Versar INC.

ENVIRONMENTAL RISK MANAGEMENT

ORIGINAL

Versar INC.

441608

PESTICIDE ANALYSIS - TCLP
DATA SUMMARY PACKAGE

CLIENT : VERSAR DIV. 31
SITE : CDM
PROJECT: 420.1 B#2
CONTROL: 2536
DATE : 05/21/90

Versar INC.

Pesticide Fraction Analysis Narrative

Client: Versar Div. 31; Camp, Dresser, McGee
Lab Operations Project No. 420.1 B#2; Control 2536 - Leachates
May 21, 1990

Please find enclosed the analytical data and calculated results for the analysis of the samples received at Versar on 19 April, 1990. The package contains raw data, calculated and summarized results, as well as any QC samples processed with the sample batch.

All standard and QC data would indicate that the analysis is valid and representative for the samples without further qualification.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager of his designee, as verified by the following signature.

Reza Karimi

Dr. Reza Karimi
Section Chief
Applied Chromatography
Laboratory Operations

Versar INC.

Pesticide Fraction Analysis Detail
Client: Versar Div. 31; Camp, Dresser, McGee
Lab Operations Project No. 420.1 B#2; Control 2536 - Leachates
May 21, 1990

Please find enclosed the analytical data and calculated results for the analysis of the samples received at Versar on 19 April, 1990. The samples were requested for analysis of TCLP pesticides under method 608 protocol. The samples were not extracted within the holding time prescribed in the Statement of Work. The date of extraction was 8 May, 1990, for the following samples:

SAMPLES

Field ID#	Lab ID#
*1	*16418

*Denotes sample chosen for QC extraction (MS/MSD).

All criteria were adhered to during analysis. All calibration standard results were acceptable where required. All data has been reviewed for completeness and validity. None of the samples contained any of the compounds of interest at levels above the reported detection limits.

Sample extracts were analyzed on a mixed phase, SP2250/SP2401, packed column under five point calibration for the individual pesticides, and with a full set of multicomponent standards to allow for quantitation of tentatively identified results. The primary analysis of these extracts was completed in a single analytical sequence.

Linearity criteria were met prior to analysis of calibration standards and sample extracts.

Degradation checks performed prior to, and at intervals throughout the analysis had results within the contractual limit of 20 percent.

DBC shift was monitored throughout the analytical sequence and remained well within the contract limit of 2.0% for packed column analyses.

All standard comparison result qualified data for quantitation of results. Where standard comparison results exceeded the prescribed limits, sample analyses were discontinued and a new sequence was initiated. Since no sample analyses were performed after an outlying standard result, no further analyses were required.

Versar INC.

The sample preparation section of the report includes sample comments in which each sequence is further detailed. Comments include discussion of each analytical sequence. In addition, sample preparation comments are included which may include discussion of any difficulties encountered during the analysis.

The QC section of the report includes surrogate recoveries, matrix spike and matrix spike duplicate recoveries, as well as method blank results. Surrogate recoveries for the case exhibit good extraction efficiency with none of the seven recoveries outside the QC limit windows. Matrix spike and matrix spike duplicate recoveries exhibit good extraction efficiency with zero of eight spike recoveries outside of the prescribed QC window limits. Precision for the two spiked extracts, as demonstrated by the relative percent difference (RPD) results, was good with none of the four results above the prescribed limits. No qualified identifications, or significant contamination were observed in the laboratory blank.

If you have any questions regarding the pesticide analyses detailed herein, please feel free to call me at your convenience.

Christopher E. Bunker
Data Quality Analyst
Applied Chromatography
Laboratory Operations

WATER PESTICIDE SURROGATE RECOVERY

Lab Name: VERSAR Contract: _____

Lab Code: VERSAR Case No.: R3-7 SAS No.: _____ SDG No.: 1

	EPA SAMPLE NO.	S1 (DBC) #	OTHER
01	PBLK49	74	
02	EXTBLANK1	75	
03	EXTBLANK2	75	
04	1	75	
05	1MS	81	
06	1MSD	82	
07	~~11~~	~~93~~	
08			
09			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

ADVISORY QC LIMITS (24-154)

S1 (DBC) = Dibutylchlorendate

Column used to flag recovery values

* Values outside of QC limits

D Surrogates diluted out

page 1 of 1

FORM II PEST-1

1/87 Re

5/14/90

WATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: VERSAR, INC. Contract: _____

Lab Code: VERSAR Case No.: R3-7 SAS No.: _____ SDG No.: 1

Matrix Spike - EPA Sample No.: 1

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
Lindane	50.00	0	54.77	110	56-123
Heptachlor	50.00	0	52.11	104	40-131
~~Aldrin~~ Endrin	50.00	0	49.86	100	40-120
~~Dieldrin~~ Methoxychlor	50.00	0	44.93	90	52-126
~~Endrin~~					56-121
~~4,4' DDT~~					38-127
90s1h1a0					

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Lindane	50.00	55.81	112	2	15	56-123
Heptachlor	50.00	52.92	106	2	20	40-131
~~Aldrin~~ Endrin	50.00	51.14	102	2	22	40-120
~~Dieldrin~~ Methoxychlor	50.00	48.56	97	7	18	52-126
~~Endrin~~					21	56-121
~~4,4' DDT~~					27	38-127
90s1h1a0						

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 4 outside limits
Spike Recovery: 0 out of 8 outside limits

COMMENTS: Calculations based on primary analysis on Inst A, SP2250/SP2401 column.

90
5/14/90

PESTICIDE METHOD BLANK SUMMARY

Lab Name: VERSAR, INC Contract: _____

Lab Code: VERSAR Case No.: R37 SAS No.: _____ SDG No.: 1

Lab Sample ID: RB8049 Lab File ID: _____

Matrix: (soil/water) WATER Level: (low/med) LOW

Date Extracted: 05-08-90 Extraction: (SepF/~~Cont/Sonc~~) WRIST SHAKER

Date Analyzed (1): 05-11-90 Date Analyzed (2): —

Time Analyzed (1): 1911 Time Analyzed (2): —

Instrument ID (1): A Instrument ID (2): —

GC Column ID (1): SP2250/SP2401 GC Column ID (2): —

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	EXTBLANK1	EXTBLANK1	05-11-90	
02	EXTBLANK2	EXTBLANK2	05-11-90	
03	1	16418	05-11-90	
04	1ms	16418ms	05-11-90	
05	1msD	16418msD	05-11-90	
06	~~11~~	~~16960~~	~~05-11-90~~	
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				

COMMENTS: _____

FORM IV PEST

1/87 R

100899
5/14/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1

Lab Name: VERSAR, INC. Contract:

Lab Code: VERSAR Case No.: R3-7 SAS No.: SDG No.: 1

Matrix: (soil/water) WATER Lab Sample ID: 16418

Sample wt/vol: 20.00 (g/ml) ML Lab File ID:

Level: (low/med) LOW Date Received: 04/19/90

% Moisture: not dec. dec. Date Extracted: 05/08/90

Extraction: (SepF/Wrist Shaker) WRIST SHAKER Date Analyzed: 05/11/90

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	2.5	U
319-85-7	beta-BHC	2.5	U
319-86-8	delta-BHC	2.5	U
58-89-9	gamma-BHC (Lindane)	2.5	U
76-44-8	Heptachlor	2.5	U
309-00-2	Aldrin	2.5	U
1024-57-3	Heptachlor Epoxide	2.5	U
959-98-8	Endosulfan I	2.5	U
60-57-1	Dieldrin	5.0	U
72-55-9	4,4'-DDE	5.0	U
72-20-8	Endrin	5.0	U
33213-65-9	Endosulfan II	5.0	U
72-54-8	4,4'-DDD	5.0	U
1031-07-8	Endosulfan Sulfate	5.0	U
50-29-3	4,4'-DDT	5.0	U
72-43-5	Methoxychlor	25	U
53494-70-5	Endrin Ketone	5.0	U
5103-71-9	alpha-Chlordane	5.0	U
5103-74-2	gamma-Chlordane	5.0	U
8001-35-2	Toxaphene	50	U
12674-11-2	Aroclor-1016	25	U
11104-28-2	Aroclor-1221	25	U
11141-16-5	Aroclor-1232	25	U
53469-21-9	Aroclor-1242	25	U
12672-29-6	Aroclor-1248	25	U
11097-69-1	Aroclor-1254	50	U
11096-82-5	Aroclor-1260	50	U

100033
5/14/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EXTBLANK1

Lab Name: VERSAR, INC. Contract:

Lab Code: VERSAR Case No.: R3-7 SAS No.: SDG No.: 1

Matrix: (soil/water) WATER Lab Sample ID: EXTBLANK1

Sample wt/vol: 20.00 (g/ml) ML Lab File ID:

Level: (low/med) LOW Date Received: 04/19/90

% Moisture: not dec. dec. Date Extracted: 05/08/90

Extraction: (SepF/Wrist Shaker) WRIST SHAKER Date Analyzed: 05/11/90

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	2.5	U
319-85-7	beta-BHC	2.5	U
319-86-8	delta-BHC	2.5	U
58-89-9	gamma-BHC (Lindane)	2.5	U
76-44-8	Heptachlor	2.5	U
309-00-2	Aldrin	2.5	U
1024-57-3	Heptachlor Epoxide	2.5	U
959-98-8	Endosulfan I	2.5	U
60-57-1	Dieldrin	5.0	U
72-55-9	4,4'-DDE	5.0	U
72-20-8	Endrin	5.0	U
33213-65-9	Endosulfan II	5.0	U
72-54-8	4,4'-DDD	5.0	U
1031-07-8	Endosulfan Sulfate	5.0	U
50-29-3	4,4'-DDT	5.0	U
72-43-5	Methoxychlor	25	U
53494-70-5	Endrin Ketone	5.0	U
5103-71-9	alpha-Chlordane	5.0	U
5103-74-2	gamma-Chlordane	5.0	U
8001-35-2	Toxaphene	50	U
12674-11-2	Aroclor-1016	25	U
11104-28-2	Aroclor-1221	25	U
11141-16-5	Aroclor-1232	25	U
53469-21-9	Aroclor-1242	25	U
12672-29-6	Aroclor-1248	25	U
11097-69-1	Aroclor-1254	50	U
11096-82-5	Aroclor-1260	50	U

5/14/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EXTBLANK2

Lab Name: VERSAR, INC. Contract:

Lab Code: VERSAR Case No.: R3-7 SAS No.: SDG No.: 1

Matrix: (soil/water) WATER Lab Sample ID: EXTBLANK2

Sample wt/vol: 20.00 (g/ml) ML Lab File ID:

Level: (low/med) LOW Date Received: 04/19/90

% Moisture: not dec. dec. Date Extracted: 05/08/90

Extraction: (SepF/Wrist Shaker) WRIST SHAKER Date Analyzed: 05/11/90

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	2.5	U
319-85-7	beta-BHC	2.5	U
319-86-8	delta-BHC	2.5	U
58-89-9	gamma-BHC (Lindane)	2.5	U
76-44-8	Heptachlor	2.5	U
309-00-2	Aldrin	2.5	U
1024-57-3	Heptachlor Epoxide	2.5	U
959-98-8	Endosulfan I	2.5	U
60-57-1	Dieldrin	5.0	U
72-55-9	4,4'-DDE	5.0	U
72-20-8	Endrin	5.0	U
33213-65-9	Endosulfan II	5.0	U
72-54-8	4,4'-DDD	5.0	U
1031-07-8	Endosulfan Sulfate	5.0	U
50-29-3	4,4'-DDT	5.0	U
72-43-5	Methoxychlor	25	U
53494-70-5	Endrin Ketone	5.0	U
5103-71-9	alpha-Chlordane	5.0	U
5103-74-2	gamma-Chlordane	5.0	U
8001-35-2	Toxaphene	50	U
12674-11-2	Aroclor-1016	25	U
11104-28-2	Aroclor-1221	25	U
11141-16-5	Aroclor-1232	25	U
53469-21-9	Aroclor-1242	25	U
12672-29-6	Aroclor-1248	25	U
11097-69-1	Aroclor-1254	50	U
11096-82-5	Aroclor-1260	50	U

5/14/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLK49

Lab Name: VERSAR, INC. Contract: _

Lab Code: VERSAR Case No.: R3-7 SAS No.: SDG No.: 1

Matrix: (soil/water) WATER Lab Sample ID: RB8049

Sample wt/vol: 20.00 (g/ml) ML Lab File ID: ____

Level: (low/med) LOW Date Received: 04/19/90

% Moisture: not dec. _____ dec. _____ Date Extracted: 05/08/90

Extraction: (SepF/Wrist Shaker) WRIST SHAKER Date Analyzed: 05/11/90

GPC Cleanup: (Y/N) N pH: ____ Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	2.5	U
319-85-7	beta-BHC	2.5	U
319-86-8	delta-BHC	2.5	U
58-89-9	gamma-BHC (Lindane)	2.5	U
76-44-8	Heptachlor	2.5	U
309-00-2	Aldrin	2.5	U
1024-57-3	Heptachlor Epoxide	2.5	U
959-98-8	Endosulfan I	2.5	U
60-57-1	Dieldrin	5.0	U
72-55-9	4,4'-DDE	5.0	U
72-20-8	Endrin	5.0	U
33213-65-9	Endosulfan II	5.0	U
72-54-8	4,4'-DDD	5.0	U
1031-07-8	Endosulfan Sulfate	5.0	U
50-29-3	4,4'-DDT	5.0	U
72-43-5	Methoxychlor	25	U
53494-70-5	Endrin Ketone	5.0	U
5103-71-9	alpha-Chlordane	5.0	U
5103-74-2	gamma-Chlordane	5.0	U
8001-35-2	Toxaphene	50	U
12674-11-2	Aroclor-1016	25	U
11104-28-2	Aroclor-1221	25	U
11141-16-5	Aroclor-1232	25	U
53469-21-9	Aroclor-1242	25	U
12672-29-6	Aroclor-1248	25	U
11097-69-1	Aroclor-1254	50	U
11096-82-5	Aroclor-1260	50	U

100072
5/14/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1MS

Lab Name: VERSAR, INC. Contract:

Lab Code: VERSAR Case No.: R3-7 SAS No.: SDG No.: 1

Matrix: (soil/water) WATER Lab Sample ID: 16418MS

Sample wt/vol: 20.00 (g/ml) ML Lab File ID:

Level: (low/med) LOW Date Received: 04/19/90

% Moisture: not dec. dec. Date Extracted: 05/08/90

Extraction: (SepF/Wrist Shaker) WRIST SHAKER Date Analyzed: 05/11/90

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	2.5	U
319-85-7	beta-BHC	2.5	U
319-86-8	delta-BHC	2.5	U
58-89-9	gamma-BHC (Lindane)	2.5	U
76-44-8	Heptachlor	2.5	U
309-00-2	Aldrin	2.5	U
1024-57-3	Heptachlor Epoxide	2.5	U
959-98-8	Endosulfan I	2.5	U
60-57-1	Dieldrin	5.0	U
72-55-9	4,4'-DDE	5.0	U
72-20-8	Endrin	5.0	U
33213-65-9	Endosulfan II	5.0	U
72-54-8	4,4'-DDD	5.0	U
1031-07-8	Endosulfan Sulfate	5.0	U
50-29-3	4,4'-DDT	5.0	U
72-43-5	Methoxychlor	25	U
53494-70-5	Endrin Ketone	5.0	U
5103-71-9	alpha-Chlordane	5.0	U
5103-74-2	gamma-Chlordane	5.0	U
8001-35-2	Toxaphene	50	U
12674-11-2	Aroclor-1016	25	U
11104-28-2	Aroclor-1221	25	U
11141-16-5	Aroclor-1232	25	U
53469-21-9	Aroclor-1242	25	U
12672-29-6	Aroclor-1248	25	U
11097-69-1	Aroclor-1254	50	U
11096-82-5	Aroclor-1260	50	U

100683
5/14/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

1MSD

Lab Name: VERSAR, INC. Contract:

Lab Code: VERSAR Case No.: R3-7 SAS No.: SDG No.: 1

Matrix: (soil/water) WATER Lab Sample ID: 16418MSD

Sample wt/vol: 20.00 (g/ml) ML Lab File ID:

Level: (low/med) LOW Date Received: 04/19/90

% Moisture: not dec. dec. Date Extracted: 05/08/90

Extraction: (SepF/Wrist Shaker) WRIST SHAKER Date Analyzed: 05/11/90

GPC Cleanup: (Y/N) N pH: Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	2.5	U
319-85-7	beta-BHC	2.5	U
319-86-8	delta-BHC	2.5	U
58-89-9	gamma-BHC (Lindane)	2.5	U
76-44-8	Heptachlor	2.5	U
309-00-2	Aldrin	2.5	U
1024-57-3	Heptachlor Epoxide	2.5	U
959-98-8	Endosulfan I	2.5	U
60-57-1	Dieldrin	5.0	U
72-55-9	4,4'-DDE	5.0	U
72-20-8	Endrin	5.0	U
33213-65-9	Endosulfan II	5.0	U
72-54-8	4,4'-DDD	5.0	U
1031-07-8	Endosulfan Sulfate	5.0	U
50-29-3	4,4'-DDT	5.0	U
72-43-5	Methoxychlor	25	U
53494-70-5	Endrin Ketone	5.0	U
5103-71-9	alpha-Chlordane	5.0	U
5103-74-2	gamma-Chlordane	5.0	U
8001-35-2	Toxaphene	50	U
12674-11-2	Aroclor-1016	25	U
11104-28-2	Aroclor-1221	25	U
11141-16-5	Aroclor-1232	25	U
53469-21-9	Aroclor-1242	25	U
12672-29-6	Aroclor-1248	25	U
11097-69-1	Aroclor-1254	50	U
11096-82-5	Aroclor-1260	50	U

100033
5/14/90