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BEACON Report No. EM1044

EMFLUX® Passive, Non-Invasive Soil-Gas Investigation

MDA C
TECHNICAL AREA 50
LOS ALAMOS NATIONAL LABORATORY, NM

Prepared for

Morrison Knudsen Corporation
Science & Engineering Associates, Inc.
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by

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August 23, 2000

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EMFLUX® Survey Number: EM1044

MDA C
Technical Area 50
Los Alamos National Laboratory, NM

This EMFLUX® Soil-Gas Survey Report has been prepared for Morrison Knudsen Corporation/Science & Engineering Associates, Inc. (MK/SEA) by Beacon Environmental Services, Inc. (BEACON). BEACON's principal technical contact at MK/SEA for this project has been Mr. Ken Kisiel.

1. Objectives

This two phase soil-gas investigation of Material Disposal Area (MDA) C on Technical Area 50 was conducted to determine the presence, identity, and relative strength of targeted subsurface contaminants at the former disposal area. Survey results will be used to determine the horizontal extent of contaminants and to measure the emission flux rates of targeted compounds emanating from the ground surface.

2. Target Compounds

This investigation targeted the 39 compounds listed in **Attachment 1**, which also supplies the resulting laboratory data in nanograms (ng) of specific compound per cartridge. **Tables 1 and 2** provide the data converted to average soil-gas emission flux rates (ng/m^2/min) for each survey.

3. Survey Description

- No. of Field Sample Points in first survey: 84
- No. of Field Sample Points in second survey: 21
- No. of Trip Blanks in first survey: 4
- No. of Trip Blanks second survey: 1
- Total No. of EMFLUX® Cartridges: 110

Note: Sample locations in the first survey were designated 1 to 84 and sample locations in the second survey were designated 1 to 21; however, actual locations in the second survey are distinct from the those in first survey. Samples collected from each location were assigned a unique identification by Los Alamos National Laboratory. Field samples and trip blanks from the first survey were labeled MD50-00-0011 to MD50-00-098 and samples from the second survey were labeled MD50-00-0101 to MD50-00-0122. **Tables 1 and 2**, which provide data converted to average soil-gas emission flux rates, reference both the sample location numbers and the sample identifications assigned by Los Alamos National Laboratory.

4. Field Work

MK/SEA was provided EMFLUX® Field Kits with the equipment needed to perform the two surveys. A BEACON representative was present to assist with installation of EMFLUX® Collectors during the first survey. Collectors from the first survey were deployed on June 16, 2000 and retrieved June 20, 2000. Collectors from the second survey were deployed on July 13, 2000 and retrieved July 17, 2000. Both surveys were performed in accordance with the sampling periods determined by BEACON's EMFLUX® timing model to maximize the collection of soil gas emissions. **Attachment 2** describes the field procedures used. Individual deployment and retrieval times will be found in the Field Deployment Reports (**Attachment 3**).

5. Maryland Spectral Services, Inc. (MSS) Analysis and Reporting Dates

Maryland Spectral Services, Inc. (MSS) was contracted by Los Alamos National Laboratory to perform the analysis of the samples collected in this soil-gas investigation. MSS received 88 sample cartridges from the first survey on June 28, 2000, and received 22 sample cartridges from the second survey on July 27, 2000.

EMFLUX® sample cartridges were thermally desorbed, then analyzed using gas chromatography/mass spectrometry (GC/MS) equipment, in accordance with EPA Method TO-1 (Modified), as described in **Attachment 4**. MSS analyzed each cartridge for the targeted compounds.

MSS completed the analysis of the first batch of samples on July 7, 2000, and preliminary results were provided to MK/SEA on that same date. MSS completed analysis of the samples from the second survey on August 1, 2000, and following a laboratory review results were provided to MK/SEA on August 11, 2000.

6. Data Treatment

- **Tables 1 and 2** provide the survey results in average emission flux rates (ng/m2/min). Laboratory values were converted to emission flux rates using the following formula:

$$F = W/ATR$$

where:

- **F** = Average emission flux rate ($ng/m^2/min$),
- **W** = Contaminant mass (ng),
- **A** = Subtended shell area ($6.2 \times 10^{-3}\ m^2$),
- **T** = Collection period (min), and
- **R** = Adsorbent recovery factor (decimal fraction)

The specific collection period for each sample is given in the Field Deployment Report. Adsorbent recovery factors are provided in **Attachment 5**. The values in **Tables 1 and 2** have been corrected for the recovery factors.

7. Report Notes and Quality Assurance/Quality Control Factors

- **Tables 1 and 2** provide survey results in soil-gas emission flux rates by sample location number and compound name. The quantitation levels (Q.L.) represent values above which quantitative laboratory results can be achieved within specified limits of precision and with a high degree of confidence. The quantitation level of each compound, therefore, provides a reliable basis for comparison of the relative strength of individual detections of that compound.

- The Chain-of-Custody forms, which were shipped with the samples for this survey, are supplied as **Attachment 6**.

- **Laboratory QA/QC procedures** included standards, surrogates, and blanks appropriate to EPA Method TO-1 (Modified). Field work and reporting were done in accordance with BEACON's Quality Assurance Program Plan. MSS performed analyses under the laboratory's own Quality Assurance Plan.

- **QA/QC Contaminant Corrections.** Following EPA guidelines, EMFLUX® laboratory data is not corrected for method blank or trip blank contamination values; any contamination detected on QA/QC samples is reported in **Attachment 1**. Subsequent handling of QA/QC sample contamination depends upon the circumstances and origin of the sample; any corrective conventions noted below have proved highly useful in deriving accurate and reproducible interpretations of survey data in prior EMFLUX® Surveys. *No other methods thus far tested have produced comparable levels of quality.*

- Laboratory **method blanks** are run each day with project samples to identify contamination present in the laboratory. If contamination is detected on a method blank, detections of identical compounds on samples analyzed the same day are considered to be suspect and are flagged both in the laboratory report and in converted soil-gas emission flux rate data. The laboratory method blanks analyzed in connection with the present samples revealed no contamination.

- The **trip blank** is an EMFLUX® cartridge prepared, transported, and analyzed with other samples but intentionally not exposed. Although reported in the laboratory data, contamination on these field QA/QC samples are subtracted from measurements of the same compounds on field samples during data interpretation. In the first survey, the trip blanks (labeled Trip-1 through Trip-4 in **Attachment 1**) recorded Benzene on two of the trip blanks at 27 and 31 nanograms (ng), as well as 27 ng of Methylene Chloride, and 540 ng of Total Aliphatic Hydrocarbons. In the second survey, the trip blank (labeled

Trip-Blank in **Attachment 1**) recorded 41 ng of Benzene and 680 ng of Total Aliphatic Hydrocarbons. The highest compound value reported on the trip blanks for each survey was subtracted from field sample measurements of the same compounds prior to converting the data to soil-gas emission flux rates. These findings indicate that the survey site itself is the source of detected contamination, except the lower level detections of Benzene, Methylene Chloride, and Aliphatic Hydrocarbons.

- **Duplicates.** As additional QA/QC in the first survey, MK/SEA collected duplicates at sample locations 61 and 69, which were designated 62 and 70, respectively. Because duplicates cannot be identically located with their base field samples and because it is possible for even small geophysical differences between sample locations to affect soil-gas-emission quantities, comparisons between duplicates and base samples should be made on a qualitative basis, as quantitative results may be subject to random distortions. In general, a duplicate correspondence should be defined as a difference of 50% or less between contaminant data for base and duplicate samples. Also, for the purpose of calculating correspondences, all non-detections should be assigned as a baseline value the quantitation level for the specific contaminant. Based on these assumptions, a 99% correlation was found between the duplicate samples and their base samples.

- **Survey findings** are relative exclusively to this project and should not routinely be compared with results of other EMFLUX® Surveys. The following tables provide a summary of the results from this investigation.

First Survey

Compounds	Number of Detections	Range of Detections ($ng/m^2/min$)
Aliphatic Hydrocarbons (total)	8	12.60 to 170.25
Benzene	2	0.85 and 0.91
Carbon Tetrachloride	12	1.50 to 36.15
Chloroform	7	1.16 to 6.68
Tetrachloroethene	83	0.87 to 207.30
Trichloroethene	50	0.84 to 58.03

Second Survey

Compounds	Number of Detections	Range of Detections ($ng/m^2/min$)
Aliphatic Hydrocarbons (total)	4	9.25 to 29.67
Tetrachloroethene	13	0.98 to 56.89
Toluene	3	0.78 to 2.20
Trichloroethene	8	1.48 to 11.14

- The following Attachments are included:

  -1- Laboratory Report
  -2- EMFLUX® Field Procedures
  -3- Field Deployment Reports
  -4- Laboratory Procedures
  -5- Adsorbent Recovery Factors
  -6- Chain-of-Custody Forms

Table 1

Soil-Gas Emission Flux Rates (ng/m2/min)
MDA C, Technical Area 50
Los Alamos National Laboratory, NM

ıMPLE LOCATION		1	2	3	4	5
ıMPLE NUMBER	Q.L.	MD50-00-0011	MD50-00-0012	MD50-00-0013	MD50-00-0014	MD50-00-0015
)MPOUNDS						
iphatics HCs	6.73	--	--	--	--	--
:nzene	0.81	--	--	--	--	--
ırbon Tetrachloride	0.92	--	--	--	--	--
ıloroform	1.08	--	--	--	3.66	6.68
:trachloroethene	0.78	2.08	10.94	8.58	11.56	10.16
ichloroethene	0.84	1.17	7.31	1.57	2.77	2.27

ıMPLE LOCATION		6	7	8	9	10
ıMPLE NUMBER	Q.L.	MD50-00-0016	MD50-00-0017	MD50-00-0018	MD50-00-0019	MD50-00-0020
)MPOUNDS						
liphatics HCs	6.73	--	--	20.85	--	--
:nzene	0.81	--	--	--	--	--
ırbon Tetrachloride	0.92	--	9.26	--	--	1.50
ıloroform	1.08	2.80	1.94	--	--	--
:trachloroethene	0.78	6.84	27.82	3.82	2.86	15.86
ichloroethene	0.84	1.50	4.44	0.84	--	2.01

ıMPLE LOCATION		11	12	13	14	15
ıMPLE NUMBER	Q.L.	MD50-00-0021	MD50-00-0022	MD50-00-0023	MD50-00-0024	MD50-00-0025
OMPOUNDS						
liphatics HCs	6.73	--	--	86.40	--	--
enzene	0.81	--	--	--	--	--
arbon Tetrachloride	0.92	2.67	6.71	4.58	--	--
hloroform	1.08	--	1.16	--	--	--
etrachloroethene	0.78	15.21	16.95	9.30	2.18	2.77
richloroethene	0.84	1.17	2.94	4.15	1.20	3.18

OTES:
1) Values listed under "Q.L." are reported soil-gas emission flux rate quantitation levels.
2) "--" denotes absence of detections above the laboratory's reported quantitation level.

Table 1
(continued)
Soil-Gas Emission Flux Rates (ng/m2/min)
MDA C, Technical Area 50
Los Alamos National Laboratory, NM

MPLE LOCATION MPLE NUMBER	Q.L.	16 MD50-00-0026	17 MD50-00-0027	18 MD50-00-0028	19 MD50-00-0029	20 MD50-00-0030
)MPOUNDS						
phatics HCs	6.73	--	--	--	--	--
nzene	0.81	--	--	--	--	--
rbon Tetrachloride	0.92	2.38	--	--	--	--
loroform	1.08	--	--	--	--	--
trachloroethene	0.78	3.27	2.09	5.39	9.22	7.23
chloroethene	0.84	8.83	0.94	--	--	2.58

.MPLE LOCATION .MPLE NUMBER	Q.L.	21 MD50-00-0031	22 MD50-00-0032	23 MD50-00-0033	24 MD50-00-0034	25 MD50-00-0035
)MPOUNDS						
iphatics HCs	6.73	--	--	--	--	--
nzene	0.81	--	--	--	--	--
-bon Tetrachloride	0.92	--	2.31	36.15	1.65	--
.loroform	1.08	--	--	4.67	--	--
trachloroethene	0.78	4.21	5.08	2.52	2.52	1.28
ichloroethene	0.84	2.65	6.96	3.52	4.15	3.82

.MPLE LOCATION .MPLE NUMBER	Q.L.	26 MD50-00-0036	27 MD50-00-0037	28 MD50-00-0038	29 MD50-00-0039	30 MD50-00-0040
)MPOUNDS						
iphatics HCs	6.73	--	--	--	--	--
nzene	0.81	--	--	--	--	--
rbon Tetrachloride	0.92	--	--	--	--	--
loroform	1.08	--	--	--	--	--
trachloroethene	0.78	1.59	7.54	28.06	9.23	3.15
ichloroethene	0.84	1.34	0.90	--	--	2.82

)TES:
) Values listed under "Q.L." are reported soil-gas emission flux rate quantitation levels.
) "--" denotes absence of detections above the laboratory's reported quantitation level.

Table 1
(continued)
Soil-Gas Emission Flux Rates (ng/m2/min)
MDA C, Technical Area 50
Los Alamos National Laboratory, NM

MPLE LOCATION		31	32	33	34	35
MPLE NUMBER	Q.L.	MD50-00-0041	MD50-00-0042	MD50-00-0043	MD50-00-0044	MD50-00-0045
MPOUNDS						
phatics HCs	6.73	--	--	--	--	--
nzene	0.81	--	--	--	--	--
rbon Tetrachloride	0.92	--	4.85	2.87	1.73	--
loroform	1.08	--	--	--	--	--
rachloroethene	0.78	2.53	4.68	4.77	28.38	1.25
chloroethene	0.84	1.58	4.79	3.65	12.47	3.85

MPLE LOCATION		36	37	38	39	40
MPLE NUMBER	Q.L.	MD50-00-0046	MD50-00-0047	MD50-00-0048	MD50-00-0049	MD50-00-0050
MPOUNDS						
phatics HCs	6.73	--	--	12.60	--	--
nzene	0.81	--	--	--	--	--
rbon Tetrachloride	0.92	--	--	--	--	--
loroform	1.08	--	--	--	--	--
rachloroethene	0.78	5.30	13.32	5.30	6.92	3.18
chloroethene	0.84	1.11	--	--	1.58	58.03

MPLE LOCATION		41	42	43	44	45
MPLE NUMBER	Q.L.	MD50-00-0051	MD50-00-0052	MD50-00-0053	MD50-00-0054	MD50-00-0055
MPOUNDS						
phatics HCs	6.73	--	--	--	--	--
nzene	0.81	--	--	--	--	--
rbon Tetrachloride	0.92	--	--	--	--	--
loroform	1.08	--	--	--	--	--
rachloroethene	0.78	5.43	2.84	4.96	2.15	0.87
chloroethene	0.84	3.19	2.05	0.97	1.48	1.98

TES:
Values listed under "Q.L." are reported soil-gas emission flux rate quantitation levels.
"--" denotes absence of detections above the laboratory's reported quantitation level.

Table 1
(continued)
Soil-Gas Emission Flux Rates (ng/m2/min)
MDA C, Technical Area 50
Los Alamos National Laboratory, NM

AMPLE LOCATION		46	47	48	49	50
AMPLE NUMBER	Q.L.	MD50-00-0056	MD50-00-0057	MD50-00-0058	MD50-00-0059	MD50-00-0060
OMPOUNDS						
liphatics HCs	6.73	--	--	170.25	--	95.56
enzene	0.81	--	--	--	--	--
arbon Tetrachloride	0.92	--	--	--	--	--
hloroform	1.08	--	--	--	--	--
etrachloroethene	0.78	3.51	2.20	2.82	--	1.66
ichloroethene	0.84	--	--	--	--	--

AMPLE LOCATION		51	52	53	54	55
AMPLE NUMBER	Q.L.	MD50-00-0061	MD50-00-0062	MD50-00-0063	MD50-00-0064	MD50-00-0065
OMPOUNDS						
liphatics HCs	6.73	--	--	--	--	--
enzene	0.81	--	--	--	--	--
arbon Tetrachloride	0.92	--	--	--	--	--
loroform	1.08	--	--	--	--	--
etrachloroethene	0.78	2.92	2.32	200.92	69.71	4.38
ichloroethene	0.84	--	1.48	--	1.08	4.27

AMPLE LOCATION		56	57	58	59	60
AMPLE NUMBER	Q.L.	MD50-00-0066	MD50-00-0067	MD50-00-0068	MD50-00-0069	MD50-00-0070
OMPOUNDS						
liphatics HCs	6.73	--	--	--	--	13.52
enzene	0.81	--	--	--	--	--
arbon Tetrachloride	0.92	--	--	--	--	--
hloroform	1.08	--	--	--	--	--
etrachloroethene	0.78	4.87	1.92	1.79	1.10	1.89
ichloroethene	0.84	--	--	--	--	--

OTES:
) Values listed under "Q.L." are reported soil-gas emission flux rate quantitation levels.
) "--" denotes absence of detections above the laboratory's reported quantitation level.

Table 1
(continued)
Soil-Gas Emission Flux Rates (ng/m2/min)
MDA C, Technical Area 50
Los Alamos National Laboratory, NM

MPLE LOCATION		61	62	63	64	65
MPLE NUMBER	Q.L.	MD50-00-0071	MD50-00-0072	MD50-00-0073	MD50-00-0074	MD50-00-0075
MPOUNDS						
phatics HCs	6.73	--	--	--	--	--
zene	0.81	--	--	--	--	0.85
bon Tetrachloride	0.92	--	--	--	--	--
oroform	1.08	--	--	--	--	--
rachloroethene	0.78	1.32	1.54	1.19	4.21	8.39
chloroethene	0.84	--	--	--	--	--

MPLE LOCATION		66	67	68	69	70
MPLE NUMBER	Q.L.	MD50-00-0076	MD50-00-0077	MD50-00-0078	MD50-00-0079	MD50-00-0080
MPOUNDS						
phatics HCs	6.73	--	--	--	13.78	54.59
nzene	0.81	--	--	--	--	--
rbon Tetrachloride	0.92	--	--	--	--	--
loroform	1.08	--	--	1.52	--	--
trachloroethene	0.78	1.51	27.80	207.30	169.70	140.79
chloroethene	0.84	--	--	10.37	8.11	5.78

MPLE LOCATION		71	72	73	74	75
MPLE NUMBER	Q.L.	MD50-00-0081	MD50-00-0082	MD50-00-0083	MD50-00-0084	MD50-00-0085
OMPOUNDS						
iphatics HCs	6.73	--	--	--	--	--
nzene	0.81	--	--	--	--	--
rbon Tetrachloride	0.92	--	--	--	--	--
loroform	1.08	--	--	--	--	--
trachloroethene	0.78	56.58	150.02	16.67	58.84	10.04
ichloroethene	0.84	6.22	29.58	--	--	--

OTES:
) Values listed under "Q.L." are reported soil-gas emission flux rate quantitation levels.
) "--" denotes absence of detections above the laboratory's reported quantitation level.

Table 1
(continued)
Soil-Gas Emission Flux Rates (ng/m2/min)
MDA C, Technical Area 50
Los Alamos National Laboratory, NM

ıMPLE LOCATION		76	77	78	79	80
ıMPLE NUMBER	Q.L.	MD50-00-0086	MD50-00-0087	MD50-00-0088	MD50-00-0089	MD50-00-0090
)MPOUNDS						
iphatics HCs	6.73	--	--	--	--	--
:nzene	0.81	--	--	--	--	--
ırbon Tetrachloride	0.92	--	--	--	--	--
ıloroform	1.08	--	--	--	--	--
:trachloroethene	0.78	3.05	0.94	7.40	1.39	1.42
ichloroethene	0.84	--	--	--	--	--

ıMPLE LOCATION		81	82	83	84
ıMPLE NUMBER	Q.L.	MD50-00-0091	MD50-00-0092	MD50-00-0093	MD50-00-0094
)MPOUNDS					
liphatics HCs	6.73	--	--	--	--
:nzene	0.81	--	0.91	--	--
ırbon Tetrachloride	0.92	--	--	--	--
ıloroform	1.08	--	--	--	--
:trachloroethene	0.78	13.90	8.26	5.74	3.41
·ichloroethene	0.84	0.98	1.36	1.93	2.14

OTES:
1) Values listed under "Q.L." are reported soil-gas emission flux rate quantitation levels.
2) "--" denotes absence of detections above the laboratory's reported quantitation level.

Table 2

Soil-Gas Emission Flux Rates (ng/m2/min)
MDA C, Technical Area 50
Los Alamos National Laboratory, NM

MPLE LOCATION		1	2	3	4	5
MPLE NUMBER	Q.L.	MD50-00-0101	MD50-00-0102	MD50-00-0103	MD50-00-0104	MD50-00-0105
MPOUNDS						
hatics HCs	7.01	--	23.22	--	--	29.67
achloroethene	0.82	5.30	1.33	2.18	1.30	2.73
uene	0.75	--	0.84	--	--	0.78
hloroethene	0.88	--	--	--	--	2.45

MPLE LOCATION		6	7	8	9	10
MPLE NUMBER	Q.L.	MD50-00-0106	MD50-00-0107	MD50-00-0108	MD50-00-0109	MD50-00-0110
MPOUNDS						
phatics HCs	7.01	--	--	--	9.25	--
rachloroethene	0.82	--	--	--	--	--
uene	0.75	--	--	--	2.20	--
chloroethene	0.88	--	1.65	3.64	--	--

MPLE LOCATION		11	12	13	14	15
MPLE NUMBER	Q.L.	MD50-00-0111	MD50-00-0112	MD50-00-0113	MD50-00-0114	MD50-00-0115
MPOUNDS						
iphatics HCs	7.01	--	--	--	--	--
trachloroethene	0.82	--	1.08	--	22.38	2.12
luene	0.75	--	--	--	--	--
ichloroethene	0.88	--	--	--	--	--

TES:
) Values listed under "Q.L." are reported soil-gas emission flux rate quantitation levels.
) "--" denotes absence of detections above the laboratory's reported quantitation level.

Table 2
(continued)
Soil-Gas Emission Flux Rates (ng/m2/min)
MDA C, Technical Area 50
Los Alamos National Laboratory, NM

MPLE LOCATION MPLE NUMBER	Q.L.	16 MD50-00-0116	17 MD50-00-0117	18 MD50-00-0118	19 MD50-00-0119	20 MD50-00-0120
)MPOUNDS						
iphatics HCs	7.01	--	--	12.37	--	--
trachloroethene	0.82	24.51	--	56.89	7.46	1.01
luene	0.75	--	--	--	--	--
chloroethene	0.88	1.65	--	11.14	1.48	3.34

MPLE LOCATION MPLE NUMBER	Q.L.	21 MD50-00-0121
)MPOUNDS		
iphatics HCs	7.01	--
trachloroethene	0.82	0.98
luene	0.75	--
ichloroethene	0.88	3.34

)TES:
) Values listed under "Q.L." are reported soil-gas emission flux rate quantitation levels.
) "--" denotes absence of detections above the laboratory's reported quantitation level.

Attachment 1

Laboratory Report

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED TO-1

CLIENT SAMPLE ID:	MD50-00-0011	MD50-00-0012	MD50-00-0013	MD50-00-0014	MD50-00-0015	MD50-00-0016
	50-10000	50-10001	50-10002	50-10003	50-10004	50-10005
LAB SAMPLE ID:	000628111	000628112	000628113	000628114	000628115	000628116
RECEIVED DATE:	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00
ANALYSIS DATE:	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00
FILE NAME:	0628111	0628112	0628113	0628114	0628115	0628116
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Aliphatics HCs	250 U	250 U	250 U	351	301	333
Benzene	25 U	25 U	27	29	47	39
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
2-Butanone	50 U	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroform	25 U	25 U	25 U	85	155	65
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,4-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
Dichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Methyl-t-Butyl Ether (MTBE)	25 U	25 U	25 U	25 U	25 U	25 U
Methylene Chloride	25 U	25 U	25 U	25 U	25 U	25 U
2-Methylnaphthalene	25 U	25 U	25 U	25 U	25 U	25 U
Naphthalene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	67	352	276	372	327	220
Toluene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	35	219	47	83	68	45
Trichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
112-Trichlorotrifluoroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
Vinyl Chloride	50 U	50 U	50 U	50 U	50 U	50 U
Xylenes (Total)	25 U	25 U	25 U	25 U	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED TO-1

CLIENT SAMPLE ID:	MD50-00-0017	MD50-00-0018	MD50-00-0019	MD50-00-0020	MD50-00-0021	MD50-00-0022
	50-10006	50-10007	50-10008	50-10009	50-10010	50-10011
LAB SAMPLE ID:	000628117	000628118	000628119	000628120	000628121	000628122
RECEIVED DATE:	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00
ANALYSIS DATE:	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00
FILE NAME:	0628117	0628118	0628119	0628120	0628121	0628122
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Aliphatics HCs	361	1320	276	250 U	412	266
Benzene	25 U	29	36	43	39	35
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
2-Butanone	50 U	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	253	25 U	25 U	41	73	183
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroform	45	25 U	25 U	25 U	25 U	27
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,4-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
Dichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Methyl-t-Butyl Ether (MTBE)	25 U	25 U	25 U	25 U	25 U	25 U
Methylene Chloride	25 U	25 U	25 U	25 U	25 U	25 U
2-Methylnaphthalene	25 U	25 U	25 U	25 U	25 U	25 U
Naphthalene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	895	123	92	510	489	545
Toluene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	133	25	25 U	60	35	88
Trichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
112-Trichlorotrifluoroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
Vinyl Chloride	50 U	50 U	50 U	50 U	50 U	50 U
Xylenes (Total)	25 U	25 U	25 U	25 U	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED TO-1

CLIENT SAMPLE ID:	MD50-00-0023	MD50-00-0024	MD50-00-0025	MD50-00-0026	MD50-00-0027	MD50-00-0028
	50-10012	50-10013	50-10014	50-10015	50-10016	50-10017
LAB SAMPLE ID:	000628123	000628124	000628125	000628126	000628127	000628128
RECEIVED DATE:	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00
ANALYSIS DATE:	06/28/00	06/29/00	06/29/00	06/29/00	06/29/00	06/29/00
FILE NAME:	0628123	0628124	0628125	0628126	0628127	0628128
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Aliphatics HCs	3770	301	670	250 U	250 U	386
Benzene	27	25 U	39	32	34	32
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
2-Butanone	50 U	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	125	25 U	25 U	65	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroform	25 U	25 U	25 U	25 U	25 U	25 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,4-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
Dichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Methyl-t-Butyl Ether (MTBE)	25 U	25 U	25 U	25 U	25 U	25 U
Methylene Chloride	25 U	25 U	25 U	25 U	25 U	25 U
2-Methylnaphthalene	25 U	25 U	25 U	25 U	25 U	25 U
Naphthalene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	299	70	89	105	67	173
Toluene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	124	36	95	264	28	25 U
Trichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
112-Trichlorotrifluoroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
Vinyl Chloride	50 U	50 U	50 U	50 U	50 U	50 U
Xylenes (Total)	25 U	25 U	25 U	25 U	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED TO-1

CLIENT SAMPLE ID:	MD50-00-0029	MD50-00-0030	MD50-00-0031	MD50-00-0032	MD50-00-0033	MD50-00-0034
	50-10018	50-10019	50-10020	50-10021	50-10022	50-10023
LAB SAMPLE ID:	000628129	000628130	000628131	000628132	000628133	000628134
RECEIVED DATE:	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00
ANALYSIS DATE:	06/29/00	06/29/00	06/29/00	06/29/00	06/29/00	06/29/00
FILE NAME:	0628129	0628130	0628131	0628132	0628133	0628134
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Aliphatics HCs	250 U	397	270	331	250 U	250 U
Benzene	30	25 U	50	29	30	28
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
2-Butanone	50 U	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	25 U	25 U	25 U	63	985	45
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroform	25 U	25 U	25 U	25 U	108	25 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,4-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
Dichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Methyl-t-Butyl Ether (MTBE)	25 U	25 U	25 U	25 U	25 U	25 U
Methylene Chloride	25 U	25 U	25 U	25 U	25 U	25 U
2-Methylnaphthalene	25 U	25 U	25 U	25 U	25 U	25 U
Naphthalene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	296	232	135	163	81	81
Toluene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	25 U	77	79	208	105	124
Trichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
112-Trichlorotrifluoroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
Vinyl Chloride	50 U	50 U	50 U	50 U	50 U	50 U
Xylenes (Total)	25 U	25 U	25 U	25 U	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED TO-1

CLIENT SAMPLE ID:	MD50-00-0035	MD50-00-0036	MD50-00-0037	MD50-00-0038	MD50-00-0039	MD50-00-0040
	50-10024	50-10025	50-10026	50-10027	50-10028	50-10029
LAB SAMPLE ID:	000628135	000628136	000628137	000628138	000628139	000628140
RECEIVED DATE:	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00
ANALYSIS DATE:	06/29/00	06/29/00	06/29/00	06/29/00	06/29/00	06/30/00
FILE NAME:	0628135	0628136	0628137	0628138	0628139	0628140
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Aliphatics HCs	388	337	250 U	250 U	250 U	250 U
Benzene	26	34	35	27	42	25 U
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
2-Butanone	50 U	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroform	25 U	25 U	25 U	25 U	25 U	25 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,4-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
Dichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Methyl-t-Butyl Ether (MTBE)	25 U	25 U	25 U	25 U	25 U	25 U
Methylene Chloride	25 U	25 U	25 U	25 U	25 U	25 U
2-Methylnaphthalene	25 U	25 U	25 U	25 U	25 U	25 U
Naphthalene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	41	51	242	900	296	101
Toluene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	114	40	27	25 U	25 U	84
Trichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
112-Trichlorotrifluoroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
Vinyl Chloride	50 U	50 U	50 U	50 U	50 U	50 U
Xylenes (Total)	25 U	25 U	25 U	25 U	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED TO-1

CLIENT SAMPLE ID:	MD50-00-0041	MD50-00-0042	MD50-00-0043	MD50-00-0044	MD50-00-0045	MD50-00-0046
	50-10030	50-10031	50-10032	50-10033	50-10034	50-10035
LAB SAMPLE ID:	000628141	000628142	000628143	000628144	000628145	000628146
RECEIVED DATE:	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00
ANALYSIS DATE:	06/30/00	06/30/00	06/30/00	06/30/00	06/30/00	06/30/00
FILE NAME:	0628141	0628142	0628143	0628144	0628145	0628146
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Aliphatics HCs	250 U	410	250 U	580	250 U	250 U
Benzene	37	41	32	38	25 U	25 U
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
2-Butanone	50 U	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	25 U	132	78	47	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroform	25 U	25 U	25 U	25 U	25 U	25 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,4-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
Dichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Methyl-t-Butyl Ether (MTBE)	25 U	25 U	25 U	25 U	25 U	25 U
Methylene Chloride	25 U	25 U	25 U	25 U	25 U	25 U
2-Methylnaphthalene	25 U	25 U	25 U	25 U	25 U	25 U
Naphthalene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	81	150	153	910	40	170
Toluene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	47	143	109	372	115	33
Trichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
112-Trichlorotrifluoroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
Vinyl Chloride	50 U	50 U	50 U	50 U	50 U	50 U
Xylenes (Total)	25 U	25 U	25 U	25 U	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED TO-1

CLIENT SAMPLE ID:	MD50-00-0047	MD50-00-0048	MD50-00-0049	MD50-00-0050	MD50-00-0051	MD50-00-0052
	50-10036	50-10037	50-10038	50-10039	50-10040	50-10041
LAB SAMPLE ID:	000628147	000628148	000628149	000628150	000628151	000628152
RECEIVED DATE:	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00
ANALYSIS DATE:	06/30/00	06/30/00	06/30/00	06/30/00	06/30/00	06/30/00
FILE NAME:	0628147	0628148	0628149	0628150	0628151	0628152
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Aliphatics HCs	250 U	1010	250 U	260	300	250 U
Benzene	25 U	27	28	25 U	25 U	25 U
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
2-Butanone	50 U	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroform	25 U	25 U	25 U	25 U	25 U	25 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,4-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
Dichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Methyl-t-Butyl Ether (MTBE)	25 U	25 U	25 U	25 U	25 U	25 U
Methylene Chloride	25 U	25 U	25 U	27	25 U	25 U
2-Methylnaphthalene	25 U	25 U	25 U	25 U	25 U	25 U
Naphthalene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	427	170	222	102	174	91
Toluene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	25 U	25 U	47	1730	95	61
Trichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
112-Trichlorotrifluoroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
Vinyl Chloride	50 U	50 U	50 U	50 U	50 U	50 U
Xylenes (Total)	25 U	25 U	25 U	25 U	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED TO-1

CLIENT SAMPLE ID:	MD50-00-0053	MD50-00-0054	MD50-00-0055	MD50-00-0056	MD50-00-0057	MD50-00-0058
	50-10042	50-10043	50-10044	50-10045	50-10046	50-10047
LAB SAMPLE ID:	000628153	000628154	000628155	000628156	000628157	000628158
RECEIVED DATE:	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00
ANALYSIS DATE:	07/05/00	06/30/00	06/30/00	07/05/00	07/05/00	07/05/00
FILE NAME:	0628153	0628154	0628155	0628156	0628157	0628158
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Aliphatics HCs	250 U	268	250 U	327	250 U	6850
Benzene	25 U	33	26	36	28	26
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
2-Butanone	50 U	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroform	25 U	25 U	25 U	25 U	25 U	25 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,4-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
Dichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Methyl-t-Butyl Ether (MTBE)	25 U	25 U	25 U	25 U	25 U	25 U
Methylene Chloride	25 U	25 U	25 U	25 U	25 U	25 U
2-Methylnaphthalene	25 U	25 U	25 U	25 U	25 U	25 U
Naphthalene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	159	69	28	112	70	90
Toluene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	29	44	59	25 U	25 U	25 U
Trichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
112-Trichlorotrifluoroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
Vinyl Chloride	50 U	50 U	50 U	50 U	50 U	50 U
Xylenes (Total)	25 U	25 U	25 U	25 U	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED TO-1

CLIENT SAMPLE ID:	MD50-00-0059	MD50-00-0060	MD50-00-0061	MD50-00-0062	MD50-00-0063	MD50-00-0064
	50-10048	50-10049	50-10050	50-10051	50-10052	50-10053
LAB SAMPLE ID:	000628159	000628160	000628161	000628162	000628163	000628164
RECEIVED DATE:	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00
ANALYSIS DATE:	07/05/00	07/05/00	07/05/00	07/05/00	07/05/00	07/05/00
FILE NAME:	0628159	0628160	0628161	0628162	0628163	0628164
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Aliphatics HCs	385	4080	261	250 U	305	250 U
Benzene	43	53	43	26	25	38
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
2-Butanone	50 U	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroform	25 U	25 U	25 U	25 U	25 U	25 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,4-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
Dichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Methyl-t-Butyl Ether (MTBE)	25 U	25 U	25 U	25 U	25 U	25 U
Methylene Chloride	25 U	25 U	25 U	25 U	25 U	25 U
2-Methylnaphthalene	25 U	25 U	25 U	25 U	25 U	25 U
Naphthalene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	25 U	53	93	74	6400	2220
Toluene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	25 U	25 U	25 U	44	25 U	32
Trichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
112-Trichlorotrifluoroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
Vinyl Chloride	50 U	50 U	50 U	50 U	50 U	50 U
Xylenes (Total)	25 U	25 U	25 U	25 U	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED TO-1

CLIENT SAMPLE ID:	MD50-00-0065	MD50-00-0066	MD50-00-0067	MD50-00-0068	MD50-00-0069	MD50-00-0070
	50-10054	50-10055	50-10056	50-10057	50-10058	50-10059
LAB SAMPLE ID:	000628165	000628166	000628167	000628168	000628169	000628170
RECEIVED DATE:	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00
ANALYSIS DATE:	07/05/00	07/05/00	07/05/00	07/06/00	07/06/00	07/06/00
FILE NAME:	0628165	0628166	0628167	0628168	0628169	0628170
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Aliphatics HCs	365	250 U	250 U	550	397	1040
Benzene	35	31	25 U	25 U	36	25 U
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
2-Butanone	50 U	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroform	25 U	25 U	25 U	25 U	25 U	25 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,4-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
Dichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Methyl-t-Butyl Ether (MTBE)	25 U	25 U	25 U	25 U	25 U	25 U
Methylene Chloride	25 U	25 U	25 U	25 U	25 U	25 U
2-Methylnaphthalene	25 U	25 U	25 U	25 U	25 U	25 U
Naphthalene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	140	155	61	57	35	60
Toluene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	127	25 U	25 U	25 U	25 U	25 U
Trichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
112-Trichlorotrifluoroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
Vinyl Chloride	50 U	50 U	50 U	50 U	50 U	50 U
Xylenes (Total)	25 U	25 U	25 U	25 U	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED TO-1

CLIENT SAMPLE ID:	MD50-00-0071	MD50-00-0072	MD50-00-0073	MD50-00-0074	MD50-00-0075	MD50-00-0076
	50-10060	50-10061	50-10062	50-10063	50-10064	50-10065
LAB SAMPLE ID:	000628171	000628172	000628173	000628174	000628175	000628176
RECEIVED DATE:	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00
ANALYSIS DATE:	07/06/00	07/06/00	07/06/00	07/06/00	07/06/00	07/06/00
FILE NAME:	0628171	0628172	0628173	0628174	0628175	0628176
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Aliphatics HCs	270	250 U	250 U	318	342	250 U
Benzene	25 U	34	25 U	28	57	37
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
2-Butanone	50 U	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroform	25 U	25 U	25 U	25 U	25 U	25 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,4-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
Dichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Methyl-t-Butyl Ether (MTBE)	25 U	25 U	25 U	25 U	25 U	25 U
Methylene Chloride	25 U	25 U	25 U	25 U	25 U	25 U
2-Methylnaphthalene	25 U	25 U	25 U	25 U	25 U	25 U
Naphthalene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	42	49	38	134	267	48
Toluene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
Trichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
112-Trichlorotrifluoroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
Vinyl Chloride	50 U	50 U	50 U	50 U	50 U	50 U
Xylenes (Total)	25 U	25 U	25 U	25 U	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED TO-1

CLIENT SAMPLE ID:	MD50-00-0077	MD50-00-0078	MD50-00-0079	MD50-00-0080	MD50-00-0081	MD50-00-0082
	50-10066	50-10067	50-10068	50-10069	50-10070	50-10071
LAB SAMPLE ID:	000628177	000628178	000628179	000628180	000628181	000628182
RECEIVED DATE:	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00
ANALYSIS DATE:	07/06/00	07/06/00	07/06/00	07/06/00	07/06/00	07/07/00
FILE NAME:	0628177	0628178	0628179	0628180	0628181	0628182
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Aliphatics HCs	500	423	1050	2560	337	250 U
Benzene	25 U	54	25 U	25 U	25 U	25 U
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
2-Butanone	50 U	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroform	25 U	35	25 U	25 U	25 U	25 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,4-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
Dichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Methyl-t-Butyl Ether (MTBE)	25 U	25 U	25 U	25 U	25 U	25 U
Methylene Chloride	25 U	25 U	25 U	25 U	25 U	25 U
2-Methylnaphthalene	25 U	25 U	25 U	25 U	25 U	25 U
Naphthalene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	885	6600	5400	4480	1800	4770
Toluene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	25 U	307	240	171	184	875
Trichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
112-Trichlorotrifluoroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
Vinyl Chloride	50 U	50 U	50 U	50 U	50 U	50 U
Xylenes (Total)	25 U	25 U	25 U	25 U	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED TO-1

CLIENT SAMPLE ID:	MD50-00-0083	MD50-00-0084	MD50-00-0085	MD50-00-0086	MD50-00-0087	MD50-00-0088
	50-10072	50-10073	50-10074	50-10075	50-10076	50-10077
LAB SAMPLE ID:	000628183	000628184	000628185	000628186	000628187	000628188
RECEIVED DATE:	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00
ANALYSIS DATE:	07/07/00	07/07/00	07/07/00	07/07/00	07/07/00	07/07/00
FILE NAME:	0628183	0628184	0628185	0628186	0628187	0628188
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Aliphatics HCs	250 U	250 U	250 U	250 U	328	341
Benzene	25 U	32	30	25	42	27
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
2-Butanone	50 U	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroform	25 U	25 U	25 U	25 U	25 U	25 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,4-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
Dichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Methyl-t-Butyl Ether (MTBE)	25 U	25 U	25 U	25 U	25 U	25 U
Methylene Chloride	25 U	25 U	25 U	25 U	25 U	25 U
2-Methylnaphthalene	25 U	25 U	25 U	25 U	25 U	25 U
Naphthalene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	530	1870	319	97	30	235
Toluene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
Trichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
112-Trichlorotrifluoroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
Vinyl Chloride	50 U	50 U	50 U	50 U	50 U	50 U
Xylenes (Total)	25 U	25 U	25 U	25 U	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED TO-1

CLIENT SAMPLE ID:	MD50-00-0089	MD50-00-0090	MD50-00-0091	MD50-00-0092	MD50-00-0093	MD50-00-0094
	50-10078	50-10079	50-10080	50-10081	50-10082	50-10083
LAB SAMPLE ID:	000628189	000628190	000628191	000628192	000628193	000628194
RECEIVED DATE:	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00	06/28/00
ANALYSIS DATE:	07/07/00	07/07/00	07/07/00	07/07/00	07/07/00	07/07/00
FILE NAME:	0628189	0628190	0628191	0628192	0628193	0628194
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Aliphatics HCs	381	250 U	306	255	250 U	250 U
Benzene	25 U	25 U	32	59	29	31
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
2-Butanone	50 U	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroform	25 U	25 U	25 U	25 U	25 U	25 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,4-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
Dichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Methyl-t-Butyl Ether (MTBE)	25 U	25 U	25 U	25 U	25 U	25 U
Methylene Chloride	25 U	25 U	25 U	25 U	25 U	25 U
2-Methylnaphthalene	25 U	25 U	25 U	25 U	25 U	25 U
Naphthalene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	44	45	441	262	182	108
Toluene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	25 U	25 U	29	40	57	63
Trichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
112-Trichlorotrifluoroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
Vinyl Chloride	50 U	50 U	50 U	50 U	50 U	50 U
Xylenes (Total)	25 U	25 U	25 U	25 U	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED TO-1

CLIENT SAMPLE ID:	MD50-00-0096	MD50-00-0097	MD50-00-0098	MD50-00-0095	VBLK0628D1	VBLK0629D1
	TRIP-1	TRIP-2	TRIP-3	TRIP-4		
LAB SAMPLE ID:	000628196	000628197	000628198	000628199	METHOD BLANK	METHOD BLANK
RECEIVED DATE:	06/28/00	06/28/00	06/28/00	06/28/00		
ANALYSIS DATE:	06/28/00	06/30/00	07/06/00	07/07/00	06/28/00	06/29/00
FILE NAME:	0628196	0628197	0628198	0628199	0628VBLKD1	0629VBLKD1
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Aliphatics HCs	250 U	250 U	250 U	540	250 U	250 U
Benzene	25 U	31	25	25 U	25 U	25 U
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
2-Butanone	50 U	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroform	25 U	25 U	25 U	25 U	25 U	25 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,4-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
Dichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Methyl-t-Butyl Ether (MTBE)	25 U	25 U	25 U	25 U	25 U	25 U
Methylene Chloride	25 U	27	25 U	25 U	25 U	25 U
2-Methylnaphthalene	25 U	25 U	25 U	25 U	25 U	25 U
Naphthalene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	25 U	25 U	25 U	25 U	25 U	25 U
Toluene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
Trichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
112-Trichlorotrifluoroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
Vinyl Chloride	50 U	50 U	50 U	50 U	50 U	50 U
Xylenes (Total)	25 U	25 U	25 U	25 U	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED TO-1

CLIENT SAMPLE ID:	VBLK0630D1	VBLK0705D1	VBLK0706D1	VBLK0707D1	0706VBLKD1
LAB SAMPLE ID:	METHOD BLANK	METHOD BLANK	METHOD BLANK	METHOD BLANK	METHOD BLANK
RECEIVED DATE:					
ANALYSIS DATE:	06/30/00	07/05/00	07/06/00	07/07/00	07/06/00
FILE NAME:	0630VBLKD1	0705VBLKD1	0706VBLKD1	0707VBLKD1	706VBLKD1
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS					
Aliphatics HCs	250 U	250 U	250 U	250 U	250 U
Benzene	25 U	25 U	25 U	25 U	25 U
Bromoform	25 U	25 U	25 U	25 U	25 U
2-Butanone	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U
Chloroform	25 U	25 U	25 U	25 U	25 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U
1,2-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U
1,3-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U
1,4-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U
Dichlorofluoromethane	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U
Methyl-t-Butyl Ether (MTBE)	25 U	25 U	25 U	25 U	25 U
Methylene Chloride	25 U	25 U	25 U	25 U	25 U
2-Methylnaphthalene	25 U	25 U	25 U	25 U	25 U
Naphthalene	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	25 U	25 U	25 U	25 U	25 U
Toluene	25 U	25 U	25 U	25 U	25 U
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U
Trichloroethene	25 U	25 U	25 U	25 U	25 U
Trichlorofluoromethane	25 U	25 U	25 U	25 U	25 U
112-Trichlorotrifluoroethane	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U
Vinyl Chloride	50 U	50 U	50 U	50 U	50 U
Xylenes (Total)	25 U	25 U	25 U	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED TO-1

CLIENT SAMPLE ID:	MD50-00-0101	MD50-00-0102	MD50-00-0103	MD50-00-0104	MD50-00-0105	MD50-00-0106
	1	2	3	4	5	6
LAB SAMPLE ID:	000727101	000727102	000727103	000727104	000727105	000727106
RECEIVED DATE:	07/27/00	07/27/00	07/27/00	07/27/00	07/27/00	07/27/00
ANALYSIS DATE:	07/31/00	07/31/00	07/31/00	07/31/00	07/31/00	07/31/00
FILE NAME:	0727101	0727102	0727103	0727104	0727105	0727106
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Aliphatics HCs	550	1510	745	466	1740	620
Benzene	37	52	44	30	50	46
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
2-Butanone	50 U	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroform	25 U	25 U	25 U	25 U	25 U	25 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,4-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
Dichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Methyl-t-Butyl Ether (MTBE)	25 U	25 U	25 U	25 U	25 U	25 U
Methylene Chloride	25 U	25 U	25 U	25 U	25 U	25 U
2-Methylnaphthalene	25 U	25 U	25 U	25 U	25 U	25 U
Naphthalene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	163	41	67	40	84	25 U
Toluene	25 U	28	25 U	25 U	26	25 U
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	25 U	25 U	25 U	25 U	70	25 U
Trichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
112-Trichlorotrifluoroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
Vinyl Chloride	50 U	50 U	50 U	50 U	50 U	50 U
Xylenes (Total)	25 U	25 U	25 U	25 U	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED TO-1

CLIENT SAMPLE ID:	MD50-00-0107	MD50-00-0108	MD50-00-0109	MD50-00-0110	MD50-00-0111	MD50-00-0112
	7	8	9	10	11	12
LAB SAMPLE ID:	000727107	000727108	000727109	000727110	000727111	000727112
RECEIVED DATE:	07/27/00	07/27/00	07/27/00	07/27/00	07/27/00	07/27/00
ANALYSIS DATE:	07/31/00	07/31/00	07/31/00	07/31/00	07/31/00	07/31/00
FILE NAME:	0727107	0727108	0727109	0727110	0727111	0727112
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Aliphatics HCs	445	645	1010	291	302	250 U
Benzene	30	36	25 U	48	28	38
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
2-Butanone	50 U	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroform	25 U	25 U	25 U	25 U	25 U	25 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,4-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
Dichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Methyl-t-Butyl Ether (MTBE)	25 U	25 U	25 U	25 U	25 U	25 U
Methylene Chloride	25 U	25 U	25 U	25 U	25 U	25 U
2-Methylnaphthalene	25 U	25 U	25 U	25 U	25 U	25 U
Naphthalene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	25 U	25 U	25 U	25 U	25 U	33
Toluene	25 U	25 U	73	25 U	25 U	25 U
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	47	104	25 U	25 U	25 U	25 U
Trichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
112-Trichlorotrifluoroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
Vinyl Chloride	50 U	50 U	50 U	50 U	50 U	50 U
Xylenes (Total)	25 U	25 U	25 U	25 U	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED TO-1

CLIENT SAMPLE ID:	MD50-00-0113	MD50-00-0114	MD50-00-0115	MD50-00-0116	MD50-00-0117	MD50-00-0118
	13	14	15	16	17	18
LAB SAMPLE ID:	000727113	000727114	000727115	000727116	000727117	000727118
RECEIVED DATE:	07/27/00	07/27/00	07/27/00	07/27/00	07/27/00	07/27/00
ANALYSIS DATE:	08/01/00	08/01/00	08/01/00	08/01/00	08/01/00	08/01/00
FILE NAME:	0727113	0727114	0727115	0727116	0727117	0727118
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Aliphatics HCs	920	715	458	835	580	1120
Benzene	30	29	30	54	48	37
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
2-Butanone	50 U	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroform	25 U	25 U	25 U	25 U	25 U	25 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,4-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
Dichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Methyl-t-Butyl Ether (MTBE)	25 U	25 U	25 U	25 U	25 U	25 U
Methylene Chloride	25 U	25 U	25 U	25 U	25 U	25 U
2-Methylnaphthalene	25 U	25 U	25 U	25 U	25 U	25 U
Naphthalene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	25 U	685	65	750	25 U	1740
Toluene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	25 U	25 U	25 U	47	25 U	317
Trichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
112-Trichlorotrifluoroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
Vinyl Chloride	50 U	50 U	50 U	50 U	50 U	50 U
Xylenes (Total)	25 U	25 U	25 U	25 U	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

MARYLAND SPECTRAL SERVICES, INC.

1500 Caton Center Drive Baltimore, MD 21227

VOLATILE ORGANICS BY EPA GC/MS METHOD MODIFIED TO-1

CLIENT SAMPLE ID:	MD50-00-0119	MD50-00-0120	MD50-00-0121	MD50-00-0122	VBLK0731D1	VBLK0801D1
	19	20	21	TRIP-BLANK		
LAB SAMPLE ID:	000727119	000727120	000727121	000727122	METHOD BLANK	METHOD BLANK
RECEIVED DATE:	07/27/00	07/27/00	07/27/00	07/27/00		
ANALYSIS DATE:	08/01/00	08/01/00	08/01/00	08/01/00	07/31/00	08/01/00
FILE NAME:	0727119	0727120	0727121	0727122	0731VBLKD1	0801VBLKD1
INSTRUMENT ID:	MSD	MSD	MSD	MSD	MSD	MSD
UNITS:	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP	NG/TRAP
VOLATILE COMPOUNDS						
Aliphatics HCs	250 U	680	750	680	250 U	250 U
Benzene	38	29	28	41	25 U	25 U
Bromoform	25 U	25 U	25 U	25 U	25 U	25 U
2-Butanone	50 U	50 U	50 U	50 U	50 U	50 U
Carbon Tetrachloride	25 U	25 U	25 U	25 U	25 U	25 U
Chlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
Chloroform	25 U	25 U	25 U	25 U	25 U	25 U
Dibromochloromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,4-Dichlorobenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1-Dichloroethene	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (cis)	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloroethene (trans)	25 U	25 U	25 U	25 U	25 U	25 U
Dichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2-Dichloropropane	25 U	25 U	25 U	25 U	25 U	25 U
cis-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
trans-1,3-Dichloropropene	25 U	25 U	25 U	25 U	25 U	25 U
Ethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	50 U	50 U	50 U	50 U	50 U
4-Methyl-2-Pentanone	50 U	50 U	50 U	50 U	50 U	50 U
Methyl-t-Butyl Ether (MTBE)	25 U	25 U	25 U	25 U	25 U	25 U
Methylene Chloride	25 U	25 U	25 U	25 U	25 U	25 U
2-Methylnaphthalene	25 U	25 U	25 U	25 U	25 U	25 U
Naphthalene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2,2-Tetrachloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Tetrachloroethene	228	31	30	25 U	25 U	25 U
Toluene	25 U	25 U	25 U	25 U	25 U	25 U
1,1,1-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,1,2-Trichloroethane	25 U	25 U	25 U	25 U	25 U	25 U
Trichloroethene	42	95	95	25 U	25 U	25 U
Trichlorofluoromethane	25 U	25 U	25 U	25 U	25 U	25 U
112-Trichlorotrifluoroethane	25 U	25 U	25 U	25 U	25 U	25 U
1,2,4-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
1,3,5-Trimethylbenzene	25 U	25 U	25 U	25 U	25 U	25 U
Vinyl Chloride	50 U	50 U	50 U	50 U	50 U	50 U
Xylenes (Total)	25 U	25 U	25 U	25 U	25 U	25 U

B - Detected in lab blank. U - Below reported quantitation level. J - Estimated value.

Attachment 2

FIELD PROCEDURES FOR EMFLUX® SOIL-GAS SURVEYS

The following field procedures are routinely used during EMFLUX® Soil-Gas Surveys. Modifications can be and are incorporated from time to time in response to individual project requirements. In all instances, BEACON adheres to EPA-approved Quality Assurance and Quality Control practices.

A. One or more two-person teams, the specific number dependent upon scope and schedule of the project, transport EMFLUX® system components and support equipment to the site and deploy samplers in accordance with a prearranged survey pattern. One member of each team is designated "clean" and given exclusive responsibility for procedures involving components that must be protected from contamination.

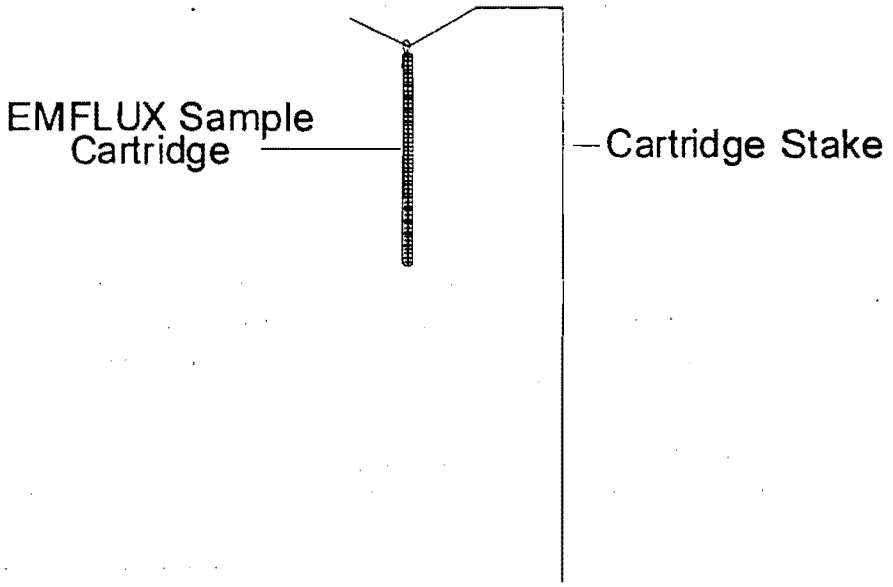
B. At each investigation point, the team clears vegetation as necessary, removes a laboratory-prepared sampler cartridge containing a standardized adsorbent from an air-tight vial, affixes it to a support stake, and secures this sampler assembly to the ground at the specified point. The sampler shell is immediately placed on the ground, open end down, over the sampler assembly and surrounded with a collar of sand or local soil (to minimize effects of ambient airflow). The shell is then covered with camouflage cloth, which is secured with a small additional amount of sand or soil. Finally, the team records the investigation point location code, cartridge number, date and time of emplacement, and other relevant information.

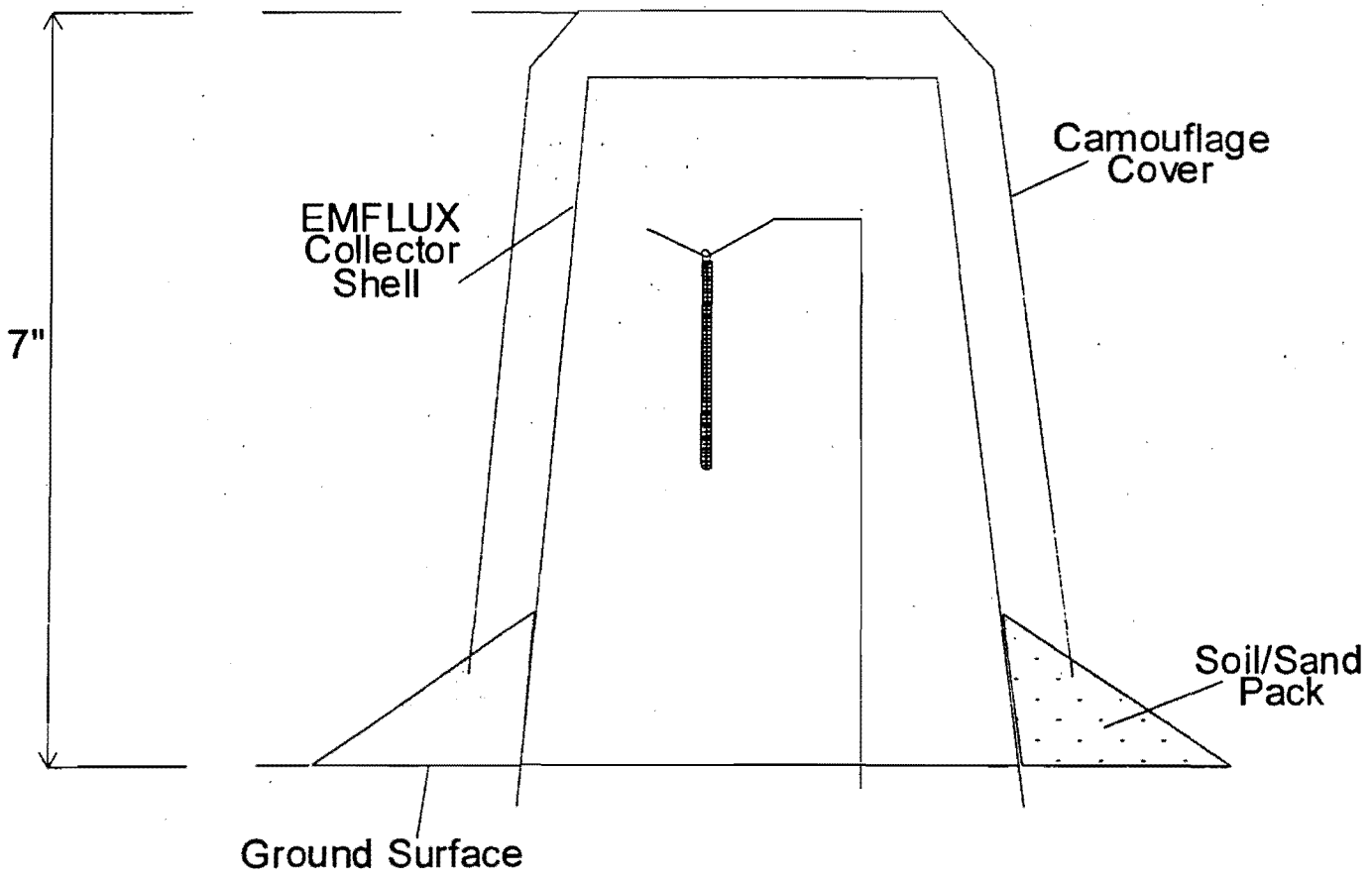
C. As part of the quality control program, one or more trip blanks are also carried to and from the site in air-tight vials.

D. Once the predetermined number of EMFLUX® sampling devices are in the field, the team sets the time for sampler recovery (generally not less than 72 hours after emplacement) and leaves the area, taking with it all equipment except the detection devices.

E. The team returns to retrieve the sampling devices when the exposure period has elapsed. The "clean" person of the team recovers the cartridge at each point and returns it to its air-tight vial, while the other person collects the remaining equipment. Again, location codes, cartridge numbers, dates, times, etc. are recorded.

F. The field team carries (or in some cases ships) re-sealed vials containing exposed cartridges to analytical laboratories under contract to BEACON for processing. The remaining equipment is returned to BEACON's preparation facility for cleaning and reuse.


EMFLUX Sample
Cartridge
Cartridge Stake


Camouflage
Cover
EMFLUX
Collector
Shell
7"
Soil/Sand
Pack
Ground Surface