-All compounds are tentatively identified and concentrations are estimated based on a response factor of 1 relative to the nearest internal standard.

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
SYN513

Laboratory Name: EPA Region 9
Case Number: R97S25
Site: WDI
Matrix: Ambient Air

Date Collected: 08/25/97
Date Analyzed: 9/4 & 5/97
Sample Delivery Group:: SYN510

CAS NO.	RETENTION TIME	COMPOUND NAME	EST. CONC. PPBV	Q
1	7.83	Butane, 2-methyl	160	NJ
2	8.65	Pentane	73	NJ
3	12.45	Propane, 2-metyoxy-2-methyl-	160	NJ
4	13.21	Hexane	37	NJ
5	14.97	Cyclopentane, methyl-	35	NJ
6	16.92	Pentane, 2,3-dimethyl	22	NJ
7	17.90	Unknown Alkane	27	NJ
8	23.74	Unknown	41	NJ
9	29.68	Unknown Alkane	30	NJ
10				

NJ-All compounds are tentatively identified and concentrations are estimated based on a response factor of 1 relative to the nearest internal standard.

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
SYN514

Laboratory Name: EPA Region 9
Case Number: R97S25
Site: WDI
Matrix: Ambient Air

Date Collected: 08/25/97
Date Analyzed: 9/4, 5 & 16/97
Sample Delivery Group:: SYN510

CAS NO.	RETENTION TIME	COMPOUND NAME	EST. CONC. PPBV	Q
1	7.82	Butane, 2-methyl	350	NJ
2	8.68	Pentane	170	NJ
3	12.39	Propane, 2-metyoxy-2-methyl-	310	NJ
4	13.17	Hexane	95	NJ
5	14.92	Cyclopentane, methyl-	92	NJ
6	16.90	Pentane, 2,3-dimethyl	72	NJ
7	17.16	Hexane, 3-methyl	62	NJ
8	17.89	Unknown Alkane	63	NJ
9	29.68	Unknown Alkane	95	NJ
10				

NJ-All compounds are tentatively identified and concentrations are estimated based on a response factor of 1 relative to the nearest internal standard.

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
SYN515

Laboratory Name: EPA Region 9
Case Number: R97S25
Site: WDI
Matrix: Ambient Air

Date Collected: 08/25/97
Date Analyzed: 9/4 & 5/97
Sample Delivery Group:: SYN510

CAS NO.	RETENTION TIME	COMPOUND NAME	EST. CONC. PPBV	Q
1	6.72	Acetaldehyde	25	NJ
2	7.78	Butane, 2-methyl	7	NJ
3	10.53	Acetone	66	NJ
4	15.50	2-Butanone	10	NJ
5	20.28	Pentanal	6	NJ
6	20.40	Unknown	7	NJ
7	24.71	Hexanal	7	NJ
8	28.45	Unknown	9	NJ
9	32.06	Unknown Alkane	8	NJ
10				

NJ-All compounds are tentatively identified and concentrations are estimated based on a response factor of 1 relative to the nearest internal standard.

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
SYN516

Laboratory Name: EPA Region 9
Case Number: R97S25
Site: WDI
Matrix: Ambient Air

Date Collected: 08/25/97
Date Analyzed: 9/4/97
Sample Delivery Group:: SYN510

CAS NO.	RETENTION TIME	COMPOUND NAME	EST. CONC. PPBV	Q
1		None		
2				
3				
4				
5				
6				
7				
8				
9				
10				

NJ-All compounds are tentatively identified and concentrations are estimated based on a response factor of 1 relative to the nearest internal standard.

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
SYN517

Laboratory Name: EPA Region 9
Case Number: R97S25
Site: WDI
Matrix: Ambient Air

Date Collected: 08/25/97
Date Analyzed: 9/4/97
Sample Delivery Group:: SYN510

CAS NO.	RETENTION TIME	COMPOUND NAME	EST. CONC. PPBV	Q
1	5.27	Carbonyl sulfide	8	NJ
2	5.74	Isobutane	5	NJ
3	6.19	Butane	7	NJ
4	7.79	Butane, 2-methyl	4	NJ
5	8.62	Pentane	2	NJ
6	10.39	Acetone	8	NJ
7	12.45	propane, 2-methoxy-2-methyl-	2	NJ
8	23.71	Unknown	5	NJ
9	29.67	Unknown Alkane	3	NJ
10				

NJ-All compounds are tentatively identified and concentrations are estimated based on a response factor of 1 relative to the nearest internal standard.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

January 28, 1998

MEMORANDUM

SUBJECT: Review of Analytical Data

FROM: Mathew C. Plate, Chemist
Quality Assurance Program (QAP), PMD-3

THROUGH: Vance S. Fong, P.E., Manager
Quality Assurance Program (QAP), PMD-3

TO: Andria Benner, Remedial Project Manager
Az/CA Cleanup Section, SFD-7-1

Attached are comments resulting from QAP Region IX review of the following analytical data:

SITE:	Waste Disposal Inc.
EPA SSI NO.:	C1
CERCLIS ID NO.:	CAD980884357
CASE/SAS NO.:	R97S46
SDG NO.:	SYN533
LABORATORY:	Region IX
ANALYSIS:	TO15
SAMPLE NO.:	14 ~~Soil Gas~~ Air (see Case Summary)
COLLECTION DATE:	August 4 and 11, 1997
REVIEWER:	Mathew C. Plate QAP, PMD-3/USEPA

If there are any questions, please contact me at (415)744-1493.

Attachment

cc: Brenda Bettencourt, PMD-2

Printed on Recycled Paper

Data Validation Report

Case No.: R97S46
Site: Waste Disposal Inc.
Laboratory: Region IX
Reviewer: Mathew C. Plate, QAP, PMD-3/USEPA
Date: January 28, 1998

I. Case Summary

SAMPLE INFORMATION:

VOA Sample Numbers:	SYN533, SYN534, SYN535, SYN536, SYN537, SYN538, SYN539, SYN542, SYN544, SYN545, SYN546, SYN547, SYN549 and SYN550
Concentration and Matrix:	Air
Analysis:	TO-15 by GC/MS
Collection Date:	August 4 and 11, 1997
Sample Receipt Date:	August 5 and 12, 1997
Analysis Date:	August 6 through 7, 1997; August 13 through 14, 1997; and September 4, 1997

FIELD QC:

Trip Blanks (TB):	SYN539 and SYN550
Field Blanks (FB):	None Identified
Equipment Blanks (EB):	None Identified
Background Samples (BG):	SYN549
Field Duplicates (D1):	SYN546 and SYN547

METHOD BLANKS AND ASSOCIATED SAMPLES:

0806BLK:	SYN533, SYN534, SYN535, SYN536, SYN537, SYN538 and 0806LCS
0807BLK:	SYN534DL, SYN539 and 0807LCS
0813BLK:	SYN542, SYN544, SYN545, SYN546, SYN547, SYN549 and 0813LCS
0822BLK:	SYN550 and 0822LCS
0904BLK:	SYN544DL and 0904LCS2

TABLES:

1A:	Analytical Results with Qualifications
1B:	Data Qualifiers

TPO ACTION:

SAMPLING ISSUES: None.

OTHER: None.

TPO ATTENTION:

SAMPLING ISSUES: Several samples had final collection pressures greater than -3" Hg. Samples with more than -3" Hg may only be valid as grab samples and should not be treated as integrated samples.

OTHER: None.

ADDITIONAL COMMENTS:

The analytical results with qualifications are listed in Table 1A. This report was prepared in accordance with EPA document "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", February 1994, and EPA Method TO-15 were used for guidance in preparation of this report. **This TO-15 data, analyzed by the EPA Region 9 Laboratory, followed a Client Request Form (CRF) which meets the requirements of method TO-15. Additional samples from this event were spilt to a second laboratory, Quanterra, analyzed and under a second CRF with additional quality control requirements, and validated based upon these additional requirements.**

II. Validation Summary

		VOA Acceptable/Comment
HOLDING TIMES/PRESERVATION	[NO]	[A,O]
GC/MS TUNE/GC PERFORMANCE	[YES]	[K]
CALIBRATIONS	[YES]	[B,C,H]
FIELD QC	[YES]	[ ]
LABORATORY BLANKS	[YES]	[D]
LABORATORY CONTROL SPIKE	[YES]	[L,M]
LABORATORY DUPLICATES	[YES]	[ ]
INTERNAL STANDARDS	[YES]	[ ]
COMPOUND IDENTIFICATION	[YES]	[I,J]
COMPOUND QUANTITATION	[YES]	[F,G]
SYSTEM PERFORMANCE	[YES]	[ ]

III. Introduction

Fourteen (14) air samples from the Waste Disposal Inc. site were submitted to the EPA Region IX laboratory for TO-15, GC/MS analyses on August 4 and 11, 1997.

IV. Validity and Comments

A) Due to sample collection problems, the following detected results and reporting limits are estimated (J,UJ) (see Table 1A):

- All analytes in samples SYN533, SYN545, SYN547 and SYN549.

The final collection pressure, for these samples, was greater than -3" Hg. Samples with more than -3" Hg may only be valid as grab samples and should not be treated as integrated samples.

Additionally, sample SYN535 and SYN536 had more than the targeted pressure of -5" Hg. Based on the profesional judgement of the reviewer, data for these samples has not been estimated, however the effect on the data of this discrepancy is unknown.

B) Due to high relative standard deviations(%RSDs) in the initial calibrations, the detected results and quantitation limits for the following analytes are estimated (J,UJ) (see Table 1A):

- 1,1,2-Trichloro-1,2,2-trifluoroethane in method blank 0904BLK.
- 1,3,5-Trimethylbenzene in sample SYN550 and in method blank 0822BLK.
- 1,3-Dichlorobenzene in method blank 0904BLK.
- 1,4-Dichlorobenzene in sample SYN550 and in method blanks 0822BLK and 0904BLK.
- 1,2,4-Trichlorobenzene in all samples and method blanks.
- Hexachloro-1,3-butadiene in sample SYN550 and in method blank 0822BLK.

The Initial Calibration demonstrates that the instrument is capable of acceptable performance at the beginning of the analytical sequence and of producing a linear calibration curve.

A percent relative standard deviations of 39% was observed for 1,2,4-Trichlorobenzene in the initial calibration performed on August 8, 1997. Percent relative standard deviations of 32%, 32%, 59% and 37% were observed for 1,2,4-Trimethylbenzene, 1,2,4-Trichlorobenzene and Hexachloro-1,3-butadiene, respectively, in the initial calibration performed on August 22, 1997. Percent relative standard deviations of 31%, 31%, 32% and 58% were observed for 1,2,2-Trichloro-1,2,2-Trifluoroethane, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene and 1,2,4-Trichlorobenzene, respectively, in the initial calibration performed on September 3, 1997. These values exceed the <30% QC advisory validation criteria.

C) Due to high percent differences (%D) between the continuing calibration and average initial calibration relative response factors, the detected results and quantitation limits for the following analytes are estimated (J,UJ) (see Table 1A):

- Hexachloro-1,3-butadiene in method blank 0904BLK.
- 1,2,4-Trichlorobenzene in method blank 0904BLK.

The continuing calibration checks the instrument performance daily and produces the relative response factors used for quantitation of each target analyte.

Percent differences of 43% and 36% were observed for Hexachloro-1,3-butadiene and 1,2,4-Trichlorobenzene, respectively, in the continuing calibration performed on September 4, 1997. These values exceeded the ±30% QC criterion.

D) Due to method blank and trip blank contamination, the results reported in Table 1A for the following analyte is estimated (UJ):

- Methylene Chloride in samples SYN533, SYN535, SYN537, SYN538, SYN542, SYN545, SYN546 and SYN549.

A laboratory method blank is reagent air carried through the same analytical procedures as the field samples. The laboratory method blank is used to determine the level of contamination introduced by the laboratory during analysis.

The method blanks analyzed on August 4, 1997; August 7, 1997; August 13, 1997; August 22, 1997; and September 4, 1997 had 0.4, 0.4, 0.3, 0.4 and 0.4 ppbv of Methylene Chloride, respectively. Methylene Chloride in the sample listed above is considered non-detected and

estimated (UJ) and quantitation limits have been increased according to the blank qualification rules presented below.

A trip blank is intended to detect contaminants introduced during the transport of the samples to the laboratory. Contaminants that are found in the trip blank which are absent in the laboratory blank could be indicative of a problem in transportation, storage, the canister preparation procedure or other indeterminate error.

The trip blanks analyzed on August 7 and 22, 1997 had 0.4 and 0.4 ppbv of Methylene Chloride, respectively. Methylene Chloride in the samples listed above is considered non-detected and estimated (UJ) and quantitation limits have been increased according to the blank qualification rules presented below.

No positive results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in any associated blank for the common laboratory contaminants or 5 times the amount for other compounds. If the sample result is greater than the CRQL, the quantitation limit is raised to the sample result (UJ). If the sample result is less than the CRQL, the result is reported as non-detected (UJ) at the CRQL.

E) Due to canister certification contamination, the results reported in Table 1A for the following analyte is estimated (UJ):

- Methylene Chloride in samples SYN533, SYN535, SYN537, SYN538, SYN542, SYN545, SYN546 and SYN549.

Canisters are cleaned and certified clean, at the laboratory, prior to sample collection. This process ensures that cross contamination between sampling events is minimized.

The canisters used for the above samples had levels of Methylene chloride between 0.2 and 0.6 ppbv during certification. The samples above had similar levels of Methylene chloride detected during analysis. The reporting limits for these samples are elevated to the detected level, or the CRQL, whichever is higher, and estimated (UJ).

F) The following results are estimated and flagged (J) (see Table 1A):

- All results below the Contract Required Quantitation Limits.

Results below the Contract Required Quantitation Limits (CRQL) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.

G) Due to high analyte concentration, the detected results for the following analyte are estimated (J) (see Table 1A):

- 1,1,1-Trichloroethane in sample SYN542.

The concentrations of 1,1,1-Trichloroethane in samples SYN542 was 28 ppbv. This value exceeded the upper calibration limit of 25 ppbv. The results reported for this analyte are quantitatively questionable and should be considered as the minimum values at which they are present in the samples.

H) The primary standard used for instrument calibration on September 3, 1997 and calibration verification on September 4, 1997 was outside of the vendor listed expiration date of August 24, 1997. In the reviewer's judgement the standard supplier has taken a conservative

approach by specifying a six month life for pressurized gaseous standards. The effect of this deviation on data quality is minimal, however it should be noted.

I) The number of tentatively identified compounds (TICs - compounds detected by the GC/MS system during sample analysis which are not on the target compound list) identified has been limited by the laboratory to 10. In these samples more than 10 TICs could be present, therefore the laboratory's assignment of TICs may not be comprehensive. If TIC data is being used to make site decisions it is recommended that a more comprehensive TIC search be requested.

J) Due to confirmation problems, the detected results for the following analyte have been estimated at the detection limit (UJ) (see Table 1A):

- Styrene in samples SYN535 and SYN536.

Analyte identification is confirmed by a combination of gas chromatographic (GC) retention time and mass spectrometer (MS) ion pattern.

The MS ion patterns for above analytes could not confirm their presence. This was most likely caused by sample matrix interferences. Because the level detected was at or below the detection limits, and interference from o-Xylene may have lead to false positives for Styrene, these samples have been reported as estimated and non-detected for Styrene at the detection limit(UJ).

K) USEPA Method TO-15 states in section 3.7.3.2 "The mass spectrum of BFB must be acquired in the following manner. Three scans (the peak apex scan and the scans immediately preceding and following the apex) are acquired and averaged." However, the laboratory averaged all scans of the BFB peak to acquire the BFB spectrum. In the reviewer's opinion this does not significantly impact on data quality.

L) Due to low LCS recoveries, the detected results for the following analytes have been estimated at the detection limit (UJ) (see Table 1A):

- 1,3-Dichlorobenzene in all samples and blanks.
- 1,2-Dichlorobenzene in all samples and blanks.
- 1,4-Dichlorobenzene in all samples and blanks.

Analysis of laboratory control samples (LCSs) provides information on method performance. The LCS analyzed on August 13 and 22, 1997 had 1,2-Dichlorobenzene recoveries of 67% and 26%, respectively, which were below the percent recovery QC criteria (70-130%). Based on these results and calibration performance of Dichlorobenzenes on this instrument all Dichlorobenzenes have been estimated at the detection limit.

M) The laboratory used different standard concentration calculations for the instrument calibration and the LCS standards. The initial calibration and continuing calibration standards were calculated using the vendor's "Requested Gas Concentration." The LCS was calculated using the vendor's "Analyzed Concentration." It is recommended that the laboratory use the most representative of these two values consistently in all calculations. In the reviewer's opinion the effect of this inconsistency on data quality is minimal.

N) The analytical sequence logs, "runlogs," produced were computer printouts of the data system sequence file. These logs did not document information such as standard traceability, analysis date and time, dilution information, etc.

O) Laboratory canister receipt pressures were not measured by the laboratory. Because receipt pressures readings were not collected by the laboratory sample preservation could not be verified.

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (SYN533)
Site: WDI
Laboratory: Region 9, Richmond
Reviewer: Mathew C. Plate, USEPA/QAP
Date: January 28, 1998

Analysis: GC/MS TO15
Matrix: Air

Concentration in ppbv

Station Location	SYN533				SYN534				SYN535				SYN536				SYN537			
Sample I.D.	SYN533				SYN534				SYN535				SYN536				SYN537			
Date of Collection	08/04/97				08/04/97				08/04/97				08/04/97				08/04/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifuloromethane	1	U	J	A	0.6	L	J	F	0.7	L	J	AF	1			A	0.8	L	J	F
1,2-Dichloro-1,1,2,2-Tetrafluoroethane	1	U	J	A	1	U			1	U		A	1	U		A	1	U		
Chloroethane	0.6	L	J	AF	0.6	L	J	F	0.6	L	J	AF	1			A	2			
Vinyl Chloride	1	U	J	A	1	U			1	U		A	1	U		A	1	U		
Bromomethane	1	U	J	A	1	U			1	U		A	1	U		A	1	U		
Chloroethane	1	U	J	A	1	U			1	U		A	1	U		A	1	U		
Trichlorofluoromethane	0.3	L	J	AF	0.3	L	J	F	0.4	L	J	AF	0.4	L	J	AF	1			
1,1-Dichloroethene	1	U	J	A	1	U			0.3	L	J	AF	1	U		A	1	U		
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.3	L	UJ	AF	1	U			1	U		A	1	U		A	1	U		
Methylene Chloride	4	U	J	ADE	47				1	U	J	ADE	5			A	1	U	J	DE
1,1-Dichloroethane	1	U	J	A	1	U			1	U		A	1	U		A	1	U		
cis-1,2-Dichloroethene	1	U	J	A	1	U			1	U		A	1	U		A	1	U		
Chloroform	1	U	J	A	1	U			1	U		A	1	U		A	1	U		
1,1,1-Trichloroethane	2		J	A	2				0.6	L	J	AF	2			A	0.3	L	J	F
Carbon Tetrachloride	1	U	J	A	1	U			1	U		A	1	U		A	1	U		
Benzene	0.4	L	J	AF	1				2			A	0.9	L	J	AF	1			
1,2-Dichloroethane	1	U	J	A	1	U			1	U		A	1	U		A	1	U		
Trichloroethylene	0.7	L	J	AF	1	U			14			A	1	U		A	1	U		
1,2-Dichloropropane	1	U	J	A	1	U			1	U		A	1	U		A	1	U		
cis-1,3-Dichloropropene	1	U	J	A	1	U			1	U		A	1	U		A	1	U		
Toluene	9		J	A	12				15			A	8			A	5			
trans-1,3-Dichloropropene	1	U	J	A	1	U			1	U		A	1	U		A	1	U		
1,1,2-Trichloroethane	1	U	J	A	1	U			1	U		A	1	U		A	1	U		
Tetrachloroethene	12		J	A	0.2	L	J	F	1			A	1	U		A	0.4	L	J	F
1,2-Dibromoethane	1	U	J	A	1	U			1	U		A	1	U		A	1	U		
Chlorobenzene	1	U	J	A	1	U			1	U		A	1	U		A	1	U		
Ethyl Benzene	0.3	L	J	AF	0.8	L	J	F	13			A	2			A	0.8	L	J	F
m,p-Xylene	0.8	L	J	AF	3				45			A	6			A	3			
o-Xylene	0.3	L	J	AF	1				21			A	2			A	1			
Styrene	0.3	L	J	AF	0.4	L	J	F	1	U	J	AJ	1	U	J	AJ	0.4	L	J	F
1,1,2,2-Tetrachloroethane	0.3	L	J	AF	1	U			1	U		A	1	U		A	1	U		
1,3,5-Trimethylbenzene	1	U	J	A	0.2	L	J	F	0.5	L	J	AF	0.3	L	J	AF	0.3	L	J	F
1,2,4-Trimethylbenzene	0.6	L	J	AF	0.6	L	J	F	2			A	0.7	L	J	AF	1			
1,3-Dichlorobenzene	1	U	J	AL	1	U	J	L	1	U	J	AL	1	U	J	AL	1	U	J	L
1,4-Dichlorobenzene	0.5	L	J	AFL	1	U	J	L	1	U	J	AL	1	U	J	AL	1	U	J	L
1,2-Dichlorobenzene	0.5	L	J	AFL	1	U	J	L	1	U	J	AL	1	U	J	AL	1	U	J	L
1,2,4-Trichlorobenzene	1	U	J	AB	1	U	J	B	1	U	J	AB	1	U	J	AB	1	U	J	B
Hexachloro-1,3-Butadiene	1	U	J	A	1	U			1	U		A	1	U		A	1	U		

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
CRQL-Contract Required Quantitation Limit
N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank
TB-Trip Blank, BG-Background Sample
D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (SYN533)
Site: WDI
Laboratory: Region 9, Richmond
Reviewer: Mathew C. Plate, USEPA/QAP
Date: January 28, 1998

Analysis: GC/MS TO15
Matrix: Air

Concentration in ppbv

Station Location	SYN538				SYN539				SYN542				SYN544				SYN545			
Sample I.D.	SYN538				SYN539 TB				SYN542				SYN544				SYN545			
Date of Collection	08/04/97				08/04/97				08/11/97				08/11/97				08/11/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifuloromethane	0.6	L	J	F	1	U			0.9	L	J	F	0.8	L	J	F	0.6	L	J	AF
1,2-Dichloro-1,1,2,2-Tetrafluoromethane	1	U			1	U			1	U			1	U			1	U	J	A
Chloromethane	2				1	U			1				0.5	L	J	F	0.5	L	J	AF
Vinyl Chloride	1	U			1	U			1	U			1	U			1	U	J	A
Bromomethane	1	U			1	U			1	U			1	U			1	U	J	A
Chloroethane	1	U			1	U			1	U			1	U			1	U	J	A
Trichlorofluoromethane	0.4	L	J	F	1	U			0.3	L	J	F	0.3	L	J	F	0.3	L	J	AF
1,1-Dichloroethene	1	U			1	U			1	U			1	U			1	U	J	A
1,1,2-Trichloro-1,2,2-Trifluoroethane	1	U			1	U			1	U			1	U			1	U	J	A
Methylene Chloride	1	U	J	DE	0.4	L	J	DE	3	U	J	DE	370				4	J	J	ADE
1,1-Dichloroethane	1	U			1	U			1	U			1	U			1	U	J	A
cis-1,2-Dichloroethene	1	U			1	U			1	U			1	U			1	U	J	A
Chloroform	1	U			1	U			1	U			0.6	L	J	F	1	U	J	A
1,1,1-Trichloroethane	0.3	L	J	F	1	U			28		J	G	0.6	L	J	F	3		J	A
Carbon Tetrachloride	1	U			1	U			1	U			1	U			1	U	J	A
Benzene	1				1	U			0.8	L	J	F	0.8	L	J	F	0.4	L	J	AF
1,2-Dichloroethane	1	U			1	U			1	U			1	U			1	U	J	A
Trichloroethylene	1	U			1	U			1	U			1	U			1	U	J	A
1,2-Dichloropropane	1	U			1	U			1	U			1	U			1	U	J	A
cis-1,3-Dichloropropene	1	U			1	U			1	U			1	U			1	U	J	A
Toluene	7				1	U			15				13				1		J	A
trans-1,3-Dichloropropene	1	U			1	U			1	U			1	U			1	U	J	A
1,1,2-Trichloroethane	1	U			1	U			1	U			1	U			1	U	J	A
Tetrachloroethene	0.5	L	J	F	1	U			1	U			0.8	L	J	F	1	U	J	A
1,2-Dibromoethane	1	U			1	U			1	U			1	U			1	U	J	A
Chlorobenzene	1	U			1	U			1	U			1	U			0.6	L	J	AF
Ethyl Benzene	0.6	L	J	F	1	U			1				1				0.5	L	J	AF
m,p-Xylene	2				2	U			4				4				1	L	J	AF
o-Xylene	0.8	L	J	F	1	U			0.6	L	J	F	2				0.4	L	J	AF
Styrene	0.5	L	J	F	1	U			1	U			1	U			2		J	A
1,1,2,2-Tetrachloroethane	1	U			1	U			1	U			1	U			1	U	J	A
1,3,5-Trimethylbenzene	0.2	L	J	F	1	U			0.4	L	J	F	0.9	L	J	F	1	U	J	A
1,2,4-Trimethylbenzene	0.6	L	J	F	1	U			0.7	L	J	F	3				0.4	L	J	AF
1,3-Dichlorobenzene	1	U	J	L	1	U	J	L	1	U	J	L	1	U	J	L	1	U	J	AL
1,4-Dichlorobenzene	1	U	J	L	1	U	J	L	1	U	J	L	1	U	J	L	1	U	J	AL
1,2-Dichlorobenzene	1	U	J	L	1	U	J	L	1	U	J	L	1	U	J	L	1	U	J	AL
1,2,4-Trichlorobenzene	1	U	J	B	1	U	J	B	1	U	J	B	1	U	J	B	1	U	J	AB
Hexachloro-1,3-Butadiene	1	U			1	U			1	U			1	U			1	U	J	A

Val-Validity Refer to Data Qualifiers in Table 1B.

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank

TB-Trip Blank, BG-Background Sample

D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (SYN533)
Site: WD1
Laboratory: Region 9, Richmond
Reviewer: Mathew C. Plate, USEPA/QAP
Date: January 28, 1998

Analysis: GC/MS TO15
Matrix: Air

Concentration in ppbv

Station Location	SYN546				SYN547				SYN549				SYN550				Method Blank			
Sample I.D.	SYN546				SYN547				SYN549				SYN550 TB							
Date of Collection	08/11/97				08/11/97				08/11/97				08/11/97				08/06/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifuloromethane	0.5	L	J	F	0.5	L	J	AF	0.5	L	J	AF	1	U			1	U		
1,2-Dichloro-1,1,2,2-Tetrafluoromethane	1	U			1	U	J	A	1	U	J	A	1	U			1	U		
Chloromethane	0.5	L	J	F	0.5	L	J	AF	0.5	L	J	AF	1	U			1	U		
Vinyl Chloride	1	U			1		J	A	1	U	J	A	1	U			1	U		
Bromomethane	1	U			1	U	J	A	1	U	J	A	1	U			1	U		
Chloroethane	1	U			1	U	J	A	1	U	J	A	1	U			1	U		
Trichlorofluoromethane	0.3	L	J	F	0.3	L	J	AF	0.3	L	J	AF	1	U			1	U		
1,1-Dichloroethene	1	U			1	U	J	A	1	U	J	A	1	U			1	U		
1,1,2-Trichloro-1,2,2-Trifluoroethane	1	U			1	U	J	A	1	U	J	A	1	U			1	U		
Methylene Chloride	4	U	J	DB	5		J	A	1	U	J	ADE	0.4	L	J	DEF	0.4	L	J	DF
1,1-Dichloroethane	1	U			1	U	J	A	1	U	J	A	1	U			1	U		
cis-1,2-Dichloroethene	1	U			1	U	J	A	1	U	J	A	1	U			1	U		
Chloroform	1	U			1	U	J	A	1	U	J	A	1	U			1	U		
1,1,1-Trichloroethane	3				2		J	A	1	U	J	A	1	U			1	U		
Carbon Tetrachloride	1	U			1	U	J	A	1	U	J	A	1	U			1	U		
Benzene	0.3	L	J	F	0.3	L	J	AF	0.5	L	J	AF	1	U			1	U		
1,2-Dichloroethane	1	U			1	U	J	A	1	U	J	A	1	U			1	U		
Trichloroethylene	1	U			1	U	J	A	1	U	J	A	1	U			1	U		
1,2-Dichloropropane	1	U			1	U	J	A	1	U	J	A	1	U			1	U		
cis-1,3-Dichloropropene	1	U			1	U	J	A	1	U	J	A	1	U			1	U		
Toluene	2				2		J	A	1		J	A	1	U			1	U		
trans-1,3-Dichloropropene	1	U			1	U	J	A	1	U	J	A	1	U			1	U		
1,1,2-Trichloroethane	1	U			1	U	J	A	1	U	J	A	1	U			1	U		
Tetrachloroethene	1	U			1	U	J	A	1	U	J	A	1	U			1	U		
1,2-Dibromoethane	1	U			1	U	J	A	1	U	J	A	1	U			1	U		
Chlorobenzene	1	U			1	U	J	A	1	U	J	F	1	U			1	U		
Ethyl Benzene	0.4	L	J	F	0.4	L	J	AF	1	U	J	F	1	U			1	U		
m,p-Xylene	1	L	J	F	1	L	J	AF	0.7	L	J	AF	2	U			2	U		
o-Xylene	0.4	L	J	F	0.4	L	J	AF	0.3	L	J	AF	1	U			1	U		
Styrene	1	U			1	U	J	A	1	U	J	A	1	U			1	U		
1,1,2,2-Tetrachloroethane	1	U			1	U	J	A	1	U	J	A	1	U			1	U		
1,3,5-Trimethylbenzene	1	U			1	U	J	A	1	U	J	A	1	U	J	B	1	U		
1,2,4-Trimethylbenzene	0.5	L	J	F	0.5	L	J	AF	0.3	L	J	AF	1	U			1	U		
1,3-Dichlorobenzene	1	U	J	L	1	U	J	AL	1	U	J	AL	1	U	J	L	1	U	J	L
1,4-Dichlorobenzene	1	U	J	L	1	U	J	AL	1	U	J	AL	1	U	J	LB	1	U	J	L
1,2-Dichlorobenzene	1	U	J	L	1	U	J	AL	1	U	J	AL	1	U	J	L	1	U	J	L
1,2,4-Trichlorobenzene	1	U	J	B	1	U	J	AB	1	U	J	AB	1	U	J	B	1	U	J	B
Hexachloro-1,3-Butadiene	1	U			1	U	J	A	1	U	J	A	1	U	J	B	1	U		

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
CRQL-Contract Required Quantitation Limit
N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank
TB-Trip Blank, BG-Background Sample
D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (SYN533)
Site: WDI
Laboratory: Region 9, Richmond
Reviewer: Mathew C. Plate, USEPA/QAP
Date: January 28, 1998

Analysis: GC/MS TO15
Matrix: Air

Concentration in ppbv

Station Location																	
Sample I.D.	Method Blank				Method Blank				Method Blank				Method Blank				CRQL		
Date of Collection	08/07/97				08/13/97				08/22/97				09/04/97						
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		
Dichlorodifluoromethane	1	U			1	U			1	U			1	U			1		
1,2-Dichloro-1,1,2,2-Tetrafluoromethane	1	U			1	U			1	U			1	U			1		
Chloromethane	1	U			1	U			1	U			1	U			1		
Vinyl Chloride	1	U			1	U			1	U			1	U			1		
Bromomethane	1	U			1	U			1	U			1	U			1		
Chloroethane	1	U			1	U			1	U			1	U			1		
Trichlorofluoromethane	1	U			1	U			1	U			1	U			1		
1,1-Dichloroethene	1	U			1	U			1	U			1	U			1		
1,1,2-Trichloro-1,2,2-Trifluoroethane	1	U			1	U			1	U			1	U	J	B	1		
Methylene Chloride	0.4	L	J	D	0.3	L	J	D	0.4	L	J	D	0.4	L	J	D	1		
1,1-Dichloroethane	1	U			1	U			1	U			1	U			1		
cis-1,2-Dichloroethene	1	U			1	U			1	U			1	U			1		
Chloroform	1	U			1	U			1	U			1	U			1		
1,1,1-Trichloroethane	1	U			1	U			1	U			1	U			1		
Carbon Tetrachloride	1	U			1	U			1	U			1	U			1		
Benzene	1	U			1	U			1	U			1	U			1		
1,2-Dichloroethane	1	U			1	U			1	U			1	U			1		
Trichloroethylene	1	U			1	U			1	U			1	U			1		
1,2-Dichloropropane	1	U			1	U			1	U			1	U			1		
cis-1,3-Dichloropropene	1	U			1	U			1	U			1	U			1		
Toluene	1	U			1	U			1	U			1	U			1		
trans-1,3-Dichloropropene	1	U			1	U			1	U			1	U			1		
1,1,2-Trichloroethane	1	U			1	U			1	U			1	U			1		
Tetrachloroethene	1	U			1	U			1	U			1	U			1		
1,2-Dibromoethane	1	U			1	U			1	U			1	U			1		
Chlorobenzene	1	U			1	U			1	U			1	U			1		
Ethyl Benzene	1	U			1	U			1	U			1	U			1		
m,p-Xylene	2	U			2	U			2	U			2	U			2		
o-Xylene	1	U			1	U			1	U			1	U			1		
Styrene	1	U			1	U			1	U			1	U			1		
1,1,2,2-Tetrachloroethane	1	U			1	U			1	U			1	U			1		
1,3,5-Trimethylbenzene	1	U			1	U			1	U	J	B	1	U			1		
1,2,4-Trimethylbenzene	1	U			1	U			1	U			1	U	J	C	1		
1,3-Dichlorobenzene	1	U			1	U	J	L	1	U	J	L	1	U	J	LB	1		
1,4-Dichlorobenzene	1	U			1	U	J	L	1	U	J	LB	1	U	J	L	1		
1,2-Dichlorobenzene	1	U			1	U	J	L	1	U	J	L	1	U	J	L	1		
1,2,4-Trichlorobenzene	1	U	J	B	1	U	J	B	1	U	J	B	1	U	J	B	1		
Hexachloro-1,3-Butadiene	1	U			1	U			1	U	J	B	1	U	J	C	1		

Val-Validity Refer to Data Qualifiers in Table 1B.

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank

TB-Trip Blank, BG-Background Sample

D-Dilution

TABLE 1B
DATA QUALIFIERS

The definitions of the following qualifiers are prepared according to the EPA draft document, "National Functional Guidelines for Organic Data Review," February 1994.

NO QUALIFIERS indicate that the data are acceptable both qualitatively and quantitatively.

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

Date: 2/10/97

MEMORANDUM

SUBJECT: Reviewing and Reporting of Tentatively Identified Compounds (TICs) from GC/MS Analyses in Data Validation Reports

FROM: Mathew C. Plate, Chemist Mathew C. Plate
QA Program, PMD-3

THROUGH: Vance S. Fong, P.E., Chief Vance S. Fong
QA Program, PMD-3

TO: Region IX Data Users

The QA Program reports tentatively identified compounds (TICs), from GC/MS analyses conducted by a non-contract lab program (non-CLP) lab, by annotating copies of TIC reporting forms, for the undiluted analysis of each sample. The forms are evaluated for spurious or mis-identified data and then attached to their respective GC/MS data validation report.

TICs are compounds detected, with a response of 10% or greater than that of the nearest internal standard, not included in the calibration mix. TICs are identified solely by comparison of their unique mass spectra to a spectral library. TIC concentration estimates are associated with a high degree of uncertainty (sometimes varying from the actual concentration by an order of magnitude or more).

TIC data provides the data user with additional information on compounds possibly present in addition to target analytes. In some instances compounds initially reported as TICs are added to the analytes of interest for a particular site, and are specifically analyzed for in subsequent analysis events.

Due to the subjectiveness of TIC identifications, for assistance please contact me at (415) 744-1493 or Dawn Richmond at (415) 744-1494.

TENTATIVELY IDENTIFIED COMPOUNDS

			SAMPLE ID	
			SYN533	
Laboratory Name: EPA Region 9		Date Collected:	08/05/97	
Case Number: R97S46		Date Analyzed:	08/06/97	
Site: Waste Disposal Inc.				
Matrix: Indoor & Ambient Air				
	RETENTION		EST. CONC.	
CAS NO.	TIME	COMPOUND NAME	PPBV	Q
1	4.22	Carbon Dioxide	26	NJ
2	4.57	Propane	12	NJ
3	5.04	Isobutane	6	NJ
4	5.44	Butane	11	NJ
5	6.84	Butane, 2-methyl-	12	NJ
6	7.60	Pentane	17	NJ
7	9.25	Acetone	90	NJ
8	20.16	Pentane, 2,3,3-trimethyl-	3	NJ
9	30.04	Cyclohexene, 1-methyl -4 or 5-(1-methylletheny	17	NJ
10	35.95	Benzene, 1,3,5-tris(1-methylethyl)-	5	NJ
NJ-All compounds are tentatively identified and concentrations are estimated based on a				
response factor of 1 relative to the nearest internal standard.				

TENTATIVELY IDENTIFIED COMPOUNDS

			SAMPLE ID	
			SYN533	
Laboratory Name:	EPA Region 9	Date Collected:	08/05/97	
Case Number: R97S46		Date Analyzed:	08/06/97	
Site: Waste Disposal Inc.				
Matrix: Indoor & Ambient Air				
	RETENTION		EST. CONC.	
CAS NO.	TIME	COMPOUND NAME	PPBV	Q
1	4.23	Carbon Dioxide	14	NJ
2	4.63	Unknown	140	NJ
3	5.10	Isobutane	28	NJ
4	5.48	Butane	8	NJ
5	6.89	Butane, 2-methyl-	13	NJ
6	7.65	Pentane	6	NJ
7	9.50	Acetone	3	NJ
8	11.39	Propane, 2-methoxy-2-methyl-	9	NJ
9	13.75	Cyclopentane, methyl	4	NJ
10	30.75	1-Hexanol, 2-ethyl-	5	NJ
NJ-All compounds are tentatively identified and concentrations are estimated based on a				
response factor of 1 relative to the nearest internal standard.				

TENTATIVELY IDENTIFIED COMPOUNDS

			SAMPLE ID	
			SYN534	
Laboratory Name: EPA Region 9		Date Collected:	08/05/97	
Case Number: R97S46		Date Analyzed:	08/06/97	
Site: Waste Disposal Inc.				
Matrix: Indoor & Ambient Air				
	RETENTION		EST. CONC.	
CAS NO.	TIME	COMPOUND NAME	PPBV	Q
1	4.24	Carbon Dioxide	32	NJ
2	4.62	Propane	18	NJ
3	5.50	Butane	3	NJ
4	6.92	Butane, 2-methyl-	6	NJ
5	7.68	Pentane	4	NJ
6	9.43	Acetone	51	NJ
7	10.16	Isopropyl Alcohol	4	NJ
8	11.36	Propane, 2-methoxy-2-methyl	4	NJ
9	14.41	Unknown	5	NJ
10	16.00	Hexane, 3-methyl-	3	NJ
NJ-All compounds are tentatively identified and concentrations are estimated based on a				
response factor of 1 relative to the nearest internal standard.				

TENTATIVELY IDENTIFIED COMPOUNDS

			SAMPLE ID	
			SYN535	
Laboratory Name:	EPA Region 9	Date Collected:	08/05/97	
Case Number: R97S46		Date Analyzed:	08/06/97	
Site: Waste Disposal Inc.				
Matrix: Indoor & Ambient Air				
	RETENTION		EST. CONC.	
CAS NO.	TIME	COMPOUND NAME	PPBV	Q
1	4.22	Carbon Dioxide	78	NJ
2	5.44	Butane	5	NJ
3	6.84	Butane, 2-methyl	9	NJ
4	7.59	Pentane	9	NJ
5	8.32	Ethanol	8	NJ
6	9.24	Acetone	35	NJ
7	11.25	Unknown	7	NJ
8	27.33	Alpha - Pinene	3	NJ
9	28.08	Cyclotetrasiloxane, octamethyl-	3	NJ
10	31.08	Undecane	3	NJ
NJ-All compounds are tentatively identified and concentrations are estimated based on a				
response factor of 1 relative to the nearest internal standard.				

TENTATIVELY IDENTIFIED COMPOUNDS

			SAMPLE ID	
			SYN536	
Laboratory Name:	EPA Region 9	Date Collected:	08/05/97	
Case Number: R97S46		Date Analyzed:	08/06/97	
Site: Waste Disposal Inc.				
Matrix: Indoor & Ambient Air				
	RETENTION		EST. CONC.	
CAS NO.	TIME	COMPOUND NAME	PPBV	Q
1	4.25	Carbon Dioxide	80	NJ
2	4.61	Unknow alkane	3	NJ
3	5.09	Isobutane	3	NJ
4	5.49	Butane	5	NJ
5	6.91	Butane, 2-methyl	5	NJ
6	7.67	Pentane	3	NJ
7	8.40	Unknown Substituted Alkene	2	NJ
8	9.42	Acetone	41	NJ
9	11.36	Propane, 2-methoxy-2-methyl-	3	NJ
10	19.26	Unknown	3	NJ
NJ-All compounds are tentatively identified and concentrations are estimated based on a				
response factor of 1 relative to the nearest internal standard.				

TENTATIVELY IDENTIFIED COMPOUNDS

			SAMPLE ID	
			SYN537	
Laboratory Name:	EPA Region 9	Date Collected:	08/05/97	
Case Number: R97S46		Date Analyzed:	08/06/97	
Site: Waste Disposal Inc.				
Matrix: Indoor & Ambient Air				
	RETENTION		EST. CONC.	
CAS NO.	TIME	COMPOUND NAME	PPBV	Q
1	4.23	Carbon Dioxide	56	NJ
2	4.59	Unknown	3	NJ
3	5.44	Butane	4	NJ
4	6.85	Butane, 2-methyl-	7	NJ
5	7.59	Pentane	4	NJ
6	9.31	Acetone	6	NJ
7	11.31	Propane, 2-methoxy-2-methyl	5	NJ
8	13.70	Unknown	2	NJ
9	14.31	2-Butanone	6	NJ
10	30.71	1-Hexanol, 2-ethyl-	3	NJ
NJ-All compounds are tentatively identified and concentrations are estimated based on a				
response factor of 1 relative to the nearest internal standard.				

TENTATIVELY IDENTIFIED COMPOUNDS

			SAMPLE ID	
			SYN539	
Laboratory Name:	EPA Region 9	Date Collected:	08/05/97	
Case Number: R97S46		Date Analyzed:	08/07/97	
Site: Waste Disposal Inc.				
Matrix: Indoor & Ambient Air				
	RETENTION		EST. CONC.	
CAS NO.	TIME	COMPOUND NAME	PPBV	Q
1	4.30	Carbon Dioxide	310	NJ
2				NJ
3				NJ
4				NJ
5				NJ
6				NJ
7				NJ
8				NJ
9				NJ
10				NJ
NJ-All compounds are tentatively identified and concentrations are estimated based on a				
response factor of 1 relative to the nearest internal standard.				

TENTATIVELY IDENTIFIED COMPOUNDS

			SAMPLE ID	
			SYN542	
Laboratory Name: EPA Region 9		Date Collected:	08/12/97	
Case Number: R97S46		Date Analyzed:	08/13/97	
Site: Waste Disposal Inc.				
Matrix: Indoor & Ambient Air				
	RETENTION		EST. CONC.	
CAS NO.	TIME	COMPOUND NAME	PPBV	Q
1	4.25	Carbon Dioxide	30	NJ
2	4.65	Unknown	2	NJ
3	6.98	Butane, 2-methyl-	3	NJ
4	7.75	Pentane	2	NJ
5	9.55	Acetone	30	NJ
6	11.44	Propane, 2-methoxy-2-methyl	2	NJ
7	14.50	2-Butanone	7	NJ
8	18.77	Cyclohexane, methyl	4	NJ
9	22.18	Unknown substituted acetic acid	2	NJ
10	23.74	Unknown substituted acetic acid	2	NJ
NJ-All compounds are tentatively identified and concentrations are estimated based on a				
response factor of 1 relative to the nearest internal standard.				

TENTATIVELY IDENTIFIED COMPOUNDS

			SAMPLE ID	
			SYN544	
Laboratory Name: EPA Region 9		Date Collected:	08/12/97	
Case Number: R97S46		Date Analyzed:	08/13/97	
Site: Waste Disposal Inc.				
Matrix: Indoor & Ambient Air				
	RETENTION		EST. CONC.	
CAS NO.	TIME	COMPOUND NAME	PPBV	Q
1	4.23	Carbon Dioxide	46	NJ
2	27.70	Unknown trimetyl substituted alkane	6	NJ
3	28.62	Silane, trichloroeicosyl	7	NJ
4	30.03	Cyclohexene, 1-methyl -4 or 5-(1-methyletheny	7	NJ
5	30.96	Unknown	8	NJ
6	31.08	Undecane	7	NJ
7	31.49	Unknown	10	NJ
8	34.27	Unknown substituted alkane	6	NJ
9	34.46	Unknown substituted alkane	15	NJ
10	34.91	Unknown alkane	9	NJ
NJ-All compounds are tentatively identified and concentrations are estimated based on a				
response factor of 1 relative to the nearest internal standard.				

TENTATIVELY IDENTIFIED COMPOUNDS

			SAMPLE ID	
			SYN545	
Laboratory Name: EPA Region 9		Date Collected:	08/12/97	
Case Number: R97S46		Date Analyzed:	08/13/97	
Site: Waste Disposal Inc.				
Matrix: Indoor & Ambient Air				
	RETENTION		EST. CONC.	
CAS NO.	TIME	COMPOUND NAME	PPBV	Q
1	4.23	Carbon Dioxide	47	NJ
2	4.58	Propane	12	NJ
3	5.05	Isobutane	3	NJ
4	5.43	Butane	2	NJ
5	6.88	Butane, 2-methyl	30	NJ
6	7.65	Pentane	55	NJ
7	9.40	Acetone	7	NJ
8	28.07	Cyclotetrasiloxane, octamethyl-	4	NJ
9	31.08	Unknown alkane	6	NJ
10	31.48	Unknown	2	NJ
NJ-All compounds are tentatively identified and concentrations are estimated based on a				
response factor of 1 relative to the nearest internal standard.				

TENTATIVELY IDENTIFIED COMPOUNDS

			SAMPLE ID	
			SYN546	
Laboratory Name: EPA Region 9		Date Collected:	08/12/97	
Case Number: R97S46		Date Analyzed:	08/13/97	
Site: Waste Disposal Inc.				
Matrix: Indoor & Ambient Air				
	RETENTION		EST. CONC.	
CAS NO.	TIME	COMPOUND NAME	PPBV	Q
1	4.24	Carbon Dioxide	110	NJ
2	9.42	Acetone	8	NJ
3	28.64	Decane	11	NJ
4	30.46	Decane, 3-methyl-	6	NJ
5	30.96	Unknown substituted naphthalene	13	NJ
6	31.09	Undecane	59	NJ
7	31.24	Unknown	8	NJ
8	31.33	Unknown	14	NJ
9	31.48	Unknown	23	NJ
10	31.60	Unknown substituted alkane	9	NJ
NJ-All compounds are tentatively identified and concentrations are estimated based on a				
response factor of 1 relative to the nearest internal standard.				

TENTATIVELY IDENTIFIED COMPOUNDS

			SAMPLE ID	
			SYN547	
Laboratory Name: EPA Region 9		Date Collected:	08/12/97	
Case Number: R97S46		Date Analyzed:	08/13/97	
Site: Waste Disposal Inc.				
Matrix: Indoor & Ambient Air				
	RETENTION		EST. CONC.	
CAS NO.	TIME	COMPOUND NAME	PPBV	Q
1	4.23	Carbon Dioxide	68	NJ
2	9.40	Acetone	8	NJ
3	28.64	Decane	14	NJ
4	30.27	Decane, 2-methyl	7	NJ
5	30.46	Decane, 3-methyl	8	NJ
6	30.97	Naphthalene, decahydro-2-methyl-	15	NJ
7	31.09	Undecane	78	NJ
8	31.25	Unknown	8	NJ
9	31.32	Unknown	10	NJ
10	31.49	Unknown	22	NJ
NJ-All compounds are tentatively identified and concentrations are estimated based on a				
response factor of 1 relative to the nearest internal standard.				

TENTATIVELY IDENTIFIED COMPOUNDS

			SAMPLE ID	
			SYN549	
Laboratory Name: EPA Region 9		Date Collected:	08/12/97	
Case Number: R97S46		Date Analyzed:	08/13/97	
Site: Waste Disposal Inc.				
Matrix: Indoor & Ambient Air				
	RETENTION		EST. CONC.	
CAS NO.	TIME	COMPOUND NAME	PPBV	Q
1	4.21	Carbon Dioxide	81	NJ
2	4.59	Propene	1	NJ
3	5.45	Butane	2	NJ
4	6.87	Butane, 2-methyl	3	NJ
5	7.62	Pentane	2	NJ
6	11.50	Propane, 2-methoxy-2-methyl-	2	NJ
7	22.67	Cyclotrisiloxane, hexamethyl-	13	NJ
8	28.07	Cyclotetrasiloxane, octamethyl-	3	NJ
9	28.64	Unknown alkane	1	NJ
10	30.72	Unknown	6	NJ
NJ-All compounds are tentatively identified and concentrations are estimated based on a				
response factor of 1 relative to the nearest internal standard.				

TENTATIVELY IDENTIFIED COMPOUNDS

			SAMPLE ID	
			SYN550	
Laboratory Name: EPA Region 9		Date Collected:	08/12/97	
Case Number: R97S46		Date Analyzed:	08/22/97	
Site: Waste Disposal Inc.				
Matrix: Indoor & Ambient Air				
CAS NO.	RETENTION TIME	COMPOUND NAME	EST. CONC. PPBV	Q
1	4.21	Carbon Dioxide	65	NJ
2				NJ
3				NJ
4				NJ
5				NJ
6				NJ
7				NJ
8				NJ
9				NJ
10				NJ

NJ-All compounds are tentatively identified and concentrations are estimated based on a response factor of 1 relative to the nearest internal standard.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

Indoor Air

February 5, 1998

MEMORANDUM

SUBJECT: Review of Analytical Data

FROM: Mathew C. Plate, Chemist
Quality Assurance Program (QAP), PMD-3

THROUGH: Vance S. Fong, P.E., Manager
Quality Assurance Program (QAP), PMD-3

TO: Andria Benner, Remedial Project Manager
Az/CA Cleanup Section, SFD-7-1

Attached are comments resulting from QAP Region IX review of the following analytical data:

SITE:	Waste Disposal Inc.
EPA SSI NO.:	C1
CERCLIS ID NO.:	CAD980884357
CASE/SAS NO.:	R97S46
SDG NO.:	SYN551
LABORATORY:	Region IX
ANALYSIS:	TO15
SAMPLE NO.:	9 Air (see Case Summary)
COLLECTION DATE:	September 15, 1997
REVIEWER:	Mathew C. Plate QAP, PMD-3/USEPA

If there are any questions, please contact me at (415)744-1493.

Attachment

cc: Brenda Bettencourt, PMD-2

Printed on Recycled Paper

Data Validation Report

Case No.: R97S46
Site: Waste Disposal Inc.
Laboratory: Region IX
Reviewer: Mathew C. Plate, QAP, PMD-3/USEPA
Date: February 5, 1998

I. Case Summary

SAMPLE INFORMATION:

VOA Sample Numbers:	SYN551, SYN552, SYN553, SYN554, SYN555, SYN556, SYN557, SYN558 and SYN559
Concentration and Matrix:	Air
Analysis:	TO-15 by GC/MS
Collection Date:	September 15, 1997
Sample Receipt Date:	September 16, 1997
Analysis Date:	September 17 and 23, 1997

FIELD QC:

Trip Blanks (TB):	None Identified
Field Blanks (FB):	None Identified
Equipment Blanks (EB):	SYN558
Background Samples (BG):	SYN557
Field Duplicates (D1):	SYN551 and SYN552
Field Duplicates (D2):	SYN555 and SYN559

METHOD BLANKS AND ASSOCIATED SAMPLES:

0917BLK:	SYN551, SYN552, SYN553, SYN554, SYN555, SYN556, SYN557, SYN558, SYN559, SYN551DL, SYN552DL, SYN553DL, SYN554DL and 0917LCS
0923BLK:	SYN554DL and 0923LCS

TABLES:

1A:	Analytical Results with Qualifications
1B:	Data Qualifiers

TPO ACTION:

SAMPLING ISSUES: None.

OTHER: None.

TPO ATTENTION:

SAMPLING ISSUES: Several samples had final collection pressures greater than -3" Hg. Samples with more than -3" Hg may only be valid as grab samples and should not be treated as integrated samples.

OTHER: None.

ADDITIONAL COMMENTS:

The analytical results with qualifications are listed in Table 1A. This report was prepared in accordance with EPA document "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", February 1994, and EPA Method TO-15 were used for guidance in preparation of this report. **This TO-15 data, analyzed by the EPA Region 9 Laboratory, followed a Client Request Form (CRF) which meets the requirements of method TO-15. Additional samples from this event were spilt to a second laboratory, Quanterra, analyzed and under a second CRF with additional quality control requirements, and validated based upon these additional requirements.**

II. Validation Summary

	VOA Acceptable	VOA Comment
HOLDING TIMES/PRESERVATION	[NO]	[A,O]
GC/MS TUNE/GC PERFORMANCE	[YES]	[K]
CALIBRATIONS	[YES]	[B,C,H]
FIELD QC	[YES]	[ ]
LABORATORY BLANKS	[YES]	[D]
LABORATORY CONTROL SPIKE	[YES]	[L,M]
LABORATORY DUPLICATES	[YES]	[ ]
INTERNAL STANDARDS	[YES]	[ ]
COMPOUND IDENTIFICATION	[YES]	[I,J]
COMPOUND QUANTITATION	[YES]	[F,G]
SYSTEM PERFORMANCE	[YES]	[ ]

III. Introduction

Nine (9) air samples from the Waste Disposal Inc. site were submitted to the EPA Region IX laboratory for TO-15, GC/MS analyses on September 15, 1997.

IV. Validity and Comments

A) Due to sample collection problems, the following detected results and reporting limits are estimated (J,UJ) (see Table 1A):

- All analytes in samples SYN551 and SYN559.

The final collection pressure, for these samples, was greater than -3" Hg. Samples with more than -3" Hg may only be valid as grab samples and should not be treated as integrated samples.

Additionally, sample SYN555 had more than the targeted pressure of -5" Hg. Based on the professional judgement of the reviewer, data for this sample has not been estimated, however the effect on the data of this discrepancy is unknown.

B) Due to high relative standard deviations(%RSDs) in the initial calibrations, the detected results and quantitation limits for the following analytes are estimated (J,UJ) (see Table 1A):

- 1,3-Dichlorobenzene in all samples and method blanks.
- 1,4-Dichlorobenzene in all samples and method blanks.
- 1,2,4-Trichlorobenzene in all samples and method blanks.

The Initial Calibration demonstrates that the instrument is capable of acceptable performance at the beginning of the analytical sequence and of producing a linear calibration curve.

Percent relative standard deviations of 31%, 31%, 32% and 58% were observed for 1,2,2-Trichloro-1,2,2-Trifluoroethane, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene and 1,2,4-Trichlorobenzene, respectively, in the initial calibration performed on September 3, 1997. These values exceed the <30% QC advisory validation criteria.

C) Due to high percent differences (%D) between the continuing calibration and average initial calibration relative response factors, the detected results and quantitation limits for the following analytes are estimated (J,UJ) (see Table 1A):

- Hexachloro-1,3-butadiene in samples SYN551, SYN552, SYN553, SYN554, SYN555, SYN556, SYN557, SYN558 and SYN559 and method blank 0917BLK.

The continuing calibration checks the instrument performance daily and produces the relative response factors used for quantitation of each target analyte.

A percent difference of 32% was observed for Hexachloro-1,3-butadiene in the continuing calibration performed on September 17, 1997. These values exceeded the ±30% QC criterion.

D) Due to method blank and trip blank contamination, the results reported in Table 1A for the following analyte is estimated (UJ):

- Methylene Chloride in samples SYN551, SYN552, SYN553, SYN554, SYN555, SYN556, SYN557 and SYN559.

- Chloromethane in samples SYN551, SYN552, SYN553, SYN554, SYN555, SYN556, SYN557 and SYN559.

A laboratory method blank is reagent air carried through the same analytical procedures as the field samples. The laboratory method blank is used to determine the level of contamination introduced by the laboratory during analysis.

The method blank analyzed on September 17, 1997 had 0.4 ppbv of Methylene Chloride. Methylene Chloride in the samples listed above is considered non-detected and estimated (UJ) and quantitation limits have been increased according to the blank qualification rules presented below.

An equipment blank is reagent air that has been collected as a sample using decontaminated sampling equipment. The intent of an equipment blank is to monitor for contamination introduced by the sampling activity, although any laboratory introduced contamination will also be present.

The equipment blank analyzed on September 17, 1997 had 0.4, 0.3 and 0.4 ppbv of Chloromethane, 1,1,2-Trichloro-1,2,2-Trifluoroethane and Methylene Chloride, respectively. Methylene Chloride and Chloromethane in the samples listed above are considered non-detected and estimated (UJ) and quantitation limits have been increased according to the blank qualification rules presented below. 1,1,2-Trichloro-1,2,2-Trifluoroethane was not detected in any of the samples, therefore no qualification of this analyte was necessary.

No positive results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in any associated blank for the common laboratory contaminants or 5 times the amount for other compounds. If the sample result is greater than the CRQL, the quantitation limit is raised to the sample result (UJ). If the sample result is less than the CRQL, the result is reported as non-detected (UJ) at the CRQL.

E) Due to canister certification contamination, the results reported in Table 1A for the following analyte is estimated (UJ):

- Methylene Chloride in all samples.

Canisters are cleaned and certified clean, at the laboratory, prior to sample collection. This process ensures that cross contamination between sampling events is minimized.

The canisters used for the above samples had a level of Methylene chloride of 0.4 ppbv during certification. The samples above had similar levels of Methylene chloride detected during analysis. The reporting limits for these samples are elevated to the detected level, or the CRQL, whichever is higher, and estimated (UJ).

F) The following results are estimated and flagged (J) (see Table 1A):

- All results below the Contract Required Quantitation Limits.

Results below the Contract Required Quantitation Limits (CRQL) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.

G) The laboratory used different standard concentration calculations for the instrument calibration and the LCS standards. The initial calibration and continuing calibration standards were calculated using the vendor's "Requested Gas Concentration." The LCS was calculated using the vendor's "Analyzed Concentration." It is recommended that the laboratory use the most representative of these two values consistently in all calculations. In the reviewer's opinion the effect of this inconsistency on data quality is minimal.

H) The primary standard used for instrument calibration on September 3, 1997 and calibration verification on September 17 and 23, 1997 was outside of the vendor listed expiration date of August 24, 1997. In the reviewer's judgement the standard supplier has taken a conservative approach by specifying a six month life for pressurized gaseous standards. The effect of this deviation on data quality is minimal, however it should be noted.

I) The number of tentatively identified compounds (TICs - compounds detected by the GC/MS system during sample analysis which are not on the target compound list) identified has been limited by the laboratory to 9. In these samples more than 9 TICs could be present, therefore the laboratory's assignment of TICs may not be comprehensive. If TIC data is being used to make site decisions it is recommended that a more comprehensive TIC search be requested.

J) Due to confirmation problems, the detected results for the following analyte have been estimated at the detection limit (UJ) (see Table 1A):

- Styrene in samples SYN551, SYN552 and SYN553.
- 1,1,2,2-Tetrachloroethane in sample SYN552.

Analyte identification is confirmed by a combination of gas chromatographic (GC) retention time and mass spectrometer (MS) ion pattern.

The MS ion patterns for above analytes could not confirm their presence. This was most likely caused by sample matrix interferences. Because the level detected was at or below the detection limits these samples have been reported as estimated and non-detected for Styrene and 1,1,2,2-Tetrachloroethane at the detection limit(UJ).

K) USEPA Method TO-15 states in section 3.7.3.2 "The mass spectrum of BFB must be acquired in the following manner. Three scans (the peak apex scan and the scans immediately preceding and following the apex) are acquired and averaged." However, the laboratory averaged all scans of the BFB peak to acquire the BFB spectrum. In the reviewer's opinion this does not significantly impact on data quality.

L) Due to low LCS recoveries, the detected results for the following analytes have been estimated at the detection limit (UJ) (see Table 1A):

- 1,3-Dichlorobenzene in all samples and blanks.
- 1,2-Dichlorobenzene in all samples and blanks.
- 1,4-Dichlorobenzene in all samples and blanks.

Analysis of laboratory control samples (LCSs) provides information on method performance. The LCS analyzed on September 17 and 23, 1997 had 1,2-Dichlorobenzene recoveries of 60% and 66%, respectively, which were below the percent recovery QC criteria (70-130%). Based on these results and calibration performance of Dichlorobenzenes on this instrument all Dichlorobenzenes have been estimated at the detection limit.

M) The analytical sequence logs, "runlogs," produced were computer printouts of the data system sequence file. These logs did not document information such as standard traceability, analysis date and time, dilution information, etc.

N) Laboratory canister receipt pressures were not measured by the laboratory. Because receipt pressures readings were not collected by the laboratory sample preservation could not be verified.

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (SYN551)
Site: WDI
Laboratory: Region 9, Richmond
Reviewer: Mathew C. Plate, USEPA/QAP
Date: February 5, 1998

Analysis: GC/MS TO15
Matrix: Air

Concentration in ppbv

Station Location	SYN556				SYN557				SYN558				SYN559				Method Blank			
Sample I.D.	SYN556				SYN557 BG				SYN558 EB				SYN559 D2							
Date of Collection	09/15/97				09/15/97				09/15/97				09/15/97				09/17/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifuloromethane	0.7	L	J	F	0.7	L	J	F	1		UJ		0.6	L	J	AF	1	U		
1,2-Dichloro-1,1,2,2-Tetrafluoromethane	1	U			1	U			1	U	J		1	U	J	A	1	U		
Chloromethane	1	U	J	D	1	U	J	D	0.4	L	J	DF	1	U	J	AD	1	U		
Vinyl Chloride	1	U			1	U			1	U	J		1	U	J	A	1	U		
Bromomethane	1	U			1	U			1	U	J		1	U	J	A	1	U		
Chloroethane	1	U			1	U			1	U	J		1	U	J	A	1	U		
Trichlorofluoromethane	0.3	L	J	F	0.3	L	J	F	1		J		0.3	L	J	AF	1	U		
1,1-Dichloroethene	1	U			1	U			1	U	J		1	U	J	A	1	U		
1,1,2-Trichloro-1,2,2-Trifluoroethane	1	U	J	B	1	U	J	B	0.3	L	J	BF	1	U	J	AB	1	U		
Methylene Chloride	1	U	J	DE	1	U	J	DE	0.4	L	J	DEF	1	U	J	ADE	0.4	L	J	D
1,1-Dichloroethane	1	U			1	U				U	J		1	U	J	A	1	U		
cis-1,2-Dichloroethene	1	U			1	U			1	U	J		1	U	J	A	1	U		
Chloroform	1	U			1	U			1	U	J		1	U	J	A	1	U		
1,1,1-Trichloroethane	0.3	L	J	F	0.9	L	J	F	1		J		0.3	L	J	AF	1	U		
Carbon Tetrachloride	1	U			1	U			1	U	J		1	U	J	A	1	U		
Benzene	1				2				1	U	J		1		J	A	1	U		
1,2-Dichloroethane	1	U			1	U			1	U	J		1	U	J	A	1	U		
Trichloroethylene	1	U			1	U			1	U	J		1	U	J	A	1	U		
1,2-Dichloropropane	1	U			1	U			1	U	J		1	U	J	A	1	U		
cis-1,3-Dichloropropene	1	U			1	U			1	U	J		1	U	J	A	1	U		
Toluene	6				4				0.2	L	J	F	6		J	A	1	U		
trans-1,3-Dichloropropene	1	U			1	U			1	U	J		1	U	J	A	1	U		
1,1,2-Trichloroethane	1	U			1	U			1	U	J		1	U	J	A	1	U		
Tetrachloroethene	0.6	L	J	F	0.4	L	J	F	1	U	J		0.3	L	J	AF	1	U		
1,2-Dibromoethane	1	U			1	U			1	U	J		1	U	J	A	1	U		
Chlorobenzene	1	U			1	U			1	U	J		1	U	J	A	1	U		
Ethyl Benzene	0.4	L	J	F	0.5	L	J	F	1	U	J		0.5	L	J	AF	1	U		
m,p-Xylene	2				2				1	U	J		2		J	A	2	U		
o-Xylene	0.5	L	J	F	0.6	L	J	F	1	U	J		0.6	L	J	AF	1	U		
Styrene	1	U			1	U			1	U	J		1	U	J	A	1	U		
1,1,2,2-Tetrachloroethane	1	U			1	U			1	U	J		1		J	A	1	U		
1,3,5-Trimethylbenzene	1	U			1	U			1	U	J		0.2	L	J	AF	1	U		
1,2,4-Trimethylbenzene	0.5	L	J	F	0.5	L	J	F	1	U	J		0.7	L	J	AF	1	U		
1,3-Dichlorobenzene	1	U	J	BL	1	U	J	BL	1	U	J	BL	1	U	J	ABL	1	U	J	BL
1,4-Dichlorobenzene	1	U	J	BL	1	U	J	BL	1	U	J	BL	1	U	J	ABL	1	U	J	BL
1,2-Dichlorobenzene	1	U	J	L	1	U	J	L	1	U	J	L	1	U	J	AL	1	U	J	L
1,2,4-Trichlorobenzene	1	U	J	B	1	U	J	B	1	U	J	B	1	U	J	AB	1	U	J	B
Hexachloro-1,3-Butadiene	1	U	J	C	1	U	J	C	1	U	J	C	1	U	J	AC	1	U	J	C

Val-Validity Refer to Data Qualifiers in Table 1B.

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank

TB-Trip Blank, BG-Background Sample

D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (SYN551)
Site: WDI
Laboratory: Region 9, Richmond
Reviewer: Mathew C. Plate, USEPA/QAP
Date: February 5, 1998

Analysis: GC/MS TO15
Matrix: Air

Concentration in ppbv

Station Location																	
Sample I.D.	Method Blank				CRQL												
Date of Collection	09/23/97																
Analyte	ppbv		Val	Com	ppbv												
Dichlorodifuloromethane	1	U			1												
1,2-Dichloro-1,1,2,2-Tetrafluoromethane	1	U			1												
Chloromethane	1	U			1												
Vinyl Chloride	1	U			1												
Bromomethane	1	U			1												
Chloroethane	1	U			1												
Trichlorofluoromethane	1	U			1												
1,1-Dichloroethene	1	U			1												
1,1,2-Trichloro-1,2,2-Trifluoroethane	1	U	J	B	1												
Methylene Chloride	0.4	L	J	D	1												
1,1-Dichloroethane	1	U			1												
cis-1,2-Dichloroethene	1	U			1												
Chloroform	1	U			1												
1,1,1-Trichloroethane	1	U			1												
Carbon Tetrachloride	1	U			1												
Benzene	1	U			1												
1,2-Dichloroethane	1	U			1												
Trichloroethylene	1	U			1												
1,2-Dichloropropane	1	U			1												
cis-1,3-Dichloropropene	1	U			1												
Toluene	1	U			1												
trans-1,3-Dichloropropene	1	U			1												
1,1,2-Trichloroethane	1	U			1												
Tetrachloroethene	1	U			1												
1,2-Dibromoethane	1	U			1												
Chlorobenzene	1	U			1												
Ethyl Benzene	1	U			1												
m,p-Xylene	2	U			2												
o-Xylene	1	U			1												
Styrene	1	U			1												
1,1,2,2-Tetrachloroethane	0.4	L	J	F	1												
1,3,5-Trimethylbenzene	1	U			1												
1,2,4-Trimethylbenzene	1	U			1												
1,3-Dichlorobenzene	1	U	J	BL	1												
1,4-Dichlorobenzene	1	U	J	BL	1												
1,2-Dichlorobenzene	0.4	L	J	BFL	1												
1,2,4-Trichlorobenzene	1	U	J	B	1												
Hexachloro-1,3-Butadiene	1	U	J	C	1												

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
CRQL-Contract Required Quantitation Limit
N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank
TB-Trip Blank, BG-Background Sample
D-Dilution

TABLE 1B
DATA QUALIFIERS

The definitions of the following qualifiers are prepared according to the EPA draft document, "National Functional Guidelines for Organic Data Review," February 1994.

NO QUALIFIERS indicate that the data are acceptable both qualitatively and quantitatively.

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

Date: 2/10/97

MEMORANDUM

SUBJECT: Reviewing and Reporting of Tentatively Identified Compounds (TICs) from GC/MS Analyses in Data Validation Reports

FROM: Mathew C. Plate, Chemist Mathew C. Plate
QA Program, PMD-3

THROUGH: Vance S. Fong, P.E., Chief Vance S. Fong
QA Program, PMD-3

TO: Region IX Data Users

The QA Program reports tentatively identified compounds (TICs), from GC/MS analyses conducted by a non-contract lab program (non-CLP) lab, by annotating copies of TIC reporting forms, for the undiluted analysis of each sample. The forms are evaluated for spurious or mis-identified data and then attached to their respective GC/MS data validation report.

TICs are compounds detected, with a response of 10% or greater than that of the nearest internal standard, not included in the calibration mix. TICs are identified solely by comparison of their unique mass spectra to a spectral library. TIC concentration estimates are associated with a high degree of uncertainty (sometimes varying from the actual concentration by an order of magnitude or more).

TIC data provides the data user with additional information on compounds possibly present in addition to target analytes. In some instances compounds initially reported as TICs are added to the analytes of interest for a particular site, and are specifically analyzed for in subsequent analysis events.

Due to the subjectiveness of TIC identifications, for assistance please contact me at (415) 744-1493 or Dawn Richmond at (415) 744-1494.

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
SYN551

Laboratory Name: EPA Region 9
Case Number: R97S46
Site: WDI
Matrix: Ambient Air

Date Collected: 09/15/97
Date Analyzed: 09/17/97
Sample Delivery Group:: SYN551

CAS NO.	RETENTION TIME	COMPOUND NAME	EST. CONC. PPBV	Q
1	5.23	Propane	63	NJ
2	7.80	Butane, 2-methyl	74	NJ
3	8.64	Pentane	25	NJ
4	10.35	Acetone	240	NJ
5	11.56	Pentane, 2-methyl-	30	NJ
6	12.37	Propane, -2-methoxy-2-methyl-	59	NJ
7	13.12	Hexane	17	NJ
8	14.90	Cyclopentane,-methyl	18	NJ
9	29.67	Unknown alkane	198	NJ
10				

NJ-All compounds are tentatively identified and concentrations are estimated based on a response factor of 1 relative to the nearest internal standard.

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
SYN552

Laboratory Name: EPA Region 9
Case Number: R97S46
Site: WDI
Matrix: Ambient Air

Date Collected: 09/15/97
Date Analyzed: 09/17/97
Sample Delivery Group:: SYN551

CAS NO.	RETENTION TIME	COMPOUND NAME	EST. CONC. PPBV	Q
1	5.22	Propane	70	NJ
2	6.19	Butane	18	NJ
3	7.80	Butane, 2-methyl	84	NJ
4	8.64	Pentane	28	NJ
5	10.33	Acetone	210	NJ
6	11.56	Pentane, 2-methyl-	34	NJ
7	12.37	Propane, -2-methoxy-2-methyl-	64	NJ
8	14.90	Cyclopentane,-methyl	20	NJ
9	29.67	Unknown alkane	20	NJ
10				

NJ-All compounds are tentatively identified and concentrations are estimated based on a response factor of 1 relative to the nearest internal standard.

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
SYN553

Laboratory Name: EPA Region 9
Case Number: R97S46
Site: WDI
Matrix: Ambient Air

Date Collected: 09/15/97
Date Analyzed: 09/17/97
Sample Delivery Group:: SYN551

CAS NO.	RETENTION TIME	COMPOUND NAME	EST. CONC. PPBV	Q
1	5.22	Unknown	7	NJ
2	6.19	Butane	11	NJ
3	7.79	Butane, 2-methyl	8	NJ
4	10.34	Acetone	5	NJ
5	12.30	Pentane, 2-methyl-	5	NJ
6	13.12	Hexane	9	NJ
7	15.46	2-Butanone	10	NJ
8	31.08	Unknown alkene	13	NJ
9	32.07	Unknown alkane	5	NJ
10				

NJ-All compounds are tentatively identified and concentrations are estimated based on a response factor of 1 relative to the nearest internal standard.

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
SYN554

Laboratory Name: EPA Region 9
Case Number: R97S46
Site: WDI
Matrix: Ambient Air

Date Collected: 09/15/97
Date Analyzed: 9/17 & 23/97
Sample Delivery Group:: SYN551

CAS NO.	RETENTION TIME	COMPOUND NAME	EST. CONC. PPBV	Q
1	5.23	Unknown	6	NJ
2	5.75	Isobutane	2	NJ
3	6.20	Butane	4	NJ
4	7.80	Butane, 2-methyl	11	NJ
5	8.64	Pentane	4	NJ
6	10.47	Acetone	5	NJ
7	12.30	Propane, 2-methoxy-2-methyl-	6	NJ
8	13.11	Hexane	2	NJ
9	14.89	Cyclopentane, methyl-	3	NJ
10				

NJ-All compounds are tentatively identified and concentrations are estimated based on a response factor of 1 relative to the nearest internal standard.

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
SYN555

Laboratory Name: EPA Region 9
Case Number: R97S46
Site: WDI
Matrix: Ambient Air

Date Collected: 09/15/97
Date Analyzed: 9/17/97
Sample Delivery Group:: SYN551

CAS NO.	RETENTION TIME	COMPOUND NAME	EST. CONC. PPBV	Q
1	5.22	Unknown	7	NJ
2	5.74	Isobutane	2	NJ
3	6.19	Butane	3	NJ
4	7.79	Butane, 2-methyl	8	NJ
5	8.62	Pentane	3	NJ
6	10.48	Acetone	4	NJ
7	12.49	Propane, 2-methoxy-2-methyl-	4	NJ
8	13.11	Hexane	1	NJ
9	14.89	Cyclopentane, methyl-	2	NJ
10				

NJ-All compounds are tentatively identified and concentrations are estimated based on a response factor of 1 relative to the nearest internal standard.

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
SYN556

Laboratory Name: EPA Region 9
Case Number: R97S46
Site: WDI
Matrix: Ambient Air

Date Collected: 09/15/97
Date Analyzed: 9/17/97
Sample Delivery Group:: SYN551

CAS NO.	RETENTION TIME	COMPOUND NAME	EST. CONC. PPBV	Q
1	5.09	Unknown	2	NJ
2	5.23	Propene	3	NJ
3	5.76	Isobutane	2	NJ
4	6.20	Butane	3	NJ
5	7.81	Butane, 2-methyl	8	NJ
6	8.65	Pentane	4	NJ
7	10.53	Acetone	3	NJ
8	12.53	Propane, 2-methoxy-2-methyl-	5	NJ
9	14.89	Cyclopentane, methyl-	1	NJ
10				

NJ-All compounds are tentatively identified and concentrations are estimated based on a response factor of 1 relative to the nearest internal standard.

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
SYN557

Laboratory Name: EPA Region 9
Case Number: R97S46
Site: WDI
Matrix: Ambient Air

Date Collected: 09/15/97
Date Analyzed: 9/17/97
Sample Delivery Group:: SYN551

CAS NO.	RETENTION TIME	COMPOUND NAME	EST. CONC. PPBV	Q
1	5.23	Propene	4	NJ
2	5.75	Isobutane	4	NJ
3	6.19	Butane	4	NJ
4	7.80	Butane, 2-methyl	9	NJ
5	8.63	Pentane	4	NJ
6	10.46	Acetone	3	NJ
7	12.49	Propane, 2-methoxy-2-methyl-	4	NJ
8	13.12	Hexane	2	NJ
9	14.89	Cyclopentane, methyl-	2	NJ
10				

NJ-All compounds are tentatively identified and concentrations are estimated based on a response factor of 1 relative to the nearest internal standard.

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
SYN558

Laboratory Name: EPA Region 9
Case Number: R97S46
Site: WDI
Matrix: Ambient Air

Date Collected: 09/15/97
Date Analyzed: 9/17/97
Sample Delivery Group:: SYN551

CAS NO.	RETENTION TIME	COMPOUND NAME	EST. CONC. PPBV	Q
1	5.11	Unknown	3	NJ
2	5.27	Unknown	12	NJ
3	5.39	Unknown	2	NJ
4	5..57	Unknown	1	NJ
5	8.06	Unknown	2	NJ
6	10.46	Acetone	3	NJ
7	10.67	Carbon dilsulfide	1	NJ
8				
9				
10				

NJ-All compounds are tentatively identified and concentrations are estimated based on a response factor of 1 relative to the nearest internal standard.

TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
SYN559

Laboratory Name: EPA Region 9
Case Number: R97S46
Site: WDI
Matrix: Ambient Air

Date Collected: 09/15/97
Date Analyzed: 9/17/97
Sample Delivery Group:: SYN551

CAS NO.	RETENTION TIME	COMPOUND NAME	EST. CONC. PPBV	Q
1	5.21	Unknown	6	NJ
2	5.74	Isobutane	2	NJ
3	6.19	Butane	3	NJ
4	7.79	Butane, 2-methyl	8	NJ
5	8.63	Pentane	3	NJ
6	10.49	Acetone	4	NJ
7	12.50	Propane, 2-methoxy-2-methyl-	4	NJ
8	14.89	Cyclopentane, methyl-	2	NJ
9	15.54	2-Butanone	2	NJ
10				

NJ-All compounds are tentatively identified and concentrations are estimated based on a response factor of 1 relative to the nearest internal standard.

June 8, 1998 DCN: S09-SAI-21029PZZ-08-DR-05942

MEMORANDUM

SUBJECT: Review of Analytical Data

FROM: Robert Sims, SAIC

TO: Andria Benner, Remedial Project Manager
AZ/CA Cleanup Section, SFD-7-1
and
William Coakley, Environmental Response Team

Attached are comments resulting from SAIC's review of the following analytical data:

SITE:	Waste Disposal Inc.
EPA SSI NO.:	C1
CERCLIS ID NO.:	CAD980884357
CASE/SAS NO.:	R97S46
SDG NO.:	2
LABORATORY:	Region IX FASP
ANALYSIS:	FASP Volatiles
SAMPLE NO.:	14 Soil Vapor (see Case Summary)
COLLECTION DATE:	August 10 through 11, 1997
REVIEWER:	Siu-Fai Tsang, SAIC

If there are any questions, please contact me at (619)535-7507.

Attachment

Data Validation Report

Case No.: R97S46
Site: Waste Disposal Inc.
Laboratory: Region IX FASP
Reviewer: Siu-Fai Tsang, SAIC
Date: June 8, 1998

I. Case Summary

SAMPLE INFORMATION:

VOA Sample Numbers:	05701, 05702, 05703, 05704, 05705, 05751, 05752, 05753, 05754, 05755, 05756, 05758, 05759, 05760.
Concentration and Matrix:	Soil Vapor
Collection Method:	aluminized Tedlar
Analysis:	FASP Volatiles
SOW:	USEPA Region 9 Laboratory SOP 305, Revision 2, June 1997 and Addendum 1
Collection Date:	August 10 through 11, 1997
Sample Receipt Date:	August 10 through 11, 1997
Extraction Date:	N/A
Analysis Date:	August 10 through 11, 1997

FIELD QC:

Trip Blanks (TB):	N/A
Field Blanks (FB):	None
Equipment Blanks (EB):	None
Background Samples (BG):	None
Field Duplicates (D1):	None

METHOD BLANKS AND ASSOCIATED SAMPLES:

MBW0810A:	05701, 05702, 05703, 05704, and 05705.
MBW0811B:	05751, 05752, 05753, 05754RA, 05755, 05756, and 05760.
MBW0811C:	05758RA, 05759RA, 05759MS and 05759MSD.

TABLES:

1A: Analytical Results with Qualifications
1B: Data Qualifiers

TPO ACTION:

SAMPLING ISSUES: None.

OTHER: None.

TPO ATTENTION:

SAMPLING ISSUES: None.

OTHER: None.

ADDITIONAL COMMENTS:

The analytical results with qualifications are listed in Table 1A. This report was prepared in accordance with EPA document "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", February 1994.

II. Validation Summary

	VOA Acceptable/Comment	
HOLDING TIMES	[YES]	[ ]
GC/MS TUNE/GC PERFORMANCE	[YES]	[ ]
CALIBRATIONS	[YES]	[E,F,I]
FIELD QC	[N/A]	[ ]
LABORATORY BLANKS	[YES]	[A]
SURROGATES	[YES]	[A, I]
MATRIX SPIKE/DUPLICATES	[YES]	[G]
LAB CONTROL SAMPLES	[YES]	[D]
INTERNAL STANDARDS	[YES]	[ ]
COMPOUND IDENTIFICATION	[YES]	[B,C]
COMPOUND QUANTITATION	[YES]	[H]
SYSTEM PERFORMANCE	[YES]	[ ]

III. Introduction

Fourteen (14) soil vapor samples from the WDI site were submitted to the EPA Region IX FASP laboratory for FASP volatile organic analyses from August 10 through 11, 1997.

IV. Validity and Comments

A) Due to surrogate recoveries outside method QC limits, the detected results and quantitation limits for the following analytes are estimated (J,UJ) (see Table 1A):

- Toluene, Tetrachloroethane, 1,3-Dichloropropane, 1,2-Dibromoethane, Chlorobenzene, Ethylbenzene, p& m-Xylene, o-Xylene, Styrene, Bromoform, 1,1,2,2-Tetrachloroethane, 1,2,3-Trichloropropane, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene and 1,2-Dibromo-3-chloropropane in samples 05759 and method blanks MBW0811B and MBW0811C.

Surrogates are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with surrogate compounds prior to sample analysis. Surrogates provide information about both the laboratory performance on individual samples and the possible effects of

the sample matrix on the analytical results.

These surrogates were outside of the QC criteria (80-120%), therefore the samples listed above have been qualified:

Sample	Surrogate	%Recovery
05702	1,2-Dichloroethane-d4	133
05756	Toluene-d8	124
05758	Bromofluorobenzene	126
05759	Toluene-d8	79
	Bromofluorobenzene	78
MBW0811B	Bromofluorobenzene	76
MBW0811C	Bromofluorobenzene	73

In the Case Narrative the laboratory identified numerous surrogates out of control based on the surrogate QC limits specified by the CLP water methodology. In the opinion of the reviewer, these QC limits are not appropriate for the method performed. The surrogates were re-evaluated based on the requirements in the Region 9 Client Request Form for TO-15, sent to the laboratory performing split analysis of samples from this project.

In the Case Narrative the laboratory identified:

- "The analysis of these samples showed some surrogate recovery problems. The source of error was not determined."

B) Ketones such as, Acetone, 2-Butanone, 4-Methyl-2-pentanone and 2-Hexanone, are not included in this data report. These analytes are not normally analyzed by this method or similar "air" methods, such as method TO-15. Section A.3 of the laboratory's standard operating procedure states these compounds are "not applicable to this method." The FASP laboratory was requested to attempt to include these analytes. The raw data indicated that there were QC problems that would have severely qualified this data. It was jointly decided by the RPM, QA Program and FASP Coordinator not to report these compounds in the final report. Preliminary results may contain false positives due to the presence of ketones in blanks, have an unknown bias associated with them and may not be legally defensible.

C) Tentatively Identified Compounds (TICs) are compounds detected with a response of 10% or greater than that of the nearest internal standard, not included in the calibration mix. TICs are identified solely by comparison of their mass spectrums to a spectral library. TIC concentrations are estimated based on comparison to the nearest internal standard response and have a high degree of uncertainty (sometimes varying from the actual concentration by an order of magnitude or more).

The analytical system did not adequately or accurately report TICs. Because a comprehensive data analysis of TICs was not completed, and TIC information is available from split sampling it was decided not to include TICs in this report. TICs from this data are available for evaluation at a later

date if requested.

D) The concentration of the Laboratory Control Sample (LCS) could not be verified. The FASP laboratory set LCS concentrations by averaging recoveries over the project. From this averaging process they obtained method precision information and set precision criteria. However, the LCS did not provide verification of method performance or method accuracy in an air matrix. Because of this, the data assessor should rely heavily on split sampling data to independently verify FASP laboratory performance. The LCS is based on the statistical control limits developed by the laboratory. The laboratory identified that: "LCS results were within QC limits."

E) Due to percent differences (%D) outside 30% between the continuing calibration and average initial calibration relative response factors, the detected results and quantitation limits for the following analytes are estimated (J,UJ) (see Table 1A):

- Dichlorodifluoromethane, and 1,2-Dibromo-3-chloropropane for samples 05751, 05752, 05753, 05754, 05755, 05756, 05758, 05759, 05760, method blank MBW0811B, and method blank MBW0811C.

- Chloromethane, Vinyl Chloride, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, and 1,2-Dichlorobenzene for samples 05758, 05759, 05759MS, 05760MSD and method blank MBW0811C.

The continuing calibration checks the instrument performance daily and produces the relative response factors used for quantitation of each target analyte.

These continuing calibration standards were outside of the QC criteria, therefore the analytes listed above have been qualified:

Standard	Analyte	%D	Date
CW0811B	Dichlorodifluoromethane	30.8	8/10/97
	1,2-Dibromo-3-chloropropane	40.4	8/10/97
CW0811F	Dichlorodifluoromethane	40.2	8/11/97
	Chloromethane	33.2	8/11/97
	Vinyl Chloride	30.7	8/11/97
	1,3-Dichlorobenzene	39.0	8/11/97
	1,4-Dichlorobenzene	31.0	8/11/97
	1,2-Dichlorobenzene	31.6	8/11/97
	1,2-Dibromo-3-chloropropane	48.5	8/11/97

F) Multiple continuing calibration standards were analyzed on many occasions. The laboratory indicated that this was partially to obtain results that meet QC criteria.

G) These matrix spike compounds were outside of the QC criteria:

Sample	Spike Compound	%Recovery	Limits
05759MS	Benzene	143	76-127
	Trichloroethene	140	71-120
	Toluene	143	76-125
	Chlorobenzene	142	75-130
05759MSD	Benzene	130	76-127
	Trichloroethene	125	71-120
	Toluene	131	76-125

H) The laboratory used an incorrect molecular weight for 1,2-Dichloropropane. The molecular weight used was 110.97, the correct molecular weight is 112.99. Therefore the actual values for this compound are slightly lower than those reported.

I) The three System Monitoring Compounds were out-of-range for 4 of 5 initial calibration points (the 2.0 ug/L standard was in-range). The Internal Standards were acceptable, and the initial calibration was linear. It appears that the stock calibration solution contains the three system monitoring compounds, and that this solution was diluted for the calibration curve which gave out-of-range recoveries for these three compounds (they should have been solution at 5 ug/L).

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#2)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Siu-Fai Tsang, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	Ambient				1A				00				00-50				00-170			
Sample I.D.	05701				05702				05703				05704				05705			
Date of Collection	08/10/97				08/10/97				08/10/97				08/10/97				08/10/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	74	U			74	U			74	U			74	U			74	U		
Chloromethane	180	U			180	U			180	U			180	U			180	U		
Vinyl Chloride	140	U			140	U			140	U			140	U			140	U		
Bromomethane	94	U			94	U			94	U			94	U			94	U		
Chloroethane	140	U			140	U			140	U			140	U			140	U		
Trichlorofluoromethane	65	U			65	U			65	U			65	U			65	U		
1,1-Dichloroethene	92	U			92	U			92	U			92	U			92	U		
Carbon Disulfide	120	U			120	U			120	U			120	U			120	U		
Methylene Chloride	110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	92	U			92	U			92	U			92	U			92	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene	92	U			92	U			92	U			92	U			92	U		
Chloroform	75	U			75	U			75	U			75	U			75	U		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
1,1,1-Trichloroethane (TCA)	67	U			67	U			67	U			67	U			67	U		
Carbon Tetrachloride	58	U			58	U			58	U			58	U			58	U		
Benzene	110	U			110	U			110	U			110	U			110	U		
Trichloroethene (TCE)	68	U			68	U			68	U			68	U			68	U		
1,2-Dichloropropane	81	U		H	81	U		H	81	U		H	81	U		H	81	U		H
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	67	U			67	U			67	U			67	U			67	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U		
Toluene	97	U			97	U			97	U			97	U			97	U		
Tetrachloroethene	54	U			54	U			54	U			54	U			54	U		
1,3-Dichloropropane	79	U			79	U			79	U			79	U			79	U		
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			48	U			48	U		
Chlorobenzene	80	U			80	U			80	U			80	U			80	U		
Ethylbenzene	84	U			84	U			84	U			84	U			84	U		
p & m- Xylene	170	U			170	U			170	U			170	U			170	U		
o-Xylene	84	U			84	U			84	U			84	U			84	U		
Styrene	86	U			86	U			86	U			86	U			86	U		
Bromoform	35	U			35	U			35	U			35	U			35	U		
1,1,2,2-Tetrachloroethane	53	U			53	U			53	U			53	U			53	U		
1,2,3-Trichloropropane	61	U			61	U			61	U			61	U			61	U		
1,3-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,4-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,2-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,2-Dibromo-3-chloropropane	38	U			38	U			38	U			38	U			38	U		

Val-Validity Refer to Data Qualifiers in Table 1B.

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected

N/A-Not Applicable, NA-Not Analyzed

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#2)
Site: WD1
Laboratory: Region 9, FASP
Reviewer: Siu-Fai Tsang, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	32N 50W				32N 00W				32N 101W				27N 246W				282N 0W			
Sample I.D.	05751				05752				05754				05755				05758			
Date of Collection	08/11/97				08/11/97				08/11/97				08/11/97				08/11/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	74	U	UJ	E	74	U	UJ	E	74	U	UJ	E	74	U	UJ	E	74	U	UJ	E
Chloromethane	180	U			180	U			180	U			180	U			180	U	UJ	E
Vinyl Chloride	140	U			140	U			140	U			140	U			140	U	UJ	E
Bromomethane	94	U			94	U			94	U			94	U			94	U		
Chloroethane	140	U			140	U			140	U			140	U			140	U		
Trichlorofluoromethane	65	U			65	U			65	U			65	U			65	U		
1,1-Dichloroethene	92	U			92	U			92	U			92	U			92	U		
Carbon Disulfide	120	U			120	U			120	U			120	U			120	U		
Methylene Chloride	110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	92	U			92	U			92	U			92	U			92	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene	92	U			92	U			92	U			92	U			92	U		
Chloroform	75	U			75	U			75	U			75	U			75	U		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
1,1,1-Trichloroethane (TCA)	67	U			67	U			67	U			67	U			67	U		
Carbon Tetrachloride	58	U			58	U			58	U			58	U			58	U		
Benzene	110	U			110	U			110	U			110	U			110	U		
Trichloroethene (TCE)	68	U			68	U			68	U			68	U			68	U		
1,2-Dichloropropane	81	U		H	81	U		H	81	U		H	81	U		H	81	U		H
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	67	U			67	U			67	U			67	U			67	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U		
Toluene	97	U			97	U			97	U			97	U			97	U		
Tetrachloroethene	54	U			54	U			54	U			54	U			54	U		
1,3-Dichloropropane	79	U			79	U			79	U			79	U			79	U		
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			48	U			48	U		
Chlorobenzene	80	U			80	U			80	U			80	U			80	U		
Ethylbenzene	84	U			84	U			84	U			84	U			84	U		
p & m- Xylene	170	U			170	U			170	U			170	U			170	U		
o-Xylene	84	U			84	U			84	U			84	U			84	U		
Styrene	86	U			86	U			86	U			86	U			86	U		
Bromoform	35	U			35	U			35	U			35	U			35	U		
1,1,2,2-Tetrachloroethane	53	U			53	U			53	U			53	U			53	U		
1,2,3-Trichloropropane	61	U			61	U			61	U			61	U			61	U		
1,3-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U	UJ	E
1,4-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U	UJ	E
1,2-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U	UJ	E
1,2-Dibromo-3-chloropropane	38	U	UJ	E	38	U	UJ	E	38	U	UJ	E	38	U	UJ	E	38	U	UJ	E

Val-Validity Refer to Data Qualifiers in Table 1B.

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected

N/A-Not Applicable, NA-Not Analyzed

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#2)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Siu-Fai Tsang, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	843N 0W				1125N 0W				Ambient				Zero Air						
Sample I.D.	05759				05760				05753				05756						
Date of Collection	08/11/97				08/11/97				08/11/97				08/11/97						
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com			
Dichlorodifluoromethane	74	U	UJ	E	74	U	UJ	E	74	U	UJ	E	74	U	UJ	E			
Chloromethane	180	U	UJ	E	180	U			180	U			180	U					
Vinyl Chloride	140	U	UJ	E	140	U			140	U			140	U					
Bromomethane	94	U			94	U			94	U			94	U					
Chloroethane	140	U			140	U			140	U			140	U					
Trichlorofluoromethane	65	U			65	U			65	U			65	U					
1,1-Dichloroethene	92	U			92	U			92	U			92	U					
Carbon Disulfide	120	U			120	U			120	U			120	U					
Methylene Chloride	110	U			110	U			110	U			110	U					
trans-1,2-Dichloroethene	92	U			92	U			92	U			92	U					
1,1-Dichloroethane	91	U			91	U			91	U			91	U					
cis-1,2-Dichloroethene	92	U			92	U			92	U			92	U					
Chloroform	75	U			75	U			75	U			75	U					
1,2-Dichloroethane	91	U			91	U			91	U			91	U					
1,1,1-Trichloroethane (TCA)	67	U			67	U			67	U			67	U					
Carbon Tetrachloride	58	U			58	U			58	U			58	U					
Benzene	110	U			110	U			110	U			110	U					
Trichloroethene (TCE)	68	U			68	U			68	U			68	U					
1,2-Dichloropropane	81	U		H	81	U		H	81	U		H	81	U		H			
Bromodichloromethane	55	U			55	U			55	U			55	U					
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U					
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U					
1,1,2-Trichloroethane	67	U			67	U			67	U			67	U					
Dibromochloromethane	43	U			43	U			43	U			43	U					
Toluene	97	U	UJ	A	97	U			97	U			97	U					
Tetrachloroethene	54	U	UJ	A	54	U			54	U			54	U					
1,3-Dichloropropane	79	U	UJ	A	79	U			79	U			79	U					
1,2-Dibromoethane (EDB)	48	U	UJ	A	48	U			48	U			48	U					
Chlorobenzene	80	U	UJ	A	80	U			80	U			80	U					
Ethylbenzene	84	U	UJ	A	84	U			84	U			84	U					
p & m- Xylene	170	U	UJ	A	170	U			170	U			170	U					
o-Xylene	84	U	UJ	A	84	U			84	U			84	U					
Styrene	86	U	UJ	A	86	U			86	U			86	U					
Bromoform	35	U			35	U			35	U			35	U					
1,1,2,2-Tetrachloroethane	53	U	UJ	A	53	U			53	U			53	U					
1,2,3-Trichloropropane	61	U	UJ	A	61	U			61	U			61	U					
1,3-Dichlorobenzene	61	U	UJ	A,E	61	U			61	U			61	U					
1,4-Dichlorobenzene	61	U	UJ	A,E	61	U			61	U			61	U					
1,2-Dichlorobenzene	61	U	UJ	A,E	61	U			61	U			61	U					
1,2-Dibromo-3-chloropropane	38	U	UJ	A,E	38	U	UJ	E	38	U	UJ	E	38	U	UJ	E			

Val-Validity Refer to Data Qualifiers in Table 1B.

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected.

N/A-Not Applicable, NA-Not Analyzed

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#2)
Site: WD1
Laboratory: Region 9, FASP
Reviewer: Siu-Fai Tsang, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	Method Blank				Method Blank				Method Blank										
Sample I.D.	MBW0810A				MBW0811B				MBW0811C				CRQL						
Date of Collection																			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv	Val	Com				
Dichlorodifluoromethane	74	U			74	U	UJ	E	74	U	UJ	E	74						
Chloromethane	180	U			180	U			180	U	UJ	E	180						
Vinyl Chloride	140	U			140	U			140	U	UJ	E	140						
Bromomethane	94	U			94	U			94	U			94						
Chloroethane	140	U			140	U			140	U			140						
Trichlorofluoromethane	65	U			65	U			65	U			65						
1,1-Dichloroethene	92	U			92	U			92	U			92						
Carbon Disulfide	120	U			120	U			120	U			120						
Methylene Chloride	110	U			110	U			110	U			110						
trans-1,2-Dichloroethene	92	U			92	U			92	U			92						
1,1-Dichloroethane	91	U			91	U			91	U			91						
cis-1,2-Dichloroethene	92	U			92	U			92	U			92						
Chloroform	75	U			75	U			75	U			75						
1,2-Dichloroethane	91	U			91	U			91	U			91						
1,1,1-Trichloroethane (TCA)	67	U			67	U			67	U			67						
Carbon Tetrachloride	58	U			58	U			58	U			58						
Benzene	110	U			110	U			110	U			110						
Trichloroethene (TCE)	68	U			68	U			68	U			68						
1,2-Dichloropropane	81	U		H	81	U		H	81	U		H	81		H				
Bromodichloromethane	55	U			55	U			55	U			55						
cis-1,3-Dichloropropene	81	U			81	U			81	U			81						
trans-1,3-Dichloropropene	81	U			81	U			81	U			81						
1,1,2-Trichloroethane	67	U			67	U			67	U			67						
Dibromochloromethane	43	U			43	U			43	U			43						
Toluene	97	U			97	U	UJ	A	97	U	UJ	A	97						
Tetrachloroethene	54	U			54	U	UJ	A	54	U	UJ	A	54						
1,3-Dichloropropane	79	U			79	U	UJ	A	79	U	UJ	A	79						
1,2-Dibromoethane (EDB)	48	U			48	U	UJ	A	48	U	UJ	A	48						
Chlorobenzene	80	U			80	U	UJ	A	80	U	UJ	A	80						
Ethylbenzene	84	U			84	U	UJ	A	84	U	UJ	A	84						
p & m- Xylene	170	U			170	U	UJ	A	170	U	UJ	A	170						
o-Xylene	84	U			84	U	UJ	A	84	U	UJ	A	84						
Styrene	86	U			86	U	UJ	A	86	U	UJ	A	86						
Bromoform	35	U			35	U			35	U			35						
1,1,2,2-Tetrachloroethane	53	U			53	U	UJ	A	53	U	UJ	A	53						
1,2,3-Trichloropropane	61	U			61	U	UJ	A	61	U	UJ	A	61						
1,3-Dichlorobenzene	61	U			61	U	UJ	A	61	U	UJ	A,E	61						
1,4-Dichlorobenzene	61	U			61	U	UJ	A	61	U	UJ	A,E	61						
1,2-Dichlorobenzene	61	U			61	U	UJ	A	61	U	UJ	A,E	61						
1,2-Dibromo-3-chloropropane	38	U			38	U	UJ	A,E	38	U	UJ	A,E	38						

Val-Validity Refer to Data Qualifiers in Table 1B.

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected.

N/A-Not Applicable, NA-Not Analyzed

TABLE 1B
DATA QUALIFIERS

The definitions of the following qualifiers are prepared according to the EPA draft document, "National Functional Guidelines for Organic Data Review," February 1994.

NO QUALIFIERS indicate that the data are acceptable both qualitatively and quantitatively.

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

June 8, 1998 DCN: S09-SAI-21029PZZ-08-DR-05944

MEMORANDUM

SUBJECT: Review of Analytical Data

FROM: Robert Sims, SAIC

TO: Andria Benner, Remedial Project Manager
AZ/CA Cleanup Section, SFD-7-1
and
William Coakley, Environmental Response Team

Attached are comments resulting from SAIC's review of the following analytical data:

SITE:	Waste Disposal Inc.
EPA SSI NO.:	C1
CERCLIS ID NO.:	CAD980884357
CASE/SAS NO.:	R97S46
SDG NO.:	3
LABORATORY:	Region IX FASP
ANALYSIS:	FASP Volatiles
SAMPLE NO.:	19 Soil Vapor (see Case Summary)
COLLECTION DATE:	August 12 through 13, 1997
REVIEWER:	Victoria Frank, SAIC

If there are any questions, please contact me at (619)535-7507.

Attachment

Data Validation Report

Case No.:	R97S46
Site:	Waste Disposal Inc.
Laboratory:	Region IX FASP
Reviewer:	Victoria Frank, SAIC
Date:	June 8, 1998

I. Case Summary

SAMPLE INFORMATION:

VOA Sample Numbers:	05761, 05762, 05763, 05764, 05765, 05766, 05767, 05768, 05769, 05771, 05772, 05773, 05774, 05775, 05776, 05777, 05778, 05779, 05780.
Concentration and Matrix:	Soil Vapor
Collection Method:	1-L Tedlar bag
Analysis:	FASP Volatiles
SOW:	USEPA Region 9 Laboratory SOP 305, Revision 2, June 1997 and Addendum 1
Collection Date:	August 12 through 13, 1997
Sample Receipt Date:	August 12 through 13, 1997
Extraction Date:	N/A
Analysis Date:	August 12 through 13, 1997

FIELD QC:

Trip Blanks (TB):	N/A
Field Blanks (FB):	None
Equipment Blanks (EB):	None
Background Samples (BG):	None
Field Duplicates (D1):	None

METHOD BLANKS AND ASSOCIATED SAMPLES:

MBW0812A & MBW0812B:	05761, 05762, 05763, 05764, 05765, 05766, 05767, 05768, 05769, 05771, 05772
MBW0813A & MBW0813B:	05773, 05774, 05775, 05776, 05777, 05778, 05779, 05780, 05778MS, 05778MSD

TABLES:

1A:	Analytical Results with Qualifications
1B:	Data Qualifiers

TPO ACTION:

SAMPLING ISSUES: None.

OTHER: None.

TPO ATTENTION:

SAMPLING ISSUES: None.

OTHER: None.

ADDITIONAL COMMENTS:

The analytical results with qualifications are listed in Table 1A. This report was prepared in accordance with EPA document "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", February 1994.

II. Validation Summary

	VOA Acceptable/Comment	
HOLDING TIMES	[YES]	[ ]
GC/MS TUNE/GC PERFORMANCE	[YES]	[ ]
CALIBRATIONS	[YES]	[E,F,G,K]
FIELD QC	[N/A]	[ ]
LABORATORY BLANKS	[YES]	[ ]
SURROGATES	[YES]	[A, K]
MATRIX SPIKE/DUPLICATES	[YES]	[H]
LAB CONTROL SAMPLES	[YES]	[D]
INTERNAL STANDARDS	[YES]	[ ]
COMPOUND IDENTIFICATION	[YES]	[B,C]
COMPOUND QUANTITATION	[YES]	[I,J]
SYSTEM PERFORMANCE	[YES]	[ ]

III. Introduction

Ninteen (19) soil vapor samples from the WDI site were submitted to the EPA Region IX FASP laboratory for FASP volatile organic analyses from August 12 through 13, 1997.

IV. Validity and Comments

A) Due to surrogate recoveries outside method QC limits, the detected results and quantitation limits for the following analytes are estimated (UJ) (see Table 1A):

- All Target analytes in samples 05767, 05768, and 05772.
- Toluene, Tetrachloroethene, 1,3-Dichloropropane, 1,2-Dibromoethane, Chlorobenzene, Ethylbenzene, p& m-Xylene, o-Xylene, Styrene, 1,1,2,2-Tetrachloroethane, 1,2,3-Trichloropropane, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene and 1,2-Dibromo-3-chloropropane in samples 05773 and method blank MBW0813A.

These surrogates were outside of the QC criteria (80-120%), therefore the samples listed above have been qualified:

Sample	Surrogate	%Recovery
05761	Bromofluorobenzene	121
05767	1,2-Dichloroethane-d4	70
	Toluene-d8	73
05768	1,2-Dichloroethane-d4	72
	Toluene-d8	74
05772	1,2-Dichloroethane-d4	68
	Toluene-d8	70
	Bromofluorobenzene	78
05773	Bromofluorobenzene	79
MBW0813A	Bromofluorobenzene	62

Surrogates are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with surrogate compounds prior to sample analysis. Surrogates provide information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.

In the Case Narrative the laboratory identified numerous surrogates out of control based on the surrogate QC limits specified by the CLP water methodology. In the opinion of the reviewer, these QC limits are not appropriate for the method performed. The surrogates were re-evaluated based on the requirements in the Region 9 Client Request Form for TO-15, sent to the laboratory performing split analysis of samples from this project.

B) Ketones such as, Acetone, 2-Butanone, 4-Methyl-2-pentanone and 2-Hexanone, are not included in this data report. These analytes are not normally analyzed by this method or similar "air" methods, such as method TO-15. Section A.3 of the laboratory's standard operating procedure states these compounds are "not applicable to this method." The FASP laboratory was requested to attempt to include these analytes. The raw data indicated that there were QC problems that would have severely qualified this data. It was jointly decided by the RPM, QA Program and FASP Coordinator not to report these compounds in the final report. Preliminary results may contain false positives due to the presence of ketones in blanks, have an unknown bias associated with them and may not be legally defensible.

C) Tentatively Identified Compounds (TICs) are compounds detected with a response of 10% or greater than that of the nearest internal standard, not included in the calibration mix. TICs are identified solely by comparison of their mass spectrums to a spectral library. TIC concentrations are estimated based on comparison to the nearest internal standard response and have a high degree of uncertainty (sometimes varying from the actual concentration by an order of magnitude or more).

The analytical system did not adequately or accurately report TICs. Because a comprehensive data analysis of TICs was not completed, and TIC information is available from split sampling it was decided not to include TICs in this report. TICs from this data are available for evaluation at a later date if requested.

D) The concentration of the Laboratory Control Sample (LCS) could not be verified. The FASP laboratory set LCS concentrations by averaging recoveries over the project. From this averaging process they obtained method precision information and set precision criteria. However, the LCS did not provide verification of method performance or method accuracy in an air matrix. Because of this, the data assessor should rely heavily on split sampling data to independently verify FASP laboratory performance. The LCS is based on the statistical control limits developed by the laboratory. The laboratory identified that: "LCS results were within QC limits."

E) Due to relative standard deviations (%RSDs) outside 30% in the initial calibrations, the detected results and quantitation limits for the following analytes are estimated (J) (see Table 1A):

- Vinyl Chloride for samples 05762 and 05774.

The Initial Calibration demonstrates that the instrument is capable of acceptable performance at the beginning of the analytical sequence and of producing a linear calibration curve.

A percent relative standard deviation of 33% was observed for Vinyl Chloride in the initial calibration performed on August 5, 1997. This value exceed the <30% QC advisory validation criteria.

F) Due to percent differences (%D) outside 30% between the continuing calibration and average initial calibration relative response factors, the detected results and quantitation limits for the following analytes are estimated (UJ) (see Table 1A):

- Dichlorodifluoromethane, for samples 05773, 05774, 05775, 05776, 05777, 05778, 05779, 05780, 05778MS, 05778MSD, method blanks MBW0813A, and MBW0813B.
- Chloromethane for samples 05773, 05774, 05775, 05776, 05777, 05778, 05779, 05780, 05778MS, 05778MSD, method blanks MBW0813A, and MBW0813B.
- 1,2-Dibromo-3-chloropropane for all samples.

These continuing calibration standards were outside of the QC criteria, therefore the analytes listed above have been qualified:

Standard	Analyte	%D	Date
CW0812A	1,2-Dibromo-3-chloropropane	38.4	8/12/97
CW0813A	Dichlorodifluoromethane	36.9	8/13/97
CW0813A	Chloromethane	32.1	8/13/97
CW0813A	1,2-Dibromo-3-chloropropane	42.4	8/13/97
CW0815A	1,2-Dibromo-3-chloropropane	35.0	8/15/97

The continuing calibration checks the instrument performance daily and produces the relative response factors used for quantitation of each target analyte.

G) Multiple continuing calibration standards were analyzed on many occasions. The laboratory indicated that this was partially to obtain results that meet QC criteria.

H) These matrix spike compounds were outside of the QC criteria:

Sample	Spike Compound	%Recovery	Limits
05780MS	Toluene	141	71-120
05780MS	Chlorobenzene	137	75-130
05780MSD	Toluene	141	71-120
05780MSD	Chlorobenzene	143	75-130

In the Case Narrative the laboratory identified that: "the MS/MSD were analyzed out of the sample holding time. This did not have an impact on the spike recovery."

I) The laboratory used an incorrect molecular weight for 1,2-Dichloropropane. The molecular weight used was 110.97, the correct molecular weight is 112.99. Therefore the actual values for this compound are slightly lower than those reported.

J) The following results are estimated and flagged "J" in Table 1A:

- All results below the Contract Required Quantitation Limits (denoted with an "L" qualifier)

Results below the Contract Required Quantitation Limits (CRQL) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.

K) The three System Monitoring Compounds (surrogates) were out-of-range for 4 of 5 initial calibration points. The System Monitoring Compounds should be added separately at a concentration of 5.0 ug/L, and this concentration would be within the linear range of the calibration. The Internal Standards were acceptable, and the initial calibration was linear. It appears that the three System Monitoring Compounds were added as part of a stock calibration standard, and that serial dilutions of this mixed standard for the calibration curve resulted in out of range recoveries for these three compounds.

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#3)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Victoria Frank, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	Ambient				Labtrails				32N 176W				2B				1125N 50W			
Sample I.D.	05761				05762				05763				05764				05765			
Date of Collection	08/12/97				08/12/97				08/12/97				08/12/97				08/12/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	74	U			74	U			74	U			74	U			74	U		
Chloromethane	180	U			270				180	U			180	U			180	U		
Vinyl Chloride	140	U			1100		J	E	140	U			140	U			140	U		
Bromomethane	94	U			94	U			94	U			94	U			94	U		
Chloroethane	140	U			140	U			140	U			140	U			140	U		
Trichlorofluoromethane	65	U			65	U			65	U			65	U			65	U		
1,1-Dichloroethene	92	U			92	U			92	U			92	U			92	U		
Carbon Disulfide	120	U			120	U			120	U			120	U			120	U		
Methylene Chloride	110	U			1300				110	U			110	U			110	U		
trans-1,2-Dichloroethene	92	U			92	U			92	U			92	U			92	U		
1,1-Dichloroethane	91	U			1000				91	U			91	U			91	U		
cis-1,2-Dichloroethene	92	U			92	U			92	U			92	U			92	U		
Chloroform	75	U			1000	D			75	U			75	U			75	U		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
1,1,1-Trichloroethane (TCA)	67	U			67	U			67	U			67	U			67	U		
Carbon Tetrachloride	58	U			58	U			58	U			58	U			58	U		
Benzene	110	U			810				110	U			110	U			110	U		
Trichloroethene (TCE)	68	U			660				68	U			68	U			68	U		
1,2-Dichloropropane	81	U		I	780			I	81	U		I	81	U		I	81	U		I
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	67	U			67	U			67	U			67	U			67	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U		
Toluene	97	U			460				97	U			97	U			97	U		
Tetrachloroethene	54	U			200				54	U			54	U			54	U		
1,3-Dichloropropane	79	U			79	U			79	U			79	U			79	U		
1,2-Dibromoethane (EDB)	48	U			270				48	U			48	U			48	U		
Chlorobenzene	80	U			200				80	U			80	U			80	U		
Ethylbenzene	84	U			84	U			84	U			84	U			84	U		
p & m- Xylene	170	U			170	U			170	U			170	U			170	U		
o-Xylene	84	U			84	U			84	U			84	U			84	U		
Styrene	86	U			86	U			86	U			86	U			86	U		
Bromoform	35	U			35	U			35	U			35	U			35	U		
1,1,2,2-Tetrachloroethane	53	U			53	U			53	U			53	U			53	U		
1,2,3-Trichloropropane	61	U			61	U			61	U			61	U			61	U		
1,3-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,4-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,2-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,2-Dibromo-3-chloropropane	38	U	UJ	F	38	U	UJ	F	38	U	UJ	F	38	U	UJ	F	38	U	UJ	F

Val-Validity Refer to Data Qualifiers in Table 1B.

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected.

N/A-Not Applicable, NA-Not Analyzed

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#3)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Victoria Frank, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	1125N 150W				1125N 250W				1125N 350W				1125N 450W				GW-14			
Sample I.D.	05766				05767				05768				05769				05771			
Date of Collection	08/12/97				08/12/97				08/12/97				08/12/97				08/12/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	74	U			74	U	UJ	A	74	U	UJ	A	74	U			74	U		
Chloromethane	180	U			180	U	UJ	A	180	U	UJ	A	180	U			180	U		
Vinyl Chloride	140	U			140	U	UJ	A	140	U	UJ	A	140	U			140	U		
Bromomethane	94	U			94	U	UJ	A	94	U	UJ	A	94	U			94	U		
Chloroethane	140	U			140	U	UJ	A	140	U	UJ	A	140	U			140	U		
Trichlorofluoromethane	65	U			65	U	UJ	A	65	U	UJ	A	65	U			65	U		
1,1-Dichloroethene	92	U			92	U	UJ	A	92	U	UJ	A	92	U			92	U		
Carbon Disulfide	120	U			120	U	UJ	A	120	U	UJ	A	120	U			120	U		
Methylene Chloride	110	U			110	U	UJ	A	110	U	UJ	A	110	U			110	U		
trans-1,2-Dichloroethene	92	U			92	U	UJ	A	92	U	UJ	A	92	U			92	U		
1,1-Dichloroethane	91	U			91	U	UJ	A	91	U	UJ	A	91	U			91	U		
cis-1,2-Dichloroethene	92	U			92	U	UJ	A	92	U	UJ	A	92	U			92	U		
Chloroform	75	U			75	U	UJ	A	75	U	UJ	A	75	U			75	U		
1,2-Dichloroethane	91	U			91	U	UJ	A	91	U	UJ	A	91	U			91	U		
1,1,1-Trichloroethane (TCA)	67	U			67	U	UJ	A	67	U	UJ	A	67	U			67	U		
Carbon Tetrachloride	58	U			58	U	UJ	A	58	U	UJ	A	58	U			58	U		
Benzene	110	U			110	U	UJ	A	110	U	UJ	A	110	U			110	U		
Trichloroethene (TCE)	68	U			68	U	UJ	A	68	U	UJ	A	68	U			68	U		
1,2-Dichloropropane	81	U		I	81	U	UJ	A,I	81	U	UJ	A,I	81	U		I	81	U		I
Bromodichloromethane	55	U			55	U	UJ	A	55	U	UJ	A	55	U			55	U		
cis-1,3-Dichloropropene	81	U			81	U	UJ	A	81	U	UJ	A	81	U			81	U		
trans-1,3-Dichloropropene	81	U			81	U	UJ	A	81	U	UJ	A	81	U			81	U		
1,1,2-Trichloroethane	67	U			67	U	UJ	A	67	U	UJ	A	67	U			67	U		
Dibromochloromethane	43	U			43	U	UJ	A	43	U	UJ	A	43	U			43	U		
Toluene	97	U			97	U	UJ	A	97	U	UJ	A	97	U			97	U		
Tetrachloroethene	54	U			54	U	UJ	A	54	U	UJ	A	54	U			54	U		
1,3-Dichloropropane	79	U			79	U	UJ	A	79	U	UJ	A	79	U			79	U		
1,2-Dibromoethane (EDB)	48	U			48	U	UJ	A	48	U	UJ	A	48	U			48	U		
Chlorobenzene	80	U			80	U	UJ	A	80	U	UJ	A	80	U			80	U		
Ethylbenzene	84	U			84	U	UJ	A	84	U	UJ	A	84	U			84	U		
p & m- Xylene	170	U			170	U	UJ	A	170	U	UJ	A	170	U			170	U		
o-Xylene	84	U			84	U	UJ	A	84	U	UJ	A	84	U			84	U		
Styrene	86	U			86	U	UJ	A	86	U	UJ	A	86	U			86	U		
Bromoform	35	U			35	U	UJ	A	35	U	UJ	A	35	U			35	U		
1,1,2,2-Tetrachloroethane	53	U			53	U	UJ	A	53	U	UJ	A	53	U			53	U		
1,2,3-Trichloropropane	61	U			61	U	UJ	A	61	U	UJ	A	61	U			61	U		
1,3-Dichlorobenzene	61	U			61	U	UJ	A	61	U	UJ	A	61	U			61	U		
1,4-Dichlorobenzene	61	U			61	U	UJ	A	61	U	UJ	A	61	U			61	U		
1,2-Dichlorobenzene	61	U			61	U	UJ	A	61	U	UJ	A	61	U			61	U		
1,2-Dibromo-3-chloropropane	38	U	UJ	F	38	U	UJ	A,F	38	U	UJ	A,F	38	U	UJ	F	38	U	UJ	F

Val-Validity Refer to Data Qualifiers in Table 1B.

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected.

N/A-Not Applicable, NA-Not Analyzed

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#3)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Victoria Frank, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	GW-26				Zero Air				STND				GW27				75S 0W			
Sample I.D.	05772				05773				05774				05775				05776			
Date of Collection	08/12/97				08/13/97				08/13/97				08/13/97				08/13/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	74	U	UJ	A	74	U	UJ	F	74	U	UJ	F	74	U	UJ	F	74	U	UJ	F
Chloromethane	180	U	UJ	A	180	U	UJ	F	180	U	UJ	F	180	U	UJ	F	180	U	UJ	F
Vinyl Chloride	140	U	UJ	A	140	U			400		J	E	140	U			140	U		
Bromomethane	94	U	UJ	A	94	U			94	U			94	U			94	U		
Chloroethane	140	U	UJ	A	140	U			140	U			140	U			140	U		
Trichlorofluoromethane	65	U	UJ	A	65	U			65	U			65	U			65	U		
1,1-Dichloroethene	92	U	UJ	A	92	U			92	U			92	U			92	U		
Carbon Disulfide	120	U	UJ	A	120	U			120	U			120	U			120	U		
Methylene Chloride	110	U	UJ	A	110	U			490				110	U			110	U		
trans-1,2-Dichloroethene	92	U	UJ	A	92	U			92	U			92	U			92	U		
1,1-Dichloroethane	90	U	UJ	A	90	U			390				90	U			90	U		
cis-1,2-Dichloroethene	92	U	UJ	A	92	U			92	U			92	U			92	U		
Chloroform	75	U	UJ	A	75	U			370				75	U			75	U		
1,2-Dichloroethane	90	U	UJ	A	90	U			91	U			90	U			90	U		
1,1,1-Trichloroethane (TCA)	67	U	UJ	A	67	U			67	U			67	U			67	U		
Carbon Tetrachloride	58	U	UJ	A	58	U			58	U			58	U			58	U		
Benzene	110	U	UJ	A	110	U			310				110	U			110	U		
Trichloroethene (TCE)	68	U	UJ	A	68	U			270				68	U			68	U		
1,2-Dichloropropane	81	U	UJ	A,I	81	U		I	280			I	81	U		I	81	U		I
Bromodichloromethane	55	U	UJ	A	55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U	UJ	A	81	U			81	U			81	U			81	U		
trans-1,3-Dichloropropene	81	U	UJ	A	81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	67	U	UJ	A	67	U			67	U			67	U			67	U		
Dibromochloromethane	43	U	UJ	A	43	U			43	U			43	U			43	U		
Toluene	97	U	UJ	A	97	U	UJ	A	150				97	U			97	U		
Tetrachloroethene	54	U	UJ	A	54	U	UJ	A	90				54	U			54	U		
1,3-Dichloropropane	79	U	UJ	A	79	U	UJ	A	79	U			79	U			79	U		
1,2-Dibromoethane (EDB)	48	U	UJ	A	48	U	UJ	A	92				48	U			48	U		
Chlorobenzene	80	U	UJ	A	80	U	UJ	A	72	L	J	J	80	U			80	U		
Ethylbenzene	84	U	UJ	A	84	U	UJ	A	84	U			84	U			84	U		
p & m- Xylene	170	U	UJ	A	170	U	UJ	A	170	U			170	U			170	U		
o-Xylene	84	U	UJ	A	84	U	UJ	A	84	U			84	U			84	U		
Styrene	86	U	UJ	A	86	U	UJ	A	86	U			86	U			86	U		
Bromoform	35	U	UJ	A	35	U			35	U			35	U			35	U		
1,1,2,2-Tetrachloroethane	53	U	UJ	A	53	U	UJ	A	53	U			53	U			53	U		
1,2,3-Trichloropropane	61	U	UJ	A	61	U	UJ	A	61	U			61	U			61	U		
1,3-Dichlorobenzene	61	U	UJ	A	61	U	UJ	A	61	U			61	U			61	U		
1,4-Dichlorobenzene	61	U	UJ	A	61	U	UJ	A	61	U			61	U			61	U		
1,2-Dichlorobenzene	61	U	UJ	A	61	U	UJ	A	61	U			61	U			61	U		
1,2-Dibromo-3-chloropropane	38	U	UJ	A,F	38	U	UJ	A,F	38	U	UJ	F	38	U	UJ	F	38	U	UJ	F

Val-Validity Refer to Data Qualifiers in Table 1B.

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected.

N/A-Not Applicable, NA-Not Analyzed

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#3)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Victoria Frank, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	75S 100W				75S 200W				75S 600W				75S 1300W						
Sample I.D.	05777				05778				05779				05780						
Date of Collection	08/13/97				08/13/97				08/13/97				08/13/97						
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv	Val	Com
Dichlorodifluoromethane	74	U	UJ	F	74	U	UJ	F	74	U	UJ	F	74	U	UJ	F			
Chloromethane	180	U	UJ	F	180	U	UJ	F	180	U	UJ	F	180	U	UJ	F			
Vinyl Chloride	140	U			140	U			140	U			140	U					
Bromomethane	94	U			94	U			94	U			94	U					
Chloroethane	140	U			140	U			140	U			140	U					
Trichlorofluoromethane	65	U			65	U			65	U			65	U					
1,1-Dichloroethene	92	U			92	U			92	U			92	U					
Carbon Disulfide	120	U			120	U			120	U			120	U					
Methylene Chloride	110	U			110	U			110	U			110	U					
trans-1,2-Dichloroethene	92	U			92	U			92	U			92	U					
1,1-Dichloroethane	90	U			90	U			90	U			90	U					
cis-1,2-Dichloroethene	92	U			92	U			92	U			92	U					
Chloroform	75	U			75	U			75	U			75	U					
1,2-Dichloroethane	90	U			90	U			90	U			90	U					
1,1,1-Trichloroethane (TCA)	67	U			67	U			67	U			67	U					
Carbon Tetrachloride	58	U			58	U			58	U			58	U					
Benzene	110	U			110	U			110	U			110	U					
Trichloroethene (TCE)	68	U			68	U			68	U			68	U					
1,2-Dichloropropane	81	U		I	81	U		I	81	U		I	81	U		I			
Bromodichloromethane	55	U			55	U			55	U			55	U					
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U					
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U					
1,1,2-Trichloroethane	67	U			67	U			67	U			67	U					
Dibromochloromethane	43	U			43	U			43	U			43	U					
Toluene	97	U			97	U			97	U			97	U					
Tetrachloroethene	54	U			54	U			54	U			54	U					
1,3-Dichloropropane	79	U			79	U			79	U			79	U					
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			48	U					
Chlorobenzene	80	U			80	U			80	U			80	U					
Ethylbenzene	84	U			84	U			84	U			84	U					
p & m- Xylene	170	U			170	U			170	U			170	U					
o-Xylene	84	U			84	U			84	U			84	U					
Styrene	86	U			86	U			86	U			86	U					
Bromoform	35	U			35	U			35	U			35	U					
1,1,2,2-Tetrachloroethane	53	U			53	U			53	U			53	U					
1,2,3-Trichloropropane	61	U			61	U			61	U			61	U					
1,3-Dichlorobenzene	61	U			61	U			61	U			61	U					
1,4-Dichlorobenzene	61	U			61	U			61	U			61	U					
1,2-Dichlorobenzene	61	U			61	U			61	U			61	U					
1,2-Dibromo-3-chloropropane	38	U	UJ	F	38	U	UJ	F	38	U	UJ	F	38	U	UJ	F			

Val-Validity Refer to Data Qualifiers in Table 1B

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected

N/A-Not Applicable, NA-Not Analyzed

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#3)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Victoria Frank, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	Method Blank				Method Blank				Method Blank				Method Blank						
Sample I.D.	MBW0812A				MBW0812B				MBW0813A				MBW0813B				CRQL		
Date of Collection																			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv	Val	Com
Dichlorodifluoromethane	74	U			74	U			74	U	UJ	F	74	U	UJ	F	74		
Chloromethane	180	U			180	U			180	U	UJ	F	180	U	UJ	F	180		
Vinyl Chloride	140	U			140	U			140	U			140	U			140		
Bromomethane	94	U			94	U			94	U			94	U			94		
Chloroethane	140	U			140	U			140	U			140	U			140		
Trichlorofluoromethane	65	U			65	U			65	U			65	U			65		
1,1-Dichloroethene	92	U			92	U			92	U			92	U			92		
Carbon Disulfide	120	U			120	U			120	U			120	U			120		
Methylene Chloride	110	U			110	U			110	U			110	U			110		
trans-1,2-Dichloroethene	92	U			92	U			92	U			92	U			92		
1,1-Dichloroethane	90	U			90	U			90	U			90	U			90		
cis-1,2-Dichloroethene	92	U			92	U			92	U			92	U			92		
Chloroform	75	U			75	U			75	U			75	U			75		
1,2-Dichloroethane	90	U			90	U			90	U			90	U			90		
1,1,1-Trichloroethane (TCA)	67	U			67	U			67	U			67	U			67		
Carbon Tetrachloride	58	U			58	U			58	U			58	U			58		
Benzene	110	U			110	U			110	U			110	U			110		
Trichloroethene (TCE)	68	U			68	U			68	U			68	U			68		
1,2-Dichloropropane	81	U		I	81	U		I	81	U		I	81	U		I	81		I
Bromodichloromethane	55	U			55	U			55	U			55	U			55		
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81		
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81		
1,1,2-Trichloroethane	67	U			67	U			67	U			67	U			67		
Dibromochloromethane	43	U			43	U			43	U			43	U			43		
Toluene	97	U			97	U			97	U	UJ	A	97	U			97		
Tetrachloroethene	54	U			54	U			54	U	UJ	A	54	U			54		
1,3-Dichloropropane	79	U			79	U			79	U	UJ	A	79	U			79		
1,2-Dibromoethane (EDB)	48	U			48	U			48	U	UJ	A	48	U			48		
Chlorobenzene	80	U			80	U			80	U	UJ	A	80	U			80		
Ethylbenzene	84	U			84	U			84	U	UJ	A	84	U			84		
p & m- Xylene	170	U			170	U			170	U	UJ	A	170	U			170		
o-Xylene	84	U			84	U			84	U	UJ	A	84	U			84		
Styrene	86	U			86	U			86	U	UJ	A	86	U			86		
Bromoform	35	U			35	U			35	U			35	U			35		
1,1,2,2-Tetrachloroethane	53	U			53	U			53	U	UJ	A	53	U			53		
1,2,3-Trichloropropane	61	U			61	U			61	U	UJ	A	61	U			61		
1,3-Dichlorobenzene	61	U			61	U			61	U	UJ	A	61	U			61		
1,4-Dichlorobenzene	61	U			61	U			61	U	UJ	A	61	U			61		
1,2-Dichlorobenzene	61	U			61	U			61	U	UJ	A	61	U			61		
1,2-Dibromo-3-chloropropane	38	U	UJ	F	38	U	UJ	F	38	U	UJ	A,F	38	U	UJ	F	38		

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected.
N/A-Not Applicable, NA-Not Analyzed

D-Dilution

TABLE 1B
DATA QUALIFIERS

The definitions of the following qualifiers are prepared according to the EPA draft document, "National Functional Guidelines for Organic Data Review," February 1994.

NO QUALIFIERS indicate that the data are acceptable both qualitatively and quantitatively.

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

June 8, 1998 DCN: S09-SAI-21029PZZ-08-DR-05946

MEMORANDUM

SUBJECT: Review of Analytical Data

FROM: Robert Sims, SAIC

TO: Andria Benner, Remedial Project Manager
AZ/CA Cleanup Section, SFD-7-1

Attached are comments resulting from SAIC's review of the following analytical data:

SITE:	Waste Disposal Inc.
EPA SSI NO.:	C1
CERCLIS ID NO.:	CAD980884357
CASE/SAS NO.:	R97S46
SDG NO.:	4
LABORATORY:	Region IX FASP
ANALYSIS:	FASP Volatiles
SAMPLE NO.:	10 Soil Vapor (see Case Summary)
COLLECTION DATE:	August 14 through 18, 1997
REVIEWER:	Victoria Frank, SAIC

If there are any questions, please contact me at (619)535-7507.

Attachment

Data Validation Report

Case No.:	R97S46
Site:	Waste Disposal Inc.
Laboratory:	Region IX FASP
Reviewer:	Victoria Frank, SAIC
Date:	June 8, 1998

I. Case Summary

SAMPLE INFORMATION:

VOA Sample Numbers:	FB1, FB2, GP1, GP2-010, GP3-010, GP4-010, GP6-010, GP7-010, GP7-020, VW-12
Concentration and Matrix:	Soil Vapor
Collection Method:	1-L Tedlar bags
Analysis:	FASP Volatiles
SOW:	USEPA Region 9 Laboratory SOP 305, Revision 2, June 1997 and Addendum 1
Collection Date:	August 14 through 18, 1997
Sample Receipt Date:	August 14 through 18, 1997
Extraction Date:	N/A
Analysis Date:	August 14 through 18, 1997

FIELD QC:

Trip Blanks (TB):	N/A
Field Blanks (FB):	FB1, FB2
Equipment Blanks (EB):	None
Background Samples (BG):	None
Field Duplicates (D1):	None

METHOD BLANKS AND ASSOCIATED SAMPLES:

MBW0814A:	GP1, VW-12, FB1
MBW0815A:	GP2-010, GP3-010, GP4-010RA, GP4-010MS, GP6-010, GP4-010MSD
MBW0818B:	FB2, GP7-020, GP7-020DL, GP7-010

TABLES:

1A:	Analytical Results with Qualifications
1B:	Data Qualifiers

TPO ACTION:

SAMPLING ISSUES: None.

OTHER: None.

TPO ATTENTION:

SAMPLING ISSUES: None.

OTHER: None.

ADDITIONAL COMMENTS:

The analytical results with qualifications are listed in Table 1A. This report was prepared in accordance with EPA document "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", February 1994.

II. Validation Summary

	VOA Acceptable/Comment	
HOLDING TIMES	[YES]	[ ]
GC/MS TUNE/GC PERFORMANCE	[YES]	[ ]
CALIBRATIONS	[YES]	[F,G,I]
FIELD QC	[YES]	[ ]
LABORATORY BLANKS	[YES]	[E]
SURROGATES	[YES]	[A, I]
MATRIX SPIKE/DUPLICATES	[N/A]	[ ]
LAB CONTROL SAMPLES	[YES]	[D]
INTERNAL STANDARDS	[YES]	[ ]
COMPOUND IDENTIFICATION	[YES]	[B, C]
COMPOUND QUANTITATION	[YES]	[H,K,L]
SYSTEM PERFORMANCE	[YES]	[ ]

III. Introduction

Ten (10) soil vapor samples from the WDI site were submitted to the EPA Region IX FASP laboratory for FASP volatile organic analyses from August 14 through 18, 1997.

IV. Validity and Comments

A) Due to surrogate recoveries outside method QC limits, the detected results and quantitation limits for the following analytes are estimated (J,UJ) (see Table 1A):

- Toluene, Tetrachloroethene, 1,3-Dichloropropane, 1,2-Dibromoethane, Chlorobenzene, Ethylbenzene, p & m-Xylene, o-Xylene, Styrene, 1,1,2,2-Tetrachloroethane, 1,2,3-Trichloropropane, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene, and 1,2-Dibromo-3-chloropropane in samples FB1 and GP3-010.
- p & m-Xylene in sample GP6-010.
- Benzene, Ethylbenzene, and p & m-Xylene in sample GP7-020.
- All analytes in method blank MBW0814A.

These surrogates were outside of the QC criteria (80-120%), therefore the analytes listed above have been qualified:

Sample	Surrogate	%Recovery
FB1	Toluene-d8	74
	Bromofluorobenzene	62
GP3-010	Bromofluorobenzene	79
GP6-010	1,2-Dichloroethane-d4	140
	Bromofluorobenzene	138
GP7-010	Bromofluorobenzene	124
GP7-020	Toluene-d8	124
	Bromofluorobenzene	126
GP7-020DL	1,2-Dichloroethane-d4	51
	Toluene-d8	56
	Bromofluorobenzene	66
MBW0814A	1,2-Dichloroethane-d4	68
	Toluene-d8	71
	Bromofluorobenzene	49
LCW0818B	Bromofluorobenzene	124

Surrogates are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with surrogate compounds prior to sample analysis. Surrogates provide information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.

In the Case Narrative the laboratory identified numerous surrogates out of control based on the surrogate QC limits specified by the CLP water methodology. In the opinion of the reviewer, these QC limits are not appropriate for the method performed. The surrogates were re-evaluated based on the requirements in the Region 9 Client Request Form for TO-15, sent to the laboratory performing split analysis of samples from this project.

B) Ketones such as, Acetone, 2-Butanone, 4-Methyl-2-pentanone and 2-Hexanone, are not included in this data report. These analytes are not normally analyzed by this method or similar "air" methods, such as method TO-15. Section A.3 of the laboratory's standard operating procedure states these compounds are "not applicable to this method." The FASP laboratory was requested to attempt to include these analytes. The raw data indicated that there were QC problems that would have severely qualified this data. It was jointly decided by the RPM, QA Program and FASP Coordinator not to report these compounds in the final report. Preliminary results may contain false positives due to the presence of ketones in blanks, have an unknown bias associated with them and may not be legally

defensible.

C) Tentatively Identified Compounds (TICs) are compounds detected with a response of 10% or greater than that of the nearest internal standard, not included in the calibration mix. TICs are identified solely by comparison of their mass spectrums to a spectral library. TIC concentrations are estimated based on comparison to the nearest internal standard response and have a high degree of uncertainty (sometimes varying from the actual concentration by an order of magnitude or more).

The analytical system did not adequately or accurately report TICs. Because a comprehensive data analysis of TICs was not completed, and TIC information is available from split sampling it was decided not to include TICs in this report. TICs from this data are available for evaluation at a later date if requested.

D) The concentration of the Laboratory Control Sample (LCS) could not be verified. The FASP laboratory set LCS concentrations by averaging recoveries over the project. From this averaging process they obtained method precision information and set precision criteria. However, the LCS did not provide verification of method performance or method accuracy in an air matrix. Because of this, the data assessor should rely heavily on split sampling data to independently verify FASP laboratory performance. The LCS is based on the statistical control limits developed by the laboratory. The laboratory identified that, "LCS results were within QC limits."

E) In the Case Narrative the laboratory identified that, "The method blanks were free of contaminants with the following exceptions:...Toluene [at] 0.2J ug/L."

F) Due to percent differences (%D) outside 30% between the continuing calibration and average initial calibration relative response factors, the detected results and quantitation limits for the following analytes are estimated (UJ) (see Table 1A):

- Chloroethane for samples FB1, VW12, GP1, FB2, GP7-010, GP7-020 and method blanks MBW0814A, MBW0818B.
- 1,3-Dichlorobenzene for samples FB2, GP7-010, GP7-020 and method blank MBW0818B.
- 1,2-Dibromo-3-chloropropane for samples GP2-010, GP3-010, GP4-010 and method blank MBW0815A.

The continuing calibration checks the instrument performance daily and produces the relative response factors used for quantitation of each target analyte.

These continuing calibration standards were outside of the QC criteria, therefore the analytes listed above have been qualified:

Standard	Analyte	%D	Date
IW0814C1	Chloroethane	39.4	8/14/97
CW0815A	1,2-Dibromo-3-chloropropane	35.0	8/15/97
CW0818B	Chloroethane	49.6	8/18/97
CW0818B	1,3-Dichlorobenzene	31.3	8/18/97

G) Multiple continuing calibration standards were analyzed on many occasions. The laboratory indicated that this was partially to obtain results that meet QC criteria.

H) The laboratory used an incorrect molecular weight for 1,2-Dichloropropane. The molecular weight used was 110.97, the correct molecular weight is 112.99. Therefore the actual values for this compound are slightly lower than those reported.

I) The three System Monitoring Compounds were out-of-range for 4 of 5 initial calibration points. The System Monitoring Compounds should be added separately at a concentration of 5.0 ug/L, and this concentration would be within the linear range of the calibration. The Internal Standards were acceptable, and the initial calibration was linear. It appears that the three System Monitoring Compounds were added as part of a stock calibration standard, and that serial dilutions of this mixed standard for the calibration curve resulted in out of range recoveries for these three compounds.

J) In the Case Narrative the laboratory identified that, "Sample GP7-010 was analyzed at a 2-fold dilution due to the hydrocarbon content."

K) The following results are estimated and flagged "J" in Table 1A:

- All results below the Contract Required Quantitation Limits (denoted with an "L" qualifier)

Results below the Contract Required Quantitation Limits (CRQL) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.

L) Sample GP7-010 was analyzed using a 2-fold dilution.

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#4)
Site: WD1
Laboratory: Region 9, FASP
Reviewer: Victoria Frank, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	na				na				na				na				na			
Sample I.D.	FB1				VW12				GP1				GP2-010				GP3-010			
Date of Collection	08/14/97				08/14/97				08/14/97				08/15/97				08/15/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	74	U			74	U			74	U			74	U			74	U		
Chloromethane	180	U			180	U			180	U			180	U			180	U		
Vinyl Chloride	140	U			140	U			140	U			140	U			140	U		
Bromomethane	94	U			94	U			94	U			95	U			95	U		
Chloroethane	140	U	UJ	F	140	U	UJ	F	140	U	UJ	F	140	U			140	U		
Trichlorofluoromethane	65	U			65	U			65	U			65	U			65	U		
1,1-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
Carbon Disulfide	120	U			120	U			120	U			120	U			120	U		
Methylene Chloride	110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene	93	U			93	U			230				93	U			93	U		
Chloroform	75	U			75	U			75	U			75	U			75	U		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
1,1,1-Trichloroethane (TCA)	67	U			67	U			67	U			67	U			67	U		
Carbon Tetrachloride	58	U			58	U			58	U			58	U			58	U		
Benzene	110	U			110	U			110	U			110	U			110	U		
Trichloroethene (TCE)	68	U			68	U			210				68	U			68	U		
1,2-Dichloropropane	81	U		H	81	U		H	81	U		H	81	U		H	81	U		H
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	67	U			67	U			67	U			67	U			67	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U		
Toluene	97	U	UJ	A	97	U			97	U			97	U			97	U	UJ	A
Tetrachloroethene	54	U	UJ	A	32	L	J	K	54	U			54	U			54	U	UJ	A
1,3-Dichloropropane	79	U	UJ	A	79	U			79	U			79	U			79	U	UJ	A
1,2-Dibromoethane (EDB)	48	U	UJ	A	48	U			48	U			48	U			48	U	UJ	A
Chlorobenzene	80	U	UJ	A	80	U			80	U			80	U			80	U	UJ	A
Ethylbenzene	85	U	UJ	A	85	U			85	U			85	U			85	U	UJ	A
p & m- Xylene	170	U	UJ	A	170	U			170	U			170	U			170	U	UJ	A
o-Xylene	85	U	UJ	A	85	U			85	U			85	U			85	U	UJ	A
Styrene	86	U	UJ	A	86	U			86	U			86	U			86	U	UJ	A
Bromoform	35	U			35	U			35	U			36	U			36	U		
1,1,2,2-Tetrachloroethane	53	U	UJ	A	53	U			53	U			54	U			54	U	UJ	A
1,2,3-Trichloropropane	61	U	UJ	A	61	U			61	U			61	U			61	U	UJ	A
1,3-Dichlorobenzene	61	U	UJ	A	61	U			61	U			61	U			61	U	UJ	A
1,4-Dichlorobenzene	61	U	UJ	A	61	U			61	U			61	U			61	U	UJ	A
1,2-Dichlorobenzene	61	U	UJ	A	61	U			61	U			61	U			61	U	UJ	A
1,2-Dibromo-3-chloropropane	38	U	UJ	A	38	U			38	U			38	U	UJ	F	38	U	UJ	A, F

Val-Validity Refer to Data Qualifiers in Table 1B.

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected.

N/A-Not Applicable, NA-Not Analyzed

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#4)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Victoria Frank, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	na				na				na				na				na			
Sample I.D.	GP4-010				GP6-010				FB2				GP7-010				GP7-020			
Date of Collection	08/15/97				08/15/97				08/18/97				08/18/97				08/18/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	74	U			74	U			74	U			150	U		L	74	U		
Chloromethane	180	U			180	U			180	U			1100			L	180	U		
Vinyl Chloride	140	U			140	U			140	U			290	U		L	140	U		
Bromomethane	95	U			95	U			94	U			190	U		L	94	U		
Chloroethane	140	U			140	U			140	U	UJ	F	280	U	UJ	F,L	140	U	UJ	F
Trichlorofluoromethane	65	U			65	U			65	U			130	U		L	65	U		
1,1-Dichloroethene	93	U			93	U			92	U			180	U		L	92	U		
Carbon Disulfide	120	U			120	U			120	U			240	U		L	120	U		
Methylene Chloride	110	U			110	U			110	U			210	U		L	110	U		
trans-1,2-Dichloroethene	93	U			93	U			92	U			180	U		L	92	U		
1,1-Dichloroethane	91	U			91	U			91	U			180	U		L	91	U		
cis-1,2-Dichloroethene	93	U			93	U			92	U			130	L	J	K,L	92	U		
Chloroform	75	U			75	U			75	U			150	U		L	75	U		
1,2-Dichloroethane	91	U			91	U			91	U			180	U		L	91	U		
1,1,1-Trichloroethane (TCA)	67	U			67	U			67	U			130	U		L	67	U		
Carbon Tetrachloride	58	U			58	U			58	U			120	U		L	58	U		
Benzene	110	U			110	U			110	U			250			L	920	D	J	A
Trichloroethene (TCE)	68	U			68	U			68	U			140	U		L	68	U		
1,2-Dichloropropane	81	U		H	81	U		H	81	U		H	160	U		H,L	81	U		H
Bromodichloromethane	55	U			55	U			55	U			110	U		L	55	U		
cis-1,3-Dichloropropene	81	U			81	U			81	U			160	U		L	81	U		
trans-1,3-Dichloropropene	81	U			81	U			81	U			160	U		L	81	U		
1,1,2-Trichloroethane	67	U			67	U			67	U			130	U		L	67	U		
Dibromochloromethane	43	U			43	U			43	U			86	U		L	43	U		
Toluene	97	U			97	U			97	U			190	U		L	97	U		
Tetrachloroethene	54	U			54	U			54	U			110	U		L	54	U		
1,3-Dichloropropane	79	U			79	U			79	U			160	U		L	79	U		
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			95	U		L	48	U		
Chlorobenzene	80	U			80	U			80	U			160	U		L	80	U		
Ethylbenzene	85	U			85	U			84	U			170	U		L	89		J	A
p & m- Xylene	170	U			110	L	J	A,K	170	U			340	U		L	170		J	A
o-Xylene	85	U			85	U			84	U			170	U		L	84	U		
Styrene	86	U			86	U			86	U			170	U		L	86	U		
Bromoform	36	U			36	U			35	U			71	U		L	35	U		
1,1,2,2-Tetrachloroethane	54	U			54	U			53	U			110	U		L	53	U		
1,2,3-Trichloropropane	61	U			61	U			61	U			120	U		L	61	U		
1,3-Dichlorobenzene	61	U			61	U			61	U	UJ	F	120	U	UJ	F,L	61	U	UJ	F
1,4-Dichlorobenzene	61	U			61	U			61	U			120	U		L	61	U		
1,2-Dichlorobenzene	61	U			61	U			61	U			120	U		L	61	U		
1,2-Dibromo-3-chloropropane	38	U	UJ	F	38	U	UJ	F	38	U			76	U		L	38	U		

Val-Validity Refer to Data Qualifiers in Table 1B

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected.

N/A-Not Applicable, NA-Not Analyzed

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#4)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Victoria Frank, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	Method Blank				Method Blank				Method Blank				CRQL					
Sample I.D.	MBW0814A				MBW0818B				MBW0815A									
Date of Collection	na				na				na									
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv	Val	Com	ppbv	Val	Com
Dichlorodifluoromethane	74	U	UJ	A	74	U			74	U			74					
Chloromethane	180	U	UJ	A	180	U			180	U			180					
Vinyl Chloride	140	U	UJ	A	140	U			140	U			140					
Bromomethane	94	U	UJ	A	94	U			94	U			94					
Chloroethane	140	U	UJ	A,F	140	U	UJ	F	140	U			140					
Trichlorofluoromethane	65	U	UJ	A	65	U			65	U			65					
1,1-Dichloroethene	92	U	UJ	A	92	U			92	U			92					
Carbon Disulfide	120	U	UJ	A	120	U			120	U			120					
Methylene Chloride	110	U	UJ	A	110	U			110	U			110					
trans-1,2-Dichloroethene	92	U	UJ	A	92	U			92	U			92					
1,1-Dichloroethane	91	U	UJ	A	91	U			91	U			91					
cis-1,2-Dichloroethene	92	U	UJ	A	92	U			92	U			92					
Chloroform	75	U	UJ	A	75	U			75	U			75					
1,2-Dichloroethane	91	U	UJ	A	91	U			91	U			91					
1,1,1-Trichloroethane (TCA)	67	U	UJ	A	67	U			67	U			67					
Carbon Tetrachloride	58	U	UJ	A	58	U	-		58	U			58					
Benzene	110	U	UJ	A	110	U			110	U			110					
Trichloroethene (TCE)	68	U	UJ	A	68	U			68	U			68					
1,2-Dichloropropane	81	U	UJ	A,H	81	U		H	81	U		H	81		H			
Bromodichloromethane	55	U	UJ	A	55	U			55	U			55					
cis-1,3-Dichloropropene	81	U	UJ	A	81	U			81	U			81					
trans-1,3-Dichloropropene	81	U	UJ	A	81	U			81	U			81					
1,1,2-Trichloroethane	67	U	UJ	A	67	U			67	U			67					
Dibromochloromethane	43	U	UJ	A	43	U			43	U			43					
Toluene	97	U	UJ	A	49	L	J	E,K	97	U			97					
Tetrachloroethene	54	U	UJ	A	54	U			54	U			54					
1,3-Dichloropropane	79	U	UJ	A	79	U			79	U			79					
1,2-Dibromoethane (EDB)	48	U	UJ	A	48	U			48	U			48					
Chlorobenzene	80	U	UJ	A	80	U			80	U			80					
Ethylbenzene	84	U	UJ	A	84	U			84	U			84					
p & m- Xylene	170	U	UJ	A	170	U			170	U			170					
o-Xylene	84	U	UJ	A	84	U			84	U			84					
Styrene	86	U	UJ	A	86	U			86	U			86					
Bromoform	35	U	UJ	A	35	U			35	U			35					
1,1,2,2-Tetrachloroethane	53	U	UJ	A	53	U			53	U			53					
1,2,3-Trichloropropane	61	U	UJ	A	61	U			61	U			61					
1,3-Dichlorobenzene	61	U	UJ	A	61	U	UJ	F	61	U			61					
1,4-Dichlorobenzene	61	U	UJ	A	61	U			61	U			61					
1,2-Dichlorobenzene	61	U	UJ	A	61	U			61	U			61					
1,2-Dibromo-3-chloropropane	38	U	UJ	A	38	U			38	U	UJ	F	38					

Val-Validity Refer to Data Qualifiers in Table 1B.

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected.

N/A-Not Applicable, NA-Not Analyzed

TABLE 1B
DATA QUALIFIERS

The definitions of the following qualifiers are prepared according to the EPA draft document, "National Functional Guidelines for Organic Data Review," February 1994.

NO QUALIFIERS indicate that the data are acceptable both qualitatively and quantitatively.

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

June 8, 1998 DCN: S09-SAI-21029PZZ-08-DR-05948

MEMORANDUM

SUBJECT: Review of Analytical Data

FROM: Robert Sims, SAIC

TO: Andria Benner, Remedial Project Manager
AZ/CA Cleanup Section, SFD-7-1

Attached are comments resulting from SAIC's review of the following analytical data:

SITE:	Waste Disposal Inc.
EPA SSI NO.:	C1
CERCLIS ID NO.:	CAD980884357
CASE/SAS NO.:	R97S46
SDG NO.:	5
LABORATORY:	Region IX FASP
ANALYSIS:	FASP Volatiles
SAMPLE NO.:	7 Soil Vapor (see Case Summary)
COLLECTION DATE:	August 19, 1997
REVIEWER:	John Evans, SAIC

If there are any questions, please contact me at (619)535-7507.

Attachment

Data Validation Report

Case No.: R97S46
Site: Waste Disposal Inc.
Laboratory: Region IX FASP
Reviewer: John Evans, SAIC
Date: June 8, 1998

I. Case Summary

SAMPLE INFORMATION:

VOA Sample Numbers:	GP9-010, GP9-020, GP10-010, GP11-010, GP11-020, GP12-003 and GP12-020
Concentration and Matrix:	Soil Vapor
Collection Method:	1-L Tedlar bags
Analysis:	FASP Volatiles
SOW:	USEPA Region 9 Laboratory SOP 305, Revision 2, June 1997 and Addendum 1
Collection Date:	August 19, 1997
Sample Receipt Date:	August 19, 1997
Extraction Date:	N/A
Analysis Date:	August 19 through 20, 1997

FIELD QC:

Trip Blanks (TB):	N/A
Field Blanks (FB):	None
Equipment Blanks (EB):	None
Background Samples (BG):	None
Field Duplicates (D1):	None

METHOD BLANKS AND ASSOCIATED SAMPLES:

MBW0819A:	GP9-010, GP9-020 and GP10-010
MBW0819C:	GP11-010, GP11-020, GP12-003 and GP12-020

TABLES:

1A:	Analytical Results with Qualifications
1B:	Data Qualifiers

TPO ACTION:

SAMPLING ISSUES: None.

OTHER: None.

TPO ATTENTION:

SAMPLING ISSUES: None.

OTHER: None.

ADDITIONAL COMMENTS:

The analytical results with qualifications are listed in Table 1A. This report was prepared in accordance with EPA document "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", February 1994.

II. Validation Summary

	VOA Acceptable	Comment
HOLDING TIMES	[YES]	[ ]
GC/MS TUNE/GC PERFORMANCE	[YES]	[ ]
CALIBRATIONS	[YES]	[E,F,G,I]
FIELD QC	[N/A]	[ ]
LABORATORY BLANKS	[YES]	[ ]
SURROGATES	[YES]	[A, I]
MATRIX SPIKE/DUPLICATES	[N/A]	[ ]
LAB CONTROL SAMPLES	[YES]	[D]
INTERNAL STANDARDS	[YES]	[ ]
COMPOUND IDENTIFICATION	[YES]	[B, C]
COMPOUND QUANTITATION	[YES]	[H, J, K]
SYSTEM PERFORMANCE	[YES]	[ ]

III. Introduction

Seven (7) soil vapor samples from the WDI site were submitted to the EPA Region IX FASP laboratory for FASP volatile organic analyses on August 19, 1997.

IV. Validity and Comments

A) Due to surrogate recoveries outside method QC limits, the detected results and quantitation limits for the following analytes are estimated (J,UJ) (see Table 1A):

- Vinyl Chloride, Benzene, Ethyl Benzene and p & m-Xylene in sample GP12-020.
- Toluene, Tetrachloroethane, 1,3-Dichloropropane, 1,2-Dibromoethane, Chlorobenzene, Ethylbenzene, p& m-Xylene, o-Xylene, Styrene, 1,1,2,2-Tetrachloroethane, 1,2,3-Trichloropropane, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene and 1,2-Dibromo-3-chloropropane in method blanks MBW0819A and MBW0819C.

Surrogates are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with surrogate compounds prior to sample analysis. Surrogates provide information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.

In the Case Narrative the laboratory identified numerous surrogates out of control based on the surrogate QC limits specified by the CLP water methodology. In the opinion of the reviewer, these QC limits are not appropriate for the method performed. The surrogates were re-evaluated based on the requirements in the Region 9 Client Request Form for TO-15, sent to the laboratory performing split analysis of samples from this project.

In the Case Narrative the laboratory identified that; "The initial analysis of sample GP12-020 showed some surrogate recovery problems. The problems were not resolved when the sample was reanalyzed. The high surrogate recoveries are due to matrix interference. The source of error was not determined for the low surrogate recovery."

The following surrogates were outside of the QC criteria (80-120%), therefore the analytes listed above have been qualified:

Sample	Surrogate	% Recovery
GP12-020	1,2-Dichloroethane-d_4	155
GP12-020	Toluene-d_8	292
GP12-020DL	Toluene-d_8	137
MBW0819A	Bromofluorobenzene	66
LCW0819A	Bromofluorobenzene	75
MBW0819C	Bromofluorobenzene	75

B) Ketones such as, Acetone, 2-Butanone, 4-Methyl-2-pentanone and 2-Hexanone, are not included in this data report. These analytes are not normally analyzed by this method or similar "air" methods, such as method TO-15. Section A.3 of the laboratory's standard operating procedure states these compounds are "not applicable to this method." The FASP laboratory was requested to attempt to include these analytes. The raw data indicated that there were QC problems that would have severely qualified this data. It was jointly decided by the RPM, QA Program and FASP Coordinator not to report these compounds in the final report. Preliminary results may contain false positives due to the presence of ketones in blanks, have an unknown bias associated with them and may not be legally defensible.

C) Tentatively Identified Compounds (TICs) are compounds detected with a response of 10% or greater than that of the nearest internal standard, not included in the calibration mix. TICs are identified solely by comparison of their mass spectrums to a spectral library. TIC concentrations are estimated based on comparison to the nearest internal standard response and have a high degree of uncertainty (sometimes varying from the actual concentration by an order of magnitude or more).

The analytical system did not adequately or accurately report TICs. Because a comprehensive data analysis of TICs was not completed, and TIC information is available from split sampling it was decided not to include TICs in this report. TICs from this data are available for evaluation at a later date if requested.

D) The concentration of the Laboratory Control Sample (LCS) could not be verified. The FASP laboratory set LCS concentrations by averaging recoveries over the project. From this averaging process they obtained method precision information and set precision criteria. However, the LCS did not provide verification of method performance or method accuracy in an air matrix. Because of this, the data assessor should rely heavily on split sampling data to independently verify FASP laboratory performance. The LCS is based on the statistical control limits developed by the laboratory. The laboratory identified that: "LCS results were within QC limits."

E) Due to relative standard deviations (%RSDs) outside 30% in the initial calibrations, the detected results and quantitation limits for the following analytes are estimated (J) (see Table 1A):

- o-Xylene for sample GP9-010.

The Initial Calibration demonstrates that the instrument is capable of acceptable performance at the beginning of the analytical sequence and of producing a linear calibration curve.

A percent relative standard deviation of 45.1% was observed for o-Xylene in the initial calibration performed on August 19, 1997. This value exceeded the <30% QC advisory validation criteria.

F) Due to percent differences (%D) outside 30% between the continuing calibration and average initial calibration relative response factors, the detected results and quantitation limits for the following analytes are estimated (J,UJ) (see Table 1A):

- o-Xylene and Styrene for all samples and method blanks.
- Chloroethane, Ethylbenzene, p- & m-Xylene, Bromoform, 1,1,2,2-Tetrachloroethane, 1,2,3-Trichloropropane, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene, and 1,2-Dibromo-3-chloropropane for samples GP11-010, GP11-020, GP12-020, GP12-003 and method blank MBW0819C.

The continuing calibration checks the instrument performance daily and produces the relative response factors used for quantitation of each target analyte.

These continuing calibration standards were outside of the QC criteria:

Standard	Analyte	% Difference	Date
IW0819C	o-Xylene	32.0	8/19/97
IW0819C	Styrene	38.4	8/19/97
CW0819B	Chloroethane	32.5	8/19/97
CW0819B	Ethylbenzene	31.0	8/19/97
CW0819B	p- & m-Xylene	34.9	8/19/97

CW0819B	o-Xylene	46.4	8/19/97
CW0819B	Styrene	47.7	8/19/97
CW0819B	Bromoform	38.5	8/19/97
CW0819B	1,1,2,2-Tetrachloroethane	43.3	8/19/97
CW0819B	1,2,3-Trichloropropane	48.3	8/19/97
CW0819B	1,3-Dichlorobenzene	37.5	8/19/97
CW0819B	1,4-Dichlorobenzene	40.4	8/19/97
CW0819B	1,2-Dichlorobenzene	35.5	8/19/97
CW0819B	1,2-Dibromo-3-chloropropane	78.8	8/19/97

G) Multiple continuing calibration standards were analyzed on many occasions. The laboratory indicated that this was partially to obtain results that meet QC criteria.

H) The laboratory used an incorrect molecular weight for 1,2-Dichloropropane. The molecular weight used was 110.97, the correct molecular weight is 112.99. Therefore the actual values for this compound are slightly lower than those reported.

I) The three System Monitoring Compounds were out-of-range for 4 of 5 initial calibration points. The System Monitoring Compounds should be added separately at a concentration of 5.0 ug/L, and this concentration would be within the linear range of the calibration. The Internal Standards were acceptable, and the initial calibration was linear. It appears that the three System Monitoring Compounds were added as part of a stock calibration standard, and that serial dilutions of this mixed standard for the calibration curve resulted in out of range recoveries for these three compounds.

J) The following results are estimated and flagged "J" in Table 1A:

- All results below the Contract Required Quantitation Limits (denoted with an "L" qualifier)

Results below the Contract Required Quantitation Limits (CRQL) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.

K) Sample GP9-010 was analyzed using a 10-fold dilution and sample GP12-020 was analyzed using a 2-fold dilution.

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#5)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: John Evans, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	n/a				n/a				n/a									
Sample I.D.	GP9-010				GP9-020				GP10-010									
Date of Collection	08/09/97				08/19/97				08/19/97									
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv	Val	Com	ppbv	Val	Com
Dichlorodifluoromethane	740	U		K	74	U			74	U								
Chloromethane	1800	U		K	180	U			180	U								
Vinyl Chloride	1400	U		K	140	U			140	U								
Bromomethane	940	U		K	94	U			94	U								
Chloroethane	1400	U		K	140	U			140	U								
Trichlorofluoromethane	650	U		K	65	U			65	U								
1,1-Dichloroethene	920	U		K	92	U			92	U								
Carbon Disulfide	1200	U		K	120	U			120	U								
Methylene Chloride	1100	U		K	110	U			110	U								
trans-1,2-Dichloroethene	920	U		K	92	U			92	U								
1,1-Dichloroethane	910	U		K	91	U			91	U								
cis-1,2-Dichloroethene	920	U		K	81	L	J	J	92	U								
Chloroform	750	U		K	75	U			75	U								
1,2-Dichloroethane	910	U		K	91	U			91	U								
1,1,1-Trichloroethane (TCA)	670	U		K	67	U			67	U								
Carbon Tetrachloride	580	U		K	58	U			58	U								
Benzene	1500			K	110	U			110	U								
Trichloroethene (TCE)	680	U		K	68	U			68	U								
1,2-Dichloropropane	810	U		H,K	81	U		H	81	U		H						
Bromodichloromethane	550	U		K	55	U			55	U								
cis-1,3-Dichloropropene	810	U		K	81	U			81	U								
trans-1,3-Dichloropropene	810	U		K	81	U			81	U								
1,1,2-Trichloroethane	670	U		K	67	U			67	U								
Dibromochloromethane	430	U		K	43	U			43	U								
Toluene	970	U		K	97	U			97	U								
Tetrachloroethene	540	U		K	54	U			54	U								
1,3-Dichloropropane	790	U		K	79	U			79	U								
1,2-Dibromoethane (EDB)	480	U		K	48	U			48	U								
Chlorobenzene	800	U		K	80	U			80	U								
Ethylbenzene	4900			K	70	L	J	J	470									
p & m- Xylene	3900			K	170	U			150	L	J	J						
o-Xylene	570	L	J	EFJK	84	U	UJ	F	84	U	UJ	F						
Styrene	860	U	UJ	F,K	86	U	UJ	F	86	U	UJ	F						
Bromoform	350	U		K	35	U			35	U								
1,1,2,2-Tetrachloroethane	530	U		K	53	U			53	U								
1,2,3-Trichloropropane	610	U		K	61	U			61	U								
1,3-Dichlorobenzene	610	U		K	61	U			61	U								
1,4-Dichlorobenzene	610	U		K	61	U			61	U								
1,2-Dichlorobenzene	610	U		K	61	U			61	U								
1,2-Dibromo-3-chloropropane	380	U		K	38	U			38	U								

Val-Validity Refer to Data Qualifiers in Table 1B.

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected.

N/A-Not Applicable, NA-Not Analyzed

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#5)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: John Evans, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	n/a				n/a				n/a				n/a						
Sample I.D.	GP11-010				GP11-020				GP12-020				GP12-003						
Date of Collection	08/19/97				08/19/97				08/20/97				08/20/97						
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv	Val	Com
Dichlorodifluoromethane	74	U			74	U			150	U		K	74	U					
Chloromethane	180	U			93	L	J	J	350	U		K	180	U					
Vinyl Chloride	140	U			86	L	J	J	520		J	A,K	740						
Bromomethane	94	U			94	U			190	U		K	94	U					
Chloroethane	140	U	UJ	F	140	U	UJ	F	280	U	UJ	F,K	140	U	UJ	F			
Trichlorofluoromethane	65	U			65	U			130	U		K	65	U					
1,1-Dichloroethene	92	U			92	U			180	U		K	92	U					
Carbon Disulfide	120	U			120	U			240	U		K	120	U					
Methylene Chloride	110	U			110	U			210	U		K	110	U					
trans-1,2-Dichloroethene	92	U			92	U			180	U		K	92	U					
1,1-Dichloroethane	91	U			91	U			180	U		K	91	U					
cis-1,2-Dichloroethene	92	U			49	L	J	J	180	U		K	92	U					
Chloroform	75	U			75	U			150	U		K	75	U					
1,2-Dichloroethane	91	U			91	U			180	U		K	91	U					
1,1,1-Trichloroethane (TCA)	67	U			67	U			130	U		K	67	U					
Carbon Tetrachloride	58	U			58	U			120	U		K	58	U					
Benzene	110	U			110	U			3600	D	J	A,K	240						
Trichloroethene (TCE)	68	U			68	U			140	U		K	68	U					
1,2-Dichloropropane	81	U		H	81	U		H	160	U		H,K	81	U		H			
Bromodichloromethane	55	U			55	U			110	U		K	55	U					
cis-1,3-Dichloropropene	81	U			81	U			160	U		K	81	U					
trans-1,3-Dichloropropene	81	U			81	U			160	U		K	81	U					
1,1,2-Trichloroethane	67	U			67	U			130	U		K	67	U					
Dibromochloromethane	43	U			43	U			86	U		K	43	U					
Toluene	97	U			97	U			190	U		K	97	U					
Tetrachloroethene	54	U			54	U			110	U		K	54	U					
1,3-Dichloropropane	79	U			79	U			160	U		K	79	U					
1,2-Dibromoethane (EDB)	48	U			48	U			95	U		K	48	U					
Chlorobenzene	80	U			80	U			160	U		K	80	U					
Ethylbenzene	120		J	F	84	U	UJ	F	8100	D	J	AFK	84	U	UJ	F			
p & m- Xylene	170	U	UJ	F	170	U	UJ	F	9300	D	J	AFK	170	U	UJ	F			
o-Xylene	84	U	UJ	F	84	U	UJ	F	170	U	UJ	F,K	84	U	UJ	F			
Styrene	86	U	UJ	F	86	U	UJ	F	170	U	UJ	F,K	86	U	UJ	F			
Bromoform	35	U	UJ	F	35	U	UJ	F	71	U	UJ	F,K	35	U	UJ	F			
1,1,2,2-Tetrachloroethane	53	U	UJ	F	53	U	UJ	F	110	U	UJ	F,K	53	U	UJ	F			
1,2,3-Trichloropropane	61	U	UJ	F	61	U	UJ	F	120	U	UJ	F,K	61	U	UJ	F			
1,3-Dichlorobenzene	61	U	UJ	F	61	U	UJ	F	120	U	UJ	F,K	61	U	UJ	F			
1,4-Dichlorobenzene	61	U	UJ	F	61	U	UJ	F	120	U	UJ	F,K	61	U	UJ	F			
1,2-Dichlorobenzene	61	U	UJ	F	61	U	UJ	F	120	U	UJ	F,K	61	U	UJ	F			
1,2-Dibromo-3-chloropropane	38	U	UJ	F	38	U	UJ	F	76	U	UJ	F,K	38	U	UJ	F			

Val-Validity Refer to Data Qualifiers in Table 1B.

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected.

N/A-Not Applicable, NA-Not Analyzed

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#5)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: John Evans, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location Sample I.D. Date of Collection	Method Blank MBW0819A				Method Blank MBW0819C				CRQL		
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv	Val	Com
Dichlorodifluoromethane	74	U			74	U			74		
Chloromethane	180	U			180	U			180		
Vinyl Chloride	140	U			140	U			140		
Bromomethane	94	U			94	U			94		
Chloroethane	140	U			140	U	UJ	F	140		
Trichlorofluoromethane	65	U			65	U			65		
1,1-Dichloroethene	92	U			92	U			92		
Carbon Disulfide	120	U			120	U			120		
Methylene Chloride	110	U			110	U			110		
trans-1,2-Dichloroethene	92	U			92	U			92		
1,1-Dichloroethane	91	U			91	U			91		
cis-1,2-Dichloroethene	92	U			92	U			92		
Chloroform	75	U			75	U			75		
1,2-Dichloroethane	91	U			91	U			91		
1,1,1-Trichloroethane (TCA)	67	U			67	U			67		
Carbon Tetrachloride	58	U			58	U			58		
Benzene	110	U			110	U			110		
Trichloroethene (TCE)	68	U			68	U			68		
1,2-Dichloropropane	81	U		H	81	U		H	81		H
Bromodichloromethane	55	U			55	U			55		
cis-1,3-Dichloropropene	81	U			81	U			81		
trans-1,3-Dichloropropene	81	U			81	U			81		
1,1,2-Trichloroethane	67	U			67	U			67		
Dibromochloromethane	43	U			43	U			43		
Toluene	97	U	UJ	A	97	U	UJ	A	97		
Tetrachloroethene	54	U	UJ	A	54	U	UJ	A	54		
1,3-Dichloropropane	79	U	UJ	A	79	U	UJ	A	79		
1,2-Dibromoethane (EDB)	48	U	UJ	A	48	U	UJ	A	48		
Chlorobenzene	80	U	UJ	A	80	U	UJ	A	80		
Ethylbenzene	84	U	UJ	A	84	U	UJ	A,F	84		
p & m- Xylene	170	U	UJ	A	170	U	UJ	A,F	170		
o-Xylene	84	U	UJ	A,F	84	U	UJ	A,F	84		
Styrene	86	U	UJ	A,F	86	U	UJ	A,F	86		
Bromoform	35	U			35	U	UJ	F	35		
1,1,2,2-Tetrachloroethane	53	U	UJ	A	53	U	UJ	A,F	53		
1,2,3-Trichloropropane	61	U	UJ	A	61	U	UJ	A,F	61		
1,3-Dichlorobenzene	61	U	UJ	A	61	U	UJ	A,F	61		
1,4-Dichlorobenzene	61	U	UJ	A	61	U	UJ	A,F	61		
1,2-Dichlorobenzene	61	U	UJ	A	61	U	UJ	A,F	61		
1,2-Dibromo-3-chloropropane	38	U	UJ	A	38	U	UJ	A,F	38		

Val-Validity Refer to Data Qualifiers in Table 1B.

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected.

N/A-Not Applicable, NA-Not Analyzed

TABLE 1B
DATA QUALIFIERS

The definitions of the following qualifiers are prepared according to the EPA draft document, "National Functional Guidelines for Organic Data Review," February 1994.

NO QUALIFIERS indicate that the data are acceptable both qualitatively and quantitatively.

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

June 8, 1998 DCN: S09-SAI-21029PZZ-08-DR-05950

MEMORANDUM

SUBJECT: Review of Analytical Data

FROM: Robert Sims, SAIC

TO: Andria Benner, Remedial Project Manager
AZ/CA Cleanup Section, SFD-7-1

Attached are comments resulting from SAIC's review of the following analytical data:

SITE:	Waste Disposal Inc.
EPA SSI NO.:	C1
CERCLIS ID NO.:	CAD980884357
CASE/SAS NO.:	R97S46
SDG NO.:	6
LABORATORY:	Region IX FASP
ANALYSIS:	FASP Volatiles
SAMPLE NO.:	17 Soil Vapor (see Case Summary)
COLLECTION DATE:	August 20 through 22, 1997
REVIEWER:	Victoria Frank, SAIC

If there are any questions, please contact me at (619)535-7507.

Attachment

Data Validation Report

Case No.:	R97S46
Site:	Waste Disposal Inc.
Laboratory:	Region IX FASP
Reviewer:	Victoria Frank, SAIC
Date:	June 8, 1998

I. Case Summary

SAMPLE INFORMATION:

VOA Sample Numbers:	B-4, FB3, GP14-010, GP14-020, GP16-010, GP16-020, GP19-010, GP20-010, GP21-010, GP21-010DUP, GP22-010, GP23-010, GP24-010, GP28-010, GP29-010, GP30-010, GP31-010
Concentration and Matrix:	Soil Vapor
Collection Method:	1-L Tedlar bags
Analysis:	FASP Volatiles
SOW:	USEPA Region 9 Laboratory SOP 305, Revision 2, June 1997 and Addendum 1
Collection Date:	August 20 through 22, 1997
Sample Receipt Date:	August 20 through 22, 1997
Extraction Date:	N/A
Analysis Date:	August 20 through 22, 1997

FIELD QC:

Trip Blanks (TB):	N/A
Field Blanks (FB):	FB3
Equipment Blanks (EB):	None
Background Samples (BG):	None
Field Duplicates (D1):	GP21-010 and GP21-010DUP

METHOD BLANKS AND ASSOCIATED SAMPLES:

MBW0820A:	GP14-010, GP14-010MS, GP14-010MSD, GP14-020, GP16-010, GP16-010DL, GP16-020, and GP16-020RA
MBW0821A:	FB3, GP19-010, GP19-010RA, GP20-010, GP21-010, GP21-010DUP, GP22-010, GP23-010, and GP24-010
MBW0822A:	B4, GP28-010, GP29-010, GP30-010, and GP31-010

TABLES:

1A:	Analytical Results with Qualifications
1B:	Data Qualifiers

TPO ACTION:

SAMPLING ISSUES: None.

OTHER: None.

TPO ATTENTION:

SAMPLING ISSUES: None.

OTHER: None.

ADDITIONAL COMMENTS:

The analytical results with qualifications are listed in Table 1A. This report was prepared in accordance with EPA document "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", February 1994.

II. Validation Summary

	VOA Acceptable/Comment	
HOLDING TIMES	[YES]	[ ]
GC/MS TUNE/GC PERFORMANCE	[YES]	[ ]
CALIBRATIONS	[YES]	[E,F, J]
FIELD QC	[YES]	[I]
LABORATORY BLANKS	[YES]	[ ]
SURROGATES	[YES]	[A, J]
MATRIX SPIKE/DUPLICATES	[YES]	[G]
LAB CONTROL SAMPLES	[N/A]	[D]
INTERNAL STANDARDS	[YES]	[ ]
COMPOUND IDENTIFICATION	[YES]	[B, C]
COMPOUND QUANTITATION	[YES]	[H,K,L]
SYSTEM PERFORMANCE	[YES]	[ ]

III. Introduction

Seventeen (17) soil vapor samples from the WDI site were submitted to the EPA Region IX FASP laboratory for FASP volatile organic analyses from August 20 through 22, 1997.

IV. Validity and Comments

A) Due to surrogate recoveries outside method QC limits, the detected results and quantitation limits for the following analytes are estimated (J) (see Table 1A):
- Ethylbenzene and p&m-Xylene in sample GP16-010.

These surrogates were outside of the QC criteria (80-120%), therefore the analytes listed above have been qualified:

Sample	Surrogate	%Recovery
GP16-010	1,2-Dichloroethane-d4	139
	Toluene-d8	166
LCW0821A	Bromofluorobenzene	78

Surrogates are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with surrogate compounds prior to sample analysis. Surrogates provide information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.

In the Case Narrative the laboratory identified numerous surrogates out of control based on the surrogate QC limits specified by the CLP water methodology. In the opinion of the reviewer, these QC limits are not appropriate for the method performed. The surrogates were re-evaluated based on the requirements in the Region 9 Client Request Form for TO-15, sent to the laboratory performing split analysis of samples from this project.

B) Ketones such as, Acetone, 2-Butanone, 4-Methyl-2-pentanone and 2-Hexanone, are not included in this data report. These analytes are not normally analyzed by this method or similar "air" methods, such as method TO-15. Section A.3 of the laboratory's standard operating procedure states these compounds are "not applicable to this method." The FASP laboratory was requested to attempt to include these analytes. The raw data indicated that there were QC problems that would have severely qualified this data. It was jointly decided by the RPM, QA Program and FASP Coordinator not to report these compounds in the final report. Preliminary results may contain false positives due to the presence of ketones in blanks, have an unknown bias associated with them and may not be legally defensible.

C) Tentatively Identified Compounds (TICs) are compounds detected with a response of 10% or greater than that of the nearest internal standard, not included in the calibration mix. TICs are identified solely by comparison of their mass spectrums to a spectral library. TIC concentrations are estimated based on comparison to the nearest internal standard response and have a high degree of uncertainty (sometimes varying from the actual concentration by an order of magnitude or more).

The analytical system did not adequately or accurately report TICs. Because a comprehensive data analysis of TICs was not completed, and TIC information is available from split sampling it was decided not to include TICs in this report. TICs from this data are available for evaluation at a later date if requested.

D) The concentration of the Laboratory Control Sample (LCS) could not be verified. The FASP laboratory set LCS concentrations by averaging recoveries over the project. From this averaging process they obtained method precision information and set precision criteria. However, the LCS did not provide verification of method performance or method accuracy in an air matrix. Because of this, the data assessor should rely heavily on split sampling data to independently verify FASP laboratory performance. The LCS is based on the statistical control limits developed by the laboratory. The

laboratory identified that: "LCS results were within QC limits."

E) Due to percent differences (%D) outside 30% between the continuing calibration and average initial calibration relative response factors, the detected results and quantitation limits for the following analytes are estimated (J,UJ) (see Table 1A):

- Chloroethane for all samples.
- 1,2-Dichloropropane for samples B4, GP28-010, GP29-010, GP30-010, and GP31-010.
- 1,2-Dibromo-3-chloropropane for samples B4, GP28-010, GP29-010, GP30-010, and GP31-010.

The continuing calibration checks the instrument performance daily and produces the relative response factors used for quantitation of each target analyte.

These continuing calibration standards were outside of the QC criteria, therefore the analytes listed above have been qualified:

Standard	Analyte	%D	Date
CW0820C	Chloroethane	34.3	8/20/97
CW0821A	Chloroethane	102.1	8/21/97
CW0822A	Chloroethane	104.8	8/22/97
CW0822A	1,2-Dichloropropane	39.1	8/22/97
CW0822A	1,2-Dibromo-3-chloropropane	30.2	8/22/97

F) Multiple continuing calibration standards were analyzed on many occasions. The laboratory indicated that this was partially to obtain results that meet QC criteria.

G) These matrix spike compounds were outside of the QC criteria:

Sample	Spike Compound	%RPD	Limits
GP14-010MSD	Benzene	14	11
GP14-010MSD	Chlorobenzene	14	13

H) The laboratory used an incorrect molecular weight for 1,2-Dichloropropane. The molecular weight used was 110.97, the correct molecular weight is 112.99. Therefore the actual values for this compound are slightly lower than those reported.

I) In the Case Narrative the laboratory identified that, "Sample FB3 was inadvertantly omitted from the FASP sample login form. Sample B4 was incorrectly recorded as sample FB4 on the FASP sample login form. The COC form relinquished on 08/22/97 at 11:30 was signed as received by the laboratory, but no date and time accompanied the signature."

J) The three System Monitoring Compounds (surrogates) were out-of-range for 4 of 5 initial

calibration points. The System Monitoring Compounds should be added separately at a concentration of 5.0 ug/L, and this concentration would be within the linear range of the calibration. The Internal Standards were acceptable, and the initial calibration was linear. It appears that the three System Monitoring Compounds were added as part of a stock calibration standard, and that serial dilutions of this mixed standard for the calibration curve resulted in out of range recoveries for these three compounds.

K) The following results are estimated and flagged "J" in Table 1A:

- All results below the Contract Required Quantitation Limits (denoted with an "L" qualifier)

Results below the Contract Required Quantitation Limits (CRQL) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.

L) Sample GP16-010 was analyzed using a 2-fold dilution.

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#6)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Victoria Frank, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	na				na				na				na				na			
Sample I.D.	GP14-010				GP16-010				GP16-020				GP14-020				GP19-010			
Date of Collection	08/20/97				08/20/97				08/20/97				08/20/97				08/21/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		J	Com	ppbv		Val	Com
Dichlorodifluoromethane	74	U			150	U		L	74	U			74	U			74	U		
Chloromethane	180	U			350	U		L	180	U			180	U			180	U		
Vinyl Chloride	140	U			290	U		L	140	U			520				140	U		
Bromomethane	94	U			190	U		L	94	U			94	U			94	U		
Chloroethane	140	U	UJ	E	280	U	UJ	E,L	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E
Trichlorofluoromethane	65	U			130	U		L	65	U			65	U			65	U		
1,1-Dichloroethene	92	U			180	U		L	92	U			92	U			92	U		
Carbon Disulfide	120	U			240	U		L	120	U			120	U			120	U		
Methylene Chloride	110	U			210	U		L	110	U			110	U			110	U		
trans-1,2-Dichloroethene	92	U			180	U		L	92	U			92	U			92	U		
1,1-Dichloroethane	90	U			180	U		L	90	U			280				91	U		
cis-1,2-Dichloroethene	92	U			180	U		L	92	U			240				92	U		
Chloroform	75	U			150	U		L	75	U			75	U			75	U		
1,2-Dichloroethane	90	U			180	U		L	90	U			54	L	J	K	91	U		
1,1,1-Trichloroethane (TCA)	67	U			130	U		L	67	U			67	U			67	U		
Carbon Tetrachloride	58	U			120	U		L	58	U			58	U			58	U		
Benzene	110	U			230	U		L	110	U			110	U			110	U		
Trichloroethene (TCE)	68	U			140	U		L	68	U			68	U			68	U		
1,2-Dichloropropane	81	U		H	160	U		H,L	81	U		H	81	U		H	81	U		H
Bromodichloromethane	55	U			110	U		L	55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U			160	U		L	81	U			81	U			81	U		
trans-1,3-Dichloropropene	81	U			160	U		L	81	U			81	U			81	U		
1,1,2-Trichloroethane	67	U			130	U		L	67	U			67	U			67	U		
Dibromochloromethane	43	U			86	U		L	43	U			43	U			43	U		
Toluene	97	U			190	U		L	97	U			97	U			97	U		
Tetrachloroethene	54	U			110	U		L	54	U			54	U			54	U		
1,3-Dichloropropane	79	U			160	U		L	79	U			79	U			79	U		
1,2-Dibromoethane (EDB)	48	U			95	U		L	48	U			48	U			48	U		
Chlorobenzene	80	U			160	U		L	80	U			80	U			80	U		
Ethylbenzene	84	U			220		J	A,L	84	U			84	U			84	U		
p & m- Xylene	170	U			180	L	J	AKL	170	U			170	U			170	U		
o-Xylene	84	U			170	U		L	84	U			84	U			84	U		
Styrene	86	U			170	U		L	86	U			86	U			86	U		
Bromoform	35	U			71	U		L	35	U			35	U			35	U		
1,1,2,2-Tetrachloroethane	53	U			110	U		L	53	U			53	U			53	U		
1,2,3-Trichloropropane	61	U			120	U		L	61	U			61	U			61	U		
1,3-Dichlorobenzene	61	U			120	U		L	61	U			61	U			61	U		
1,4-Dichlorobenzene	61	U			120	U		L	61	U			61	U			61	U		
1,2-Dichlorobenzene	61	U			120	U		L	61	U			61	U			61	U		
1,2-Dibromo-3-chloropropane	38	U			76	U		L	38	U			38	U			38	U		

Val-Validity Refer to Data Qualifiers in Table 1B.

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected.

N/A-Not Applicable, NA-Not Analyzed

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#6)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Victoria Frank, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	na				na				na				na				na			
Sample I.D.	GP20-010				GP21-010				GP21-010DUP				GP22-010				GP24-010			
Date of Collection	08/21/97				08/21/97				08/21/97				08/21/97				08/21/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	74	U			74	U			74	U			74	U			74	U		
Chloromethane	180	U			180	U			180	U			180	U			180	U		
Vinyl Chloride	140	U			140	U			140	U			140	U			140	U		
Bromomethane	94	U			94	U			94	U			94	U			94	U		
Chloroethane	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E
Trichlorofluoromethane	65	U			65	U			65	U			65	U			65	U		
1,1-Dichloroethene	92	U			92	U			92	U			92	U			92	U		
Carbon Disulfide	120	U			120	U			120	U			120	U			120	U		
Methylene Chloride	110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	92	U			92	U			92	U			92	U			92	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene	92	U			92	U			92	U			92	U			92	U		
Chloroform	75	U			75	U			75	U			75	U			75	U		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
1,1,1-Trichloroethane (TCA)	67	U			67	U			67	U			67	U			67	U		
Carbon Tetrachloride	58	U			58	U			58	U			58	U			58	U		
Benzene	110	U			110	U			110	U			110	U			110	U		
Trichloroethene (TCE)	68	U			68	U			68	U			68	U			68	U		
1,2-Dichloropropane	81	U		H	81	U		H	81	U		H	81	U		H	81	U		H
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	67	U			67	U			67	U			67	U			67	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U		
Toluene	97	U			97	U			97	U			97	U			97	U		
Tetrachloroethene	27	L	J	K	54	U			54	U			54	U			54	U		
1,3-Dichloropropane	79	U			79	U			79	U			79	U			79	U		
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			48	U			48	U		
Chlorobenzene	80	U			80	U			80	U			80	U			80	U		
Ethylbenzene	84	U			84	U			84	U			84	U			84	U		
p & m- Xylene	170	U			170	U			170	U			170	U			170	U		
o-Xylene	84	U			84	U			84	U			84	U			84	U		
Styrene	86	U			86	U			86	U			86	U			86	U		
Bromoform	35	U			35	U			35	U			35	U			35	U		
1,1,2,2-Tetrachloroethane	53	U			53	U			53	U			53	U			53	U		
1,2,3-Trichloropropane	61	U			61	U			61	U			61	U			61	U		
1,3-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,4-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,2-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,2-Dibromo-3-chloropropane	38	U			38	U			38	U			38	U			38	U		

Val-Validity Refer to Data Qualifiers in Table 1B.

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected.

N/A-Not Applicable, NA-Not Analyzed

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#6)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Victoria Frank, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	na				na				na				na				na			
Sample I.D.	GP23-010				FB3				B4				GP28-010				GP29-010			
Date of Collection	08/21/97				08/21/97				08/22/97				08/22/97				08/22/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	74	U			74	U			74	U			74	U			74	U		
Chloromethane	180	U			180	U			180	U			180	U			180	U		
Vinyl Chloride	140	U			140	U			140	U			140	U			140	U		
Bromomethane	94	U			94	U			95	U			95	U			94	U		
Chloroethane	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E
Trichlorofluoromethane	65	U			65	U			66	U			66	U			65	U		
1,1-Dichloroethene	92	U			92	U			93	U			93	U			92	U		
Carbon Disulfide	120	U			120	U			120	U			120	U			120	U		
Methylene Chloride	110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	92	U			92	U			93	U			93	U			92	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			90	U		
cis-1,2-Dichloroethene	92	U			92	U			93	U			93	U			92	U		
Chloroform	75	U			75	U			75	U			75	U			75	U		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			90	U		
1,1,1-Trichloroethane (TCA)	67	U			67	U			67	U			67	U			67	U		
Carbon Tetrachloride	58	U			58	U			59	U			59	U			58	U		
Benzene	110	U			110	U			120	U			120	U			110	U		
Trichloroethene (TCE)	68	U			68	U			69	U			69	U			68	U		
1,2-Dichloropropane	81	U		H	81	U		H	81	U	UJ	E,H	81	U	UJ	E,H	81	U	UJ	E,H
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	67	U			67	U			67	U			67	U			67	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U		
Toluene	97	U			97	U			98	U			98	U			97	U		
Tetrachloroethene	54	U			54	U			54	U			190				54	U		
1,3-Dichloropropane	79	U			79	U			80	U			80	U			79	U		
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			48	U			48	U		
Chlorobenzene	80	U			80	U			80	U			80	U			80	U		
Ethylbenzene	84	U			84	U			85	U			85	U			84	U		
p & m- Xylene	170	U			170	U			170	U			170	U			170	U		
o-Xylene	84	U			84	U			85	U			85	U			84	U		
Styrene	86	U			86	U			86	U			86	U			86	U		
Bromoform	35	U			35	U			36	U			36	U			35	U		
1,1,2,2-Tetrachloroethane	53	U			53	U			54	U			54	U			53	U		
1,2,3-Trichloropropane	61	U			61	U			61	U			61	U			61	U		
1,3-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,4-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,2-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,2-Dibromo-3-chloropropane	38	U			38	U			38	U	UJ	E	38	U	UJ	E	38	U	UJ	E

Val-Validity Refer to Data Qualifiers in Table 1B.

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected.

N/A-Not Applicable, NA-Not Analyzed

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#6)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Victoria Frank, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	na				na													
Sample I.D.	GP30-010				GP31-010													
Date of Collection	08/22/97				08/22/97													
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv	Val	Com	ppbv	Val	Com	ppbv	Val	Com
Dichlorodifluoromethane	74	U			74	U											
Chloromethane	180	U			180	U											
Vinyl Chloride	140	U			140	U											
Bromomethane	94	U			94	U											
Chloroethane	140	U	UJ	E	140	U	UJ	E									
Trichlorofluoromethane	65	U			65	U											
1,1-Dichloroethene	92	U			92	U											
Carbon Disulfide	120	U			120	U											
Methylene Chloride	110	U			110	U											
trans-1,2-Dichloroethene	92	U			92	U											
1,1-Dichloroethane	90	U			90	U											
cis-1,2-Dichloroethene	92	U			92	U											
Chloroform	75	U			75	U											
1,2-Dichloroethane	90	U			90	U											
1,1,1-Trichloroethane (TCA)	67	U			67	U											
Carbon Tetrachloride	58	U			58	U											
Benzene	110	U			110	U											
Trichloroethene (TCE)	68	U			68	U											
1,2-Dichloropropane	81	U	UJ	E,H	81	U	UJ	E,H									
Bromodichloromethane	55	U			55	U											
cis-1,3-Dichloropropene	81	U			81	U											
trans-1,3-Dichloropropene	81	U			81	U											
1,1,2-Trichloroethane	67	U			67	U											
Dibromochloromethane	43	U			43	U											
Toluene	97	U			97	U											
Tetrachloroethene	54	U			670												
1,3-Dichloropropane	79	U			79	U											
1,2-Dibromoethane (EDB)	48	U			48	U											
Chlorobenzene	80	U			80	U											
Ethylbenzene	84	U			84	U											
p & m- Xylene	170	U			170	U											
o-Xylene	84	U			84	U											
Styrene	86	U			86	U											
Bromoform	35	U			35	U											
1,1,2,2-Tetrachloroethane	53	U			53	U											
1,2,3-Trichloropropane	61	U			61	U											
1,3-Dichlorobenzene	61	U			61	U											
1,4-Dichlorobenzene	61	U			61	U											
1,2-Dichlorobenzene	61	U			61	U											
1,2-Dibromo-3-chloropropane	38	U	UJ	E	38	U	UJ	E									

Val-Validity Refer to Data Qualifiers in Table 1B.

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected.

N/A-Not Applicable, NA-Not Analyzed

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#6)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Victoria Frank, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	Method Blank				Method Blank				Method Blank				CRQL						
Sample I.D.	MBW0820A				MBW0821A				MBW0822A										
Date of Collection																			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv	Val	Com				
Dichlorodifluoromethane	74	U			74	U			74	U			74						
Chloromethane	180	U			180	U			180	U			180						
Vinyl Chloride	140	U			140	U			140	U			140						
Bromomethane	94	U			94	U			94	U			94						
Chloroethane	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E	140						
Trichlorofluoromethane	65	U			65	U			65	U			65						
1,1-Dichloroethene	92	U			92	U			92	U			92						
Carbon Disulfide	120	U			120	U			120	U			120						
Methylene Chloride	110	U			110	U			110	U			110						
trans-1,2-Dichloroethene	92	U			92	U			92	U			92						
1,1-Dichloroethane	90	U			90	U			90	U			90						
cis-1,2-Dichloroethene	92	U			92	U			92	U			92						
Chloroform	75	U			75	U			75	U			75						
1,2-Dichloroethane	90	U			90	U			90	U			90						
1,1,1-Trichloroethane (TCA)	67	U			67	U			67	U			67						
Carbon Tetrachloride	58	U			58	U			58	U			58						
Benzene	110	U			110	U			110	U			110						
Trichloroethene (TCE)	68	U			68	U			68	U			68						
1,2-Dichloropropane	81	U		H	81	U		H	81	U		H	81		H				
Bromodichloromethane	55	U			55	U			55	U			55						
cis-1,3-Dichloropropene	81	U			81	U			81	U			81						
trans-1,3-Dichloropropene	81	U			81	U			81	U			81						
1,1,2-Trichloroethane	67	U			67	U			67	U			67						
Dibromochloromethane	43	U			43	U			43	U			43						
Toluene	97	U			97	U			97	U			97						
Tetrachloroethene	54	U			54	U			54	U			54						
1,3-Dichloropropane	79	U			79	U			79	U			79						
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			48						
Chlorobenzene	80	U			80	U			80	U			80						
Ethylbenzene	84	U			84	U			84	U			84						
p & m- Xylene	170	U			170	U			170	U			170						
o-Xylene	84	U			84	U			84	U			84						
Styrene	86	U			86	U			86	U			86						
Bromoform	35	U			35	U			35	U			35						
1,1,2,2-Tetrachloroethane	53	U			53	U			53	U			53						
1,2,3-Trichloropropane	61	U			61	U			61	U			61						
1,3-Dichlorobenzene	61	U			61	U			61	U			61						
1,4-Dichlorobenzene	61	U			61	U			61	U			61						
1,2-Dichlorobenzene	61	U			61	U			61	U			61						
1,2-Dibromo-3-chloropropane	38	U			38	U			38	U	UJ	E	38						

Val-Validity Refer to Data Qualifiers in Table 1B.

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected.

N/A-Not Applicable, NA-Not Analyzed

TABLE 1B
DATA QUALIFIERS

The definitions of the following qualifiers are prepared according to the EPA draft document, "National Functional Guidelines for Organic Data Review," February 1994.

NO QUALIFIERS indicate that the data are acceptable both qualitatively and quantitatively.

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

May 12, 1998

MEMORANDUM

SUBJECT: Review of Analytical Data

FROM: Mathew C. Plate, Chemist
Quality Assurance Program, PMD-3

THROUGH: Vance S. Fong, P.E., Manager
Quality Assurance Program, PMD-3

TO: Andria Benner, Remedial Project Manager
AZ/CA Cleanup Section, SFD-7-1

Attached are comments resulting from QAP Region IX review of the following analytical data:

SITE:	Waste Disposal Inc.
EPA SSI NO.:	C1
CERCLIS ID NO.:	CAD980884357
CASE/SAS NO.:	R97S46
SDG NO.:	7
LABORATORY:	Region IX FASP
ANALYSIS:	FASP Volatiles
SAMPLE NO.:	17 Soil Gas (see Case Summary)
COLLECTION DATE:	August 26 through 28, 1997
REVIEWER:	Mathew C. Plate QAP,PMD-3/USEPA

If there are any questions, please contact me at (415)744-1493.

Attachment

cc: Brenda Bettencourt, PMD-2

Printed on Recycled Paper

Data Validation Report

Case No.:	R97S46
Site:	Waste Disposal Inc.
Laboratory:	Region IX FASP
Reviewer:	Mathew C. Plate, QAP, PMD-3/USEPA
Date:	May 12, 1998

I. Case Summary

SAMPLE INFORMATION:

VOA Sample Numbers:	GP39-020, GP40-005, GP41-005, GP42-008.5, GP43-010, GP47-010, GP48-010, GP52-010, GP57-010, GP62-005, GP66-010, GP71-010, GP72-010, GP75-010, GP74-010 and GP80-010
Concentration and Matrix:	Medium Level Air
Analysis:	FASP Volatiles
SOW:	3/90 (July 1993 revision)
Collection Date:	August 26 through 28, 1997
Sample Receipt Date:	August 26 through 28, 1997
Extraction Date:	N/A
Analysis Date:	August 26 through 29, 1997

FIELD QC:

Trip Blanks (TB):	None
Field Blanks (FB):	None
Equipment Blanks (EB):	None
Background Samples (BG):	None
Field Duplicates (D1):	GP57-10 and GP57-10DUP

METHOD BLANKS AND ASSOCIATED SAMPLES:

MBW0826A:	GP39-020, GP40-005, GP41-005RA, GP42-008.5, GP43-010 and LCS0826A
MBW0827A:	GP47-010RA, GP48-010, GP48-010DL, GP52-010 and GP57-010DUP
MBW0827B:	GP57-010RA, GP57-010MS, GP57-010MSD and LCS0827B
MBW0828A:	GP62-005, GP66-010RA, GP71-010, GP72-010, GP75-010 and LCS0828B
MBW0828B:	GP74-010RA and GP80-010

TABLES:

1A:	Analytical Results with Qualifications
1B:	Data Qualifiers

TPO ACTION:

SAMPLING ISSUES: None.

OTHER: None.

TPO ATTENTION:

SAMPLING ISSUES: None.

OTHER: None.

ADDITIONAL COMMENTS:

The analytical results with qualifications are listed in Table 1A. This report was prepared in accordance with EPA document "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", February 1994.

II. Validation Summary

	VOA Acceptable	Comment
HOLDING TIMES	[YES]	[ ]
GC/MS TUNE/GC PERFORMANCE	[YES]	[ ]
CALIBRATIONS	[YES]	[E,F,G]
FIELD QC	[YES]	[ ]
LABORATORY BLANKS	[YES]	[ ]
SURROGATES	[YES]	[A]
MATRIX SPIKE/DUPLICATES	[YES]	[ ]
INTERNAL STANDARDS	[YES]	[ ]
COMPOUND IDENTIFICATION	[YES]	[B,C]
COMPOUND QUANTITATION	[YES]	[H]
SYSTEM PERFORMANCE	[YES]	[ ]

III. Introduction

Seventeen (17) soil gas samples from the WDI site were submitted to the EPA Region IX FASP laboratory for FASP volatile organic analyses from August 26 through 28, 1997.

IV. Validity and Comments

A) Due to surrogate recoveries outside method QC limits, the detected results and quantitation limits for the following analytes are estimated (J,UJ) (see Table 1A):

- Toluene, Tetrachloroethene, 1,3-Dichloropropane, 1,2-Dibromoethane, Chlorobenzene, Ethylbenzene, p & m-Xylene, o-Xylene, Styrene Bromoform, 1,1,2,2-Tetrachloroethane, 1,2,3-Trichloropropane, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene and 1,2-Dibromo-3-chloropropane in sample GP74-010 and method blank MBW0828B.

- Toluene, p & m-Xylene and o-Xylene in sample GP48-010.

- Tetrachloroethene in sample GP66-010.

Surrogates are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with surrogate compounds prior to sample analysis. Surrogates provide information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.

In the Case Narrative the laboratory identified numerous surrogates out of control based on the surrogate QC limits specified by the CLP water methodology. In the opinion of the reviewer, these QC limits are not appropriate for the method performed. The surrogates were re-evaluated based on the requirements in the Region 9 Client Request Form for TO-15, sent to the laboratory preforming split analysis of samples from this project.

The percent recoveries of 1,2-Dichloroethane-d4, 4-Bromofluorobenzene and Toluene-d8 in sample GP48-010 were 151%, 128% and 238%, respectively. The percent recoveries of 4-Bromofluorobenzene and Toluene-d8 in sample GP74-010 were 77% and 67%, respectively. The percent recoveries of 4-Bromofluorobenzene and Toluene-d8 in sample MBW0828B were 64% and 36%, respectively. The percent recovery of Toluene-d8 in sample GP66-010 was 132%. These surrogates were outside of the QC criteria (80-120%) and the analytes listed above have been qualified.

B) Acetone, 2-Butanone, 4-Methyl-2-pentanone and 2-Hexanone, are not included in this data report. These analytes are not normally analyzed by this method or similar "air" methods, such as method TO-15. Section A.3 of the laboratory's standard operating procedure states these compounds are "not applicable to this method." The FASP laboratory was requested to attempt to include these analytes. The raw data indicated that there were QC problems that would have severely qualified this data. It was jointly decided by the RPM, QA Program and FASP Coordinator not to report these compounds in the final report. Preliminary results may contain false positives due to the presence of ketones in blanks, have an unknown bias associated with them and may not be legally defensible.

C) Tentatively Identified Compounds (TICs) are compounds detected with a response of 10% or greater than that of the nearest internal standard, not included in the calibration mix. TICs are identified solely by comparison of their mass spectrums to a spectral library. TIC concentrations are estimated based on comparison to the nearest internal standard response and have a high degree of uncertainty (sometimes varying from the actual concentration by an order of magnitude or more).

The analytical system did not adequately or accurately report TICs. Because a comprehensive data analysis of TICs was not completed, and TIC information is available from split sampling it was decided not to include TICs in this report. TICs from this data are available for evaluation at a later date if requested.

D) The concentration of the Laboratory Control Sample (LCS) could not be verified. The FASP laboratory set LCS concentrations by averaging recoveries over the project. From this averaging process they obtained method precision information and set precision criteria. However, the LCS did not provide verification of method performance or method accuracy in an air matrix. Because of this, the data assessor should rely heavily on split sampling data to independently verify FASP laboratory performance.

E) Due to high relative standard deviations (%RSDs) in the initial calibrations, the detected results and quantitation limits for the following analytes are estimated (J,UJ) (see Table 1A):

- o-Xylene in all samples and method blanks.

The Initial Calibration demonstrates that the instrument is capable of acceptable performance at the beginning of the analytical sequence and of producing a linear calibration curve.

A Percent relative standard deviation of 31% was observed for o-Xylene in the initial calibration performed on August 20, 1997. This value exceed the <30% QC advisory validation criteria.

F) Due to high percent differences (%D) between the continuing calibration and average initial calibration relative response factors, the detected results and quantitation limits for the following analytes are estimated (J,UJ) (see Table 1A):

- Chloroethane in samples GP39-020, GP40-005, GP41-005, GP42-008.5, GP43-010 and GP57-010 and method blanks MBW0826A and MBW0827B.

- Dichlorodifluoromethane in samples GP62-005, GP66-010, GP71-010, GP72-010 and GP75-010 and method blank MBW0828A.

- 1,2-Dibromo-3-chloropropane in samples GP47-010, GP48-010, GP52-010, GP57-010DUP, GP62-005, GP66-010, GP71-010, GP72-010 and GP75-010 and method blanks MBW0827A and MBW0828A.

The continuing calibration checks the instrument performance daily and produces the relative response factors used for quantitation of each target analyte.

Percent differences of 35% and 45% were observed for Chloroethane in the continuing calibrations performed on August 26, 1997 and August 27, 1997, respectively. A percent difference of 36% was observed for Dichlorodifluoromethane in the continuing calibration performed on August 28, 1997. Percent differences of 31% and 40% were observed for 1,2-Dibromo-3-chloropropane in the continuing calibrations performed on August 27, 1997 and August 28, 1997, respectively. These values exceeded the ±30% QC criterion. Because the above analytes were not compounds of concern for this site, the FASP laboratory was not required to meet the ±30% QC criterion. They have been qualified as an indicator of data usability and not laboratory performance.

G) Multiple continuing calibration standards were analyzed on many occasions. The laboratory indicated that this was partially to obtain results that meet QC criteria. This may indicate that the analytical instrument/process was unstable, and introduced a increased level of bias to the data set.

H) The following results are estimated and flagged "J" in Table 1A:

- All results below the Contract Required Quantitation Limits (denoted with an "L" qualifier)

Results below the Contract Required Quantitation Limits (CRQL) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#7)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Mathew C. Plate, USEPA/QAP
Date: May 12, 1998

Analysis: GC/MS TO15
Matrix: Air

Concentration in ppbv

Station Location	GP39-020				GP40-005				GP41-005				GP42-008.5				GP43-010			
Sample I.D.	GP39-020				GP40-005				GP41-005				GP42-008.5				GP43-010			
Date of Collection	08/26/97				08/26/97				08/26/97				08/26/97				08/26/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	75	U			75	U			75	U			75	U			75	U		
Chloromethane	180	U	J	F	180	U	J	F	180	U	J	F	180	U	J	F	180	U	J	F
Vinyl Chloride	140	U			1600				730				140	U			140	U		
Bromomethane	95	U			95	U			95	U			95	U			95	U		
Chloroethane	140	U			140	U			140	U			140	U			140	U		
Trichlorofluoromethane	66	U			66	U			66	U			66	U			66	U		
1,1-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
Carbon Disulfide	120	U			120	U			120	U			120	U			120	U		
Methylene Chloride	110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene	93	U			93	U			150				93	U			93	U		
Chloroform	76	U			76	U			76	U			76	U			76	U		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
1,1,1-Trichloroethane (TCA)	68	U			68	U			68	U			68	U			68	U		
Carbon Tetrachloride	59	U			59	U			59	U			59	U			59	U		
Benzene	130				480				300				120	U			120	U		
Trichloroethene (TCE)	69	U			69	U			180				69	U			69	U		
1,2-Dichloropropane	80	U			80	U			80	U			80	U			80	U		
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U			68	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U		
Toluene	98	U			130				210				98	U			98	U		
Tetrachloroethene	54	U			54	U			35	L	J	H	54	U			54	U		
1,3-Dichloropropane	80	U			80	U			80	U			80	U			80	U		
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			48	U			48	U		
Chlorobenzene	80	U			80	U			80	U			80				80	U		
Ethylbenzene	81	L	J	H	150				70	L	J	H	85	U			85	U		
p & m- Xylene	100	L	J	H	120	L	J	H	200				170	U			170	U		
o-Xylene	85	U	J	E	77	L	J	EH	47	L	J	EH	85	U	J	E	85	U	J	E
Styrene	87	U			87	U			87	U			87	U			87	U		
Bromoform	36	U			36	U			36	U			36	U			36	U		
1,1,2,2-Tetrachloroethane	54	U			54	U			54	U			54	U			54	U		
1,2,3-Trichloropropane	61	U			61	U			61	U			61	U			61	U		
1,3-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,4-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,2-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,2-Dibromo-3-chloropropane	38	U			38	U			38	U			38	U			38	U		

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
CRQL-Contract Required Quantitation Limit
N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank
TB-Trip Blank, BG-Background Sample
D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#7)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Mathew C. Plate, USEPA/QAP
Date: May 12, 1998

Analysis: GC/MS TO15
Matrix: Air

Concentration in ppbv

Station Location	GP47-010				GP48-010				GP52-010				GP57-010				GP57-010DUP			
Sample I.D.	GP47-010				GP48-010				GP52-010				GP57-010 D1				GP57-010DUP D1			
Date of Collection	08/27/97				08/27/97				08/27/97				08/27/97				08/27/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	75	U			75	U			75	U			75	U	J	F	75	U		
Chloromethane	180	U			180	U			180	U			180	U			180	U		
Vinyl Chloride	140	U			140	U			140	U			140	U			140	U		
Bromomethane	95	U			95	U			95	U			95	U			95	U		
Chloroethane	140	U			140	U			140	U			140	U			140	U		
Trichlorofluoromethane	66	U			66	U			66	U			66	U			66	U		
1,1-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
Carbon Disulfide	120	U			120	U			120	U			120	U			120	U		
Methylene Chloride	110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
Chloroform	76	U			76	U			76	U			76	U			76	U		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
1,1,1-Trichloroethane (TCA)	68	U			68	U			68	U			68	U			68	U		
Carbon Tetrachloride	59	U			59	U			59	U			59	U			59	U		
Benzene	120	U			8500				120	U			120	U			120	U		
Trichloroethene (TCE)	69	U			69	U			69	U			69	U			69	U		
1,2-Dichloropropane	80	U			80	U			80	U			80	U			80	U		
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U			68	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U		
Toluene	98	U			260		J	A	98	U			98	U			98	U		
Tetrachloroethene	54	U			54	U			54	U			54	U			54	U		
1,3-Dichloropropane	80	U			80	U			80	U			80	U			80	U		
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			48	U			48	U		
Chlorobenzene	80	U			80	U			80	U			80	U			80	U		
Ethylbenzene	85	U			2000				85	U			85	U			85	U		
p & m- Xylene	170	U			1500		J	A	170	U			170	U			170	U		
o-Xylene	85	U	J	E	460		J	AE	85	U	J	E	85	U	J	E	85	U	J	E
Styrene	87	U			87	U			87	U			87	U			87	U		
Bromoform	36	U			36	U			36	U			36	U			36	U		
1,1,2,2-Tetrachloroethane	54	U			54	U			54	U			54	U			54	U		
1,2,3-Trichloropropane	61	U			61	U			61	U			61	U			61	U		
1,3-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,4-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,2-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,2-Dibromo-3-chloropropane	38	U	J	F	38	U	J	F	38	U	J	F	38	U			38	U	J	F

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
CRQL-Contract Required Quantitation Limit
N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank
TB-Trip Blank, BG-Background Sample
D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#7)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Mathew C. Plate, USEPA/QAP
Date: May 12, 1998

Analysis: GC/MS TO15
Matrix: Air

Concentration in ppbv

Station Location	GP62-005				GP66-010				GP71-010				GP72-010				GP75-010			
Sample I.D.	GP62-005				GP66-010				GP71-010				GP72-010				GP75-010			
Date of Collection	08/28/97				08/28/97				08/28/97				08/28/97				08/28/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	75	U	J	F	75	U	J	F	75	U	J	F	75	U	J	F	75	U	J	F
Chloromethane	180	U			180	U			180	U			180	U			180	U		
Vinyl Chloride	140	U			140	U			140	U			140	U			140	U		
Bromomethane	95	U			95	U			95	U			95	U			95	U		
Chloroethane	140	U			140	U			140	U			140	U			140	U		
Trichlorofluoromethane	66	U			66	U			66	U			66	U			66	U		
1,1-Dichloroethene	93	U			93	U			93	U			93	U			86	L	J	H
Carbon Disulfide	120	U			120	U			120	U			120	U			120	U		
Methylene Chloride	110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
Chloroform	76	U			76	U			76	U			76	U			76	U		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
1,1,1-Trichloroethane (TCA)	68	U			68	U			68	U			68	U			68	U		
Carbon Tetrachloride	59	U			59	U			59	U			59	U			59	U		
Benzene	120	U			120	U			120	U			120	U			120	U		
Trichloroethene (TCE)	69	U			69	U			69	U			69	U			230			
1,2-Dichloropropane	80	U			80	U			80	U			80	U			80	U		
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U			68	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U		
Toluene	98	U			98	U			98	U			49	L	J	H	98	U		
Tetrachloroethene	54	U			35	L	J	AH	34	L	J	H	54	U			54	U		
1,3-Dichloropropane	80	U			80	U			80	U			80	U			80	U		
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			48	U			48	U		
Chlorobenzene	80	U			80	U			80	U			80	U			80	U		
Ethylbenzene	85	U			85	U			85	U			85	U			85	U		
p & m- Xylene	170	U			170	U			170	U			170	U			170	U		
o-Xylene	85	U	J	E	85	U	J	E	85	U	J	E	85	U	J	E	85	U	J	E
Styrene	87	U			87	U			87	U			87	U			87	U		
Bromoform	36	U			36	U			36	U			36	U			36	U		
1,1,2,2-Tetrachloroethane	54	U			54	U			54	U			54	U			54	U		
1,2,3-Trichloropropane	61	U			61	U			61	U			61	U			61	U		
1,3-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,4-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,2-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,2-Dibromo-3-chloropropane	38	U	J	F	38	U	J	F	38	U	J	F	38	U	J	F	38	U	J	F

Val-Validity Refer to Data Qualifiers in Table 1B
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
CRQL-Contract Required Quantitation Limit
N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank
TB-Trip Blank, BG-Background Sample
D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#7)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Mathew C. Plate, USEPA/QAP
Date: May 12, 1998

Analysis: GC/MS TO15
Matrix: Air

Concentration in ppbv

Station Location	GP74-010				GP80-010				Method Blank				Method Blank				Method Blank			
Sample I.D.	GP74-010				GP80-010				MBW0826A				MBW0827A				MBW0827B			
Date of Collection	08/28/97				08/28/97															
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	75	U			75	U			75	U			75	U			75	U		
Chloromethane	180	U			180	U			180	U	J	F	180	U			180	U		
Vinyl Chloride	140	U			130	L	J	H	140	U			140	U			140	U		
Bromomethane	95	U			95	U			95	U			95	U			95	U		
Chloroethane	140	U			140	U			140	U			140	U			140	U		
Trichlorofluoromethane	66	U			66	U			66	U			66	U			66	U		
1,1-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
Carbon Disulfide	120	U			120	U			120	U			120	U			120	U		
Methylene Chloride	110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene	93	U			89	L	J	H	93	U			93	U			93	U		
Chloroform	76	U			76	U			76	U			76	U			76	U		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
1,1,1-Trichloroethane (TCA)	68	U			68	U			68	U			68	U			68	U		
Carbon Tetrachloride	59	U			59	U			59	U			59	U			59	U		
Benzene	120	U			120	U			120	U			120	U			120	U		
Trichloroethene (TCE)	69	U			69	U			69	U			69	U			69	U		
1,2-Dichloropropane	80	U			80	U			80	U			80	U			80	U		
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U			68	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U		
Toluene	98	U	J	A	98	U			98	U			98	U			98	U		
Tetrachloroethene	54	U	J	A	54	U			54	U			54	U			54	U		
1,3-Dichloropropane	80	U	J	A	80	U			80	U			80	U			80	U		
1,2-Dibromoethane (EDB)	48	U	J	A	48	U			48	U			48	U			48	U		
Chlorobenzene	80	U	J	A	80	U			80	U			80	U			80	U		
Ethylbenzene	85	U	J	A	85	U			85	U			85	U			85	U		
p & m- Xylene	170	U	J	A	170	U			170	U			170	U			170	U		
o-Xylene	85	U	J	AE	85	U	J	E	85	U	J	E	85	U	J	E	85	U	J	E
Styrene	87	U	J	A	87	U			87	U			87	U			87	U		
Bromoform	36	U	J	A	36	U			36	U			36	U			36	U		
1,1,2,2-Tetrachloroethane	54	U	J	A	54	U			54	U			54	U			54	U		
1,2,3-Trichloropropane	61	U	J	A	61	U			61	U			61	U			61	U		
1,3-Dichlorobenzene	61	U	J	A	61	U			61	U			61	U			61	U		
1,4-Dichlorobenzene	61	U	J	A	61	U			61	U			61	U			61	U		
1,2-Dichlorobenzene	61	U	J	A	61	U			61	U			61	U			61	U		
1,2-Dibromo-3-chloropropane	38	U	J	A	38	U			38	U			38	U	J	F	38	U		

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
CRQL-Contract Required Quantitation Limit
N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc.-Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank
TB-Trip Blank, BG-Background Sample
D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#7)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Mathew C. Plate, USEPA/QAP
Date: May 12, 1998

Analysis: GC/MS TO15
Matrix: Air

Concentration in ppbv

Station Location	Method Blank				Method Blank			
Sample I.D.	MBW0828A				MBW0828B			
Date of Collection								
Analyte	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	75	U	J	F	75	U		
Chloromethane	180	U			180	U		
Vinyl Chloride	140	U			140	U		
Bromomethane	95	U			95	U		
Chloroethane	140	U			140	U		
Trichlorofluoromethane	66	U			66	U		
1,1-Dichloroethene	93	U			93	U		
Carbon Disulfide	120	U			120	U		
Methylene Chloride	110	U			110	U		
trans-1,2-Dichloroethene	93	U			93	U		
1,1-Dichloroethane	91	U			91	U		
cis-1,2-Dichloroethene	93	U			93	U		
Chloroform	76	U			76	U		
1,2-Dichloroethane	91	U			91	U		
1,1,1-Trichloroethane (TCA)	68	U			68	U		
Carbon Tetrachloride	59	U			59	U		
Benzene	120	U			120	U		
Trichloroethene (TCE)	69	U			69	U		
1,2-Dichloropropane	80	U			80	U		
Bromodichloromethane	55	U			55	U		
cis-1,3-Dichloropropene	81	U			81	U		
trans-1,3-Dichloropropene	81	U			81	U		
1,1,2-Trichloroethane	68	U			68	U		
Dibromochloromethane	43	U			43	U		
Toluene	98	U			98	U	J	A
Tetrachloroethene	54	U			54	U	J	A
1,3-Dichloropropane	80	U			80	U	J	A
1,2-Dibromoethane (EDB)	48	U			48	U	J	A
Chlorobenzene	80	U			80	U	J	A
Ethylbenzene	85	U			85	U		A
p & m- Xylene	170	U			170	U	J	A
o-Xylene	85	U	J	E	85	U	J	AE
Styrene	87	U			87	U	J	A
Bromoform	36	U			36	U	J	A
1,1,2,2-Tetrachloroethane	54	U			54	U	J	A
1,2,3-Trichloropropane	61	U			61	U	J	A
1,3-Dichlorobenzene	61	U			61	U	J	A
1,4-Dichlorobenzene	61	U			61	U	J	A
1,2-Dichlorobenzene	61	U			61	U	J	A
1,2-Dibromo-3-chloropropane	38	U			38	U	J	A

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
CRQL-Contract Required Quantitation Limit
N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc -Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank
TB-Trip Blank, BG-Background Sample
D-Dilution

TABLE 1B
DATA QUALIFIERS

The definitions of the following qualifiers are prepared according to the EPA draft document, "National Functional Guidelines for Organic Data Review," February 1994.

NO QUALIFIERS indicate that the data are acceptable both qualitatively and quantitatively.

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

June 12, 1998 DCN: S09-SAI-21029PZZ-08-DR-05961

MEMORANDUM

SUBJECT: Review of Analytical Data

FROM: Robert Sims, SAIC

TO: Andria Benner, Remedial Project Manager
AZ/CA Cleanup Section, SFD-7-1

Attached are comments resulting from SAIC's review of the following analytical data:

SITE:	Waste Disposal Inc.
EPA SSI NO.:	C1
CERCLIS ID NO.:	CAD980884357
CASE/SAS NO.:	R97S46
SDG NO.:	8
LABORATORY:	Region IX FASP
ANALYSIS:	FASP Volatiles
SAMPLE NO.:	15 Soil Vapor (see Case Summary)
COLLECTION DATE:	August 28 through September 2, 1997
REVIEWER:	Siu-Fai Tsang, SAIC

If there are any questions, please contact me at (619)535-7507.

Attachment

Data Validation Report

Case No.:	R97S46
Site:	Waste Disposal Inc.
Laboratory:	Region IX FASP
Reviewer:	Siu-Fai Tsang, SAIC
Date:	June 12, 1998

I. Case Summary

SAMPLE INFORMATION:

VOA Sample Numbers:	GP18-005R, GP18-020R, GP77-010, GP78-010, GP84-010, GP86-010, GP92-010, GP92-020, GP93-010, GP93-020, GP94-010, GP95-010, GP98-010, GP98-015, and GP98-020.
Concentration and Matrix:	Soil Vapor
Collection Method:	1-L Tedlar bags
Analysis:	FASP Volatiles
SOW:	USEPA Region 9 Laboratory SOP 305, Revision 2, June 1997 and Addendum 1
Collection Date:	August 28 through September 2, 1997
Sample Receipt Date:	August 28 through September 2, 1997
Extraction Date:	N/A
Analysis Date:	August 29 through September 2, 1997

FIELD QC:

Trip Blanks (TB):	N/A
Field Blanks (FB):	None
Equipment Blanks (EB):	None
Background Samples (BG):	None
Field Duplicates (D1):	None

METHOD BLANKS AND ASSOCIATED SAMPLES:

MBW0829A:	GP18-005R, GP18-020R, GP84-010, GP86-010, GP18-020RDL, GP77-010, and GP78-010
MBW0902A:	GP92-010, GP93-010, GP93-020, GP94-010, and GP92-020RE
MBW0902C:	GP98-020, GP98-010, GP95-010, GP98-015RE, GP98-020MS and GP98-020MSD

TABLES:

1A:	Analytical Results with Qualifications
1B:	Data Qualifiers

TPO ACTION:

SAMPLING ISSUES: None.

OTHER: None.

TPO ATTENTION:

SAMPLING ISSUES: None.

OTHER: None.

ADDITIONAL COMMENTS:

The analytical results with qualifications are listed in Table 1A. This report was prepared in accordance with EPA document "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", February 1994.

II. Validation Summary

	VOA Acceptable	Comment
HOLDING TIMES	[YES]	[L]
GC/MS TUNE/GC PERFORMANCE	[YES]	[ ]
CALIBRATIONS	[YES]	[E,F,G,K]
FIELD QC	[N/A]	[ ]
LABORATORY BLANKS	[YES]	[ ]
SURROGATES	[YES]	[A, K]
MATRIX SPIKE/DUPLICATES	[YES]	[H]
LAB CONTROL SAMPLES	[YES]	[D]
INTERNAL STANDARDS	[YES]	[ ]
COMPOUND IDENTIFICATION	[YES]	[B,C]
COMPOUND QUANTITATION	[YES]	[I,J,L,M]
SYSTEM PERFORMANCE	[YES]	[ ]

III. Introduction

Fifteen (15) soil vapor samples from the WDI site were submitted to the EPA Region IX FASP laboratory for FASP volatile organic analyses from August 28 through September 2, 1997.

IV. Validity and Comments

A) Due to surrogate recoveries outside method QC limits, the detected results and quantitation limits for the following analytes are estimated (J,UJ) (see Table 1A):

- Ethylbenzene, p& m-Xylene, o-Xylene in sample GP18-020R.
- Toluene, Tetrachloroethene, 1,2-Dibromoethane, and Chlorobenzene in sample GP78-010.

- Toluene, Tetrachloroethene, 1,3-Dichloropropane, 1,2-Dibromoethane, Chlorobenzene, Ethylbenzene, p & m-Xylene, o-Xylene, Styrene, 1,1,2,2-Tetrachloroethane, 1,2,3-Trichloropropane, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene and 1,2-Dibromo-3-chloropropane in sample GP98-020MSD and method blank MBW0902C.

These surrogates were outside of the QC criteria (80-120%), therefore the analytes listed above have been qualified:

Sample	Surrogate	%Recovery
GP18-020	1,2-Dichloroethane-d4	144
GP18-020	Toluene-d8	147
GP18-020	4-Bromofluorobenzene	144
GP78-010	Toluene-d8	140
GP78-010	4-Bromofluorobenzene	136
GP98-020MSD	4-Bromofluorobenzene	79
MBW0902C	4-Bromofluorobenzene	71

Surrogates are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with surrogate compounds prior to sample analysis. Surrogates provide information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.

In the Case Narrative the laboratory identified numerous surrogates out of control based on the surrogate QC limits specified by the CLP water methodology. In the opinion of the reviewer, these QC limits are not appropriate for the method performed. The surrogates were re-evaluated based on the requirements in the Region 9 Client Request Form for TO-15, sent to the laboratory performing split analysis of samples from this project.

In the Case Narrative the laboratory identified that, "sample GP78-010 was not reanalyzed for surrogate recovery problems because the sample was not analyzed within the 12-hour holding time."

B) Ketones such as, Acetone, 2-Butanone, 4-Methyl-2-pentanone and 2-Hexanone, are not included in this data report. These analytes are not normally analyzed by this method or similar "air" methods, such as method TO-15. Section A.3 of the laboratory's standard operating procedure states these compounds are "not applicable to this method." The FASP laboratory was requested to attempt to include these analytes. The raw data indicated that there were QC problems that would have severely qualified this data. It was jointly decided by the RPM, QA Program and FASP Coordinator not to report these compounds in the final report. Preliminary results may contain false positives due to the presence of ketones in blanks, have an unknown bias associated with them and may not be legally defensible.

C) Tentatively Identified Compounds (TICs) are compounds detected with a response of 10% or greater than that of the nearest internal standard, not included in the calibration mix. TICs are identified solely by comparison of their mass spectrums to a spectral library. TIC concentrations are estimated

based on comparison to the nearest internal standard response and have a high degree of uncertainty (sometimes varying from the actual concentration by an order of magnitude or more).

The analytical system did not adequately or accurately report TICs. Because a comprehensive data analysis of TICs was not completed, and TIC information is available from split sampling it was decided not to include TICs in this report. TICs from this data are available for evaluation at a later date if requested.

D) The concentration of the Laboratory Control Sample (LCS) could not be verified. The FASP laboratory set LCS concentrations by averaging recoveries over the project. From this averaging process they obtained method precision information and set precision criteria. However, the LCS did not provide verification of method performance or method accuracy in an air matrix. Because of this, the data assessor should rely heavily on split sampling data to independently verify FASP laboratory performance. The LCS is based on the statistical control limits developed by the laboratory. The laboratory identified that: "LCS results were within QC limits."

E) Due to relative standard deviations (%RSDs) outside 30% in the initial calibrations, the detected results and quantitation limits for the following analytes are estimated (J) (see Table 1A):

- o-Xylene in sample GP18-020R.

The Initial Calibration demonstrates that the instrument is capable of acceptable performance at the beginning of the analytical sequence and of producing a linear calibration curve.

A percent relative standard deviation of 31.2% was observed for o-Xylene in the initial calibration performed on August 20, 1997. This value exceeded the <30% QC advisory validation criteria.

F) Due to percent differences (%D) outside 30% between the continuing calibration and average initial calibration relative response factors, the detected results and quantitation limits for the following analytes are estimated (UJ) (see Table 1A):

- Chloroethane for samples GP18-005R, GP18-020R, GP84-010, GP86-010, GP77-010, GP78-010, and method blank MBW0829A.
- Dichlorodifluoromethane, and cis-1,3-Dichloropropene for samples GP98-020, GP98-010, GP95-010, GP98-015, GP98-020MS, GP98-020MSD, and method blank MBW0902C.

These continuing calibration standards were outside of the QC criteria:

Standard	Analyte	%D	Date
CW0829B	Chloroethane	88.2	8/29/97
CW0902B	Dichlorodifluoromethane	30.1	9/02/97
CW0902B	cis-1,3-Dichloropropene	30.2	9/02/97

The continuing calibration checks the instrument performance daily and produces the relative response factors used for quantitation of each target analyte.

G) Multiple continuing calibration standards were analyzed on many occasions. The laboratory indicated that this was partially to obtain results that meet QC criteria.

H) These matrix spike compounds were outside of the QC criteria:

Sample	Spike Compound	RPD	RPD Limits
GP98-020MSD	1,1-Dichloroethene	15	14
GP98-020MSD	Benzene	13	11
GP98-020MSD	Chlorobenzene	14	13

I) The laboratory used an incorrect molecular weight for 1,2-Dichloropropane. The molecular weight used was 110.97, the correct molecular weight is 112.99. Therefore the actual values for this compound are slightly lower than those reported.

J) The following results are estimated and flagged "J" in Table 1A:

- All results below the Contract Required Quantitation Limits (denoted with an "L" qualifier)

Results below the Contract Required Quantitation Limits (CRQL) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.

K) The three System Monitoring Compounds (surrogates) were out-of-range for 4 of 5 initial calibration points. The System Monitoring Compounds should be added separately at a concentration of 5.0 ug/L, and this concentration would be within the linear range of the calibration. The Internal Standards were acceptable, and the initial calibration was linear. It appears that the three System Monitoring Compounds were added as part of a stock calibration standard, and that serial dilutions of this mixed standard for the calibration curve resulted in out of range recoveries for these three compounds.

L) In the Case Narrative the laboratory identified that, "Samples GP18-005, GP18-020, GP77-010, GP78-010, GP84-010, and GP86-010 were received by FASP personnel on 08/29/97. Samples GP77-010 and GP78-010, collected on 08/28/97 at 16:15 and 16:35, respectively, were received by FASP after the 12-hour holding times were exceeded. The rest of the samples were collected on 08/29/97 between 08:15 and 12:25. Since the holding times for samples GP77-010 and GP78-010 were exceeded, the rest of the samples were analyzed first to meet holding times." The effect of holding time exceedences on analytical data from sample GP77-010 and GP78-010 is unknown.

M) In the Case Narrative the laboratory identified that, "The result of 11.49 ug/L for 1,1,1-Trichloroethane in sample GP77-010 exceeded the calibration range of 0.4 ug/L to 5.0 ug/L. The sample was not reanalyzed at a dilution because the 12-hour holding time was exceeded." It is the SAIC reviewer's judgement that the 1,1,1-Trichloroethane result in sample GP77-010 should be estimated (J), due to the linear range of the calibration being exceeded. (See Table 1A)

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#8)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Siu-Fai Tsang, SAIC
Date: June 12, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	N/A				N/A				N/A				N/A				N/A			
Sample I.D.	GP18-005R				GP18-020R				GP77-010				GP78-010				GP84-010			
Date of Collection	08/29/97				08/29/97				08/28/97				08/28/97				08/29/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		J	Com	ppbv		Val	Com
Dichlorodifluoromethane	75	U			75	U			75	U		L	75	U		L	75	U		
Chloromethane	180	U			180	U			180	U		L	180	U		L	180	U		
Vinyl Chloride	140	U			140	U			140	U		L	210			L	140	U		
Bromomethane	95	U			95	U			95	U		L	95	U		L	95	U		
Chloroethane	140	U	UJ	F	140	U	UJ	F	140	U	UJ	FL	140	U	UJ	FL	140	U	UJ	F
Trichlorofluoromethane	66	U			66	U			66	U		L	66	U		L	66	U		
1,1-Dichloroethene	93	U			93	U			61	L	J	JL	61	L	J	JL	93	U		
Carbon Disulfide	120	U			120	U			120	U		L	120	U		L	120	U		
Methylene Chloride	110	U			110	U			110	U		L	240			L	110	U		
trans-1,2-Dichloroethene	93	U			93	U			93	U		L	93	U		L	93	U		
1,1-Dichloroethane	91	U			91	U			91	U		L	250			L	91	U		
cis-1,2-Dichloroethene	93	U			93	U			93	U		L	93	U		L	93	U		
Chloroform	76	U			76	U			76	U		L	230			L	76	U		
1,2-Dichloroethane	91	U			91	U			91	U		L	91	U		L	91	U		
1,1,1-Trichloroethane (TCA)	68	U			68	U			1900	E	J	LM	450			L	68	U		
Carbon Tetrachloride	59	U			59	U			59	U		L	59	U		L	59	U		
Benzene	120	U			1200	D			120	U		L	190			L	120	U		
Trichloroethene (TCE)	69	U			69	U			790			L	230			L	69	U		
1,2-Dichloropropane	81	U		I	81	U		I	81	U		IL	230			IL	81	U		I
Bromodichloromethane	55	U			55	U			55	U		L	55	U		L	55	U		
cis-1,3-Dichloropropene	81	U			81	U			81	U		L	81	U		L	81	U		
trans-1,3-Dichloropropene	81	U			81	U			81	U		L	81	U		L	81	U		
1,1,2-Trichloroethane	68	U			68	U			68	U		L	68	U		L	68	U		
Dibromochloromethane	43	U			43	U			43	U		L	43	U		L	43	U		
Toluene	98	U			1600	D			98	U		L	210		J	AL	54	L	J	J
Tetrachloroethene	54	U			54	U			33	L	J	JL	280		J	AL	54	U		
1,3-Dichloropropane	80	U			80	U			80	U		L	80	U		L	80	U		
1,2-Dibromoethane (EDB)	48	U			48	U			48	U		L	140		J	AL	48	U		
Chlorobenzene	80	U			80	U			80	U		L	160		J	AL	80	U		
Ethylbenzene	85	U			330		J	A	85	U		L	85	U		L	85	U		
p & m- Xylene	170	U			1300		J	A	170	U		L	170	U		L	170	U		
o-Xylene	85	U			460		J	A,E	85	U		L	85	U		L	85	U		
Styrene	87	U			87	U			87	U		L	87	U		L	87	U		
Bromoform	36	U			36	U			36	U		L	36	U		L	36	U		
1,1,2,2-Tetrachloroethane	54	U			54	U			54	U		L	54	U		L	54	U		
1,2,3-Trichloropropane	61	U			61	U			61	U		L	61	U		L	61	U		
1,3-Dichlorobenzene	61	U			61	U			61	U		L	61	U		L	61	U		
1,4-Dichlorobenzene	61	U			61	U			61	U		L	61	U		L	61	U		
1,2-Dichlorobenzene	61	U			61	U			61	U		L	61	U		L	61	U		
1,2-Dibromo-3-chloropropane	38	U			38	U			38	U		L	38	U		L	38	U		

Val-Validity Refer to Data Qualifiers in Table 1B.

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1,D2,etc.-Field Duplicate Pairs

FB-Field Blank

D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#8)
Site: WDI
Laboratory: *Region 9, FASP*
Reviewer: Siu-Fai Tsang, SAIC
Date: June 12, 1998

Analysis: *GC/MS USEPA SOP 305*
Matrix: Soil Vapor

Concentration in ppbv

Station Location	N/A				N/A				N/A				N/A				N/A			
Sample I.D.	GP86-010				GP92-010				GP92-020				GP93-010				GP93-020			
Date of Collection	08/29/97				09/02/97				09/02/97				09/02/97				09/02/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	75	U			75	U			75	U			75	U			75	U		
Chloromethane	180	U			180	U			180	U			180	U			180	U		
Vinyl Chloride	140	U			140	U			140	U			140	U			140	U		
Bromomethane	95	U			95	U			95	U			95	U			95	U		
Chloroethane	140	U	UJ	F	140	U			140	U			140	U			140	U		
Trichlorofluoromethane	66	U			66	U			66	U			66	U			66	U		
1,1-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
Carbon Disulfide	120	U			120	U			120	U			120	U			120	U		
Methylene Chloride	110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
Chloroform	76	U			76	U			76	U			76	U			76	U		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
1,1,1-Trichloroethane (TCA)	68	U			68	U			68	U			68	U			68	U		
Carbon Tetrachloride	59	U			59	U			59	U			59	U			59	U		
Benzene	120	U			120	U			120	U			120	U			120	U		
Trichloroethene (TCE)	69	U			69	U			69	U			69	U			180			
1,2-Dichloropropane	81	U		I	81	U		I	81	U		I	81	U		I	81	U		I
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U			68	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U		
Toluene	98	U			98	U			98	U			98	U			98	U		
Tetrachloroethene	54	U			54	U			54	U			54	U			54	U		
1,3-Dichloropropane	80	U			80	U			80	U			80	U			80	U		
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			48	U			48	U		
Chlorobenzene	80	U			80	U			80	U			80	U			80	U		
Ethylbenzene	85	U			85	U			85	U			85	U			85	U		
p & m- Xylene	170	U			170	U			170	U			170	U			170	U		
o-Xylene	85	U			85	U			85	U			85	U			85	U		
Styrene	87	U			87	U			87	U			87	U			87	U		
Bromoform	36	U			36	U			36	U			36	U			36	U		
1,1,2,2-Tetrachloroethane	54	U			54	U			54	U			54	U			54	U		
1,2,3-Trichloropropane	61	U			61	U			61	U			61	U			61	U		
1,3-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,4-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,2-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,2-Dibromo-3-chloropropane	38	U			38	U			38	U			38	U			38	U		

Val-Validity Refer to Data Qualifiers in Table 1B.

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1,D2,etc.-Field Duplicate Pairs

FB-Field Blank

D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#8)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Siu-Fai Tsang, SAIC
Date: June 12, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	N/A				N/A				N/A				N/A				N/A			
Sample I.D.	GP94-010				GP95-010				GP98-010				GP98-015				GP98-020			
Date of Collection	09/02/97				09/02/97				09/02/97				09/02/97				09/02/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	75	U			75	U	UJ	F	75	U	UJ	F	75	U	UJ	F	75	U	UJ	F
Chloromethane	180	U			180	U			180	U			180	U			180	U		
Vinyl Chloride	140	U			140	U			140	U			140	U			140	U		
Bromomethane	95	U			95	U			95	U			95	U			95	U		
Chloroethane	140	U			140	U			140	U			140	U			140	U		
Trichlorofluoromethane	66	U			66	U			66	U			66	U			66	U		
1,1-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
Carbon Disulfide	120	U			120	U			120	U			120	U			120	U		
Methylene Chloride	110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
Chloroform	76	U			76	U			76	U			76	U			76	U		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
1,1,1-Trichloroethane (TCA)	68	U			68	U			68	U			68	U			68	U		
Carbon Tetrachloride	59	U			59	U			59	U			59	U			59	U		
Benzene	120	U			120	U			120	U			120	U			120	U		
Trichloroethene (TCE)	69	U			69	U			69	U			69	U			69	U		
1,2-Dichloropropane	81	U		I	81	U		I	81	U		I	81	U		I	81	U		I
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U			81	U	UJ	F	81	U	UJ	F	81	U	UJ	F	81	U	UJ	F
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U			68	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U		
Toluene	98	U			98	U			98	U			98	U			98	U		
Tetrachloroethene	54	U			54	U			230				54	U			54	U		
1,3-Dichloropropane	80	U			80	U			80	U			80	U			80	U		
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			48	U			48	U		
Chlorobenzene	80	U			80	U			80	U			80	U			80	U		
Ethylbenzene	85	U			85	U			85	U			85	U			85	U		
p & m- Xylene	170	U			170	U			170	U			170	U			170	U		
o-Xylene	85	U			85	U			85	U			85	U			85	U		
Styrene	87	U			87	U			87	U			87	U			87	U		
Bromoform	36	U			36	U			36	U			36	U			36	U		
1,1,2,2-Tetrachloroethane	54	U			54	U			54	U			54	U			54	U		
1,2,3-Trichloropropane	61	U			61	U			61	U			61	U			61	U		
1,3-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,4-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,2-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,2-Dibrumo-3-chloropropane	38	U			38	U			38	U			38	U			38	U		

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
CRQL- Contract Required Quantitation Limit
N/A-Not Applicable, NA-Not Analyzed

D1,D2,etc.-Field Duplicate Pairs
FB-Field Blank
D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#8)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Siu-Fai Tsang, SAIC
Date: June 12, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	Method Blank				Method Blank				Method Blank									
Sample I.D.	MBW0829A				MBW0901A				MBW0902C				CRQL					
Date of Collection																		
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv	Val	Com	ppbv	Val	Com
Dichlorodifluoromethane	75	U			75	U			75	U	UJ	F	75					
Chloromethane	180	U			180	U			180	U			180					
Vinyl Chloride	140	U			140	U			140	U			140					
Bromomethane	95	U			95	U			95	U			95					
Chloroethane	140	U	UJ	F	140	U			140	U			140					
Trichlorofluoromethane	66	U			66	U			66	U			66					
1,1-Dichloroethene	93	U			93	U			93	U			93					
Carbon Disulfide	120	U			120	U			120	U			120					
Methylene Chloride	110	U			110	U			110	U			110					
trans-1,2-Dichloroethene	93	U			93	U			93	U			93					
1,1-Dichloroethane	91	U			91	U			91	U			91					
cis-1,2-Dichloroethene	93	U			93	U			93	U			93					
Chloroform	76	U			76	U			76	U			76					
1,2-Dichloroethane	91	U			91	U			91	U			91					
1,1,1-Trichloroethane (TCA)	68	U			68	U			68	U			68					
Carbon Tetrachloride	59	U			59	U			59	U			59					
Benzene	120	U			120	U			120	U			120					
Trichloroethene (TCE)	69	U			69	U			69	U			69					
1,2-Dichloropropane	81	U		I	81	U		I	81	U		I	81		I			
Bromodichloromethane	55	U			55	U			55	U			55					
cis-1,3-Dichloropropene	81	U			81	U			81	U	UJ	F	81					
trans-1,3-Dichloropropene	81	U			81	U			81	U			81					
1,1,2-Trichloroethane	68	U			68	U			68	U			68					
Dibromochloromethane	43	U			43	U			43	U			43					
Toluene	98	U			98	U			98	U	UJ	A	98					
Tetrachloroethene	54	U			54	U			54	U	UJ	A	54					
1,3-Dichloropropane	80	U			80	U			80	U	UJ	A	80					
1,2-Dibromoethane (EDB)	48	U			48	U			48	U	UJ	A	48					
Chlorobenzene	80	U			80	U			80	U	UJ	A	80					
Ethylbenzene	85	U			85	U			85	U	UJ	A	85					
p & m- Xylene	170	U			170	U			170	U	UJ	A	170					
o-Xylene	85	U			85	U			85	U	UJ	A	85					
Styrene	87	U			87	U			87	U	UJ	A	87					
Bromoform	36	U			36	U			36	U			36					
1,1,2,2-Tetrachloroethane	54	U			54	U			54	U	UJ	A	54					
1,2,3-Trichloropropane	61	U			61	U			61	U	UJ	A	61					
1,3-Dichlorobenzene	61	U			61	U			61	U	UJ	A	61					
1,4-Dichlorobenzene	61	U			61	U			61	U	UJ	A	61					
1,2-Dichlorobenzene	61	U			61	U			61	U	UJ	A	61					
1,2-Dibromo-3-chloropropane	38	U			38	U			38	U	UJ	A	38					

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
CRQL- Contract Required Quantitation Limit
N/A-Not Applicable, NA-Not Analyzed

D1,D2,etc.-Field Duplicate Pairs
FB-Field Blank
D-Dilution

TABLE 1B
DATA QUALIFIERS

The definitions of the following qualifiers are prepared according to the EPA draft document, "National Functional Guidelines for Organic Data Review," February 1994.

NO QUALIFIERS indicate that the data are acceptable both qualitatively and quantitatively.

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

June 12, 1998 DCN: S09-SAI-21029PZZ-08-DR-05963

MEMORANDUM

SUBJECT: Review of Analytical Data

FROM: Robert Sims, SAIC

TO: Andria Benner, Remedial Project Manager
AZ/CA Cleanup Section, SFD-7-1

Attached are comments resulting from SAIC's review of the following analytical data:

SITE:	Waste Disposal Inc.
EPA SSI NO.:	C1
CERCLIS ID NO.:	CAD980884357
CASE/SAS NO.:	R97S46
SDG NO.:	9
LABORATORY:	Region IX FASP
ANALYSIS:	FASP Volatiles
SAMPLE NO.:	5 Soil Vapor (see Case Summary)
COLLECTION DATE:	September 3, 1997
REVIEWER:	Siu-Fai Tsang, SAIC

If there are any questions, please contact me at (619)535-7507.

Attachment

Data Validation Report

Case No.:	R97S46
Site:	Waste Disposal Inc.
Laboratory:	Region IX FASP
Reviewer:	Siu-Fai Tsang, SAIC
Date:	June 12, 1998

I. Case Summary

SAMPLE INFORMATION:

VOA Sample Numbers:	GP106-010, GP108-010, GP108-020, GP112-010 and GP112-020.
Concentration and Matrix:	Soil Vapor
Collection Method:	Tedlar bags
Analysis:	FASP Volatiles
SOW:	USEPA Region 9 Laboratory SOP 305, Revision 2, June 1997 and Addendum 1
Collection Date:	September 3, 1997
Sample Receipt Date:	September 3, 1997
Extraction Date:	N/A
Analysis Date:	September 3, 1997

FIELD QC:

Trip Blanks (TB):	N/A
Field Blanks (FB):	None
Equipment Blanks (EB):	None
Background Samples (BG):	None
Field Duplicates (D1):	None

METHOD BLANKS AND ASSOCIATED SAMPLES:

MBW0903A:	GP106-010, GP108-010 and GP112-010.
MBW0903B:	GP108-020RE, and GP112-020RE.

TABLES:

1A:	Analytical Results with Qualifications
1B:	Data Qualifiers

TPO ACTION:

SAMPLING ISSUES: None.

OTHER: None.

TPO ATTENTION:

SAMPLING ISSUES: None.

OTHER: None.

ADDITIONAL COMMENTS:

The analytical results with qualifications are listed in Table 1A. This report was prepared in accordance with EPA document "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", February 1994.

II. Validation Summary

	VOA Acceptable/Comment	
HOLDING TIMES	[YES]	[ ]
GC/MS TUNE/GC PERFORMANCE	[YES]	[ ]
CALIBRATIONS	[YES]	[E, G]
FIELD QC	[N/A]	[ ]
LABORATORY BLANKS	[YES]	[ ]
SURROGATES	[YES]	[A, G]
MATRIX SPIKE/DUPLICATES	[N/A]	[ ]
LAB CONTROL SAMPLES	[YES]	[D]
INTERNAL STANDARDS	[YES]	[ ]
COMPOUND IDENTIFICATION	[YES]	[B, C]
COMPOUND QUANTITATION	[YES]	[F]
SYSTEM PERFORMANCE	[YES]	[ ]

III. Introduction

Five (5) soil vapor samples from the WDI site were submitted to the EPA Region IX FASP laboratory for FASP volatile organic analyses on September 3, 1997.

IV. Validity and Comments

A) Due to surrogate recoveries outside method QC limits, the detected results and quantitation limits for the following analytes are estimated (UJ) (see Table 1A):

- Toluene, Tetrachloroethene, 1,3-Dichloropropane, 1,2-Dibromoethane, Chlorobenzene, Ethylbenzene, p- & m-Xylene, o-Xylene, Styrene, 1,1,2,2-Tetrachloroethane, 1,2,3-Trichloropropane, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene and 1,2-Dibromo-3-chloropropane in sample GP106-010.

This surrogate was outside of the QC criteria (80-120%), therefore the sample listed above has been qualified:

Sample	Surrogate	%Recovery
GP106-010	Toluene-d8	78

Surrogates are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with surrogate compounds prior to sample analysis. Surrogates provide information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.

In the Case Narrative the laboratory identified numerous surrogates out of control based on the surrogate QC limits specified by the CLP water methodology. In the opinion of the reviewer, these QC limits are not appropriate for the method performed. The surrogates were re-evaluated based on the requirements in the Region 9 Client Request Form for TO-15, sent to the laboratory performing split analysis of samples from this project.

B) Ketones such as, Acetone, 2-Butanone, 4-Methyl-2-pentanone and 2-Hexanone, are not included in this data report. These analytes are not normally analyzed by this method or similar "air" methods, such as method TO-15. Section A.3 of the laboratory's standard operating procedure states these compounds are "not applicable to this method." The FASP laboratory was requested to attempt to include these analytes. The raw data indicated that there were QC problems that would have severely qualified this data. It was jointly decided by the RPM, QA Program and FASP Coordinator not to report these compounds in the final report. Preliminary results may contain false positives due to the presence of ketones in blanks, have an unknown bias associated with them and may not be legally defensible.

C) Tentatively Identified Compounds (TICs) are compounds detected with a response of 10% or greater than that of the nearest internal standard, not included in the calibration mix. TICs are identified solely by comparison of their mass spectrums to a spectral library. TIC concentrations are estimated based on comparison to the nearest internal standard response and have a high degree of uncertainty (sometimes varying from the actual concentration by an order of magnitude or more).

The analytical system did not adequately or accurately report TICs. Because a comprehensive data analysis of TICs was not completed, and TIC information is available from split sampling it was decided not to include TICs in this report. TICs from this data are available for evaluation at a later date if requested.

D) The concentration of the Laboratory Control Sample (LCS) could not be verified. The FASP laboratory set LCS concentrations by averaging recoveries over the project. From this averaging process they obtained method precision information and set precision criteria. However, the LCS did not provide verification of method performance or method accuracy in an air matrix. Because of this, the data assessor should rely heavily on split sampling data to independently verify FASP laboratory performance. The LCS is based on the statistical control limits developed by the laboratory. The laboratory identified that: "LCS results were within QC limits."

E) Due to percent differences (%D) outside 30% between the continuing calibration and average initial calibration relative response factors, the detected results and quantitation limits for the following analytes are estimated (UJ) (see Table 1A):

- Chloroethane for samples GP108-020, GP112-020, and method blank MBW0903B.

The continuing calibration checks the instrument performance daily and produces the relative response factors used for quantitation of each target analyte.

These continuing calibration standards were outside of the QC criteria, therefore the analytes listed above have been qualified:

Standard	Analyte	%D	Date
CW0903A	Chloroethane	33.5	9/3/97

F) The laboratory used an incorrect molecular weight for 1,2-Dichloropropane. The molecular weight used was 110.97, the correct molecular weight is 112.99. Therefore the actual values for this compound are slightly lower than those reported.

G) The three System Monitoring Compounds (surrogates) were out-of-range for 3 of 5 initial calibration points. The System Monitoring Compounds should be added separately at a concentration of 5.0 ug/L, and this concentration would be within the linear range of the calibration. The Internal Standards were acceptable, and the initial calibration was linear. It appears that the three System Monitoring Compounds were added as part of a stock calibration standard, and that serial dilutions of this mixed standard for the calibration curve resulted in out of range recoveries for these three compounds.

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#9)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Siu-Fai Tsang, SAIC
Date: June 12, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	N/A				N/A				N/A				N/A				N/A			
Sample I.D.	GP106-010				GP108-010				GP108-020				GP112-010				GP112-020			
Date of Collection	09/03/97				09/03/97				09/03/97				09/03/97				09/03/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	75	U			75	U			75	U			75	U			75	U		
Chloromethane	180	U			180	U			180	U			180	U			180	U		
Vinyl Chloride	140	U			140	U			140	U			150	U			140	U		
Bromomethane	95	U			95	U			95	U			95	U			95	U		
Chloroethane	140	U			140	U			140	U	UJ	E	140	U			140	U	UJ	E
Trichlorofluoromethane	66	U			66	U			66	U			66	U			66	U		
1,1-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
Carbon Disulfide	120	U			120	U			120	U			120	U			120	U		
Methylene Chloride	110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
Chloroform	75	U			75	U			75	U			75	U			75	U		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
1,1,1-Trichloroethane (TCA)	68	U			68	U			68	U			68	U			68	U		
Carbon Tetrachloride	59	U			59	U			59	U			59	U			59	U		
Benzene	120	U			120	U			120	U			120	U			120	U		
Trichloroethene (TCE)	69	U			69	U			69	U			69				69	U		
1,2-Dichloropropane	81	U		F	81	U		F	81	U		F	81	U		F	81	U		F
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U			68	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U		
Toluene	98	U	UJ	A	98	U			98	U			98	U			98	U		
Tetrachloroethene	54	U	UJ	A	54	U			54	U			54	U			54	U		
1,3-Dichloropropane	80	U	UJ	A	80	U			80	U			80	U			80	U		
1,2-Dibromoethane (EDB)	48	U	UJ	A	48	U			48	U			48	U			48	U		
Chlorobenzene	80	U	UJ	A	80	U			80	U			80	U			80	U		
Ethylbenzene	85	U	UJ	A	85	U			85	U			85	U			85	U		
p & m- Xylene	170	U	UJ	A	170	U			170	U			170	U			170	U		
o-Xylene	85	U	UJ	A	85	U			85	U			85	U			85	U		
Styrene	87	U	UJ	A	87	U			87	U			87	U			87	U		
Bromoform	36	U			36	U			36	U			36	U			36	U		
1,1,2,2-Tetrachloroethane	54	U	UJ	A	54	U			54	U			54	U			54	U		
1,2,3-Trichloropropane	61	U	UJ	A	61	U			61	U			61	U			61	U		
1,3-Dichlorobenzene	61	U	UJ	A	61	U			61	U			61	U			61	U		
1,4-Dichlorobenzene	61	U	UJ	A	61	U			61	U			61	U			61	U		
1,2-Dichlorobenzene	61	U	UJ	A	61	U			61	U			61	U			61	U		
1,2-Dibromo-3-chloropropane	38	U	UJ	A	38	U			38	U			38	U			38	U		

Val-Validity Refer to Data Qualifiers in Table 1B.

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1,D2,etc.-Field Duplicate Pairs

FB-Field Blank

D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#9)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: Siu-Fai Tsang, SAIC
Date: June 12, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	Method Blank				Method Blank				CRQL									
Sample I.D.	MBW0903A				MBW0903B													
Date of Collection																		
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv	Val	Com							
Dichlorodifluoromethane	74	U			74	U			74									
Chloromethane	180	U			180	U			180									
Vinyl Chloride	140	U			140	U			140									
Bromomethane	94	U			94	U			94									
Chloroethane	140	U			140	U	UJ	E	140									
Trichlorofluoromethane	65	U			65	U			65									
1,1-Dichloroethene	92	U			92	U			92									
Carbon Disulfide	120	U			120	U			120									
Methylene Chloride	110	U			110	U			110									
trans-1,2-Dichloroethene	92	U			92	U			92									
1,1-Dichloroethane	91	U			91	U			91									
cis-1,2-Dichloroethene	92	U			92	U			92									
Chloroform	75	U			75	U			75									
1,2-Dichloroethane	91	U			91	U			91									
1,1,1-Trichloroethane (TCA)	67	U			67	U			67									
Carbon Tetrachloride	58	U			58	U			58									
Benzene	110	U			110	U			110									
Trichloroethene (TCE)	68	U			68	U			68									
1,2-Dichloropropane	81	U		F	81	U		F	81		F							
Bromodichloromethane	55	U			55	U			55									
cis-1,3-Dichloropropene	81	U			81	U			81									
trans-1,3-Dichloropropene	81	U			81	U			81									
1,1,2-Trichloroethane	67	U			67	U			67									
Dibromochloromethane	43	U			43	U			43									
Toluene	97	U			97	U			97									
Tetrachloroethene	54	U			54	U			54									
1,3-Dichloropropane	79	U			79	U			79									
1,2-Dibromoethane (EDB)	48	U			48	U			48									
Chlorobenzene	80	U			80	U			80									
Ethylbenzene	84	U			84	U			84									
p & m- Xylene	170	U			170	U			170									
o-Xylene	84	U			84	U			84									
Styrene	86	U			86	U			86									
Bromoform	35	U			35	U			35									
1,1,2,2-Tetrachloroethane	53	U			53	U			53									
1,2,3-Trichloropropane	61	U			61	U			61									
1,3-Dichlorobenzene	61	U			61	U			61									
1,4-Dichlorobenzene	61	U			61	U			61									
1,2-Dichlorobenzene	61	U			61	U			61									
1,2-Dibromo-3-chloropropane	38	U			38	U			38									

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
CRQL- Contract Required Quantitation Limit
N/A-Not Applicable, NA-Not Analyzed

D1,D2,etc -Field Duplicate Pairs
FB-Field Blank
D-Dilution

TABLE 1B
DATA QUALIFIERS

The definitions of the following qualifiers are prepared according to the EPA draft document, "National Functional Guidelines for Organic Data Review," February 1994.

NO QUALIFIERS indicate that the data are acceptable both qualitatively and quantitatively.

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

June 12, 1998 DCN: S09-SAI-21029PZZ-08-DR-05965

MEMORANDUM

SUBJECT: Review of Analytical Data

FROM: Robert Sims, SAIC

TO: Andria Benner, Remedial Project Manager
AZ/CA Cleanup Section, SFD-7-1

Attached are comments resulting from SAIC's review of the following analytical data:

SITE:	Waste Disposal Inc.
EPA SSI NO.:	C1
CERCLIS ID NO.:	CAD980884357
CASE/SAS NO.:	R97S46
SDG NO.:	10
LABORATORY:	Region IX FASP
ANALYSIS:	FASP Volatiles
SAMPLE NO.:	17 Soil Vapor (see Case Summary)
COLLECTION DATE:	September 4 through 8, 1997
REVIEWER:	John Evans, SAIC

If there are any questions, please contact me at (619) 535-7507.

Attachment

Data Validation Report

Case No.:	R97S46
Site:	Waste Disposal Inc.
Laboratory:	Region IX FASP
Reviewer:	John Evans, SAIC
Date:	June 12, 1998

I. Case Summary

SAMPLE INFORMATION:

VOA Sample Numbers:	GP116-010, GP124-010, GP125-010, GP125-115, GP129-010, GP130-010, GP132-010, GP133-010, GP139-010, GP140-010, GP140-020, GP143-010, GP143-015, GP150-010, GP151-010, GP152-010, and GP153-010 .
Concentration and Matrix:	Soil Vapor
Collection Method:	not specified
Analysis:	FASP Volatiles
SOW:	USEPA Region 9 Laboratory SOP 305, Revision 2, June 1997 and Addendum 1
Collection Date:	September 4 through 8, 1997
Sample Receipt Date:	September 4 through 8, 1997
Extraction Date:	N/A
Analysis Date:	September 4 through 8, 1997

FIELD QC:

Trip Blanks (TB):	N/A
Field Blanks (FB):	None
Equipment Blanks (EB):	None
Background Samples (BG):	None
Field Duplicates (D1):	None

METHOD BLANKS AND ASSOCIATED SAMPLES:

MBW0904A:	GP124-010, GP130-010, GP125-115 and GP116-010RE.
MBW0904B:	GP125-010RE, GP129-010RE, GP130-010MS and GP130-010MSD.
MBW0905A:	GP133-010, GP140-010, GP140-020, GP132-010RE and GP139-010RE.
MBW0908A:	GP143-010, GP143-015, GP150-010, GP151-010, GP152-010RE, GP153-010RE, GP150-010MS, and GP150-010MSD.

TABLES:

1A: Analytical Results with Qualifications
1B: Data Qualifiers

TPO ATTENTION:

SAMPLING ISSUES: None.

OTHER: None.

ADDITIONAL COMMENTS:

The analytical results with qualifications are listed in Table 1A. This report was prepared in accordance with EPA document "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", February 1994.

II. Validation Summary

	VOA Acceptable	Comment
HOLDING TIMES	[YES]	[ ]
GC/MS TUNE/GC PERFORMANCE	[YES]	[ ]
CALIBRATIONS	[YES]	[E,F,I]
FIELD QC	[N/A]	[ ]
LABORATORY BLANKS	[YES]	[ ]
SURROGATES	[YES]	[A, I]
MATRIX SPIKE/DUPLICATES	[YES]	[ ]
LAB CONTROL SAMPLES	[YES]	[D]
INTERNAL STANDARDS	[YES]	[ ]
COMPOUND IDENTIFICATION	[YES]	[B, C]
COMPOUND QUANTITATION	[YES]	[G, H]
SYSTEM PERFORMANCE	[YES]	[ ]

III. Introduction

Seventeen (17) soil vapor samples from the WDI site were submitted to the EPA Region IX FASP laboratory for FASP volatile organic analyses on September 4 through 8, 1997.

IV. Validity and Comments

A) Due to surrogate recoveries outside method QC limits, the detected results and quantitation limits for the following analytes are estimated (UJ) (see Table 1A):

- Toluene, Tetrachloroethene, 1,3-Dichloropropane, 1,2-Dibromoethane, Chlorobenzene, Ethylbenzene, p- & m-Xylene, o-Xylene, Styrene, 1,1,2,2-Tetrachloroethane, 1,2,3-

Trichloropropane, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene and 1,2-Dibromo-3-chloropropane in samples GP116-010, GP125-115, GP140-020, and method blanks MBW0904A, MBW0905A, and MBW0908A.

These surrogates were outside of the QC criteria (80-120%), therefore the samples listed above have been qualified:

Sample	Surrogate	% Recovery
GP116-010	4-Bromofluorobenzene	79
GP125-115	4-Bromofluorobenzene	64
GP140-020	4-Bromofluorobenzene	67
GP150-010MS	4-Bromofluorobenzene	76
GP150-010MSD	4-Bromofluorobenzene	72
LCS0904A	1,2-Dichloroethane-d_4	136
LCS0904A	4-Bromofluorobenzene	77
MBW0904A	4-Bromofluorobenzene	76
MBW0905A	4-Bromofluorobenzene	75
MBW0908A	4-Bromofluorobenzene	79

Surrogates are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with surrogate compounds prior to sample analysis. Surrogates provide information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.

In the Case Narrative the laboratory identified numerous surrogates out of control based on the surrogate QC limits specified by the CLP water methodology. In the opinion of the reviewer, these QC limits are not appropriate for the method performed. The surrogates were re-evaluated based on the requirements in the Region 9 Client Request Form for TO-15, sent to the laboratory performing split analysis of samples from this project.

B) Ketones such as, Acetone, 2-Butanone, 4-Methyl-2-pentanone and 2-Hexanone, are not included in this data report. These analytes are not normally analyzed by this method or similar "air" methods, such as method TO-15. Section A.3 of the laboratory's standard operating procedure states these compounds are "not applicable to this method." The FASP laboratory was requested to attempt to include these analytes. The raw data indicated that there were QC problems that would have severely qualified this data. It was jointly decided by the RPM, QA Program and FASP Coordinator not to report these compounds in the final report. Preliminary results may contain false positives due to the presence of ketones in blanks, have an unknown bias associated with them and may not be legally defensible.

C) Tentatively Identified Compounds (TICs) are compounds detected with a response of 10% or greater than that of the nearest internal standard, not included in the calibration mix. TICs are identified

solely by comparison of their mass spectrums to a spectral library. TIC concentrations are estimated based on comparison to the nearest internal standard response and have a high degree of uncertainty (sometimes varying from the actual concentration by an order of magnitude or more).

The analytical system did not adequately or accurately report TICs. Because a comprehensive data analysis of TICs was not completed, and TIC information is available from split sampling it was decided not to include TICs in this report. TICs from this data are available for evaluation at a later date if requested.

D) The concentration of the Laboratory Control Sample (LCS) could not be verified. The FASP laboratory set LCS concentrations by averaging recoveries over the project. From this averaging process they obtained method precision information and set precision criteria. However, the LCS did not provide verification of method performance or method accuracy in an air matrix. Because of this, the data assessor should rely heavily on split sampling data to independently verify FASP laboratory performance. The LCS is based on the statistical control limits developed by the laboratory. The laboratory identified that : "LCS results were within QC limits".

E) Due to percent differences (%D) outside 30% between the continuing calibration and average initial calibration relative response factors, the detected results and quantitation limits for the following analytes are estimated (J,UJ) (see Table 1A):

- Chloroethane for all the samples and method blanks.
- Tetrachloroethene for samples GP143-010, GP143-015, GP150-010, GP151-010, GP152-010, GP153-010, GP150-010MS, GP150-010MSD and method blank MBW0908A.

These continuing calibration standards were outside of the QC criteria, therefore the analytes listed above have been qualified:

Standard	Analyte	%D	Date
IW0904C	Chloroethane	35.6	9/4/97
CW0904A	Chloroethane	31.7	9/4/97
CW0905B	Chloroethane	39.3	9/5/97
CW0908B	Chloroethane	40.6	9/8/97
CW0908B	Tetrachloroethene	32.4	9/8/97

The continuing calibration checks the instrument performance daily and produces the relative response factors used for quantitation of each target analyte.

F) Multiple continuing calibration standards were analyzed on many occasions. The laboratory indicated that this was partially to obtain results that meet QC criteria.

G) The laboratory used an incorrect molecular weight for 1,2-Dichloropropane. The molecular weight used was 110.97, the correct molecular weight is 112.99. Therefore the actual values for this compound are slightly lower than those reported.

H) The following results are estimated and flagged "J" in Table 1A:

- All results below the Contract Required Quantitation Limits (denoted with an "L" qualifier).

Results below the Contract Required Quantitation Limits (CRQL) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.

I) The three System Monitoring Compounds (surrogates) were out-of-range for 4 of 5 initial calibration points. The System Monitoring Compounds should be added separately at a concentration of 5.0 ug/L, and this concentration would be within the linear range of the calibration. The Internal Standards were acceptable, and the initial calibration was linear. It appears that the three System Monitoring Compounds were added as part of a stock calibration standard, and that serial dilutions of this mixed standard for the calibration curve resulted in out of range recoveries for these three compounds.

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#10)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: John Evans, SAIC
Date: June 12, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	n/a				n/a				n/a				n/a				n/a			
Sample I.D.	GP116-010				GP124-010				GP129-010				GP130-010				GP125-115			
Date of Collection	09/04/97				09/04/97				09/04/97				09/04/97				09/04/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	75	U			75	U			75	U			75	U			75	U		
Chloromethane	180	U			180	U			180	U			180	U			180	U		
Vinyl Chloride	140	U			140	U			140	U			140	U			140	U		
Bromomethane	95	U			95	U			95	U			95	U			95	U		
Chloroethane	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E
Trichlorofluoromethane	66	U			66	U			66	U			66	U			66	U		
1,1-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
Carbon Disulfide	120	U			120	U			120	U			120	U			120	U		
Methylene Chloride	110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
Chloroform	76	U			76	U			76	U			76	U			76	U		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
1,1,1-Trichloroethane (TCA)	68	U			68	U			68	U			68	U			68	U		
Carbon Tetrachloride	59	U			59	U			59	U			59	U			59	U		
Benzene	120	U			120	U			120	U			120	U			120	U		
Trichloroethene (TCE)	69	U			69	U			170				69	U			69	U		
1,2-Dichloropropane	81	U		G	81	U		G	81	U		G	81	U		G	81	U		G
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U			68	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U		
Toluene	98	U	UJ	A	98	U			98	U			98	U			98	U	UJ	A
Tetrachloroethene	54	U	UJ	A	54	U			54	U			54	U			54	U	UJ	A
1,3-Dichloropropane	80	U	UJ	A	80	U			80	U			80	U			80	U	UJ	A
1,2-Dibromoethane (EDB)	48	U	UJ	A	48	U			48	U			48	U			48	U	UJ	A
Chlorobenzene	80	U	UJ	A	80	U			80	U			80	U			80	U	UJ	A
Ethylbenzene	85	U	UJ	A	85	U			85	U			85	U			85	U	UJ	A
p & m- Xylene	170	U	UJ	A	170	U			170	U			170	U			170	U	UJ	A
o-Xylene	85	U	UJ	A	85	U			85	U			85	U			85	U	UJ	A
Styrene	87	U	UJ	A	87	U			87	U			87	U			87	U	UJ	A
Bromoform	36	U			36	U			36	U			36	U			36	U		
1,1,2,2-Tetrachloroethane	54	U	UJ	A	54	U			54	U			54	U			54	U	UJ	A
1,2,3-Trichloropropane	61	U	UJ	A	61	U			61	U			61	U			61	U	UJ	A
1,3-Dichlorobenzene	61	U	UJ	A	61	U			61	U			61	U			61	U	UJ	A
1,4-Dichlorobenzene	61	U	UJ	A	61	U			61	U			61	U			61	U	UJ	A
1,2-Dichlorobenzene	61	U	UJ	A	61	U			61	U			61	U			61	U	UJ	A
1,2-Dibromo-3-chloropropane	38	U	UJ	A	38	U			38	U			38	U			38	U	UJ	A

Val-Validity Refer to Data Qualifiers in Table 1B.

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1,D2,etc.-Field Duplicate Pairs

FB-Field Blank

D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#10)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: John Evans, SAIC
Date: June 12, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	n/a				n/a				n/a				n/a				n/a			
Sample I.D.	GP125-010				GP132-010				GP133-010				GP139-010				GP140-010			
Date of Collection	09/04/97				09/05/97				09/05/97				09/05/97				09/05/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	75	U			75	U			75	U			75	U			75	U		
Chloromethane	180	U			180	U			180	U			180	U			180	U		
Vinyl Chloride	140	U			140	U			140	U			140	U			140	U		
Bromomethane	95	U			95	U			95	U			95	U			95	U		
Chloroethane	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E
Trichlorofluoromethane	66	U			66	U			66	U			66	U			66	U		
1,1-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
Carbon Disulfide	120	U			120	U			120	U			120	U			120	U		
Methylene Chloride	110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
Chloroform	76	U			76	U			76	U			76	U			76	U		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
1,1,1-Trichloroethane (TCA)	68	U			68	U			68	U			68	U			68	U		
Carbon Tetrachloride	59	U			59	U			59	U			59	U			59	U		
Benzene	120	U			120	U			120	U			120	U			120	U		
Trichloroethene (TCE)	69	U			69	U			69	U			69	U			69	U		
1,2-Dichloropropane	81	U		G	81	U		G	81	U		G	81	U		G	81	U		G
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U			68	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U		
Toluene	98	U			98	U			98	U			98	U			98	U		
Tetrachloroethene	54	U			55	U			55	U			55	U			55	U		
1,3-Dichloropropane	80	U			80	U			80	U			80	U			80	U		
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			48	U			48	U		
Chlorobenzene	80	U			80	U			80	U			80	U			80	U		
Ethylbenzene	85	U			85	U			85	U			85	U			85	U		
p & m- Xylene	170	U			170	U			170	U			170	U			170	U		
o-Xylene	85	U			85	U			85	U			85	U			85	U		
Styrene	87	U			87	U			87	U			87	U			87	U		
Bromoform	36	U			36	U			36	U			36	U			36	U		
1,1,2,2-Tetrachloroethane	54	U			54	U			54	U			54	U			54	U		
1,2,3-Trichloropropane	61	U			61	U			61	U			61	U			61	U		
1,3-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,4-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,2-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,2-Dibromo-3-chloropropane	38	U			38	U			38	U			38	U			38	U		

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
CRQL- Contract Required Quantitation Limit
N/A-Not Applicable, NA-Not Analyzed

D1,D2,etc.-Field Duplicate Pairs
FB-Field Blank
D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#10)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: John Evans, SAIC
Date: June 12, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	n/a				n/a				n/a				n/a				n/a			
Sample I.D.	GP140-020				GP150-010				GP151-010				GP152-010				GP153-010			
Date of Collection	09/05/97				09/08/97				09/08/97				09/08/97				09/08/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	75	U			75	U			75	U			75	U			75	U		
Chloromethane	180	U			180	U			180	U			180	U			180	U		
Vinyl Chloride	140	U			140	U			140	U			140	U			140	U		
Bromomethane	95	U			95	U			95	U			95	U			95	U		
Chloroethane	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E
Trichlorofluoromethane	66	U			66	U			66	U			66	U			66	U		
1,1-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
Carbon Disulfide	120	U			120	U			120	U			120	U			120	U		
Methylene Chloride	110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
Chloroform	76	U			76	U			76	U			76	U			76	U		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
1,1,1-Trichloroethane (TCA)	68	U			68	U			68	U			68	U			68	U		
Carbon Tetrachloride	59	U			59	U			59	U			59	U			59	U		
Benzene	120	U			120	U			120	U			120	U			120	U		
Trichloroethene (TCE)	69	U			69	U			69	U			69	U			69	U		
1,2-Dichloropropane	81	U		G	82	U		G	82	U		G	82	U		G	82	U		G
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U			82	U			82	U			82	U			82	U		
trans-1,3-Dichloropropene	81	U			82	U			82	U			82	U			82	U		
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U			68	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U		
Toluene	98	U	UJ	A	98	U			98	U			98	U			98	U		
Tetrachloroethene	55	U	UJ	A	55	U	UJ	E	55	U	UJ	E	45	L	J	EH	55	U	UJ	E
1,3-Dichloropropane	80	U	UJ	A	80	U			80	U			80	U			80	U		
1,2-Dibromoethane (EDB)	48	U	UJ	A	48	U			48	U			48	U			48	U		
Chlorobenzene	80	U	UJ	A	80	U			80	U			80	U			80	U		
Ethylbenzene	85	U	UJ	A	85	U			85	U			85	U			85	U		
p & m- Xylene	170	U	UJ	A	170	U			170	U			170	U			170	U		
o-Xylene	85	U	UJ	A	85	U			85	U			85	U			85	U		
Styrene	87	U	UJ	A	87	U			87	U			87	U			87	U		
Bromoform	36	U			36	U			36	U			36	U			36	U		
1,1,2,2-Tetrachloroethane	54	U	UJ	A	54	U			54	U			54	U			54	U		
1,2,3-Trichloropropane	61	U	UJ	A	61	U			61	U			61	U			61	U		
1,3-Dichlorobenzene	61	U	UJ	A	62	U			62	U			62	U			62	U		
1,4-Dichlorobenzene	61	U	UJ	A	62	U			62	U			62	U			62	U		
1,2-Dichlorobenzene	61	U	UJ	A	62	U			62	U			62	U			62	U		
1,2-Dibromo-3-chloropropane	38	U	UJ	A	38	U			38	U			38	U			38	U		

Val-Validity Refer to Data Qualifiers in Table 1B.

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1,D2,etc.-Field Duplicate Pairs

FB-Field Blank

D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#10)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: John Evans, SAIC
Date: June 12, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	n/a				n/a				Method Blank				Method Blank						
Sample I.D.	GP143-015				GP143-010				MBW0904A				MBW0904B						
Date of Collection	09/08/97				09/08/97														
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv	Val	Com
Dichlorodifluoromethane	75	U			75	U			75	U			75	U					
Chloromethane	180	U			180	U			180	U			180	U					
Vinyl Chloride	140	U			140	U			140	U			140	U					
Bromomethane	95	U			95	U			95	U			95	U					
Chloroethane	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E	140	U	UJ	E			
Trichlorofluoromethane	66	U			66	U			66	U			66	U					
1,1-Dichloroethene	93	U			93	U			93	U			93	U					
Carbon Disulfide	120	U			120	U			120	U			120	U					
Methylene Chloride	110	U			110	U			110	U			110	U					
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U					
1,1-Dichloroethane	91	U			91	U			91	U			91	U					
cis-1,2-Dichloroethene	93	U			93	U			93	U			93	U					
Chloroform	76	U			76	U			76	U			76	U					
1,2-Dichloroethane	91	U			91	U			91	U			91	U					
1,1,1-Trichloroethane (TCA)	68	U			68	U			68	U			68	U					
Carbon Tetrachloride	59	U			59	U			59	U			59	U					
Benzene	120	U			120	U			120	U			120	U					
Trichloroethene (TCE)	69	U			69	U			69	U			69	U					
1,2-Dichloropropane	82	U		G	82	U		G	81	U		G	81	U		G			
Bromodichloromethane	55	U			55	U			55	U			55	U					
cis-1,3-Dichloropropene	82	U			82	U			81	U			81	U					
trans-1,3-Dichloropropene	82	U			82	U			81	U			81	U					
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U					
Dibromochloromethane	43	U			43	U			43	U			43	U					
Toluene	98	U			98	U			98	U	UJ	A	98	U					
Tetrachloroethene	55	U	UJ	E	55	U	UJ	E	54	U	UJ	A	54	U					
1,3-Dichloropropane	80	U			80	U			80	U	UJ	A	80	U					
1,2-Dibromoethane (EDB)	48	U			48	U			48	U	UJ	A	48	U					
Chlorobenzene	80	U			80	U			80	U	UJ	A	80	U					
Ethylbenzene	85	U			85	U			85	U	UJ	A	85	U					
p & m- Xylene	170	U			170	U			170	U	UJ	A	170	U					
o-Xylene	85	U			85	U			85	U	UJ	A	85	U					
Styrene	87	U			87	U			87	U	UJ	A	87	U					
Bromoform	36	U			36	U			36	U			36	U					
1,1,2,2-Tetrachloroethane	54	U			54	U			54	U	UJ	A	54	U					
1,2,3-Trichloropropane	61	U			61	U			61	U	UJ	A	61	U					
1,3-Dichlorobenzene	62	U			62	U			61	U	UJ	A	61	U					
1,4-Dichlorobenzene	62	U			62	U			61	U	UJ	A	61	U					
1,2-Dichlorobenzene	62	U			62	U			61	U	UJ	A	61	U					
1,2-Dibromo-3-chloropropane	38	U			38	U			38	U	UJ	A	38	U					

Val-Validity Refer to Data Qualifiers in Table 1B.

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1,D2,etc.-Field Duplicate Pairs

FB-Field Blank

D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#10)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: John Evans, SAIC
Date: June 12, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	Method Blank				Method Blank													
Sample I.D.	MBW0905A				MBW0908A				CRQL									
Date of Collection																		
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv	Val	Com	ppbv	Val	Com	ppbv	Val	Com
Dichlorodifluoromethane	75	U			75	U			75								
Chloromethane	180	U			180	U			180								
Vinyl Chloride	140	U			140	U			140								
Bromomethane	95	U			95	U			95								
Chloroethane	140	U	UJ	E	140	U	UJ	E	140								
Trichlorofluoromethane	66	U			66	U			66								
1,1-Dichloroethene	93	U			93	U			93								
Carbon Disulfide	120	U			120	U			120								
Methylene Chloride	110	U			110	U			110								
trans-1,2-Dichloroethene	93	U			93	U			93								
1,1-Dichloroethane	91	U			91	U			91								
cis-1,2-Dichloroethene	93	U			93	U			93								
Chloroform	76	U			76	U			76								
1,2-Dichloroethane	91	U			91	U			91								
1,1,1-Trichloroethane (TCA)	68	U			68	U			68								
Carbon Tetrachloride	59	U			59	U			59								
Benzene	120	U			120	U			120								
Trichloroethene (TCE)	69	U			69	U			69								
1,2-Dichloropropane	81	U		G	82	U		G	81		G						
Bromodichloromethane	55	U			55	U			55								
cis-1,3-Dichloropropene	81	U			82	U			82								
trans-1,3-Dichloropropene	81	U			82	U			82								
1,1,2-Trichloroethane	68	U			68	U			68								
Dibromochloromethane	43	U			43	U			43								
Toluene	98	U	UJ	A	98	U	UJ	A	98								
Tetrachloroethene	55	U	UJ	A	55	U	UJ	AE	55								
1,3-Dichloropropane	80	U	UJ	A	80	U	UJ	A	80								
1,2-Dibromoethane (EDB)	48	U	UJ	A	48	U	UJ	A	48								
Chlorobenzene	80	U	UJ	A	80	U	UJ	A	80								
Ethylbenzene	85	U	UJ	A	85	U	UJ	A	85								
p & m- Xylene	170	U	UJ	A	170	U	UJ	A	170								
o-Xylene	85	U	UJ	A	85	U	UJ	A	85								
Styrene	87	U	UJ	A	87	U	UJ	A	87								
Bromoform	36	U			36	U			36								
1,1,2,2-Tetrachloroethane	54	U	UJ	A	54	U	UJ	A	54								
1,2,3-Trichloropropane	61	U	UJ	A	61	U	UJ	A	61								
1,3-Dichlorobenzene	61	U	UJ	A	62	U	UJ	A	62								
1,4-Dichlorobenzene	61	U	UJ	A	62	U	UJ	A	62								
1,2-Dichlorobenzene	61	U	UJ	A	62	U	UJ	A	62								
1,2-Dibromo-3-chloropropane	38	U	UJ	A	38	U	UJ	A	38								

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
CRQL- Contract Required Quantitation Limit
N/A-Not Applicable, NA-Not Analyzed

D1,D2,etc.-Field Duplicate Pairs
FB-Field Blank
D-Dilution

TABLE 1B
DATA QUALIFIERS

The definitions of the following qualifiers are prepared according to the EPA draft document, "National Functional Guidelines for Organic Data Review," February 1994.

NO QUALIFIERS indicate that the data are acceptable both qualitatively and quantitatively.

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

June 12, 1998 DCN: S09-SAI-21029PZZ-08-DR-05967

MEMORANDUM

SUBJECT: Review of Analytical Data

FROM: Robert Sims, SAIC

TO: Andria Benner, Remedial Project Manager
AZ/CA Cleanup Section, SFD-7-1

Attached are comments resulting from SAIC's review of the following analytical data:

SITE:	Waste Disposal Inc.
EPA SSI NO.:	C1
CERCLIS ID NO.:	CAD980884357
CASE/SAS NO.:	R97S46
SDG NO.:	11
LABORATORY:	Region IX FASP
ANALYSIS:	FASP Volatiles
SAMPLE NO.:	19 Soil Vapor (see Case Summary)
COLLECTION DATE:	September 09 through 15, 1997
REVIEWER:	John Evans, SAIC

If there are any questions, please contact me at (619)535-7507.

Attachment

Data Validation Report

Case No.:	R97S46
Site:	Waste Disposal Inc.
Laboratory:	Region IX FASP
Reviewer:	John Evans, SAIC
Date:	June 12, 1998

I. Case Summary

SAMPLE INFORMATION:

VOA Sample Numbers:	GP9-010R, GP9-015, GP154-010, GP159-010, GP159-015, GP168-005, GP172-006, GP172-010, GP174-005, GP175-015, GP180-010, VW12, VW13, VW13DUP, VW17, VW25, VW26, FB16 and FB30.
Concentration and Matrix:	Soil Vapor
Collection Method:	1-L Tedlar Bags for samples VW12, VW13, VW13DUP, VW25, VW26, FB16 and FB30. Remaining samples not specified.
Analysis:	FASP Volatiles
SOW:	USEPA Region 9 Laboratory SOP 305, Revision 2, June 1997 and Addendum 1
Collection Date:	September 9 through 15, 1997
Sample Receipt Date:	September 9 through 15, 1997
Extraction Date:	N/A
Analysis Date:	September 9 through 16, 1997

FIELD QC:

Trip Blanks (TB):	N/A
Field Blanks (FB):	FB16, FB30
Equipment Blanks (EB):	None
Background Samples (BG):	None
Field Duplicates (D1):	VW13, VW13DUP

METHOD BLANKS AND ASSOCIATED SAMPLES:

MBW0909A:	GP154-010, GP159-010, GP159-015
MBW0910A:	GP168-005
MBW0911A:	GP172-006, GP172-010RA, GP175-015, GP174-005
MBW0912A:	GP180-010, FB16, GP9-010RRA, GP9-015
MBW0915C:	VW25, VW12, VW26RA, VW17, VW13, VW13DUP, FB30

TABLES:

1A: Analytical Results with Qualifications
1B: Data Qualifiers

TPO ACTION:

SAMPLING ISSUES: None.

OTHER: None.

TPO ATTENTION:

SAMPLING ISSUES: None.

OTHER: None.

ADDITIONAL COMMENTS:

The analytical results with qualifications are listed in Table 1A. This report was prepared in accordance with EPA document "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", February 1994.

II. Validation Summary

	VOA Acceptable/Comment	
HOLDING TIMES	[YES]	[ ]
GC/MS TUNE/GC PERFORMANCE	[YES]	[ ]
CALIBRATIONS	[YES]	[E,F,G,H]
FIELD QC	[YES]	[ ]
LABORATORY BLANKS	[YES]	[ ]
SURROGATES	[YES]	[A,H]
MATRIX SPIKE/DUPLICATES	[N/A]	[ ]
LAB CONTROL SAMPLES	[YES]	[D]
INTERNAL STANDARDS	[YES]	[L]
COMPOUND IDENTIFICATION	[YES]	[B, C]
COMPOUND QUANTITATION	[YES]	[I, J, K]
SYSTEM PERFORMANCE	[YES]	[ ]

III. Introduction

Nineteen (19) soil vapor samples from the WDI site were submitted to the EPA Region IX FASP laboratory for FASP volatile organic analyses from September 9 through 15, 1997.

IV. Validity and Comments

A) Due to surrogate recoveries outside method QC limits, the detected results and quantitation limits for the following analytes are estimated (J,UJ) (see Table 1A):

- Toluene, Chlorobenzene, Ethylbenzene, o-Xylene and 1,4-Dichlorobenzene in sample GP9-010R.
- Vinyl Chloride, Toluene, Chlorobenzene, Ethylbenzene, o-Xylene and 1,4-Dichlorobenzene in sample GP9-015.
- Toluene, Tetrachloroethene, 1,3-Dichloropropane, 1,2-Dibromoethane, Chlorobenzene, Ethylbenzene, p& m-Xylene, o-Xylene, Styrene, 1,1,2,2-Tetrachloroethane, 1,2,3-Trichloropropane, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene and 1,2-Dibromo-3-chloropropane in samples GP154-010, GP172-010, and GP180-010, method blanks MBW0910A. MBW0911A, and MBW0912A.
- Toluene, Ethylbenzene, p & m -Xylene and o-Xylene in sample GP174-005.
- Benzene, Toluene, Ethylbenzene, p & m -Xylene, o-Xylene in sample GP175-015.
- Ethylbenzene in sample VW25.

These surrogates were outside of the QC criteria (80-120%), therefore the analytes listed above have been qualified:

Sample	Surrogate	% Recovery
GP9-010R	Toluene-d_8	201
GP9-010RDL	Toluene-d_8	134
GP9-015	1,2-Dichloroethane-d_4	126
GP9-015	Toluene-d_8	211
GP9-015DL	Toluene-d_8	138
GP154-010	4-Bromofluorobenzene	78
GP159-010	4-Bromofluorobenzene	141
GP159-015	4-Bromofluorobenzene	134
GP172-010RA	4-Bromofluorobenzene	79
GP172-010DL	1,2-Dichloroethane-d_4	73
GP174-005	Toluene-d_8	157
GP174-005DL	Toluene-d_8	78
GP175-015	1,2-Dichloroethane-d_4	148
GP175-015	Toluene-d_8	278
GP180-010	Toluene-d_8	75

VW25	1,2-Dichloroethane-d_4	208
VW25	Toluene-d_8	305
VW25	4-Bromofluorobenzene	185
LCW0911B	4-Bromofluorobenzene	76
LCW0912A	4-Bromofluorobenzene	70
LCW1915A	4-Bromofluorobenzene	78
MBW0910A	4-Bromofluorobenzene	78
MBW0911A	4-Bromofluorobenzene	66
MBW0912A	4-Bromofluorobenzene	74

Surrogates are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with surrogate compounds prior to sample analysis. Surrogates provide information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.

In the Case Narrative the laboratory identified numerous surrogates out of control based on the surrogate QC limits specified by the CLP water methodology. In the opinion of the reviewer, these QC limits are not appropriate for the method performed. The surrogates were re-evaluated based on the requirements in the Region 9 Client Request Form for TO-15, sent to the laboratory performing split analysis of samples from this project.

B) Ketones such as, Acetone, 2-Butanone, 4-Methyl-2-pentanone and 2-Hexanone, are not included in this data report. These analytes are not normally analyzed by this method or similar "air" methods, such as method TO-15. Section A.3 of the laboratory's standard operating procedure states these compounds are "not applicable to this method." The FASP laboratory was requested to attempt to include these analytes. The raw data indicated that there were QC problems that would have severely qualified this data. It was jointly decided by the RPM, QA Program and FASP Coordinator not to report these compounds in the final report. Preliminary results may contain false positives due to the presence of ketones in blanks, have an unknown bias associated with them and may not be legally defensible.

C) Tentatively Identified Compounds (TICs) are compounds detected with a response of 10% or greater than that of the nearest internal standard, not included in the calibration mix. TICs are identified solely by comparison of their mass spectrums to a spectral library. TIC concentrations are estimated based on comparison to the nearest internal standard response and have a high degree of uncertainty (sometimes varying from the actual concentration by an order of magnitude or more).

The analytical system did not adequately or accurately report TICs. Because a comprehensive data analysis of TICs was not completed, and TIC information is available from split sampling it was decided not to include TICs in this report. TICs from this data are available for evaluation at a later date if requested.

D) The concentration of the Laboratory Control Sample (LCS) could not be verified. The FASP laboratory set LCS concentrations by averaging recoveries over the project. From this averaging process they obtained method precision information and set precision criteria. However, the LCS did not provide verification of method performance or method accuracy in an air matrix. Because of this, the data assessor should rely heavily on split sampling data to independently verify FASP laboratory performance. The LCS is based on the statistical control limits developed by the laboratory. Five Laboratory Control Samples (LCS) were analyzed in the laboratory.

The following analytes in one of the LCS were outside the established QC limits.

Sample	Compound	% Recovery	QC Limits
LCW0911B	Toluene	48	61 - 139
LCW0911B	Chlorobenzene	33	56 - 144

E) Due to relative standard deviations (%RSDs) outside 30% in the initial calibrations, the detected results and quantitation limits for the following analytes are estimated (J) (see Table 1A):

- o-Xylene for samples GP172-006, GP172-010, GP175-015, GP174-005, GP9-010R and GP9-015.

The Initial Calibration demonstrates that the instrument is capable of acceptable performance at the beginning of the analytical sequence and of producing a linear calibration curve.

A percent relative standard deviation of 31.7% was observed for o-Xylene in the initial calibration performed on September 04, 1997. This value exceeded the <30% QC advisory validation criteria.

F) Due to percent differences (%D) outside 30% between the continuing calibration and average initial calibration relative response factors, the detected results and quantitation limits for the following analytes are estimated (UJ) (see Table 1A):

- Chloroethane for all samples except sample GP168-005 and method blank MBW0910A.

The continuing calibration checks the instrument performance daily and produces the relative response factors used for quantitation of each target analyte.

These continuing calibration standards were outside of the QC criteria:

Standard	Analyte	% Difference	Date
CW0909B	Chloroethane	30.6	9/09/97
CW0911B	Chloroethane	63.9	9/11/97
CW0912A	Chloroethane	42.2	9/12/97
CW0915B	Chloroethane	30.6	9/15/97

G) Multiple continuing calibration standards were analyzed on many occasions. The laboratory indicated that this was partially to obtain results that meet QC criteria.

H) The three System Monitoring Compounds (surrogates) were out-of-range for 4 of 5 initial calibration points. The System Monitoring Compounds should be added separately at a concentration of 5.0 ug/L, and this concentration would be within the linear range of the calibration. The Internal Standards were acceptable, and the initial calibration was linear. It appears that the three System Monitoring Compounds were added as part of a stock calibration standard, and that serial dilutions of this mixed standard for the calibration curve resulted in out of range recoveries for these three compounds.

I) The following results are estimated and flagged "J" in Table 1A:

- All results below the Contract Required Quantitation Limits (denoted with an "L" qualifier)

Results below the Contract Required Quantitation Limits (CRQL) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.

J) The laboratory used an incorrect molecular weight for 1,2-Dichloropropane. The molecular weight used was 110.97, the correct molecular weight is 112.99. Therefore the actual values for this compound are slightly lower than those reported.

K) It is the SAIC reviewer's judgement that the following analytes are estimated (J) (see Table 1A):

- Benzene in sample GP9-015.
- Ethylbenzene in sample GP174-005.
- Benzene, Ethylbenzene, p & m-Xylene, and o-Xylene in sample GP175-015.

In the Case Narrative the laboratory identified that: "The results for benzene in sample GP9-015; ethylbenzene in sample GP174-005; and benzene, ethylbenzene, p-and m-xylene, and o-xylene in sample GP175-015 were outside the calibration ranges as listed below. Further analysis at appropriate dilutions was not possible due to the sample holding times."

Sample	Dilution Factor	Compound	Calibration Range (ug/L)	Sample Results (ug/L)
GP9-015	2	Benzene	0.8-10	14.8
GP174-005	6.25	Ethylbenzene	2.5-31	1.94
GP175-015	10	Benzene	4.0-50	57
GP175-015	1	Ethylbenzene	0.4-5.0	16.52
GP175-015	1	p & m-Xylene	0.8-10	22.07

P175-015	1	o-Xylene	0.4-5.0	16.03

L) In the Case Narrative the laboratory identified that: "All internal standard areas and retention times were within method QC limits with the following exception:

Sample	Internal Standard	% of Daily Standard Internal Standard	QC Limits
GP175-015	Chlorobenzene-d5	219%	50-200

The high area count percentage is due to matrix interference."

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#11)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: John Evans, SAIC
Date: June 12, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	n/a				n/a				n/a				n/a						
Sample I.D.	GP154-010				GP159-010				GP159-015				GP168-005						
Date of Collection	09/09/97				09/09/97				09/09/97				09/10/97						
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv	Val	Com
Dichlorodifluoromethane	75	U			75	U			75	U			75	U					
Chloromethane	180	U			180	U			180	U			180	U					
Vinyl Chloride	140	U			140	U			140	U			140	U					
Bromomethane	95	U			95	U			95	U			95	U					
Chloroethane	140	U	UJ	F	140	U	UJ	F	140	U	UJ	F	140	U					
Trichlorofluoromethane	66	U			66	U			66	U			66	U					
1,1-Dichloroethene	93	U			93	U			93	U			93	U					
Carbon Disulfide	120	U			120	U			120	U			120	U					
Methylene Chloride	110	U			110	U			110	U			110	U					
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U					
1,1-Dichloroethane	92	U			92	U			92	U			92	U					
cis-1,2-Dichloroethene	93	U			93	U			93	U			93	U					
Chloroform	76	U			76	U			76	U			76	U					
1,2-Dichloroethane	92	U			92	U			92	U			92	U					
1,1,1-Trichloroethane (TCA)	68	U			68	U			68	U			68	U					
Carbon Tetrachloride	59	U			59	U			59	U			59	U					
Benzene	120	U			120	U			120	U			120	U					
Trichloroethene (TCE)	69	U			69	U			69	U			69	U					
1,2-Dichloropropane	80	U		J	80	U		J	80	U		J	80	U		J			
Bromodichloromethane	55	U			55	U			55	U			55	U					
cis-1,3-Dichloropropene	82	U			82	U			82	U			82	U					
trans-1,3-Dichloropropene	82	U			82	U			82	U			82	U					
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U					
Dibromochloromethane	43	U			43	U			43	U			43	U					
Toluene	98	U	UJ	A	98	U			98	U			98	U					
Tetrachloroethene	55	U	UJ	A	55	U			55	U			55	U					
1,3-Dichloropropane	80	U	UJ	A	80	U			80	U			80	U					
1,2-Dibromoethane (EDB)	48	U	UJ	A	48	U			48	U			48	U					
Chlorobenzene	80	U	UJ	A	80	U			80	U			80	U					
Ethylbenzene	85	U	UJ	A	85	U			85	U			85	U					
p & m- Xylene	170	U	UJ	A	170	U			170	U			170	U					
o-Xylene	85	U	UJ	A	85	U			85	U			85	U					
Styrene	87	U	UJ	A	87	U			87	U			87	U					
Bromoform	36	U			36	U			36	U			36	U					
1,1,2,2-Tetrachloroethane	54	U	UJ	A	54	U			54	U			54	U					
1,2,3-Trichloropropane	61	U	UJ	A	61	U			61	U			61	U					
1,3-Dichlorobenzene	62	U	UJ	A	62	U			62	U			62	U					
1,4-Dichlorobenzene	62	U	UJ	A	62	U			62	U			62	U					
1,2-Dichlorobenzene	62	U	UJ	A	62	U			62	U			62	U					
1,2-Dibromo-3-chloropropane	38	U	UJ	A	38	U			38	U			38	U					

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
CRQL- Contract Required Quantitation Limit
N/A-Not Applicable, NA-Not Analyzed

D1,D2,etc.-Field Duplicate Pairs
FB-Field Blank
D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#11)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: John Evans, SAIC
Date: June 12, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	n/a				n/a				n/a				n/a						
Sample I.D.	GP172-006				GP172-010				GP175-015				GP174-005						
Date of Collection	09/11/97				09/11/97				09/11/97				09/11/97						
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv	Val	Com
Dichlorodifluoromethane	75	U			75	U			75	U			75	U					
Chloromethane	180	U			180	U			180	U			180	U					
Vinyl Chloride	280				350				150	U			9800	D					
Bromomethane	95	U			95	U			95	U			95	U					
Chloroethane	140	U	UJ	F	140	U	UJ	F	140	U	UJ	F	140	U	UJ	F			
Trichlorofluoromethane	66	U			66	U			66	U			66	U					
1,1-Dichloroethene	93	U			93	U			93	U			93	U					
Carbon Disulfide	120	U			120	U			120	U			120	U					
Methylene Chloride	110	U			110	U			110	U			110	U					
trans-1,2-Dichloroethene	93	U			93	U			93	U			200						
1,1-Dichloroethane	92	U			92	U			92	U			92	U					
cis-1,2-Dichloroethene	93	U			93	U			93	U			210						
Chloroform	76	U			76	U			76	U			76	U					
1,2-Dichloroethane	92	U			92	U			92	U			92	U					
1,1,1-Trichloroethane (TCA)	68	U			68	U			68	U			68	U					
Carbon Tetrachloride	59	U			59	U			59	U			59	U					
Benzene	1600	D			3300	D			17000	DE	J	AK	2000	D					
Trichloroethene (TCE)	41	L	J	I	43	L	J	I	69	U			57	L	J	I			
1,2-Dichloropropane	80	U		J	80	U		J	80	U		J	80	U		J			
Bromodichloromethane	55	U			55	U			55	U			55	U					
cis-1,3-Dichloropropene	82	U			82	U			82	U			82	U					
trans-1,3-Dichloropropene	82	U			82	U			82	U			82	U					
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U					
Dibromochloromethane	44	U			44	U			44	U			44	U					
Toluene	100				270		J	A	7800	D	J	A	740	D	J	A			
Tetrachloroethene	1100	D			790	L	J	AI	55	U			55	U					
1,3-Dichloropropane	80	U			80	U	UJ	A	80	U			80	U					
1,2-Dibromoethane (EDB)	48	U			48	U	UJ	A	48	U			48	U					
Chlorobenzene	46	L	J	I	44	L	J	AI	81	U			81	U					
Ethylbenzene	85	U			110		J	A	3500	E	J	AK	1900	E	J	AK			
p & m- Xylene	170	U			120	L	J	AI	4700	E	J	AK	400		J	A			
o-Xylene	43	L	J	EI	92		J	AE	3400	E	J	AEK	380		J	AE			
Styrene	87	U			87	U	UJ	A	87	U			87	U					
Bromoform	36	U			36	U			36	U			36	U					
1,1,2,2-Tetrachloroethane	54	U			54	U	UJ	A	54	U			54	U					
1,2,3-Trichloropropane	61	U			61	U	UJ	A	61	U			61	U					
1,3-Dichlorobenzene	62	U			62	U	UJ	A	62	U			62	U					
1,4-Dichlorobenzene	39	L	J	I	62	U	UJ	A	62	U			62	U					
1,2-Dichlorobenzene	62	U			62	U	UJ	A	62	U			62	U					
1,2-Dibromo-3-chloropropane	38	U			38	U	UJ	A	38	U			38	U					

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
CRQL- Contract Required Quantitation Limit
N/A-Not Applicable, NA-Not Analyzed

D1,D2,etc.-Field Duplicate Pairs
FB-Field Blank
D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#11)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: John Evans, SAIC
Date: June 12, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	n/a				n/a				n/a				n/a						
Sample I.D.	GP180-010				FB16				GP9-010R				GP9-015						
Date of Collection	09/12/97				09/12/97				09/12/97				09/12/97						
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv	Val	Com
Dichlorodifluoromethane	75	U			75	U			75	U			75	U					
Chloromethane	180	U			180	U			180	U			180	U					
Vinyl Chloride	140	U			140	U			320				320		J	A			
Bromomethane	95	U			95	U			95	U			95	U					
Chloroethane	140	U	UJ	F	140	U	UJ	F	140	U	UJ	F	140	U	UJ	F			
Trichlorofluoromethane	66	U			66	U			66	U			66	U					
1,1-Dichloroethene	93	U			93	U			93	U			93	U					
Carbon Disulfide	120	U			120	U			120	U			120	U					
Methylene Chloride	110	U			110	U			110	U			110	U					
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U					
1,1-Dichloroethane	92	U			92	U			92	U			92	U					
cis-1,2-Dichloroethene	93	U			93	U			93	U			93	U					
Chloroform	76	U			76	U			76	U			76	U					
1,2-Dichloroethane	92	U			92	U			92	U			92	U					
1,1,1-Trichloroethane (TCA)	68	U			68	U			68	U			68	U					
Carbon Tetrachloride	59	U			59	U			59	U			59	U					
Benzene	120	U			120	U			2100	D			4300	DE	J	K			
Trichloroethene (TCE)	69	U			69	U			69	U			69	U					
1,2-Dichloropropane	80	U		J	80	U		J	80	U		J	80	U		J			
Bromodichloromethane	55	U			55	U			55	U			55	U					
cis-1,3-Dichloropropene	82	U			82	U			82	U			82	U					
trans-1,3-Dichloropropene	82	U			82	U			82	U			82	U					
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U					
Dibromochloromethane	44	U			44	U			44	U			44	U					
Toluene	140		J	A	99	U			84	L	J	AI	86	L	J	AI			
Tetrachloroethene	55	U	UJ	A	55	U			55	U			55	U					
1,3-Dichloropropane	80	U	UJ	A	80	U			80	U			80	U					
1,2-Dibromoethane (EDB)	48	U	UJ	A	48	U			48	U			48	U					
Chlorobenzene	81	U	UJ	A	81	U			63	L	J	AI	65	L	J	AI			
Ethylbenzene	85	U	UJ	A	85	U			170		J	A	120		J	A			
p & m- Xylene	170	U	UJ	A	170	U			170	U			170	U					
o-Xylene	85	U	UJ	A	85	U			92		J	AE	90		J	AE			
Styrene	87	U	UJ	A	87	U			87	U			87	U					
Bromoform	36	U			36	U			36	U			36	U					
1,1,2,2-Tetrachloroethane	54	U	UJ	A	54	U			54	U			54	U					
1,2,3-Trichloropropane	61	U	UJ	A	61	U			61	U			61	U					
1,3-Dichlorobenzene	62	U	UJ	A	62	U			62	U			62	U					
1,4-Dichlorobenzene	62	U	UJ	A	62	U			43	L	J	AI	52	L	J	AI			
1,2-Dichlorobenzene	62	U	UJ	A	62	U			62	U			62	U					
1,2-Dibromo-3-chloropropane	38	U	UJ	A	38	U			38	U			38	U					

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
CRQL- Contract Required Quantitation Limit
N/A-Not Applicable, NA-Not Analyzed

D1,D2,etc.-Field Duplicate Pairs
FB-Field Blank
D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#11)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: John Evans, SAIC
Date: June 12, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	n/a				n/a				n/a				n/a				n/a			
Sample I.D.	VW25				VW12				VW26				VW17				VW13 D1			
Date of Collection	09/15/97				09/15/97				09/15/97				09/15/97				09/15/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	75	U			75	U			75	U			75	U			75	U		
Chloromethane	180	U			180	U			180	U			180	U			180	U		
Vinyl Chloride	140	U			140	U			140	U			140	U			140	U		
Bromomethane	95	U			95	U			95	U			95	U			95	U		
Chloroethane	140	U	UJ	F	140	U	UJ	F	140	U	UJ	F	140	U	UJ	F	140	U	UJ	F
Trichlorofluoromethane	66	U			66	U			66	U			66	U			66	U		
1,1-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
Carbon Disulfide	120	U			120	U			120	U			120	U			120	U		
Methylene Chloride	110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene	93	U			93	U			56	L	J	I	93	U			93	U		
Chloroform	76	U			76	U			76	U			76	U			76	U		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
1,1,1-Trichloroethane (TCA)	68	U			68	U			68	U			200				68	U		
Carbon Tetrachloride	59	U			59	U			59	U			59	U			59	U		
Benzene	120	U			120	U			120	U			120	U			120	U		
Trichloroethene (TCE)	69	U			69	U			74				69	U			69	U		
1,2-Dichloropropane	80	U		J	80	U		J	80	U		J	80	U		J	80	U		J
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81	U		
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U			68	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U		
Toluene	98	U			98	U			98	U			98	U			98	U		
Tetrachloroethene	54	U			54	U			54	U			54	U			54	U		
1,3-Dichloropropane	80	U			80	U			80	U			80	U			80	U		
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			48	U			48	U		
Chlorobenzene	80	U			80	U			80	U			80	U			80	U		
Ethylbenzene	74	L	J	AI	85	U			85	U			85	U			85	U		
p & m- Xylene	170	U			170	U			170	U			170	U			170	U		
o-Xylene	85	U			85	U			85	U			85	U			85	U		
Styrene	87	U			87	U			87	U			87	U			87	U		
Bromoform	36	U			36	U			36	U			36	U			36	U		
1,1,2,2-Tetrachloroethane	54	U			54	U			54	U			54	U			54	U		
1,2,3-Trichloropropane	61	U			61	U			61	U			61	U			61	U		
1,3-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,4-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,2-Dichlorobenzene	61	U			61	U			61	U			61	U			61	U		
1,2-Dibromo-3-chloropropane	38	U			38	U			38	U			38	U			38	U		

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
CRQL- Contract Required Quantitation Limit
N/A-Not Applicable, NA-Not Analyzed

D1,D2,etc.-Field Duplicate Pairs
FB-Field Blank
D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#11)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: John Evans, SAIC
Date: June 12, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	n/a				n/a				Method Blank									
Sample I.D.	VW13DUP D1				FB30				MBW0909A									
Date of Collection	09/12/97				09/12/97													
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com						
Dichlorodifluoromethane	75	U			75	U			75	U								
Chloromethane	180	U			180	U			180	U								
Vinyl Chloride	140	U			140	U			140	U								
Bromomethane	95	U			95	U			95	U								
Chloroethane	140	U	UJ	F	140	U	UJ	F	140	U	UJ	F						
Trichlorofluoromethane	66	U			66	U			66	U								
1,1-Dichloroethene	93	U			93	U			93	U								
Carbon Disulfide	120	U			120	U			120	U								
Methylene Chloride	110	U			110	U			110	U								
trans-1,2-Dichloroethene	93	U			93	U			93	U								
1,1-Dichloroethane	91	U			91	U			91	U								
cis-1,2-Dichloroethene	93	U			93	U			93	U								
Chloroform	76	U			76	U			76	U								
1,2-Dichloroethane	91	U			91	U			91	U								
1,1,1-Trichloroethane (TCA)	68	U			68	U			68	U								
Carbon Tetrachloride	59	U			59	U			59	U								
Benzene	120	U			120	U			120	U								
Trichloroethene (TCE)	69	U			69	U			69	U								
1,2-Dichloropropane	80	U		J	80	U		J	80	U		J						
Bromodichloromethane	55	U			55	U			55	U								
cis-1,3-Dichloropropene	81	U			81	U			81	U								
trans-1,3-Dichloropropene	81	U			81	U			81	U								
1,1,2-Trichloroethane	68	U			68	U			68	U								
Dibromochloromethane	43	U			43	U			43	U								
Toluene	98	U			98	U			98	U								
Tetrachloroethene	54	U			55	U			54	U								
1,3-Dichloropropane	80	U			80	U			80	U								
1,2-Dibromoethane (EDB)	48	U			48	U			48	U								
Chlorobenzene	80	U			80	U			80	U								
Ethylbenzene	85	U			85	U			85	U								
p & m- Xylene	170	U			170	U			170	U								
o-Xylene	85	U			85	U			85	U								
Styrene	87	U			87	U			87	U								
Bromoform	36	U			36	U			36	U								
1,1,2,2-Tetrachloroethane	54	U			54	U			54	U								
1,2,3-Trichloropropane	61	U			61	U			61	U								
1,3-Dichlorobenzene	61	U			61	U			61	U								
1,4-Dichlorobenzene	61	U			61	U			61	U								
1,2-Dichlorobenzene	61	U			61	U			61	U								
1,2-Dibromo-3-chloropropane	38	U			38	U			38	U								

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
CRQL- Contract Required Quantitation Limit
N/A-Not Applicable, NA-Not Analyzed

D1,D2,etc.-Field Duplicate Pairs
FB-Field Blank
D-Dilution

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#11)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: John Evans, SAIC
Date: June 12, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	Method Blank				Method Blank				Method Blank				Method Blank						
Sample I.D.	MBW0910A				MBW0911A				MBW0912A				MBW0915C				CRQL		
Date of Collection																			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv	Val	Com
Dichlorodifluoromethane	75	U			75	U			75	U			75	U			75		
Chloromethane	180	U			180	U			180	U			180	U			180		
Vinyl Chloride	140	U			140	U			140	U			140	U			140		
Bromomethane	95	U			95	U			95	U			95	U			95		
Chloroethane	140	U			140	U	UJ	F	140	U	UJ	F	140	U	UJ	F	140		
Trichlorofluoromethane	66	U			66	U			66	U			66	U			66		
1,1-Dichloroethene	93	U			93	U			93	U			93	U			93		
Carbon Disulfide	120	U			120	U			120	U			120	U			120		
Methylene Chloride	110	U			110	U			110	U			110	U			110		
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91		
cis-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93		
Chloroform	76	U			76	U			76	U			76	U			76		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91		
1,1,1-Trichloroethane (TCA)	68	U			68	U			68	U			68	U			68		
Carbon Tetrachloride	59	U			59	U			59	U			59	U			59		
Benzene	120	U			120	U			120	U			120	U			120		
Trichloroethene (TCE)	69	U			69	U			69	U			69	U			69		
1,2-Dichloropropane	80	U		J	80	U		J	80	U		J	80	U		J	80		J
Bromodichloromethane	55	U			55	U			55	U			55	U			55		
cis-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81		
trans-1,3-Dichloropropene	81	U			81	U			81	U			81	U			81		
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U			68		
Dibromochloromethane	43	U			43	U			43	U			43	U			43		
Toluene	98	U	UJ	A	98	U	UJ	A	98	U	UJ	A	98	U			98		
Tetrachloroethene	54	U	UJ	A	55	U	UJ	A	54	U	UJ	A	54	U			54		
1,3-Dichloropropane	80	U	UJ	A	80	U	UJ	A	80	U	UJ	A	80	U			80		
1,2-Dibromoethane (EDB)	48	U	UJ	A	48	U	UJ	A	48	U	UJ	A	48	U			48		
Chlorobenzene	80	U	UJ	A	80	U	UJ	A	80	U	UJ	A	80	U			80		
Ethylbenzene	85	U	UJ	A	85	U	UJ	A	85	U	UJ	A	85	U			85		
p & m- Xylene	170	U	UJ	A	170	U	UJ	A	170	U	UJ	A	170	U			170		
o-Xylene	85	U	UJ	A	85	U	UJ	A	85	U	UJ	A	85	U			85		
Styrene	87	U	UJ	A	87	U	UJ	A	87	U	UJ	A	87	U			87		
Bromoform	36	U			36	U			36	U			36	U			36		
1,1,2,2-Tetrachloroethane	54	U	UJ	A	54	U	UJ	A	54	U	UJ	A	54	U			54		
1,2,3-Trichloropropane	61	U	UJ	A	61	U	UJ	A	61	U	UJ	A	61	U			61		
1,3-Dichlorobenzene	61	U	UJ	A	61	U	UJ	A	61	U	UJ	A	61	U			61		
1,4-Dichlorobenzene	61	U	UJ	A	61	U	UJ	A	61	U	UJ	A	61	U			61		
1,2-Dichlorobenzene	61	U	UJ	A	61	U	UJ	A	61	U	UJ	A	61	U			61		
1,2-Dibromo-3-chloropropane	38	U	UJ	A	38	U	UJ	A	38	U	UJ	A	38	U			38		

Val-Validity Refer to Data Qualifiers in Table 1B.
Com-Comments Refer to the Corresponding Section in the Narrative for each letter.
CRQL- Contract Required Quantitation Limit
N/A-Not Applicable, NA-Not Analyzed

D1,D2,etc.-Field Duplicate Pairs
FB-Field Blank
D-Dilution

TABLE 1B
DATA QUALIFIERS

The definitions of the following qualifiers are prepared according to the EPA draft document, "National Functional Guidelines for Organic Data Review," February 1994.

NO QUALIFIERS indicate that the data are acceptable both qualitatively and quantitatively.

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

VW

June 8, 1998 DCN: S09-SAI-21029PZZ-08-DR-05952

MEMORANDUM

SUBJECT: Review of Analytical Data

FROM: Robert Sims, SAIC

TO: Andria Benner, Remedial Project Manager
AZ/CA Cleanup Section, SFD-7-1

Attached are comments resulting from SAIC's review of the following analytical data:

SITE:	Waste Disposal Inc.
EPA SSI NO.:	C1
CERCLIS ID NO.:	CAD980884357
CASE/SAS NO.:	R97S46
SDG NO.:	12
LABORATORY:	Region IX FASP
ANALYSIS:	FASP Volatiles
SAMPLE NO.:	20 Soil Vapor (see Case Summary)
COLLECTION DATE:	September 16 through 17, 1997
REVIEWER:	John Evans, SAIC

If there are any questions, please contact me at (619) 535-7507.

Attachment

Data Validation Report

Case No.:	R97S46
Site:	Waste Disposal Inc.
Laboratory:	Region IX FASP
Reviewer:	John Evans, SAIC
Date:	June 8, 1998

I. Case Summary

SAMPLE INFORMATION:

VOA Sample Numbers:	VW1, VW3, VW8, VW9, VW10, VW10DUP, VW11, VW18, VW23, FB31, VW4, VW4DUP, VW16, VW20, VW14, VW22, MP1-005, MP2-005, MP2-015 and FB32.
Concentration and Matrix:	Soil Vapor
Collection Method:	1 - L Tedlar Bags
Analysis:	FASP Volatiles
SOW:	USEPA Region 9 Laboratory SOP 305, Revision 2, June 1997 and Addendum 1
Collection Date:	September 16 through 17, 1997
Sample Receipt Date:	September 16 through 17, 1997
Extraction Date:	N/A
Analysis Date:	September 16 through 18, 1997

FIELD QC:

Trip Blanks (TB):	N/A
Field Blanks (FB):	FB31 and FB32
Equipment Blanks (EB):	None
Background Samples (BG):	None
Field Duplicates (D1):	VW4 and VW4DUP, VW10 and VW10DUP

METHOD BLANKS AND ASSOCIATED SAMPLES:

MBW0916A:	VW1, VW3, VW8RA, VW9, VW10, VW10DUP, VW11, VW18, VW23 and FB31
MBW0917B:	VW4, VW4DUP, VW16, VW20, VW14, VW22, MP1-005, MP2-005 and MP2-015
MBW0918A:	FB32RA

TABLES:

1A:	Analytical Results with Qualifications
1B:	Data Qualifiers

TPO ATTENTION:

SAMPLING ISSUES: None.

OTHER: None.

ADDITIONAL COMMENTS:

The analytical results with qualifications are listed in Table 1A. This report was prepared in accordance with EPA document "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", February 1994.

II. Validation Summary

	VOA Acceptable/Comment	
HOLDING TIMES	[YES]	[J]
GC/MS TUNE/GC PERFORMANCE	[YES]	[ ]
CALIBRATIONS	[YES]	[E,F,I]
FIELD QC	[YES]	[ ]
LABORATORY BLANKS	[YES]	[ ]
SURROGATES	[YES]	[A, I]
MATRIX SPIKE/DUPLICATES	[N/A]	[ ]
LAB CONTROL SAMPLES	[YES]	[D]
INTERNAL STANDARDS	[YES]	[ ]
COMPOUND IDENTIFICATION	[YES]	[B, C]
COMPOUND QUANTITATION	[YES]	[G,H,J]
SYSTEM PERFORMANCE	[YES]	[ ]

III. Introduction

Twenty (20) soil vapor samples from the WDI site were submitted to the EPA Region IX FASP laboratory for FASP volatile organic analyses on September 16 through 17, 1997.

IV. Validity and Comments

A) Due to surrogate recoveries outside method QC limits, the detected results and quantitation limits for the following analytes are estimated (J,UJ) (see Table 1A):

- Chloromethane in sample(s); VW9.
- Vinyl Chloride in sample(s); VW4, VW4DUP and VW9.
- trans-1,2-Dichloroethene in sample(s); VW9.
- cis-1,2-Dichloroethene in sample(s); VW9.
- 1,2-Dichloroethane in sample(s); VW9, VW22 and MP2-015.
- Benzene in sample(s); VW4, VW4DUP, VW9, VW22 and MP2-015.
- Trichloroethene (TCE) in sample(s); VW9, and VW22.

- Toluene in sample(s); VW9, VW10DUP and M2-015.
- Ethylbenzene in sample(s); VW9, and MP2-015.
- p- & m-Xylene in sample(s); VW9, and MP2-015.
- o-Xylene in sample(s); VW9, and MP2-015.
- Toluene, Tetrachloroethane, 1,3-Dichloropropane, 1,2-Dibromoethane, Chlorobenzene, Ethylbenzene, p& m-Xylene, o-Xylene, Styrene, 1,1,2,2-Tetrachloroethane, 1,2,3-Trichloropropane, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene and 1,2-Dibromo-3-chloropropane in sample VW10DUP, method blanks MBW0916B and MBW0917B.

Surrogates are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with surrogate compounds prior to sample analysis. Surrogates provide information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.

In the Case Narrative the laboratory identified numerous surrogates out of control based on the surrogate QC limits specified by the CLP water methodology. In the opinion of the reviewer, these QC limits are not appropriate for the method performed. The surrogates were re-evaluated based on the requirements in the Region 9 Client Request Form for TO-15, sent to the laboratory performing split analysis of samples from this project.

In the Case Narrative the laboratory identified: "Surrogate recoveries in the initial analyis of samples MP2-015, VW4 and VW9 were outside QC limits. The problem was due to the high concentrations of contaminants in the samples. The source of error was not determined but is believed to have been the result of contamination in the sample. Samples VW10, VW10DUP, VW4DUP and VW23 had surrogate recoveries outside QC limits but were not reanalyzed. The source of the error was not determined but is believed to have been the result of variation in ambient temperature in the laboratory."

The following surrogates were outside of the QC criteria (80 - 120%), therefore the analytes listed above have been qualified:

Sample	Surrogate	% Recovery
VW4	1,2-Dichloroethane-d_4	165
VW4	Toluene-d_8	173
VW4DUP	1,2-Dichloroethane-d_4	144
VW4DUP	Toluene-d_8	209
VW9	1,2-Dichloroethane-d_4	207
VW9	Toluene-d_8	267
VW9DL3	Toluene-d_8	141
VW10DUP	Toluene-d_8	79
VW22	Toluene-d_8	137

MP2-015	1,2-Dichloroethane-d_4	138
MP2-015	Toluene-d_8	228
MBW0916B	Bromofluorobenzene	71
MBW0917B	Bromofluorobenzene	73

B) Ketones such as, Acetone, 2-Butanone, 4-Methyl-2-pentanone and 2-Hexanone, are not included in this data report. These analytes are not normally analyzed by this method or similar "air" methods, such as method TO-15. Section A.3 of the laboratory's standard operating procedure states these compounds are "not applicable to this method." The FASP laboratory was requested to attempt to include these analytes. The raw data indicated that there were QC problems that would have severely qualified this data. It was jointly decided by the RPM, QA Program and FASP Coordinator not to report these compounds in the final report. Preliminary results may contain false positives due to the presence of ketones in blanks, have an unknown bias associated with them and may not be legally defensible.

C) Tentatively Identified Compounds (TICs) are compounds detected with a response of 10% or greater than that of the nearest internal standard, not included in the calibration mix. TICs are identified solely by comparison of their mass spectrums to a spectral library. TIC concentrations are estimated based on comparison to the nearest internal standard response and have a high degree of uncertainty (sometimes varying from the actual concentration by an order of magnitude or more).

The analytical system did not adequately or accurately report TICs. Because a comprehensive data analysis of TICs was not completed, and TIC information is available from split sampling it was decided not to include TICs in this report. TICs from this data are available for evaluation at a later date if requested.

D) The concentration of the Laboratory Control Sample (LCS) could not be verified. The FASP laboratory set LCS concentrations by averaging recoveries over the project. From this averaging process they obtained method precision information and set precision criteria. However, the LCS did not provide verification of method performance or method accuracy in an air matrix. Because of this, the data assessor should rely heavily on split sampling data to independently verify FASP laboratory performance. The LCS is based on the statistical control limits developed by the laboratory. The laboratory identified that : "LCS results were within QC limits".

E) Due to relative standard deviations (%RSDs) outside 30% in the initial calibrations, the detected results and quantitation limits for the following analytes are estimated (J) (see Table 1A):

- o-Xylene for sample(s): VW8, VW9 and MP2-015.

The Initial Calibration demonstrates that the instrument is capable of acceptable performance at the beginning of the analytical sequence and of producing a linear calibration curve.

A percent relative standard deviation of 31.7% was observed for o-Xylene in the initial calibration performed on September 04, 1997. This value exceeded the <30% QC advisory validation criteria.

F) Multiple continuing calibration standards were analyzed on many occasions. The laboratory indicated that this was partially to obtain results that meet QC criteria.

G) The laboratory used an incorrect molecular weight for 1,2-Dichloropropane. The molecular weight used was 110.97, the correct molecular weight is 112.99. Therefore the actual values for this compound are slightly lower than those reported.

H) The following results are estimated and flagged "J" in Table 1A:

- All results below the Contract Required Quantitation Limits (denoted with an "L" qualifier).

Results below the Contract Required Quantitation Limits (CRQL) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.

I) The three System Monitoring Compounds (surrogates) were out-of-range for 4 of 5 initial calibration points. The System Monitoring Compounds should be added separately at a concentration of 5.0 ug/L, and this concentration would be within the linear range of the calibration. The Internal Standards were acceptable, and the initial calibration was linear. It appears that the three System Monitoring Compounds were added as part of a stock calibration standard, and that serial dilutions of this mixed standard for the calibration curve resulted in out of range recoveries for these three compounds.

J) Samples; FB32 and VW22 were reanalyzed outside of the 12 hour holding time. The narrative states that:" The analysis for samples FB32 and VW22 had results for several target analytes. The sample analyzed prior to these samples had concentrations of the target analytes above the calibration range. The samples were reanalyzed out of the twelve-hour hold time with no target anlaytes found. The results for VW22 for 1,2-Dichloroethane, benzene, trichloroethene, tetrachloroethene, ethylbenzene and m&p xylene are reported from a diluted analysis and the reporting limits have been raised accordingly due to the carry over contamination noted in the undiluted analysis. FB32 results are reported from the analysis completed outside the holding time. Data for both analyses are included in this package."

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#12)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: John Evans, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	n/a				n/a				n/a				n/a				n/a			
Sample I.D.	FB31				FB32				MP1-005				MP2-005				MP2-015			
Date of Collection	09/16/97				09/17/97				09/17/97				09/17/97				09/17/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	75	U			75	U		J	75	U			75	U			75	U		
Chloromethane	180	U			180	U		J	180	U			180	U			180	U		
Vinyl Chloride	140	U			140	U		J	140	U			140	U			140	U		
Bromomethane	95	U			95	U		J	95	U			95	U			95	U		
Chloroethane	140	U			140	U		J	140	U			140	U			140	U		
Trichlorofluoromethane	66	U			66	U		J	66	U			66	U			66	U		
1,1-Dichloroethene	93	U			93	U		J	93	U			93	U			93	U		
Carbon Disulfide	120	U			120	U		J	120	U			120	U			120	U		
Methylene Chloride	110	U			110	U		J	110	U			110	U			110	U		
trans-1,2-Dichloroethene	93	U			93	U		J	93	U			93	U			93	U		
1,1-Dichloroethane	91	U			91	U		J	91	U			91	U			91	U		
cis-1,2-Dichloroethene	93	U			93	U		J	93	U			93	U			93	U		
Chloroform	76	U			76	U		J	76	U			76	U			76	U		
1,2-Dichloroethane	91	U			91	U		J	91	U			91	U			240		J	A
1,1,1-Trichloroethane (TCA)	68	U			68	U		J	22	L	J	H	68	U			68	U		
Carbon Tetrachloride	59	U			59	U		J	59	U			59	U			59	U		
Benzene	120	U			120	U		J	370				410				13000	D	J	A
Trichloroethene (TCE)	69	U			69	U		J	69	U			69	U			69	U		
1,2-Dichloropropane	82	U		G	82	U		GJ	82	U		G	82	U		G	82	U		G
Bromodichloromethane	55	U			55	U		J	55	U			55	U			55	U		
cis-1,3-Dichloropropene	82	U			82	U		J	82	U			82	U			82	U		
trans-1,3-Dichloropropene	82	U			82	U		J	82	U			82	U			82	U		
1,1,2-Trichloroethane	68	U			68	U		J	68	U			68	U			68	U		
Dibromochloromethane	43	U			43	U		J	43	U			43	U			43	U		
Toluene	98	U			98	U		J	98	U			98	U			110		J	A
Tetrachloroethene	55	U			55	U		J	55	U			190				55	U		
1,3-Dichloropropane	80	U			80	U		J	80	U			80	U			80	U		
1,2-Dibromoethane (EDB)	48	U			48	U		J	48	U			48	U			48	U		
Chlorobenzene	80	U			80	U		J	80	U			80	U			80	U		
Ethylbenzene	85	U			85	U		J	85	U			53	L	J	H	700		J	A
p & m- Xylene	170	U			170	U		J	280				570				5600	E	J	A
o-Xylene	85	U			85	U		J	85	U			85	U			83	L	J	AEH
Styrene	87	U			87	U		J	87	U			87	U			87	U		
Bromoform	36	U			36	U		J	36	U			36	U			36	U		
1,1,2,2-Tetrachloroethane	54	U			54	U		J	54	U			54	U			54	U		
1,2,3-Trichloropropane	61	U			61	U		J	61	U			61	U			61	U		
1,3-Dichlorobenzene	62	U			62	U		J	62	U			62	U			62	U		
1,4-Dichlorobenzene	62	U			62	U		J	62	U			62	U			62	U		
1,2-Dichlorobenzene	62	U			62	U		J	62	U			62	U			62	U		
1,2-Dibromo-3-chloropropane	38	U			38	U		J	38	U			38	U			38	U		

Val-Validity Refer to Data Qualifiers in Table 1B.

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected.

N/A-Not Applicable, NA-Not Analyzed

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#12)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: John Evans, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	n/a				n/a				n/a				n/a				n/a			
Sample I.D.	VW1				VW3				VW4				VW4DUP				VW8			
Date of Collection	09/16/97				09/16/97				09/17/97				9/16/1797				09/17/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	75	U			75	U			75	U			75	U			75	U		
Chloromethane	180	U			180	U			180	U			180	U			180	U		
Vinyl Chloride	140	U			140	U			87	L	J	A,H	110	L	J	A,H	140	U		
Bromomethane	95	U			95	U			95	U			95	U			95	U		
Chloroethane	140	U			140	U			140	U			140	U			140	U		
Trichlorofluoromethane	66	U			66	U			66	U			66	U			66	U		
1,1-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
Carbon Disulfide	120	U			120	U			120	U			120	U			120	U		
Methylene Chloride	110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
Chloroform	76	U			76	U			76	U			76	U			76	U		
1,2-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
1,1,1-Trichloroethane (TCA)	68	U			68	U			68	U			68	U			68	U		
Carbon Tetrachloride	59	U			59	U			59	U			59	U			59	U		
Benzene	120	U			120	U			410		J	A	520		J	A	90	L	J	H
Trichloroethene (TCE)	69	U			69	U			69	U			69	U			69	U		
1,2-Dichloropropane	82	U		G	82	U		G	82	U		G	82	U		G	82	U		G
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	82	U			82	U			82	U			82	U			82	U		
trans-1,3-Dichloropropene	82	U			82	U			82	U			82	U			82	U		
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U			68	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U		
Toluene	98	U			98	U			98	U			98	U			150			
Tetrachloroethene	55	U			55	U			55	U			55	U			55	U		
1,3-Dichloropropane	80	U			80	U			80	U			80	U			80	U		
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			48	U			48	U		
Chlorobenzene	80	U			80	U			80	U			80	U			80	U		
Ethylbenzene	85	U			85	U			85	U			85	U			110			
p & m- Xylene	170	U			170	U			170	U			170	U			520			
o-Xylene	85	U			85	U			85	U			85	U			160		J	E
Styrene	87	U			87	U			87	U			87	U			87	U		
Bromoform	36	U			36	U			36	U			36	U			36	U		
1,1,2,2-Tetrachloroethane	54	U			54	U			54	U			54	U			54	U		
1,2,3-Trichloropropane	61	U			61	U			61	U			61	U			61	U		
1,3-Dichlorobenzene	62	U			62	U			62	U			62	U			62	U		
1,4-Dichlorobenzene	62	U			62	U			62	U			62	U			62	U		
1,2-Dichlorobenzene	62	U			62	U			62	U			62	U			62	U		
1,2-Dibromo-3-chloropropane	38	U			38	U			38	U			38	U			38	U		

Val-Validity Refer to Data Qualifiers in Table 1B.

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected.

N/A-Not Applicable, NA-Not Analyzed

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#12)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: John Evans, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	n/a				n/a				n/a				n/a				n/a			
Sample I.D.	VW9				VW10				VW10DUP				VW11				VW14			
Date of Collection	09/16/97				09/16/97				09/16/97				09/16/97				09/17/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	75	U			75	U			75	U			75	U			75	U		
Chloromethane	1300	D	J	A	180	U			180	U			180	U			180	U		
Vinyl Chloride	1500		J	A	140	U			140	U			140	U			140	U		
Bromomethane	95	U			95	U			95	U			95	U			95	U		
Chloroethane	140	U			140	U			140	U			140	U			140	U		
Trichlorofluoromethane	66	U			66	U			66	U			66	U			66	U		
1,1-Dichloroethene	93	U			93	U			93	U			93	U			93	U		
Carbon Disulfide	120	U			120	U			120	U			120	U			120	U		
Methylene Chloride	110	U			110	U			110	U			110	U			110	U		
trans-1,2-Dichloroethene	58	L	J	A,H	93	U			93	U			93	U			93	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U			91	U		
cis-1,2-Dichloroethene	1200	D	J	A	93	U			93	U			93	U			93	U		
Chloroform	76	U			76	U			76	U			76	U			76	U		
1,2-Dichloroethane	290		J	A	91	U			91	U			91	U			91	U		
1,1,1-Trichloroethane (TCA)	68	U			68	U			68	U			68	U			68	U		
Carbon Tetrachloride	59	U			59	U			59	U			59	U			59	U		
Benzene	9600	D	J	A	120	U			120	U			120	U			120	U		
Trichloroethene (TCE)	220		J	A	69	U			69	U			69	U			69	U		
1,2-Dichloropropane	82	U		G	82	U		G	82	U		G	82	U		G	82	U		G
Bromodichloromethane	55	U			55	U			55	U			55	U			55	U		
cis-1,3-Dichloropropene	82	U			82	U			82	U			82	U			82	U		
trans-1,3-Dichloropropene	82	U			82	U			82	U			82	U			82	U		
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U			68	U		
Dibromochloromethane	43	U			43	U			43	U			43	U			43	U		
Toluene	3800	D	J	A	71	L	J	H	49	L	J	A,H	98	U			98	U		
Tetrachloroethene	55	U			55	U			55	U	UJ	A	55	U			55	U		
1,3-Dichloropropane	80	U			80	U			80	U	UJ	A	80	U			80	U		
1,2-Dibromoethane (EDB)	48	U			48	U			48	U	UJ	A	48	U			48	U		
Chlorobenzene	80	U			80	U			80	U	UJ	A	80	U			80	U		
Ethylbenzene	2700	DE	J	A	85	U			85	U	UJ	A	85	U			85	U		
p & m- Xylene	2500	D	J	A	170	U			170	U	UJ	A	170	U			170	U		
o-Xylene	2600	D	J	A,E	85	U			85	U	UJ	A	85	U			85	U		
Styrene	87	U			87	U			87	U	UJ	A	87	U			87	U		
Bromoform	36	U			36	U			36	U			36	U			36	U		
1,1,2,2-Tetrachloroethane	54	U			54	U			54	U	UJ	A	54	U			54	U		
1,2,3-Trichloropropane	61	U			61	U			61	U	UJ	A	61	U			61	U		
1,3-Dichlorobenzene	62	U			62	U			62	U	UJ	A	62	U			62	U		
1,4-Dichlorobenzene	62	U			62	U			62	U	UJ	A	62	U			62	U		
1,2-Dichlorobenzene	62	U			62	U			62	U	UJ	A	62	U			62	U		
1,2-Dibromo-3-chloropropane	38	U			38	U			38	U	UJ	A	38	U			38	U		

Val-Validity Refer to Data Qualifiers in Table 1B.

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected.

N/A-Not Applicable, NA-Not Analyzed

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#12)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: John Evans, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	n/a				n/a				n/a				n/a				n/a			
Sample I.D.	VW16				VW18				VW20				VW22				VW23			
Date of Collection	09/17/97				09/16/97				09/17/97				09/17/97				09/16/97			
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com
Dichlorodifluoromethane	75	U			75	U			75	U			75	U		J	75	U		
Chloromethane	180	U			180	U			180	U			180	U		J	180	U		
Vinyl Chloride	140	U			140	U			140	U			140	U		J	140	U		
Bromomethane	95	U			95	U			95	U			95	U		J	95	U		
Chloroethane	140	U			140	U			140	U			140	U		J	140	U		
Trichlorofluoromethane	66	U			66	U			66	U			66	U		J	66	U		
1,1-Dichloroethene	93	U			93	U			93	U			93	U		J	93	U		
Carbon Disulfide	120	U			120	U			120	U			120	U		J	120	U		
Methylene Chloride	110	U			110	U			110	U			110	U		J	110	U		
trans-1,2-Dichloroethene	93	U			93	U			93	U			93	U		J	93	U		
1,1-Dichloroethane	91	U			91	U			91	U			91	U		J	91	U		
cis-1,2-Dichloroethene	93	U			93	U			93	U			93	U		J	79	L	J	H
Chloroform	76	U			76	U			76	U			76	U		J	76	U		
1,2-Dichloroethane	91	U			91	U			91	U			94		J	A,J	91	U		
1,1,1-Trichloroethane (TCA)	68	U			41	L	J	H	68	U			68	U		J	68	U		
Carbon Tetrachloride	59	U			59	U			59	U			59	U		J	59	U		
Benzene	120	U			310				120	U			810	LD	J	AHJ	120	U		
Trichloroethene (TCE)	190				69	U			69	U			840	D	J	A,J	710			
1,2-Dichloropropane	82	U		G	82	U		G	82	U		G	82	U		G,J	82	U		G
Bromodichloromethane	55	U			55	U			55	U			55	U		J	55	U		
cis-1,3-Dichloropropene	82	U			82	U			82	U			82	U		J	82	U		
trans-1,3-Dichloropropene	82	U			82	U			82	U			82	U		J	82	U		
1,1,2-Trichloroethane	68	U			68	U			68	U			68	U		J	68	U		
Dibromochloromethane	43	U			43	U			43	U			43	U		J	43	U		
Toluene	98	U			98	U			98	U			98	U		J	98	U		
Tetrachloroethene	55	U			55	U			48	L	J	H	550	UD		J	55	U		
1,3-Dichloropropane	80	U			80	U			80	U			80	U		J	80	U		
1,2-Dibromoethane (EDB)	48	U			48	U			48	U			48	U		J	48	U		
Chlorobenzene	80	U			80	U			80	U			80	U		J	80	U		
Ethylbenzene	85	U			55	L	J	H	85	U			850	UD		J	85	U		
p & m- Xylene	170	U			130	L	J	H	170	U			1700	UD		J	170	U		
o-Xylene	85	U			85	U			85	U			85	U		J	85	U		
Styrene	87	U			87	U			87	U			87	U		J	87	U		
Bromoform	36	U			36	U			36	U			36	U		J	36	U		
1,1,2,2-Tetrachloroethane	54	U			54	U			54	U			54	U		J	54	U		
1,2,3-Trichloropropane	61	U			61	U			61	U			61	U		J	61	U		
1,3-Dichlorobenzene	62	U			62	U			62	U			62	U		J	62	U		
1,4-Dichlorobenzene	62	U			62	U			62	U			62	U		J	62	U		
1,2-Dichlorobenzene	62	U			62	U			62	U			62	U		J	62	U		
1,2-Dibromo-3-chloropropane	38	U			38	U			38	U			38	U		J	38	U		

Val-Validity Refer to Data Qualifiers in Table 1B.

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected.

N/A-Not Applicable, NA-Not Analyzed

ANALYTICAL RESULTS

Table 1A

Case No. R97S46 (FASP SDG#12)
Site: WDI
Laboratory: Region 9, FASP
Reviewer: John Evans, SAIC
Date: June 8, 1998

Analysis: GC/MS USEPA SOP 305
Matrix: Soil Vapor

Concentration in ppbv

Station Location	Method Blank				Method Blank				Method Blank									
Sample I.D.	MBW0916B				MBW0917B				MBW0918A				CRQL					
Date of Collection																		
Analyte	ppbv		Val	Com	ppbv		Val	Com	ppbv		Val	Com	ppbv	Val	Com			
Dichlorodifluoromethane	75	U			75	U			75	U			75					
Chloromethane	180	U			180	U			180	U			180					
Vinyl Chloride	140	U			140	U			140	U			140					
Bromomethane	95	U			95	U			95	U			95					
Chloroethane	140	U			140	U			140	U			140					
Trichlorofluoromethane	66	U			66	U			66	U			66					
1,1-Dichloroethene	93	U			93	U			93	U			93					
Carbon Disulfide	120	U			120	U			120	U			120					
Methylene Chloride	110	U			110	U			110	U			110					
trans-1,2-Dichloroethene	93	U			93	U			93	U			93					
1,1-Dichloroethane	91	U			91	U			91	U			91					
cis-1,2-Dichloroethene	93	U			93	U			93	U			93					
Chloroform	76	U			76	U			76	U			76					
1,2-Dichloroethane	91	U			91	U			91	U			91					
1,1,1-Trichloroethane (TCA)	68	U			68	U			68	U			68					
Carbon Tetrachloride	59	U			59	U			59	U			59					
Benzene	120	U			120	U			120	U			120					
Trichloroethene (TCE)	69	U			69	U			69	U			69					
1,2-Dichloropropane	82	U		G	82	U		G	82	U		G	82		G			
Bromodichloromethane	55	U			55	U			55	U			55					
cis-1,3-Dichloropropene	82	U			82	U			82	U			82					
trans-1,3-Dichloropropene	82	U			82	U			82	U			82					
1,1,2-Trichloroethane	68	U			68	U			68	U			68					
Dibromochloromethane	43	U			43	U			43	U			43					
Toluene	98	U	UJ	A	98	U	UJ	A	98	U			98					
Tetrachloroethene	55	U	UJ	A	55	U	UJ	A	55	U			55					
1,3-Dichloropropane	80	U	UJ	A	80	U	UJ	A	80	U			80					
1,2-Dibromoethane (EDB)	48	U	UJ	A	48	U	UJ	A	48	U			48					
Chlorobenzene	80	U	UJ	A	80	U	UJ	A	80	U			80					
Ethylbenzene	85	U	UJ	A	85	U	UJ	A	85	U			85					
p & m- Xylene	170	U	UJ	A	170	U	UJ	A	170	U			170					
o-Xylene	85	U	UJ	A	85	U	UJ	A	85	U			85					
Styrene	87	U	UJ	A	87	U	UJ	A	87	U			87					
Bromoform	36	U			36	U			36	U			36					
1,1,2,2-Tetrachloroethane	54	U	UJ	A	54	U	UJ	A	54	U			54					
1,2,3-Trichloropropane	61	U	UJ	A	61	U	UJ	A	61	U			61					
1,3-Dichlorobenzene	62	U	UJ	A	62	U	UJ	A	62	U			62					
1,4-Dichlorobenzene	62	U	UJ	A	62	U	UJ	A	62	U			62					
1,2-Dichlorobenzene	62	U	UJ	A	62	U	UJ	A	62	U			62					
1,2-Dibromo-3-chloropropane	38	U	UJ	A	38	U	UJ	A	38	U			38					

Val-Validity Refer to Data Qualifiers in Table 1B.

D-Dilution

Com-Comments Refer to the Corresponding Section in the Narrative for each letter.

CRQL- Contract Required Quantitation Limit, this value will change slightly depending on the barometric pressure of the day samples are collected.

N/A-Not Applicable, NA-Not Analyzed

TABLE 1B
DATA QUALIFIERS

The definitions of the following qualifiers are prepared according to the EPA draft document, "National Functional Guidelines for Organic Data Review," February 1994.

NO QUALIFIERS indicate that the data are acceptable both qualitatively and quantitatively.

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.