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Appendix B

Data Summary Forms

DATA SUMMARY FORM: VOLATILES 2

Site Name: Standard Chlorine

FISH SAMPLES (ug/Kg)

Case #: SAS 5256C Task 3 Sampling Date(s): 3/5/90

To calculate sample quantitation limit: (CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	5256C-01		5256C-02																	
	Dilution Factor	1.0		1.0																	
	% Moisture	78		80																	
	Location	F-1		F-2																	
IQL	COMPOUND																				
5	1,2-Dichloropropane		UJ		UJ																
5	Cis-1,3-Dichloropropene																				
5	Trichloroethene																				
5	Dibromochloromethane																				
5	1,1,2-Trichloroethane																				
5	Benzene	95	J																		
5	Trans-1,3-Dichloropropene		UJ																		
5	Bromoform																				
10	4-Methyl-2-pentanone																				
10	2-Hexanone																				
5	Tetrachloroethene																				
5	1,1,2,2-Tetrachloroethane																				
5	Toluene	10	J																		
5	Chlorobenzene	870	J																		
5	Ethylbenzene		UJ																		
5	Styrene																				
5	Total Xylenes																				

CRQL = Contract Required Quantitation Limit

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R300768

DATA SUMMARY FORM: B N A S 1

Site Name: Standard Chlorine

FISH SAMPLES (ug/Kg)

Case #: SAS 5256C Sampling Date(s): 3/5/90
Task 3

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

R200769

	Sample No.	5256C-01		5256C-02	
	Dilution Factor	1.0		1.0	
	% Moisture	78		80	
	Location	F-1		F-2	
CRQL	COMPOUND				
330	Phenol		UJ		UJ
330	bis(2-Chloroethyl)ether		↓		↓
330	2-Chlorophenol		↓		↓
330	1,3-Dichlorobenzene	660	J		↓
330	1,4-Dichlorobenzene	4000	J		↓
330	Benzyl Alcohol		UJ		↓
330	1,2-Dichlorobenzene	3100	J		↓
330	2-Methylphenol		UJ		↓
330	bis(2-Chloroisopropyl)ether		↓		↓
330	4-Methylphenol		↓		↓
330	N-Nitroso-di-n-propylamine		↓		↓
330	Hexachloroethane		↓		↓
330	Nitrobenzene		↓		↓
330	Isophorone	370	J		↓
330	2-Nitrophenol		UJ		↓
330	2,4-Dimethylphenol		↓		↓
1600	Benzoic [illegible]		↓		↓
330	bis(2-Chlo[illegible]oxy)methane		↓		↓
330	2,4-Dichlo[illegible]ol		↓		↓
330	1,2,4-Trich[illegible]nzene	7100	J		↓
330	Naphthale[illegible]		UJ		↓
330	4-Chloro[illegible]		↓		↓

CRQL = Co[illegible]t Required Quantitation Limit

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ATTACHMENTS

1) Appendix A - Glossary of Data Qualifiers
2) Appendix B - Data Summary. These include:
   (a) All positive results for target compounds with qualifier codes where applicable.
   (b) All unusable detection limits (qualified "R").
3) Appendix C - Results as Reported by the Laboratory for All Target Compounds
4) Appendix D - Reviewed and Corrected Tentatively Identified Compounds
5) Appendix E - Organic Regional Data Assessment Summary
6) Appendix F - Support Documentation

DCN: DO004A11.WP5

Compound	Concentration (ug/Kg) 5256C-01	5256C-01MS	RPD
1,2-Dichlorobenzene *	3100 J	---	IN
1,3-Dichlorobenzene *	660 J	---	IN
1,4-Dichlorobenzene	4000 J	5000	22
Isophorone	370 J	690 J	60
1,2,3-Trichlorobenzene	2100 J	2100 J	0
1,2,4-Trichlorobenzene *	7100 J	---	IN
1,2,3,4-Tetrachlorobenzene	1200 J	1100 J	9
1,2,4,5-Tetrachlorobenzene	430 J	410 J	5
Pentachlorobenzene	210 J	320 J	42

RPD = Relative Percent Difference
IN = Indeterminate
* = Spiked compound, not evaluated in MS

- A non-CLP procedure was used for the pesticide/PCB analysis. Five point initial calibrations were performed for all seven aroclors, toxaphene, and the individual pesticide mixes A and B. As a result, linearity was determined from the five point curves, and no evaluation mixes A, B, or C were run.

- The pesticide/PCB analysis of sample 5256C-01 was run in duplicate. The results and precision estimates are as follows.

Compound	Concentration (ug/Kg) 5256C-01	5256C-01DUP	RPD
4,4'-DDE	1700	2300	30
Aroclor 1260	4700	6200	28

RPD = Relative Percent Difference

- The reported Tentatively Identified Compounds (TIC's) of Appendix D have been reviewed during data validation. Compounds identified as blank contaminants have been crossed off the Form I's.

All data for SAS 5256C Task 3 were reviewed in accordance with the Functional Guidelines for Evaluating Organic Analyses with Modifications for use within Region III, and for conformance with the requirements stated in the SAS request. The text of this report addresses only those problems affecting usability.

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- The initial volatiles analysis and the matrix spike (MS) analysis of sample 5256C-01 contained carbon disulfide at concentrations of 24 and 27 ug/Kg, respectively. The relative percent difference (RPD) is 12%. The initial analysis and the MS analysis of 5256C-02 also contained carbon disulfide at concentrations of 130 and 190 ug/Kg, respectively, giving an RPD of 38%.

- The SAS request calls for a matrix spike of two samples and a blank as part of the volatiles analysis QC. The following table summarizes the spike recoveries and the percent relative standard deviations (%RSD's).

	Percent Recovery			
Compound	5256C-01MS	5256C-02MS	BLKMS	%RSD
1,1-Dichloroethane	68	59	66	7
Trichloroethane	69	74	82	9
Benzene	81	81	82	1
Toluene	97	102	90	6
Chlorobenzene	61	96	94	23

- The SAS request calls for a matrix spike of two samples and a blank using only four compounds as part of the semivolatiles analysis QC. (See Attachment D in Appendix F). The following table summarizes the spike recoveries and the percent relative standard deviations (%RSD's).

	Percent Recovery			
Compound	5256C-01MS	5256C-02MS	BLKMS	%RSD
1,3-Dichlorobenzene	32	20	26	23
1,2-Dichlorobenzene	46	26	27	34
1,2,4-Trichlorobenzene	56	50	34	24
Hexachlorobenzene	93	94	83	7

- The semivolatile initial and MS analyses of sample 5256C-01 contained non-spiked compounds, other than blank contaminants. The results and precision estimates are as follows.

- Several compounds failed precision criteria during continuing calibrations. The quantitation limits were qualified "UJ", and positive results were qualified "J", unless superseded by the "B" qualifier, for these compounds in the affected samples. (See Table I in Appendix F).

- The semivolatile extractions were performed eight (8) days from the date of sample collection. Although no technical extraction holding time has been established for fish tissue samples, the extraction holding time of seven (7) days for water samples has been exceeded by one (1) day. The quantitation limits were qualified "UJ", and positive results were qualified "J", unless superseded by the "B" qualifier, for all samples.

NOTES

- The clean-up procedure for fish tissue samples requires two GPC elutions, resulting in a loss of 75% of the sample. To compensate for this loss, the laboratory requested permission from EPA Region III to concentrate the extracts to 0.25 mL. Permission was received, and this modification of the analysis procedure was made, however, the laboratory used the GPC dilution factor of two when calculating the quantitation limits for the semivolatiles. The lab also did not correct the quantitation limits for the larger sample size. Consequently, the quantitation limits reported on the Form I's are biased low. (See Telephone Record Log and Case Narrative in Appendix F).

- The semivolatile Form I's have been altered by the laboratory to indicate the results as ug/fish. However, the values reported are actually ug/Kg dry weight of tissue. (See Appendix C).

- The maximum concentrations of all compounds appearing in the laboratory method blanks are listed below. All samples with concentrations of these common laboratory contaminants less than ten times (<10X) the blank concentrations have been qualified "B" on the data summary. (Also see Appendix F).

Compound	Concentration (ug/Kg)
Methylene chloride	10
Acetone	8
bis(2-Ethylhexyl)phthalate	88

WESTON
MANAGERS DESIGNERS/CONSULTANTS
2568A RIVA ROAD
SUITE 300
ANNAPOLIS, MD 21401
PHONE: 301-266-9887

DATE: April 30, 1990

SUBJECT: Organic Data Validation for SAS 5256C - Task 3
Site: Standard Chlorine

FROM: Don O'Brien DGO
Organic Data Reviewer

Doug McInnes DJM
Organic Data Reviewer

TO: Terry Simpson
ESAT Deputy Project Officer

THRU: Dan Dresser
ESAT Team Manager

OVERVIEW

SAS 5256C Task 3 consisted of two (2) fish tissue samples for volatiles, semivolatiles plus six additional compounds, and pesticide/PCB analyses. The samples were analyzed as a Contract Laboratory Program (CLP) Special Analytical Service (SAS).

SUMMARY

All samples were successfully analyzed for all target compounds, except for 2-butanone in the volatiles analyses. All other instrument and method sensitivities were according to the Contract Laboratory Program (CLP) Special Analytical Service (SAS) protocol, or as specified in the SAS request.

MAJOR PROBLEM

- The response factors for 2-butanone were less than 0.05 in the volatiles initial and continuing calibrations. Quantitation limits were qualified "R" for these compounds in all samples. (See Table I in Appendix F).

MINOR PROBLEMS

- The volatiles analyses of sample 5256C-01 and the matrix spike (MS) of that sample had low recoveries of the surrogate bromofluorobenzene, and sample 5256C-02 and its MS had high recoveries of the surrogate 1,2-dichloroethane-d4. The quantitation limits were qualified "UJ", unless superseded by the "R" qualifier as noted above, and positive results were qualified "J", unless superseded by the "B" qual a blank contaminant, for both samples. (See Form II in Appendix F).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
CENTRAL REGIONAL LABORATORY
839 BESTGATE ROAD
ANNAPOLIS, MARYLAND 21401
(301) 266-9180

DATE : May 3, 1990

SUBJECT: Organic Data Validation for the Standard Chlorine Site
SAS 5256C Task 3

FROM : Theresa A. Simpson TAS
Region III ESAT DPO (3ES23)

TO : Robert Guarni
Regional Project Manager (3HW25)

THRU : Patricia J. Krantz, Chief TAS for
Quality Assurance Branch (3ES23)

Attached is the organic data review for the Standard Chlorine Site (SAS 5256C Task 3) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III ESD.

If you have any questions regarding this review, please call me.

Attachment

cc: Dave Basko, Versar
Elaine Spiewak (3HW14) (w/o attachment)

TID File: 03900413 Task 1341

DATA SUMMARY FORM: B N A S 2

Site Name: Standard Chlorine

FTSII SAMPLES (ug/Kg)

Case #: SAS 5256C Task 3 Sampling Date(s): 3/5/90

To calculate sample quantitation limit: (CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	5256C-01		5256C-02																	
	Dilution Factor	1.0		1.0																	
	% Moisture	78		80																	
	Location	F-1		F-2																	
CRQL	COMPOUND																				
330	Hexachlorobutadiene		UJ		UJ																
330	4-Chloro-3-methylphenol																				
330	2-Methylnaphthalene																				
330	Hexachlorocyclopentadiene																				
330	2,4,6-Trichlorophenol																				
1600	2,4,5-Trichlorophenol																				
330	2-Chloronaphthalene																				
1600	2-Nitroaniline																				
330	Dimethylphthalate																				
330	Acenaphthylene																				
330	2,6-Dinitrotoluene																				
1600	3-Nitroaniline																				
330	Acenaphthene																				
1600	2,4-Dinitrophenol																				
1600	4-Nitrophenol																				
330	Dibenzofuran																				
330	2,4-Di[illegible]luene																				
330	Diethy[illegible]late																				
330	4-Chlo[illegible]nyl-phenylether																				
330	Fluorén[illegible]																				
1600	4-Nitroa[illegible]																				
1600	4,6-Dinit[illegible]ethylphenol																				

CRQL = Co[illegible]ct Required Quantitation Limit

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DATA SUMMARY FORM: B N A S 3

FISH SAMPLES (ug/Kg)

Name: Standard Chlorine

#: SAS 5256C Sampling Date(s): 3/5/90
Task 3

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

AR300777

Sample No.	5256C-01		5256C-02																			
Dilution Factor	1.0		1.0																			
% Moisture	78		80																			
Location	F-1		F-2																			
COMPOUND																						
N-Nitrosodiphenylamine		UJ		UJ																		
4-Bromophenyl-phenylether																						
Hexachlorobenzene																						
Pentachlorophenol																						
Phenanthrene																						
Anthracene																						
Di-n-butylphthalate																						
Fluoranthene																						
Pyrene																						
Butylbenzylphthalate																						
3,3-Dichlorobenzidine																						
Benzo(a)anthracene																						
Chrysene																						
bis(2-Ethylhex[illegible]alate	450	B	620	B																		
Di-n-octylphth[illegible]		UJ		UJ																		
Benzo(b)fluora[illegible]																						
Benzo(k)fluora[illegible]																						
Benzo(a)pyren[illegible]																						
Indeno(1,2,3-c[illegible]e																						
Dibenz(a,h)anth[illegible]e																						
Benzo(g,h,i)per[illegible]																						
1,3,5-Trichlorobenzene		UJ		UJ																		
1,2,3-Trichlorobenzene	2100	J																				
m-Chloronitrobenzene		UJ																				
1,2,4,5-Tetrachlorobenzene	430	J																				
1,2,3,4-Tetrachlorobenzene	1200	J																				

CRQL = Contract Required Quantitation Limit

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DATA SUMMARY FORM: PESTICIDES AND PCBS

Site Name: Standard Chlorine

FISH SAMPLES (ug/Kg)

Case #: SAS5256C Sampling Date(s): 3/5/90
Task 3

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	5256C-01	5256C-02																		
	Dilution Factor	1.0	1.0																		
	% Moisture	78	80																		
	Location	F-1	F-2																		
QL	COMPOUND																				
50	alpha-BHC																				
50	beta-BHC																				
50	delta-BHC																				
50	Gamma-BHC (Lindane)																				
50	Heptachlor																				
50	Aldrin																				
50	Heptachlor Epoxide																				
150	Endosulfan I																				
150	Dieldrin																				
150	4,4'-DDE	1700																			
250	Endrin																				
150	Endosulfan II																				
150	4,4'-DDD																				
250	Endosulfan Sulfate																				
250	4,4'-DDT																				
250	Methoxychlor																				
250	Endrin ketone																				
250	Alpha-Chlo																				
250	Gamma-Chl																				
250	Toxaphene																				
250	Aroclor-1016																				
250	Aroclor-1221																				
250	Aroclor-1232																				
250	Aroclor-1242																				
250	Aroclor-1248																				
250	Aroclor-1254																				
250	Aroclor-1260	4700																			

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

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Appendix C

Results as Reported by the Laboratory
for all Target Compounds

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5256C-01 TASK 3

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C TASK 3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DQM-01

Sample wt/vol: 5.0 (g/mL) G Lab File ID: VODQM01

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 78 Date Analyzed: 03/12/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	45	U
74-83-9	Bromomethane	45	U
75-01-4	Vinyl Chloride	45	U
75-00-3	Chloroethane	45	U
75-09-2	Methylene Chloride	51	B
67-64-1	Acetone	240	B
75-15-0	Carbon Disulfide	24	
75-35-4	1,1-Dichloroethene	23	U
75-34-3	1,1-Dichloroethane	23	U
540-59-0	1,2-Dichloroethene (total)	23	U
67-66-3	Chloroform	23	U
107-06-2	1,2-Dichloroethane	23	U
78-93-3	2-Butanone	45	U
71-55-6	1,1,1-Trichloroethane	23	U
56-23-5	Carbon Tetrachloride	23	U
108-05-4	Vinyl Acetate	45	U
75-27-4	Bromodichloromethane	23	U
78-87-5	1,2-Dichloropropane	23	U
10061-01-5	cis-1,3-Dichloropropene	23	U
79-01-6	Trichloroethene	23	U
124-48-1	Dibromochloromethane	23	U
79-00-5	1,1,2-Trichloroethane	23	U
71-43-2	Benzene	95	
10061-02-6	Trans-1,3-Dichloropropene	23	U
75-25-2	Bromoform	23	U
108-10-1	4-Methyl-2-Pentanone	45	U
591-78-6	2-Hexanone	45	U
127-18-4	Tetrachloroethene	23	U
79-34-5	1,1,2,2-Tetrachloroethane		
108-88-3	Toluene		
108-90-7	Chlorobenzene	870	
100-41-4	Ethylbenzene	23	U
100-42-5	Styrene	23	U
1330-20-7	Xylene (total)	23	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5256C-01TASK3

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C-TASK3SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DQM01

Sample wt/vol: 50.0 (g/mL) G Lab File ID: SVDQM01

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 78 dec. _____ Date Extracted: 03/13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/26/90

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

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/~~KG~~ Fish

CAS NO.	COMPOUND		Q
108-95-2	Phenol	3000	U
111-44-4	bis(2-Chloroethyl)Ether	3000	U
95-57-8	2-Chlorophenol	3000	U
541-73-1	1,3-Dichlorobenzene	660	J
106-46-7	1,4-Dichlorobenzene	4000	
100-51-6	Benzyl Alcohol	3000	U
95-50-1	1,2-Dichlorobenzene	3100	
95-48-7	2-Methylphenol	3000	U
108-60-1	bis(2-Chloroisopropyl)Ether	3000	U
106-44-5	4-Methylphenol	3000	U
621-64-7	N-Nitroso-Di-n-Propylamine	3000	U
67-72-1	Hexachloroethane	3000	U
98-95-3	Nitrobenzene	3000	U
78-59-1	Isophorone	370	J
88-75-5	2-Nitrophenol	3000	U
105-67-9	2,4-Dimethylphenol	3000	U
65-85-0	Benzoic Acid	14000	U
111-91-1	bis(2-Chloroethoxy)Methane	3000	U
120-83-2	2,4-Dichlorophenol	3000	U
120-82-1	1,2,4-Trichlorobenzene	7100	
91-20-3	Naphthalene	3000	U
106-47-8	4-Chloroaniline	3000	U
87-68-3	Hexachlorobutadiene	3000	U
59-50-7	4-Chloro-3-Methylphenol	3000	U
91-57-6	2-Methylnaphthalene	3000	U
77-47-4	Hexachlorocyclopentadiene	3000	U
88-06-2	2,4,6-Trichlorophenol		
95-95-4	2,4,5-Trichlorophenol		
91-58-7	2-Chloronaphthalene	3000	U
88-74-4	2-Nitroaniline	14000	U
131-11-3	Dimethyl Phthalate	3000	U
208-96-8	Acenaphthylene	3000	U
606-20-2	2,6-Dinitrotoluene	3000	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5256C-01TASK3

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C-TASK3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DQM01

Sample wt/vol: 50.0 (g/mL) G Lab File ID: SVDQM01

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 78 dec. _____ Date Extracted: 03/13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/26/90

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG FISH	Q
99-09-2	3-Nitroaniline	14000	U
83-32-9	Acenaphthene	3000	U
51-28-5	2,4-Dinitrophenol	14000	U
100-02-7	4-Nitrophenol	14000	U
132-64-9	Dibenzofuran	3000	U
121-14-2	2,4-Dinitrotoluene	3000	U
84-66-2	Diethylphthalate	3000	U
7005-72-3	4-Chlorophenyl-phenylether	3000	U
86-73-7	Fluorene	3000	U
100-01-6	4-Nitroaniline	14000	U
534-52-1	4,6-Dinitro-2-Methylphenol	14000	U
86-30-6	N-Nitrosodiphenylamine (1)	3000	U
101-55-3	4-Bromophenyl-phenylether	3000	U
118-74-1	Hexachlorobenzene	3000	U
87-86-5	Pentachlorophenol	14000	U
85-01-8	Phenanthrene	3000	U
120-12-7	Anthracene	3000	U
84-74-2	Di-n-Butylphthalate	3000	U
206-44-0	Fluoranthene	3000	U
129-00-0	Pyrene	3000	U
85-68-7	Butylbenzylphthalate	3000	U
91-94-1	3,3'-Dichlorobenzidine	6000	U
56-55-3	Benzo(a)Anthracene	3000	U
218-01-9	Chrysene	3000	U
117-81-7	bis(2-Ethylhexyl)Phthalate	450	BJ
117-84-0	Di-n-Octyl Phthalate	3000	U
205-99-2	Benzo(b)Fluoranthene		
207-08-9	Benzo(k)Fluoranthene		
50-32-8	Benzo(a)Pyrene	3000	U
193-39-5	Indeno(1,2,3-cd)Pyrene	3000	U
53-70-3	Dibenz(a,h)Anthracene	3000	U
191-24-2	Benzo(g,h,i)Perylene	3000	U
108-70-3	1,3,5-Trichlorobenzene	3000	U
87-61-6	1,2,3-Trichlorobenzene	2100	J

1BC

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5256C-01TASK3

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C-TASK3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DQM01

Sample wt/vol: 50.0 (g/mL) G Lab File ID: SVDQM01

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 78 dec. _____ Date Extracted: 03/13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/26/90

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/~~KG~~ FISH	Q
121-73-3	m-Chloronitrobenzene	3000	U
95-94-3	1,2,4,5-Tetrachlorobenzene	430	J
634-66-2	1,2,3,4-Tetrachlorobenzene	1200	J
608-93-5	Pentachlorobenzene	210	J

(1) - Cannot be separated from Diphenylamine

1

GC/ECD ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE ID

5256C-01 TASK 3

Lab Name: GULF SOUTH ENVIRONMENTAL LABORATORY Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C TASK3 SDG No.: _____

Matrix: FISH Lab Sample ID: DQM-01

Level: Low Lab File ID: N:A624227

Sample wt : 10 g pH: _____ Date Received: 03-08-90

Extraction: SOXHLET Date Extracted: 03-12-90

Moisture: not dec: 78% dec: _____% Date Analyzed: 03-30-90

Cleanup (Y/N - Type): N - NONE Dilution Factor: 1.0

CAS No.	COMPOUND	CONCENTRATION ~~ug/kg~~ µg/Kg	Q
319-84-6	alpha-BHC	1100	U
319-85-7	beta-BHC	1100	U
319-86-8	delta-BHC	1100	U
58-89-9	gamma-BHC (Lindane)	1100	U
76-44-8	Heptachlor	1100	U
309-00-2	Aldrin	1100	U
1024-57-3	Heptachlor epoxide	1100	U
959-98-8	Endosulfan I	1100	U
60-57-1	Dieldrin	1100	U
72-55-9	4,4'-DDE	1700	
72-20-8	Endrin	1100	U
33213-65-9	Endosulfan II	1100	U
72-54-8	4,4'-DDD	1100	U
1031-07-8	Endosulfan sulfate	1100	U
50-29-3	4,4'-DDT	1100	U
72-43-5	Methoxychlor	1100	U
53494-70-5	Endrin ketone	1100	U
5103-71-9	alpha-Chlordane	1100	U
5103-74-2	gamma-Chlordane	1100	U
8001-35-2	Toxaphene	1100	U
12674-11-2	Aroclor 1016	1100	U
11104-28-2	Aroclor 1221	1100	U
11141-16-5	Aroclor 1232	1100	U
53469-21-9	Aroclor 1242	1100	U
12672-29-6	Aroclor 1248	1100	U
11097-69-6	Aroclor 1254	1100	U
11096-82-5	Aroclor 1260		

Target Compound List C:\NELSON\5256C.TCL 01:52:56 04-04-1990

GC/ECD ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE ID
5256C-01 DUP Task 3

Lab Name: GULF SOUTH ENVIRONMENTAL LABORATORY Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C Task 3 SDG No.: _____

Matrix: FISH Lab Sample ID: DQM-01

Level: Low Lab File ID: N:A624229

Sample wt : 10 g pH: _____ Date Received: 03-08-90

Extraction: SOXHLET Date Extracted: 03-12-90

Moisture: not dec: 78% dec: _____% Date Analyzed: 03-30-90

Cleanup (Y/N - Type): N - NONE Dilution Factor: 1.0

CAS No.	COMPOUND	Sample/Dup. %RPD	CONCENTRATION ~~ppb~~ ug/Kg	Q
319-84-6	alpha-BHC		1100	U
319-85-7	beta-BHC		1100	U
319-86-8	delta-BHC		1100	U
58-89-9	gamma-BHC (Lindane)		1100	U
76-44-8	Heptachlor		1100	U
309-00-2	Aldrin		1100	U
1024-57-3	Heptachlor epoxide		1100	U
959-98-8	Endosulfan I		1100	U
60-57-1	Dieldrin		1100	U
72-55-9	4,4'-DDE	26.2	2300	
72-20-8	Endrin		1100	U
33213-65-9	Endosulfan II		1100	U
72-54-8	4,4'-DDD		1100	U
1031-07-8	Endosulfan sulfate		1100	U
50-29-3	4,4'-DDT		1100	U
72-43-5	Methoxychlor		1100	U
53494-70-5	Endrin ketone		1100	U
5103-71-9	alpha-Chlordane		1100	U
5103-74-2	gamma-Chlordane		1100	U
8001-35-2	Toxaphene		1100	U
12674-11-2	Aroclor 1016		1100	U
11104-28-2	Aroclor 1221		1100	U
11141-16-5	Aroclor 1232			J
53469-21-9	Aroclor 1242			J
12672-29-6	Aroclor 1248		1100	U
11097-69-6	Aroclor 1254		1100	U
11096-82-5	Aroclor 1260	27.1	6200	

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5256C-02 TASK 3

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C TASK 3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DQM-02

Sample wt/vol: 5.0 (g/mL) G Lab File ID: VODQM02

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 80 Date Analyzed: 03/12/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	50	U
74-83-9	Bromomethane	50	U
75-01-4	Vinyl Chloride	50	U
75-00-3	Chloroethane	50	U
75-09-2	Methylene Chloride	65	B
67-64-1	Acetone	870	B
75-15-0	Carbon Disulfide	130	
75-35-4	1,1-Dichloroethene	25	U
75-34-3	1,1-Dichloroethane	25	U
540-59-0	1,2-Dichloroethene (total)	25	U
67-66-3	Chloroform	25	U
107-06-2	1,2-Dichloroethane	25	U
78-93-3	2-Butanone	50	U
71-55-6	1,1,1-Trichloroethane	25	U
56-23-5	Carbon Tetrachloride	25	U
108-05-4	Vinyl Acetate	50	U
75-27-4	Bromodichloromethane	25	U
78-87-5	1,2-Dichloropropane	25	U
10061-01-5	cis-1,3-Dichloropropene	25	U
79-01-6	Trichloroethene	25	U
124-48-1	Dibromochloromethane	25	U
79-00-5	1,1,2-Trichloroethane	25	U
71-43-2	Benzene	25	U
10061-02-6	Trans-1,3-Dichloropropene	25	U
75-25-2	Bromoform	25	U
108-10-1	4-Methyl-2-Pentanone	50	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	25	U
79-34-5	1,1,2,2-Tetrachloroethane		
108-88-3	Toluene		
108-90-7	Chlorobenzene	25	U
100-41-4	Ethylbenzene	25	U
100-42-5	Styrene	25	U
1330-20-7	Xylene (total)	25	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5256C-02TASK3

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C-TASK3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DQM-02

Sample wt/vol: 50.0 (g/mL) G Lab File ID: SVDQM02

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 80 dec. _____ Date Extracted: 03/13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/26/90

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/~~KG~~ FISH	Q
108-95-2	Phenol	3300	U
111-44-4	bis(2-Chloroetnyl)Ether	3300	U
95-57-8	2-Chlorophenol	3300	U
541-73-1	1,3-Dichlorobenzene	3300	U
106-46-7	1,4-Dichlorobenzene	3300	U
100-51-6	Benzyl Alcohol	3300	U
95-50-1	1,2-Dichlorobenzene	3300	U
95-48-7	2-Methylphenol	3300	U
108-60-1	bis(2-Chloroisopropyl)Ether	3300	U
106-44-5	4-Methylphenol	3300	U
621-64-7	N-Nitroso-Di-n-Propylamine	3300	U
67-72-1	Hexachloroethane	3300	U
98-95-3	Nitrobenzene	3300	U
78-59-1	Isophorone	3300	U
88-75-5	2-Nitrophenol	3300	U
105-67-9	2,4-Dimethylphenol	3300	U
65-85-0	Benzoic Acid	16000	U
111-91-1	bis(2-Chloroethoxy)Methane	3300	U
120-83-2	2,4-Dichlorophenol	3300	U
120-82-1	1,2,4-Trichlorobenzene	3300	U
91-20-3	Naphthalene	3300	U
106-47-8	4-Chloroaniline	3300	U
87-68-3	Hexachlorobutadiene	3300	U
59-50-7	4-Chloro-3-Methylphenol	3300	U
91-57-6	2-Methylnaphthalene	3300	U
77-47-4	Hexachlorocyclopentadiene	3300	U
88-06-2	2,4,6-Trichlorophenol		U
95-95-4	2,4,5-Trichlorophenol		U
91-58-7	2-Chloronaphthalene	3300	U
88-74-4	2-Nitroaniline	16000	U
131-11-3	Dimethyl Phthalate	3300	U
208-96-8	Acenaphthylene	3300	U
606-20-2	2,6-Dinitrotoluene	3300	U

AR300787

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5256C-02TASK3

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C-TASK3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DQM-02

Sample wt/vol: 50.0 (g/mL) G Lab File ID: SVDQM02

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 80 dec. _____ Date Extracted: 03/13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/26/90

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/~~KG~~ FISH	Q
99-09-2	3-Nitroaniline	16000	U
83-32-9	Acenaphthene	3300	U
51-28-5	2,4-Dinitrophenol	16000	U
100-02-7	4-Nitrophenol	16000	U
132-64-9	Dibenzofuran	3300	U
121-14-2	2,4-Dinitrotoluene	3300	U
84-66-2	Diethylphthalate	3300	U
7005-72-3	4-Chlorophenyl-phenylether	3300	U
86-73-7	Fluorene	3300	U
100-01-6	4-Nitroaniline	16000	U
534-52-1	4,6-Dinitro-2-Methylphenol	16000	U
86-30-6	N-Nitrosodiphenylamine (1)	3300	U
101-55-3	4-Bromophenyl-phenylether	3300	U
118-74-1	Hexachlorobenzene	3300	U
87-86-5	Pentachlorophenol	16000	U
85-01-8	Phenanthrene	3300	U
120-12-7	Anthracene	3300	U
84-74-2	Di-n-Butylphthalate	3300	U
206-44-0	Fluoranthene	3300	U
129-00-0	Pyrene	3300	U
85-68-7	Butylbenzylphthalate	3300	U
91-94-1	3,3'-Dichlorobenzidine	6600	U
56-55-3	Benzo(a)Anthracene	3300	U
218-01-9	Chrysene	3300	U
117-81-7	bis(2-Ethylhexyl)Phthalate	620	BJ
117-84-0	Di-n-Octyl Phthalate	3300	U
205-99-2	Benzo(b)Fluoranthene	3300	U
207-08-9	Benzo(k)Fluoranthene		U
50-32-8	Benzo(a)Pyrene	3300	U
193-39-5	Indeno(1,2,3-cd)Pyrene	3300	U
53-70-3	Dibenz(a,h)Anthracene	3300	U
191-24-2	Benzo(g,h,i)Perylene	3300	U
108-70-3	1,3,5-Trichlorobenzene	3300	U
87-61-6	1,2,3-Trichlorobenzene	3300	U

AR300788

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5256C-02TASK3

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C-TASK3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DQM-02

Sample wt/vol: 50.0 (g/mL) G Lab File ID: SVDQM02

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 80 dec. ____ Date Extracted: 03/13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/26/90

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ~~UG/KG~~ CHM FISH	Q
121-73-3	m-Chloronitrobenzene	3000	U
95-94-3	1,2,4,5-Tetrachlorobenzene	3300	U
634-66-2	1,2,3,4-Tetrachlorobenzene	3300	U
608-93-5	Pentachlorobenzene	3300	U

(1) - Cannot be separated from Diphenylamine

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1

GC/ECD ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE ID

5256C-02 TASK 3

Lab Name: GULF SOUTH ENVIRONMENTAL LABORATORY Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C TASK 3 SDG No.: _____

Matrix: FISH Lab Sample ID: DQM-02

Level: Low Lab File ID: N:A624231

Sample wt : 10 g pH: _____ Date Received: 03-08-90

Extraction: SOXHLET Date Extracted: 03-12-90

Moisture: not dec: 80% dec: _____% Date Analyzed: 03-30-90

Cleanup (Y/N - Type): N - NONE Dilution Factor: 1.0

CAS No.	COMPOUND	CONCENTRATION ~~ug/L~~ ug/Kg	Q
319-84-6	alpha-BHC	1200	U
319-85-7	beta-BHC	1200	U
319-86-8	delta-BHC	1200	U
58-89-9	gamma-BHC (Lindane)	1200	U
76-44-8	Heptachlor	1200	U
309-00-2	Aldrin	1200	U
1024-57-3	Heptachlor epoxide	1200	U
959-98-8	Endosulfan I	1200	U
60-57-1	Dieldrin	1200	U
72-55-9	4,4'-DDE	1200	U
72-20-8	Endrin	1200	U
33213-65-9	Endosulfan II	1200	U
72-54-8	4,4'-DDD	1200	U
1031-07-8	Endosulfan sulfate	1200	U
50-29-3	4,4'-DDT	1200	U
72-43-5	Methoxychlor	1200	U
53494-70-5	Endrin ketone	1200	U
5103-71-9	alpha-Chlordane	1200	U
5103-74-2	gamma-Chlordane	1200	U
8001-35-2	Toxaphene	1200	U
12674-11-2	Aroclor 1016	1200	U
11104-28-2	Aroclor 1221	1200	U
11141-16-5	Aroclor 1232	1200	U
53469-21-9	Aroclor 1242	1200	U
12672-29-6	Aroclor 1248	1200	U
11097-69-6	Aroclor 1254		
11096-82-5	Aroclor 1260	1200	U

Target Compound List C:\NELSON\5256C.TGL 02:44:22 04-04-1990

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FRM1XE32

8/89 rev

FORM I GC-8000

WESTON

Appendix D

Reviewed and Corrected Tentatively Identified Compounds

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
5256C-01 TASK 3

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C TASK 3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DQM-01

Sample wt/vol: 5.0 (g/mL) G Lab File ID: VODQM01

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 78 Date Analyzed: 03/12/90

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 2 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 79-20-9	ACETIC ACID, METHYL ESTER	4.33	22	J
2. 66-25-1	HEXANAL	13.64	150	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

5256C-01TASK3

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C-TASK3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DQM01

Sample wt/vol: 50.0 (g/mL) G Lab File ID: SVDQM01

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 75 dec. ____ Date Extracted: 03/13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/26/90

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

Number TICs found: 21

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/~~KG~~ FISH

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN FATTY ACID	17.27	12000	J
2.	UNKNOWN FATTY ACID	18.19	27000	J
3.	UNKNOWN FATTY ACID	18.32	7900	J
4.	UNKNOWN FATTY ACID	19.02	75000	J
5.	UNKNOWN FATTY ACID	19.39	340000	J
6.	UNKNOWN FATTY ACID	19.75	56000	J
7.	UNKNOWN HYDROCARBON	19.87	20000	J
8.	UNKNOWN FATTY ACID	19.99	23000	J
9.	UNKNOWN FATTY ACID	20.95	490000	J
10.	UNKNOWN	21.52	19000	J
11.	UNKNOWN FATTY ACID ESTER	22.17	190000	J
~~12. 105-25-1~~	~~HEXANEDIOIC ACID, BIS(2-ETHY~~	~~22.52~~	~~14000~~	~~BJ~~
13.	UNKNOWN STEROL	25.49	51000	J
14.	UNKNOWN STEROL	29.36	120000	J
15.	UNKNOWN STEROL	29.51	150000	J
16.	UNKNOWN STEROL	29.64	180000	J
17.	UNKNOWN STEROL	29.77	210000	J
18.	UNKNOWN STEROL	29.94	240000	J
19.	UNKNOWN STEROL	30.07	240000	J
20.	UNKNOWN STEROL	30.21	150000	J
21.	UNKNOWN STEROL	31.14	31000	J

RJB 4/24/9

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

5256C-02 TASK 3

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C TASK 3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DQM-02

Sample wt/vol: 5.0 (g/mL) G Lab File ID: VODQM02

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 80 Date Analyzed: 03/12/90

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	2.77	390	J
2. 66-25-1	HEXANAL	13.62	75	J
3.	UNKNOWN	18.87	88	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

5256C-02TASK3

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C-TASK3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DQM-02

Sample wt/vol: 50.0 (g/mL) G Lab File ID: SVDQM02

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 80 dec. _____ Date Extracted: 03/13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/26/90

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

Number TICs found: 21

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/~~KG~~ CHT FISH

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN KETONE	12.40	5100	J
2.	UNKNOWN FATTY ACID	17.15	6100	J
3.	UNKNOWN FATTY ACID	17.30	7600	J
4.	UNKNOWN FATTY ACID	17.87	3900	J
5.	UNKNOWN FATTY ACID	17.94	2900	J
6.	UNKNOWN FATTY ACID	18.22	14000	J
7.	UNKNOWN FATTY ACID	19.39	260000	J
8.	UNKNOWN FATTY ACID	20.00	23000	J
9.	UNKNOWN HYDROVCARBON	21.02	450000	J
10.	UNKNOWN	21.52	9900	J
11.	UNKNOWN FATTY ACID ESTER	22.14	81000	J
12.	UNKNOWN STEROL	25.49	32000	J
13.	UNKNOWN STEROL	29.41	190000	J
14.	UNKNOWN STEROL	29.56	170000	J
15.	UNKNOWN STEROL	29.69	170000	J
16.	UNKNOWN STEROL	29.82	270000	J
17.	UNKNOWN STEROL	29.99	190000	J
18.	UNKNOWN STEROL	30.09	130000	J
19.	UNKNOWN STEROL	31.04	12000	J
20.	UNKNOWN STEROL	31.47	7300	J
21.	UNKNOWN STEROL	32.96	3300	J

WESTON SM

Appendix E

Organic Regional Data Assessment Summary

WESTON

DPO: [ ] ACTION [X] FYI

Region III

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO: SAS 5256C
SDG NO: Task 3
SOW:
NO. OF SAMPLES: 2

LABORATORY: GULF
DATA USER: B.J. Verrett
REVIEW COMPLETION DATE: 04/25/90
MATRIX: Fish Tissue

REVIEWER: ESAT

	VOA	BNA	PEST	OTHER
1. HOLDING TIMES	O	M	O	
2. GC-MS TUNE/GC PERFORMANCE	O	O	O	
3. INITIAL CALIBRATIONS	X	O	O	
4. CONTINUING CALIBRATION	M	X	O	
5. FIELD BLANKS (F=NOT APPLICABLE)	O	O	O	
6. LABORATORY BLANKS	X	X	O	
7. SURROGATES	M	O	O	
8. MATRIX SPIKE/DUPLICATES	O	O	O	
9. REGIONAL QC (F=NOT APPLICABLE)	F	F	F	
10. INTERNAL STANDARDS	O	O		
11. COMPOUND IDENTIFICATION	O	O	O	
12. COMPOUND QUANTITATION	O	O	O	
13. SYSTEM PERFORMANCE	O	O	O	
14. OVERALL ASSESSMENT	M	M	O	

O = No problems or minor problems that do not affect data usability
X = No more than about 5% of the data points are qualified as either estimated or unusable.
M = More than about 5% of the data points are qualified as estimated.
Z = More than about 5% of the data points are qualified as unusable.
A = DPO action requested; use in conjunction with one of the above codes.

DPO ACTION ITEMS:

AREAS OF CONCERN:

DOCUMENTATION ATTACHED (See Following Pages)

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY NOTES
SAS 5256C-Task3 SDG CBP00 Fish Tissue Samples

Iten 1B The semivolatile extractions were performed eight (8) days from the date of sample collection. Although no technical extraction holding time has been established for fish tissue samples, the extraction holding time of seven (7) days for water samples has been exceeded by one (1) day. Contractual extraction holding times were met.

Item 3A The response factor for 2-butanone was less than 0.05 during the volatiles initial calibration. (See Table I in Appendix F).

Item 3C A non-CLP procedure was used for the pesticide/PCB analysis. Five point initial calibrations were performed for all seven aroclors, toxaphene, and the individual pesticide mixes A and B. As a result, linearity was determined from the five point curves, and no evaluation mixes A, B, or C were run.

Item 4A The response factor for 2-butanone was less than 0.05, and several compounds had percent differences (%D's) greater than 25% in the volatiles continuing calibration. (See Table I in Appendix F).

Item 4B Two compounds had %D's greater than 25% in the semivolatile continuing calibration. (See Table I in Appendix F).

Item 6A The maximum concentrations of all compounds appearing in the laboratory method blanks are listed below. (Also see Appendix F).

Compound	Concentration (ug/Kg)
Methylene chloride *	10
Acetone *	8
bis(2-Ethylhexyl)phthalate *	88

* = Common Laboratory Contaminant

Item 6B See Item 6A.

Item 7A The volatiles analyses of sample 5256C-01 and the matrix spike (MS) of that sample had low recoveries of the surrogate bromofluorobenzene, and sample 5256C-02 and its MS had high recoveries of the surrogate 1,2-dichloroethane-d4.

Item 8A The SAS request calls for a matrix spike of two samples and a blank as part of the volatiles analysis QC. The following table summarizes the spike recoveries and the percent relative standard deviations (%RSD's).

	Percent Recovery			
Compound	5256C-01MS	5256C-02MS	BLKMS	%RSD
1,1-Dichloroethane	68	59	66	7
Trichloroethane	69	74	82	9
Benzene	81	81	82	1
Toluene	97	102	90	6
Chlorobenzene	61	96	94	23

Item 8B The SAS request calls for a matrix spike of two samples and a blank using only four compounds as part of the semivolatiles analysis QC. (See Attachment D in Appendix F). The following table summarizes the spike recoveries and the percent relative standard deviations (%RSD's).

	Percent Recovery			
Compound	5256C-01MS	5256C-02MS	BLKMS	%RSD
1,3-Dichlorobenzene	32	20	26	23
1,2-Dichlorobenzene	46	26	27	34
1,2,4-Trichlorobenzene	56	50	34	24
Hexachlorobenzene	93	94	83	7

The semivolatile initial and MS analyses of sample 5256C-01 contained non-spiked compounds, other than blank contaminants. The results and precision estimates are as follows.

	Concentration (ug/Kg)		
Compound	5256C-01	5256C-01MS	RPD
1,2-Dichlorobenzene *	3100 J	---	IN
1,3-Dichlorobenzene *	660 J	---	IN
1,4-Dichlorobenzene	4000 J		22
Isophorone	370 J		60
1,2,3-Trichlorobenzene	2100 J	2100 J	0
1,2,4-Trichlorobenzene *	7100 J	---	IN

Compound	Concentration (ug/Kg) 5256C-01	5256C-01MS	RPD
1,2,3,4-Tetrachlorobenzene	1200 J	1100 J	9
1,2,4,5-Tetrachlorobenzene	430 J	410 J	5
Pentachlorobenzene	210 J	320 J	42

RPD = Relative Percent Difference
IN = Indeterminate
* = Spiked compound, not evaluated in MS

Item 12B The semivolatile Form I's have been altered by the laboratory to indicate the results as ug/fish. However, the values reported are actually ug/Kg dry weight of tissue. (See Appendix C).

Item 12C The pesticide/PCB analysis of sample 5256C-01 was run in duplicate. The results and precision estimates are as follows.

Compound	Concentration (ug/Kg) 5256C-01	5256C-01DUP	RPD
4,4'-DDE	1700	2300	30
Aroclor 1260	4700	6200	28

RPD = Relative Percent Difference

WESTON

Appendix F

Support Documentation

TABLE I

ENVIRONMENTAL PROTECTION AGENCY REGION III

CALIBRATION OUTLIERS

VOLATILE HSL COMPOUNDS

CASE/SAS No. 5256C-Task 3 CONTRACTOR GILLF

Instrument# F	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont.		
Date/Time:	3/5/90			3/12/90 - 48091											
	RF	RF50	%	RF	RF50	%	RF	RF50	%	RF	RF50	%	RF	RF50	%
Chloromethane					139.6	C									
Bromomethane															
Vinyl Chloride															
Chloroethane					130.1	C									
Methylene Chloride															
Acetone					144.3	C*									
Carbon Disulfide															
1,1-Dichloroethene															
1,1-Dichloroethane															
Total-1,2-Dichloroethene															
Chloroform															
1,2-Dichloroethane															
2-Butanone	10.041		F	10.015		F									
1,1,1-Trichloroethane															
Carbon Tetrachloride															
Vinyl Acetate															
Bromodichloromethane															
1,2-Dichloropropane															
Cis-1,3-Dichloropropene															
Trichloroethene															
Dibromochloromethane															
1,1,2-Trichloroethane															
Benzene															
Trans-1,3-Dichloropropene															
Bromoform															
4-Methyl-2-pentanone															
2-Hexanone					131.0	C									
Tetrachloroethene															
1,1,2,2-Tetrachloroethane															
Toluene															
Chlorobenzene															
Ethylbenzene															
Styrene															
Total Xylenes					131.9	C									

AFFECTED SAMPLES:

All Samples
VBLK11
VBLK12
VBLK13
VBLK14
VBLKMS
5256C-01
5256C-02
5256C-01MS
5256C-02MS

Reviewer Initials/Date: NJ 4/24/90

* See Last page of this table for DEFINITION OF CODES.

TABLE I
ENVIRONMENTAL PROTECTION AGENCY REGION III
CALIBRATION OUTLIERS
SEMIVOLATILE HSL COMPOUNDS (Part 1 of 2)

CASE/SAS No. 5256C-Task 3 CONTRACTOR GULF

Instrument# B	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:				12/21/90-07241											
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
Phenol															
bis(2-Chloroethyl)Ether															
2-Chlorophenol															
1,3-Dichlorobenzene															
1,4-Dichlorobenzene															
Benzyl Alcohol															
1,2-Dichlorobenzene															
2-Methylphenol															
bis(2-chloroisopropyl)Ether															
4-Methylphenol															
N-Nitroso-di-n-Propylamine															
Hexachloroethane															
Nitrobenzene															
Isophorone															
2-Nitrophenol															
2,4-Dimethylphenol															
Benzoic Acid															
bis(2-Chloroethoxy)Methane															
2,4-Dichlorophenol															
1,2,4-Trichlorobenzene															
Naphthalene															
4-Chloroaniline															
Hexachlorobutadiene															
4-Chloro-3-Methylphenol															
2-Methylnaphthalene															
Hexachlorocyclopentadiene															
2,4,6-Trichlorophenol															
2,4,5-Trichlorophenol															
2-Chloronaphthalene															
2-Nitroaniline					131.5	C									
Dimethyl Phthalate															
Acenaphthylene															
2,6 Dinitrotoluene															
3-Nitroaniline															
Acenaphthene															
2,4-Dinitrophenol															
4-Nitrophenol															
Dibenzofuran															

AFFECTED SAMPLES:

Reviewer Initials/Date: EJD 4/24/90

* See last page of this table for DEFINITION OF CODES.

TABLE I
ENVIRONMENTAL PROTECTION AGENCY REGION III
CALIBRATION OUTLIERS
SEMIVOLATILE HSL COMPOUNDS (Part 2 of 2)

CASE/SAS No. 5256C- TASK 3 CONTRACTOR GULF

Instrument: B	Init. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.			Cont. Cal.		
DATE/TIME:				12/21/90-0724											
	RF	%RSD	*	RF	%D	*	RF	%D	*	RF	%D	*	RF	%D	*
2,4-Dinitrotoluene															
Diethylphthalate															
4-Chlorophenyl-phenylether															
Fluorene															
4-Nitroaniline															
4,6-Dinitro-2-Methyl-phenol															
N-Nitrosodiphenylamine															
4-Bromophenyl-phenylether															
Hexachlorobenzene															
Pentachlorophenol															
Phenanthrene															
Anthracene															
Di-n-butylphthalate															
Fluoranthene															
Pyrene															
Butylbenzylphthalate															
3,3-Dichlorobenzidine															
Benzo(a)anthracene															
Chrysene															
bis(2-Ethylhexyl)phthalate															
Di-n-octylphthalate															
Benzo(b)fluoranthene															
Benzo(k)fluoranthene					139.1	C									
Benzo(a)pyrene															
Indeno(1,2,3-cd)pyrene															
Dibenz(a,h)anthracene															
Benzo(g,h,i)perylene															

AFFECTED SAMPLES:

SBLK11
BLKMS
5256C-01
5256C-01MS
5256C-02
5256C-02MS

Reviewer Initials/Date: RJD 4/24/90

* See last page of this table for DEFINITION OF CODES.

DEFINITION OF CODES USED IN TABLE I

I = %RSD exceeded 30% in the initial calibration, positive results are qualified "J", and quantitation limits are qualified "UJ".

C = %D exceeded 25% in the continuing calibration. Positive results are qulified "J", and quantitation limits are qualified "UJ".

F = RF less than 0.05 in all calibrations. All quantitation limits are qualified "R".

+ = The "B" qualifier, denoting blank contamination, supersedes the qualifier issued in this table.

L = The "L" qualifier, denoting low bias of results, supersedes the qualifier issued in this table.

R = The "R" qualifier, denoting unusuable results, supersedes the qualifier issued in this table.

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: G S E L I Contract: _____

L[redacted] Code: GULF Case No.: _____ SAS No.: 5256C TASK 3 SDG No.: _____

Instrument ID: E Calibration Date(s): 03/05/90 03/05/90

Matrix:(soil/water) FISH Level:(low/med) LOW Column:(pack/cap) CAP

Min $\overline{RRF}$ for SPCC(#) = 0.300 (0.250 for Bromoform) Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF20 = EVS030590B RRF50 = EVS030590A
RRF100= EVS030590C RRF150= EVS030590D RRF200= EVS030590E

COMPOUND	RRF20	RRF50	RRF100	RRF150	RRF200	$\overline{RRF}$	% RSD
Chloromethane #	0.859	0.794	0.748	0.782	0.819	0.800	5.2#
Bromomethane	1.730	1.577	1.665	1.721	1.832	1.705	5.5
Vinyl Chloride *	1.711	1.709	1.983	2.225	2.390	2.004	15.2*
Chloroethane	1.076	1.022	1.043	1.201	1.284	1.125	10.0
Methylene Chloride	2.339	1.843	1.846	1.927	1.951	1.981	10.4
Acetone	0.772	0.662	0.530	0.675	0.664	0.661	13.0
Carbon Disulfide	5.955	5.351	5.492	5.838	6.102	5.748	5.5
1,1-Dichloroethene *	1.846	1.699	1.719	1.835	1.937	1.807	5.4*
1,1-Dichloroethane #	3.725	3.752	3.448	4.085	4.113	3.825	7.3#
1,2-Dichloroethene (total)	1.961	1.784	1.788	1.946	2.056	1.907	6.2
Chloroform *	3.989	3.969	3.711	4.348	4.256	4.055	6.2*
1,2-Dichloroethane	2.029	2.383	1.930	2.748	2.728	2.364	16.1
2-Butanone	0.010	0.019	0.018	0.024	0.023	0.019	29.2
1,1,1-Trichloroethane	1.302	0.920	1.157	0.895	0.937	1.042	17.2
Carbon Tetrachloride	1.299	0.922	1.182	0.914	0.967	1.057	16.4
Vinyl Acetate	0.230	0.310	0.308	0.373	0.424	0.329	22.3
Bromodichloromethane	0.888	0.810	0.871	0.836	0.879	0.857	3.8
1,2-Dichloropropane *	0.421	0.382	0.386	0.385	0.400	0.395	4.1*
cis-1,3-Dichloropropene	0.656	0.699	0.650	0.711	0.768	0.697	6.9
Trichloroethene	0.598	0.531	0.561	0.526	0.537	0.551	5.4
Dibromochloromethane	0.854	0.831	0.873	0.845	0.917	0.864	3.9
1,1,2-Trichloroethane	0.412	0.404	0.373	0.403	0.427	0.404	4.9
Benzene	1.129	0.956	1.017	0.923	0.955	0.996	8.2
Trans-1,3-Dichloropropene	0.250	0.311	0.277	0.331	0.362	0.306	14.4
Bromoform #	0.848	0.785	0.884	0.818	0.882	0.843	5.0#
4-Methyl-2-Pentanone	0.455	0.460	0.435	0.529	0.530	0.482	9.2
2-Hexanone	0.210	0.292	0.205	0.320	0.313	0.268	21.0
Tetrachloroethene	0.634	0.603	0.565	0.566	0.579	0.589	5.0
1,1,2,2-Tetrachloroethane #	1.003	0.773	0.836	0.774	0.770	0.831	12.0#
Toluene *	0.710	0.706	0.667	0.718	0.712	0.703	2.9*
Chlorobenzene #	1.041	1.025	0.964	0.996	1.017	1.009	2.9#
Ethylbenzene *	0.443	0.391	0.373	0.398	0.404	0.402	6.4*
Styrene	0.988	0.960	0.973	1.010	1.060	0.998	3.9
Xylene (total)	1.124	0.987	0.935	0.928	0.960	0.987	8.1
Toluene-d8	1.085	1.083	1.012	1.045	[illegible]	------	9
B[redacted]ofluorobenzene	0.969	0.813	0.828	0.706	0.755	0.814	12.2
1,2-Dichloroethane-d4	1.685	1.901	1.535	2.155	2.020	1.859	13.5

FORM VI VOA AR300806 1/87 Rev.

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C SDG No.: _____

TASK 3

Instrument ID: E Calibration date: 03/12/90 Time: 809

Lab File ID: EVS031290A Init. Calib. Date(s): 03/05/90 03/05/90

Matrix:(soil/water) FISH Level:(low/med) LOW Column:(pack/cap) CAP

Min RRF50 for SPCC(#) = 0.300 (0.250 for Bromoform) Max %D for CCC(*) = 25.0%

COMPOUND		RRF	RRF50	%D	
Chloromethane	#	0.800	1.117	-39.6	#
Bromomethane		1.705	1.476	13.4	
Vinyl Chloride	*	2.004	1.812	9.6	*
Chloroethane		1.125	0.786	30.1	
Methylene Chloride		1.981	1.574	20.6	
Acetone		0.661	0.365	44.8	
Carbon Disulfide		5.748	4.593	20.1	
1,1-Dichloroethene	*	1.807	1.689	6.5	*
1,1-Dichloroethane	#	3.825	3.153	17.6	#
1,2-Dichloroethene (total)		1.907	1.461	23.4	
Chloroform	*	4.055	3.352	17.3	*
1,2-Dichloroethane		2.364	1.839	22.2	
2-Butanone		0.019	0.015	21.0	
1,1,1-Trichloroethane		1.042	0.937	10.1	
Carbon Tetrachloride		1.057	1.010	4.4	
Vinyl Acetate		0.329	0.311	5.5	
Bromodichloromethane		0.857	0.786	8.3	
1,2-Dichloropropane	*	0.395	0.376	4.8	*
cis-1,3-Dichloropropene		0.697	0.618	11.3	
Trichloroethene		0.551	0.511	7.3	
Dibromochloromethane		0.864	0.760	12.0	
1,1,2-Trichloroethane		0.404	0.359	11.1	
Benzene		0.996	0.934	6.2	
Trans-1,3-Dichloropropene		0.306	0.269	12.1	
Bromoform	#	0.843	0.708	16.0	#
4-Methyl-2-Pentanone		0.482	0.459	4.8	
2-Hexanone		0.268	0.185	31.0	
Tetrachloroethene		0.589	0.575	2.4	
1,1,2,2-Tetrachloroethane	#	0.831	0.821	1.2	#
Toluene	*	0.703	0.686	2.4	*
Chlorobenzene	#	1.009	0.980	2.9	#
Ethylbenzene	*	0.402	0.391	2.7	*
Styrene		0.998	0.877	12.1	
Xylene (total)		0.987	0.672	31.9	
Toluene-d8		1.057	1.151	-8.0	
Bromofluorobenzene		0.814	0.881		
1,2-Dichloroethane-d4		1.859	1.524		

Samples
VBLKL1
VBLKL2
VBLKL3
VBLKL4
VBLKMS
5256C-01
5256C-02
5256C-01MS
5256C-02MS

FORM VII VOA AR300807 1/87 Rev.

000080

INITIAL CALIBRATION DATA - SEMIVOLATILE HSL COMPOUNDS

SAS
CASE NO. (5256L-TASK3 CONTRACT LAB: GSELI
CONTRACT NO. ( ) INSTRUMENT IDENTIFIER: B
CALIBRATION DATE: 02/21/90
MINIMUM MEAN RF FOR SPCC(**) IS 0.05
MAXIMUM %RSD FOR CCC(*) IS 30%

LABORATORY ID

	COMPOUND	RF 20NG	RF 50NG	RF 80NG	RF 120NG	RF 160NG	MEAN RF	%RSD
C315	PHENOL*	1.860	1.764	1.643	1.659	1.564	1.698	6.7
C325	BIS(2 CHLOROETHYL)ETHE	1.542	1.315	1.241	1.279	1.222	1.320	9.7
C330	2-CHLOROPHENOL	1.391	1.338	1.267	1.291	1.249	1.307	4.4
C335	1,3-DICHLOROBENZENE	1.468	1.484	1.407	1.418	1.379	1.431	3.0
C340	14DICHLOROBENZENE*	1.483	1.491	1.419	1.434	1.398	1.445	2.8
C345	BENZYL ALCOHOL	0.846	0.865	0.817	0.832	0.804	0.833	2.8
C350	1,2-DICHLOROBENZENE	1.419	1.410	1.346	1.360	1.289	1.365	3.8
C355	2-METHYLPHENOL	1.278	1.265	1.188	1.212	1.167	1.222	3.9
C360	BIS(2-CHLOROISOPROPYL)	2.246	1.929	1.824	1.855	1.812	1.933	9.3
C365	4-METHYLPHENOL	1.312	1.289	1.211	1.226	1.156	1.239	5.0
C370	NITROSOPROPYLAMINE**	1.014	0.865	0.806	0.816	0.792	0.859	10.5
C375	HEXACHLOROETHANE	0.552	0.552	0.516	0.517	0.505	0.528	4.1
C410	NITROBENZENE	0.294	0.293	0.279	0.278	0.273	0.283	3.2
C415	ISOPHORONE	0.582	0.586	0.555	0.557	0.547	0.566	3.1
C420	2-NITROPHENOL*	0.208	0.206	0.195	0.195	0.195	0.200	3.3
C425	2,4-DIMETHYLPHENOL	0.275	0.269	0.256	0.258	0.249	0.261	3.9
C430	BENZOIC ACID	0.166	0.187	0.189	0.213	0.208	0.193	9.6
C435	BIS(2-CHLOROETHOXY)METO	0.502	0.427	0.410	0.409	0.395	0.429	9.9
C440	2,4-DICHLOROPHENOL*	0.300	0.291	0.274	0.275	0.266	0.281	4.8
C445	1,2,4-TRICHLOROBENZENE	0.300	0.298	0.289	0.290	0.282	0.292	2.4
C450	NAPHTHALENE	0.910	0.891	0.841	0.809	0.737	0.838	8.2
C455	4-CHLOROANILINE	0.400	0.388	0.357	0.350	0.324	0.364	8.3
C460	CL6BUTADIENE*	0.151	0.147	0.142	0.144	0.142	0.145	2.5
C465	4CHLORO3METHYLPHENOL*	0.265	0.254	0.241	0.245	0.244	0.250	3.9
C470	2-METHYLNAPTHALENE	0.633	0.613	0.578	0.572	0.542	0.588	6.0
C510	CL6CYCLOPENTADIENE**	0.336	0.336	0.334	0.338	0.320	0.333	2.1
C515	246TRICHLOROPHENOL*	0.367	0.346	0.333	0.337	0.324	0.341	4.7
C520	2,4,5-TRICHLOROPHENOL	0.367	0.345	0.342	0.347	0.324	0.345	4.3
C525	2-CHLORONAPHTHALENE	1.040	1.006	0.964	0.938	0.879	0.965	6.4
C530	2-NITROANILINE	0.291	0.286	0.266	0.274	0.256	0.275	5.1
C535	DIMETHYL PHTHALATE	1.317	1.119	1.072	1.077	1.027	1.122	10.1
C540	ACENAPHTHYLENE	1.700	1.609	1.545	1.467	1.268	1.518	10.7
C545	3-NITROANILINE	0.292	0.278	0.267	0.292	0.258	0.277	5.3
C550	ACENAPTHENE*	1.034	0.995	0.957	0.950	0.878	0.963	6.0
C555	24DINITROPHENOL**	0.183	0.195	0.183	0.201	0.191	0.191	4.0
C560	4NITROPHENOL**	0.094	0.080	0.077	0.079	0.073	0.081	9.6
C565	DIBENZOFURAN	1.481	1.437	1.362	1.324	1.144	1.350	9.6

FORM VI

INITIAL CALIBRATION DATA - SEMIVOLATILE HSL COMPOUNDS

SAS
CASE NO. (528-C-4A3K3 CONTRACT LAB: GSELI
CONTRACT NO. ( ) INSTRUMENT IDENTIFIER: B
CALIBRATION DATE: 02/21/90
MINIMUM MEAN RF FOR SPCC(**) IS 0.05
MAXIMUM %RSD FOR CCC(*) IS 30%

LABORATORY ID

	COMPOUND	RF 20NG	RF 50NG	RF 80NG	RF 120NG	RF 160NG	MEAN RF	%RSD
C370	2,4-DINITROTOLUENE	0.389	0.387	0.365	0.377	0.341	0.372	5.3
C543	2,6-DINITROTOLUENE	0.310	0.306	0.301	0.302	0.284	0.301	3.2
C580	DIETHYL PHTHALATE	1.291	1.095	1.043	1.050	0.952	1.086	11.5
C585	4-CHLOROPHENYL PHENYL	0.540	0.534	0.485	0.466	0.436	0.492	9.0
C590	FLUORENE	1.185	1.109	1.017	0.992	0.890	1.038	10.8
C595	4-NITROANILINE	0.289	0.245	0.231	0.243	0.233	0.248	9.6
C610	4,6-DINITRO-2-METHYLPHO	0.154	0.152	0.145	0.151	0.156	0.152	2.6
C615	DIPHENYLAMINE*	0.527	0.439	0.448	0.459	0.484	0.471	7.5
C625	4-BROMOPHENYL PHENYL E	0.247	0.209	0.206	0.205	0.221	0.218	8.0
C630	HEXACHLOROBENZENE	0.247	0.241	0.232	0.228	0.240	0.237	3.2
C635	PENTACHLOROPHENOL*	0.223	0.201	0.180	0.175	0.180	0.192	10.5
C640	PHENANTHRENE	1.064	1.000	0.930	0.912	0.860	0.953	8.3
C645	ANTHRACENE	1.073	1.023	0.951	0.880	0.837	0.953	10.2
C650	DI-N-BUTYL PHTHALATE	1.544	1.283	1.143	1.019	0.892	1.176	21.3
C655	FLUORANTHENE*	1.210	1.102	0.926	0.811	0.770	0.964	19.5
C715	PYRENE	1.203	1.144	1.087	1.128	1.146	1.141	3[illegible]
C720	BUTYL BENZYL PHTHALATE	0.657	0.561	0.532	0.543	0.556	0.570	8[illegible]
C725	3,3'-DICHLOROBENZIDINE	0.275	0.215	0.230	0.247	0.258	0.245	9.5
C730	BENZO(A)ANTHRACENE	1.173	0.974	1.008	1.009	0.992	1.031	7.7
C740	BIS(2-ETHYLHEXYL)PHTHA	0.954	0.833	0.784	0.765	0.775	0.822	9.5
C735	CHRYSENE	1.014	0.968	0.877	0.867	0.872	0.919	7.3
C760	DINOCTYLPHTHALATE*	1.600	1.385	1.343	1.381	1.362	1.414	7.4
C765	BENZO(B)FLUORANTHENE	1.119	0.948	0.922	0.987	0.961	0.987	7.8
C770	BENZO(K)FLUORANTHENE	0.866	0.931	0.796	0.821	0.857	0.854	6.0
C775	BENZO(A)PYRENE*	0.901	0.879	0.811	0.847	0.830	0.854	4.2
C780	INDENO(1,2,3-CD)PYRENE	0.969	0.901	0.783	0.816	0.766	0.847	10.0
C785	DIBENZO(A,H)ANTHRACENE	0.799	0.756	0.692	0.728	0.710	0.737	5.6
C790	BENZO(G,H,I)PERYLENE	0.892	0.855	0.765	0.808	0.782	0.820	6.3
CS20	D5-NITROBENZENE	0.280	0.288	0.265	0.270	0.262	0.273	3.9
CS25	2-FLUOROBIPHENYL	1.120	1.035	1.002	0.989	0.909	1.011	7.5
CS30	D14-P-TERPHENYL	0.902	0.867	0.835	0.872	0.885	0.872	2.8
CS45	D5-PHENOL	1.639	1.523	1.437	1.455	1.372	1.485	6.8
CS50	2-FLUOROPHENOL	1.148	1.108	1.046	1.084	1.039	1.085	4.1
CS55	2,4,6-TRIBROMOPHENOL	0.322	0.205	0.194	0.201	0.186	0.222	25.5

FORM VI

INITIAL CALIBRATION DATA - SEMIVOLATILE HSL COMPOUNDS

SAS
CASE NO. (5256C TASK3 CONTRACT LAB: GSELI
CONTRACT NO. ( ) INSTRUMENT IDENTIFIER: B
CALIBRATION DATE: 02/21/90
MINIMUM MEAN RF FOR SPCC(**) IS 0.05
MAXIMUM %RSD FOR CCC(*) IS 30%

LABORATORY ID

	COMPOUND	RF 20NG	RF 50NG	RF 80NG	RF 120NG	RF 160NG	MEAN RF	%RSD
C320	ANILINE	1.955	1.946	1.810	1.847	1.753	1.862	4.6
C310	N-NITROSODIMETHYLAMINE	0.742	0.623	0.546	0.612	0.346	0.574	25.3
C319	PYRIDINE	0.893	0.874	0.927	0.832	0.904	0.886	4.0
C321	2,3,4,6-TETRACHLOROPHE	0.298	0.281	0.261	0.276	0.256	0.274	6.1
	1,2-DIPHENYLHYDRAZINE	0.796	0.750	0.755	0.752	0.766	0.764	2.4
C800	ALHA-BHC	0.107	0.104	0.102	0.102	0.106	0.104	2.0
C805	BETA-BHC	0.084	0.080	0.073	0.069	0.066	0.075	9.6
C810	GAMMA-BHC	0.090	0.087	0.086	0.085	0.083	0.086	3.0
C815	DELTA-BHC	0.078	0.078	0.070	0.069	0.066	0.072	7.9
C820	HEPTACHLOR	0.153	0.150	0.144	0.143	0.140	0.146	3.6
C825	ALDRIN	0.131	0.125	0.120	0.118	0.112	0.121	6.0
C830	HEPTACHLOR EPOXIDE	0.077	0.079	0.067	0.065	0.061	0.070	10.9
C845	ENDOSULFAN-I	0.034	0.033	0.032	0.035	0.033	0.033	2.9
C860	4,4'-DDE	0.215	0.224	0.213	0.238	0.230	0.224	4.5
C855	DIELDRIN	0.173	0.179	0.176	0.192	0.187	0.181	4.1
C865	ENDRIN	0.030	0.030	0.032	0.037	0.039	0.034	12.4
C870	ENDOSULFAN-II	0.004	0.004	0.003	0.004	0.004	0.004	7.8
C890	4,4'-DDT	0.314	0.341	0.322	0.332	0.349	0.332	4.2
C875	4,4'-DDD	0.406	0.396	0.371	0.377	0.381	0.386	3.7
C900	METHOXYCHLOR	0.857	0.849	0.824	0.815	0.751	0.819	5.1
C835	ALPHA CHLORDANE	0.103	0.104	0.098	0.105	0.102	0.102	2.6
C840	GAMMA CHLORDANE	0.115	0.126	0.121	0.132	0.133	0.125	6.0
C885	ENDOSULFAN SULFATE	0.065	0.066	0.062	0.060	0.064	0.063	3.4
C895	ENDRIN KETONE	0.053	0.049	0.038	0.031	0.029	0.040	25.8

FORM VI

INITIAL CALIBRATION DATA - SEMIVOLATILE HSL COMPOUNDS

~~CASE~~ SAS NO. SAS: 5256C ~~TASK~~ 3 CONTRACT LAB: GSELI
CONTRACT NO. ( ) INSTRUMENT IDENTIFIER: B
CALIBRATION DATE: 03/16/90
MINIMUM MEAN RF FOR SPCC(**) IS 0.05
MAXIMUM %RSD FOR CCC(*) IS 30%

LABORATORY ID

COMPOUND	RF 20NG	RF 50NG	RF 80NG	RF 120NG	RF 160NG	MEAN RF	%RSD
1,3,5-TRICHLOROBENZENE	0.311	0.312	0.321	0.324	0.307	0.315	2.2
1,2,3-TRICHLOROBENZENE	0.299	0.328	0.303	0.303	0.290	0.304	4.6
M-CHLORONITROBENZENE	0.205	0.229	0.224	0.222	0.218	0.220	4.2
1,2,4,5-TETRACHLOROBEN	0.447	0.488	0.485	0.476	0.450	0.469	4.0
1,2,3,4-TETRACHLOROBEN	0.518	0.516	0.505	0.491	0.477	0.502	3.4
PENTACHLOROBENZENE	0.431	0.473	0.447	0.436	0.419	0.441	4.6

FORM VI

CALIBRATION CHECK - SEMIVOLATILE HSL COMPOUNDS

CASE NO. (SAS: 5256 TAK) CONTRACT LAB: GSELI

CONTRACT NO. ( ) INSTRUMENT IDENTIFIER: B

CALIBRATION DATE: 02/21/90

STANDARD FILE: BS032690A

DATE: 03/26/90 TIME: 7:24

MINIMUM RF FOR SPCC(**) IS 0.0500

MAXIMUM % D FOR CCC(*) IS 25%

	COMPOUND	MEAN RF(I)	RF(O)	% D
C315	PHENOL*	1.698	1.868	10.036
C325	BIS(2 CHLOROETHYL)ETHE	1.320	1.405	6.459
C330	2-CHLOROPHENOL	1.307	1.369	4.689
C335	1,3-DICHLOROBENZENE	1.431	1.430	0.094
C340	14DICHLOROBENZENE*	1.445	1.524	5.483
C345	BENZYL ALCOHOL	0.833	0.923	10.844
C350	1,2-DICHLOROBENZENE	1.365	1.434	5.072
C355	2-METHYLPHENOL	1.222	1.308	7.031
C360	BIS(2-CHLOROISOPROPYL)	1.933	2.357	21.905
C365	4-METHYLPHENOL	1.239	1.346	8.660
C370	NITROSOPROPYLAMINE**	0.859	0.991	15.418
C375	HEXACHLOROETHANE	0.528	0.595	12.527
C410	NITROBENZENE	0.283	0.338	19.296
C415	ISOPHORONE	0.566	0.634	12.019
C420	2-NITROPHENOL*	0.200	0.202	0.964
C425	2,4-DIMETHYLPHENOL	0.261	0.253	3.202
C430	BENZOIC ACID	0.193	0.194	0.525
C435	BIS(2-CHLOROETHOXY)MET	0.429	0.452	5.430
C440	2,4-DICHLOROPHENOL*	0.281	0.283	0.777
C445	1,2,4-TRICHLOROBENZENE	0.292	0.286	2.021
C450	NAPHTHALENE	0.838	0.905	8.000
C455	4-CHLOROANILINE	0.364	0.356	2.226
C460	CL6BUTADIENE*	0.145	0.136	6.559
C465	4CHLORO3METHYLPHENOL*	0.250	0.278	11.530
C470	2-METHYLNAPTHALENE	0.588	0.613	4.265
C510	CL6CYCLOPENTADIENE**	0.333	0.303	8.834
C515	246TRICHLOROPHENOL*	0.341	0.334	2.166
C520	2,4,5-TRICHLOROPHENOL	0.345	0.343	0.726
C525	2-CHLORONAPHTHALENE	0.965	1.015	5.128
C530	2-NITROANILINE	0.275	0.361	31.536
C535	DIMETHYL PHTHALATE	1.122	1.089	2.967
C540	ACENAPHTHYLENE	1.518	1.628	7.271
C545	3-NITROANILINE	0.277	0.272	1.729
C550	ACENAPTHENE*	0.963	0.988	2.591
C555	24DINITROPHENOL**	0.191	0.182	4.598
C560	4NITROPHENOL**	0.081	0.096	19.224
C565	DIBENZOFURAN	1.350	1.420	5.189

Samples
SBLKL1
BLKMS
5256C-01
5256C-01MS
5256C-02
5256C-02M.

FORM VII

CALIBRATION CHECK - SEMIVOLATILE HSL COMPOUNDS

CASE NO. (SAF: ΩSCC) TASK 7 CONTRACT LAB: GSELI

CONTRACT NO. ( ) INSTRUMENT IDENTIFIER: B

CALIBRATION DATE: 02/21/90

STANDARD FILE: BS032690A

DATE: 03/26/90 TIME: 7:24

MINIMUM RF FOR SPCC(**) IS 0.0500

MAXIMUM % D FOR CCC(*) IS 25%

	COMPOUND	MEAN RF(I)	RF(O)	% D
C570	2,4-DINITROTOLUENE	0.372	0.376	1.230
C543	2,6-DINITROTOLUENE	0.301	0.301	0.059
C580	DIETHYL PHTHALATE	1.086	1.087	0.029
C585	4-CHLOROPHENYL PHENYL	0.492	0.508	3.133
C590	FLUORENE	1.038	1.134	9.185
C595	4-NITROANILINE	0.248	0.244	1.724
C610	4,6-DINITRO-2-METHYLPH	0.152	0.150	1.023
C615	DIPHENYLAMINE*	0.471	0.479	1.668
C625	4-BROMOPHENYL PHENYL E	0.218	0.192	12.007
C630	HEXACHLOROBENZENE	0.237	0.216	9.150
C635	PENTACHLOROPHENOL*	0.192	0.178	7.308
C640	PHENANTHRENE	0.953	1.025	7.515
C645	ANTHRACENE	0.953	1.009	5.845
C650	DI-N-BUTYL PHTHALATE	1.176	1.310	11.350
C655	FLUORANTHENE*	0.964	1.062	10.145
C715	PYRENE	1.141	1.341	17.508
C720	BUTYL BENZYL PHTHALATE	0.570	0.647	13.628
C725	3,3'-DICHLOROBENZIDINE	0.245	0.253	3.314
C730	BENZO(A)ANTHRACENE	1.031	1.135	10.071
C740	BIS(2-ETHYLHEXYL)PHTHA	0.822	0.910	10.663
C735	CHRYSENE	0.919	0.922	0.298
C760	DINOCTYLPHTHALATE*	1.414	1.729	22.236
C765	BENZO(B)FLUORANTHENE	0.987	0.978	0.964
C770	BENZO(K)FLUORANTHENE	0.854	1.189	39.131
C775	BENZO(A)PYRENE*	0.854	0.869	1.777
C780	INDENO(1,2,3-CD)PYRENE	0.847	0.823	2.882
C785	DIBENZO(A,H)ANTHRACENE	0.737	0.697	5.435
C790	BENZO(G,H,I)PERYLENE	0.820	0.785	4.295
CS20	D5-NITROBENZENE	0.273	0.320	17.158
CS25	2-FLUOROBIPHENYL	1.011	1.021	0.948
CS30	D14-P-TERPHENYL	0.872	0.939	7.642
CS45	D5-PHENOL	1.485	1.611	8.489
CS50	2-FLUOROPHENOL	1.085	1.078	0.647
CS55	2,4,6-TRIBROMOPHENOL	0.222	0.174	21.298

FORM VII

CALIBRATION CHECK - SEMIVOLATILE HSL COMPOUNDS

CASE NO. (SAS: 52516) TASK 3 CONTRACT LAB: GSELI

CONTRACT NO. ( ) INSTRUMENT IDENTIFIER: B

CALIBRATION DATE: 02/21/90

STANDARD FILE: BS032690A

DATE: 03/26/90 TIME: 7:24

MINIMUM RF FOR SPCC(**) IS 0.0500

MAXIMUM % D FOR CCC(*) IS 25%

	COMPOUND	MEAN RF(I)	RF(O)	% D
C320	ANILINE	1.862	1.598	14.186
C310	N-NITROSODIMETHYLAMINE	0.574	0.740	29.005
C319	PYRIDINE	0.886	1.335	50.670
C321	2,3,4,6-TETRACHLOROPHE	0.274	0.245	10.517
1,2-DIPHENYLHYDRAZINE		0.764	0.923	20.893
C800	ALHA-BHC	0.104	0.111	6.875
C805	BETA-BHC	0.075	0.094	26.502
C810	GAMMA-BHC	0.086	0.093	7.724
C815	DELTA-BHC	0.072	0.085	17.664
C820	HEPTACHLOR	0.146	0.165	13.034
C825	ALDRIN	0.121	0.154	26.446
C830	HEPTACHLOR EPOXIDE	0.070	0.063	9.101
C845	ENDOSULFAN-I	0.033	0.042	25.779
C860	4,4'-DDE	0.224	0.243	8.594
C855	DIELDRIN	0.181	0.250	37.662
C865	ENDRIN	0.034	0.051	50.561
C870	ENDOSULFAN-II	0.004	0.005	30.519
C890	4,4'-DDT	0.332	0.380	14.482
C875	4,4'-DDD	0.386	0.427	10.532
C900	METHOXYCHLOR	0.819	0.997	21.659
C835	ALPHA CHLORDANE	0.102	0.106	3.651
C840	GAMMA CHLORDANE	0.125	0.121	3.379
C885	ENDOSULFAN SULFATE	0.063	0.065	1.965
C895	ENDRIN KETONE	0.040	0.041	2.603

FORM VII

CALIBRATION CHECK - SEMIVOLATILE HSL COMPOUNDS

CASE NO. SAS:5256C TASK 3 CONTRACT LAB: GSELI

CONTRACT NO. ( ) INSTRUMENT IDENTIFIER: B

CALIBRATION DATE: 03/16/90

STANDARD FILE: BS032690B

DATE: 03/26/90 TIME: 8:07

MINIMUM RF FOR SPCC(**) IS 0.0500

MAXIMUM % D FOR CCC(*) IS 25%

COMPOUND	MEAN RF(I)	RF(O)	% D
1,3,5-TRICHLOROBENZENE	0.315	0.298	5.324
1,2,3-TRICHLOROBENZENE	0.304	0.302	0.828
M-CHLORONITROBENZENE	0.220	0.232	5.862
1,2,4,5-TETRACHLOROBEN	0.469	0.483	3.001
1,2,3,4-TETRACHLOROBEN	0.502	0.504	0.575
PENTACHLOROBENZENE	0.441	0.455	3.130

FORM VII

2B
FISH VOLATILE SURROGATE RECOVERY

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C TASK 3 SDG No.: _____

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
01	5256C-01 TASK 3	102	70 *	113	0	1
02	5256C-02 TASK 3	108	78	123 *	0	1
03	VBLKL2	94	84	110	0	0
04	VBLKL3	97	88	120	0	0
05	VBLKL4	103	100	113	0	0
06	5256C-01MS TASK 3	104	61 *	111	0	1
07	5256C-02MS TASK 3	105	77	122 *	0	1
08	VBLKMS	98	89	112	0	0
09	VBLKL1	97	82	112	0	0

		QC LIMITS
S1 (TOL)	= Toluene-d8	(81-117)
S2 (BFB)	= Bromofluorobenzene	(74-121)
S3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogates diluted out

FORM II VOA-2 AR300816 1/87 Rev.

000001

ATTACHMENT D

Laboratory spikes: spike 2 different weighed samples and one method blank. Detail specifics of procedure in laboratory narrative.

SPIKING COMPOUNDS

Volatile compounds (100 ug/Kg)

benzene

chlorobenzene

Semi-volatile compounds(1000 ug/Kg)

1, 2-dichlorobenzene

1, 3-dichlorobenzene

1, 2, 4-trichlorobenzene

hexachlorobenzene

Spiking procedures

1) Spike two samples upon addition of solvent prior to tissuemizer homogenation.

2) Spike a solvent or method blank prior to homogenation and extraction.

3) Report all compounds spiked and recoveries in narrative. If any single analyte recovery in sample or blank is < 40 %, call Region III and SMO immediately.

Call Region III prior to any changes in spiking compounds. See item # 13 in the SAS request form for information about spike QC requirements.

Std Chlorine

In Reference to Case No(s):
SAS 5256C TK3

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM
Telephone Record Log

Date of Call: March 12, 1990

Laboratory Name: Gulf South Envirn Lab

Lab Contact: Rick Whitney

Region: 3

Regional Contact: Stevie Wilding

Call Initiated By: X Laboratory Region

In Reference to data for the following sample number(s):
All BNA samples.

Summary of Questions/Issues Discussed:
The fish clean-up procedure requires two GPC clean-up steps, resulting in a loss of 3/4 of the sample. The lab would like to compensate for the loss in detection limit by evaporating the final extract down to 250 ul instead of 1 ml.

Summary of Resolution:
Region has O.K.ed this change as long as the surrogate recoveries incoorporate this. The lab is to note this in their narrative.

Stevie Wilding
Signature

MAR 22 1990
Date

Distribution: (1) Lab Copy, (2) ~~Regional Copy~~, (3) SMO Copy, (4) Versar, (5) St. of DE, (6) Bob Quarni, RPM, (7) Diann Sims, (8) Abe Ferdas, (9) _____
(3HW20)

AR 300818

Gulf South Environmental Laboratory
SAS 5256C

GSELI Project No. 6200-3602

Narrative

SAS 5256C-Task 3 consisted of two (2) fish samples which were received by Gulf South Environmental Laboratory on March 8, 1990 and were designated as Episode DQM. The samples were identified as follows:

5256C-01 Task 3 5256C-02 Task 3

The samples were analyzed for volatile organics, semivolatile organics plus additional chlorinated benzenes specified in the SAS request, and pesticides/PCB's.

Specific problems and observations regarding the analyses are discussed in the following paragraphs.

Volatile

The two fish samples were analyzed according to the low soil method. Sample 5256C-01 and 5256C-01 MS both had low recovery for bromofluorobenzene; d_4-1,2-dichloroethane recovery was high in samples 5256C-02 and 5256C-02 MS. Four blanks were analyzed as follows:

VBLKL1 Volatile method blank
VBLKL2 Dry ice (.5g) + 10mls water
VBLKL3 Residue in jar of dry ice used to homogenize fish + 10mls water
VBLKL4 Residue of dry ice used to ship fish + 10mls water.

No unusual contamination was detected from the dry ice.

Semivolatile

The two-step GPC cleanup procedure specified by the SAS required use of the entire extract. The ABC Labs GPC unit in operation in the GSELI laboratory results in loss of half the sample in each step, or an overall loss of 3/4 of the sample. This loss was compensated by a final concentration of the extracts to 0.25ml. (See attached phone logs.)

No problems were encountered with the analyses.

Pesticide/PCB's

No problems were encountered in the analysis for pesticide/PCBs.

The surrogate spike recovery limits reported are taken from the CLP RAS medium protocol. Five point initial calibrations were pe [illegible] n Aroclors, toxaphene and the individual pesticide mixes A and B and the samples were evaluated against all standards. Only Aroclors 1242, 1248, 1254 and 1260

and individual pesticide mix B were used for continuing calibration verification immediately prior to analysis of the samples. A new five point calibration was run just prior to the samples, so no continuing calibration was required. Aroclors 1242, 1248, 1254 and 1260 and individual mix A and B were run as closing standards. Evaluation mix B was analyzed prior to the initial multipoint calibration for individual pesticides, and prior to and during the analysis of the samples. Breakdown was less than the maximum 20% allowed. No calibration excursions were observed for any Arolcor or pesticide.

Please refer to a draft standard operating procedure which describes the data system used by this chromatography laboratory, and briefly describes methods of calculation and the SAS forms on which data is reported.

The %RPD of the two analytes detected in sample 5256C-01 Task 3 was less than 50% as required by the SAS. All pesticides detected in this sample, with the exception of 4,4'-DDE, were either below detection limit (250 ug/Kg specified by the SAS) or judged to be part of the Aroclor 1260 detected in the sample.

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature."

Richard R. Whitney, Ph.D.
GC/MS Laboratory Manager

4/9/90
Date

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKMS

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C TASK 3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: SPIKED BLANK

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: VODQM01MS

Level: (low/med) LOW Date Received: ~~03/08/90~~ chm

% Moisture: not dec. 78 Date Analyzed: 03/12/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ML	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	8	B
67-64-1	Acetone	8	BJ
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene		
1330-20-7	Xylene (total)	5	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5256C-01MS TASK 3

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C TASK 3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DGM-01MS

Sample wt/vol: 5.0 (g/mL) G Lab File ID: VODGM01MS

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 78 Date Analyzed: 03/12/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	45	U
74-83-9	Bromomethane	45	U
75-01-4	Vinyl Chloride	45	U
75-00-3	Chloroethane	45	U
75-09-2	Methylene Chloride	100	B
67-64-1	Acetone	180	B
75-15-0	Carbon Disulfide	27	
75-35-4	1,1-Dichloroethene	23	U
75-34-3	1,1-Dichloroethane	23	U
540-59-0	1,2-Dichloroethene (total)	23	U
67-66-3	Chloroform	23	U
107-06-2	1,2-Dichloroethane	23	U
78-93-3	2-Butanone	45	U
71-55-6	1,1,1-Trichloroethane	23	U
56-23-5	Carbon Tetrachloride	23	U
108-05-4	Vinyl Acetate	45	U
75-27-4	Bromodichloromethane	23	U
78-87-5	1,2-Dichloropropane	23	U
10061-01-5	cis-1,3-Dichloropropene	23	U
79-01-6	Trichloroethene	23	U
124-48-1	Dibromochloromethane	23	U
79-00-5	1,1,2-Trichloroethane	23	U
71-43-2	Benzene	23	U
10061-02-6	Trans-1,3-Dichloropropene	23	U
75-25-2	Bromoform	23	U
108-10-1	4-Methyl-2-Pentanone	45	U
591-78-6	2-Hexanone	45	U
127-18-4	Tetrachloroethene	23	U
79-34-5	1,1,2,2-Tetrachloroethane		
108-88-3	Toluene	23	U
108-90-7	Chlorobenzene	23	U
100-41-4	Ethylbenzene	23	U
100-42-5	Styrene	23	U
1330-20-7	Xylene (total)	23	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5256C-02MS TASK 3

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C TASK 3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DQM-02MS

Sample wt/vol: 5.0 (g/mL) G Lab File ID: VODQM02MS

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 80 Date Analyzed: 03/12/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	50	U
74-83-9	Bromomethane	50	U
75-01-4	Vinyl Chloride	50	U
75-00-3	Chloroethane	50	U
75-09-2	Methylene Chloride	68	B
67-64-1	Acetone	1100	BE
75-15-0	Carbon Disulfide	190	
75-35-4	1,1-Dichloroethene	25	U
75-34-3	1,1-Dichloroethane	25	U
540-59-0	1,2-Dichloroethene (total)	25	U
67-66-3	Chloroform	25	U
107-06-2	1,2-Dichloroethane	25	U
78-93-3	2-Butanone	50	U
71-55-6	1,1,1-Trichloroethane	25	U
56-23-5	Carbon Tetrachloride	25	U
108-05-4	Vinyl Acetate	50	U
75-27-4	Bromodichloromethane	25	U
78-87-5	1,2-Dichloropropane	25	U
10061-01-5	cis-1,3-Dichloropropene	25	U
79-01-6	Trichloroethene	25	U
124-48-1	Dibromochloromethane	25	U
79-00-5	1,1,2-Trichloroethane	25	U
71-43-2	Benzene	25	U
10061-02-6	Trans-1,3-Dichloropropene	25	U
75-25-2	Bromoform	25	U
108-10-1	4-Methyl-2-Pentanone	50	U
591-78-6	2-Hexanone	50	U
127-18-4	Tetrachloroethene	25	U
79-34-5	1,1,2,2-Tetrachloroethane	25	U
108-88-3	Toluene		
108-90-7	Chlorobenzene		
100-41-4	Ethylbenzene	25	U
100-42-5	Styrene	25	U
1330-20-7	Xylene (total)	25	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5256C-01MS

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C-TA~~K~~3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DQM01MS

Sample wt/vol: 50.0 (g/mL) G Lab File ID: SVDQM01MS

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 78 dec. _____ Date Extracted: 03/13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/26/90

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

CONCENTRATION UNITS: ~~(ug/L or ug/Kg)~~ UG/~~KG~~ FISH

CAS NO.	COMPOUND		Q
108-95-2	Phenol	3000	U
111-44-4	bis(2-Chloroethyl)Ether	3000	U
95-57-8	2-Chlorophenol	3000	U
541-73-1	1,3-Dichlorobenzene	3000 ~~2100~~	U
106-46-7	1,4-Dichlorobenzene	5000	
100-51-6	Benzyl Alcohol	3000	U
95-50-1	1,2-Dichlorobenzene	3000 ~~5000~~	U
95-48-7	2-Methylphenol	3000	U
108-60-1	bis(2-Chloroisopropyl)Ether	3000	U
106-44-5	4-Methylphenol	3000	U
621-64-7	N-Nitroso-Di-n-Propylamine	3000	U
67-72-1	Hexachloroethane	3000	U
98-95-3	Nitrobenzene	3000	U
78-59-1	Isophorone	690	J
88-75-5	2-Nitrophenol	3000	U
105-67-9	2,4-Dimethylphenol	3000	U
65-85-0	Benzoic Acid	15000	U
111-91-1	bis(2-Chloroethoxy)Methane	3000	U
120-83-2	2,4-Dichlorophenol	3000	U
120-82-1	1,2,4-Trichlorobenzene	3000 ~~2600~~	U
91-20-3	Naphthalene	3000	U
106-47-8	4-Chloroaniline	3000	U
87-68-3	Hexachlorobutadiene	3000	U
59-50-7	4-Chloro-3-Methylphenol	3000	U
91-57-6	2-Methylnaphthalene	3000	U
77-47-4	Hexachlorocyclopentadiene	3000	U
88-06-2	2,4,6-Trichlorophenol	3000	U
95-95-4	2,4,5-Trichlorophenol		
91-58-7	2-Chloronaphthalene	3000	U
88-74-4	2-Nitroaniline	15000	U
131-11-3	Dimethyl Phthalate	3000	U
208-96-8	Acenaphthylene	3000	U
606-20-2	2,6-Dinitrotoluene	3000	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5256C-01MS

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C-Task3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DQM01MS

Sample wt/vol: 50.0 (g/mL) G Lab File ID: SVDQM01MS

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 78 dec. ____ Date Extracted: 03/13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/26/90

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/~~KG~~ FISH	Q
99-09-2	3-Nitroaniline	15000	U
83-32-9	Acenaphthene	3000	U
51-28-5	2,4-Dinitrophenol	15000	U
100-02-7	4-Nitrophenol	15000	U
132-64-9	Dibenzofuran	3000	U
121-14-2	2,4-Dinitrotoluene	3000	U
84-66-2	Diethylphthalate	3000	U
7005-72-3	4-Chlorophenyl-phenylether	3000	U
86-73-7	Fluorene	3000	U
100-01-6	4-Nitroaniline	15000	U
534-52-1	4,6-Dinitro-2-Methylphenol	15000	U
86-30-6	N-Nitrosodiphenylamine (1)	3000	U
101-55-3	4-Bromophenyl-phenylether	3000	U
118-74-1	Hexachlorobenzene	3000 ~~4100~~	U
87-86-5	Pentachlorophenol	15000	U
85-01-8	Phenanthrene	3000	U
120-12-7	Anthracene	3000	U
84-74-2	Di-n-Butylphthalate	3000	U
206-44-0	Fluoranthene	3000	U
129-00-0	Pyrene	3000	U
85-68-7	Butylbenzylphthalate	3000	U
91-94-1	3,3'-Dichlorobenzidine	6100	U
56-55-3	Benzo(a)Anthracene	3000	U
218-01-9	Chrysene	3000	U
117-81-7	bis(2-Ethylhexyl)Phthalate	380	BJ
117-84-0	Di-n-Octyl Phthalate	3000	U
205-99-2	Benzo(b)Fluoranthene		
207-08-9	Benzo(k)Fluoranthene		
50-32-8	Benzo(a)Pyrene	3000	U
193-39-5	Indeno(1,2,3-cd)Pyrene	3000	U
53-70-3	Dibenz(a,h)Anthracene	3000	U
191-24-2	Benzo(g,h,i)Perylene	3000	U
108-70-3	1,3,5-Trichlorobenzene	3000	U
87-61-6	1,2,3-Trichlorobenzene	2100	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5256C-02MS

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C-T~~SK~~3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DQM-02MS

Sample wt/vol: 50.0 (g/mL) G Lab File ID: SVDQM02MS

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 80 dec. _____ Date Extracted: 03/13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/26/90

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

CONCENTRATION UNITS: ~~UG/KG~~ CHM FISH
(ug/L or ug/Kg) UG/~~KG~~

CAS NO.	COMPOUND		Q
108-95-2	Phenol	3300	U
111-44-4	bis(2-Chloroethyl)Ether	3300	U
95-57-8	2-Chlorophenol	3300	U
541-73-1	1,3-Dichlorobenzene	3300 ~~[illegible]~~	U
106-46-7	1,4-Dichlorobenzene	3300	U
100-51-6	Benzyl Alcohol	3300	U
95-50-1	1,2-Dichlorobenzene	3300 ~~1300~~	U
95-48-7	2-Methylphenol	3300	U
108-60-1	bis(2-Chloroisopropyl)Ether	3300	U
106-44-5	4-Methylphenol	3300	U
621-64-7	N-Nitroso-Di-n-Propylamine	3300	U
67-72-1	Hexachloroethane	3300	U
98-95-3	Nitrobenzene	3300	U
78-59-1	Isophorone	3300	U
88-75-5	2-Nitrophenol	3300	U
105-67-9	2,4-Dimethylphenol	3300	U
65-85-0	Benzoic Acid	16000	U
111-91-1	bis(2-Chloroethoxy)Methane	3300	U
120-83-2	2,4-Dichlorophenol	3300	U
120-82-1	1,2,4-Trichlorobenzene	3300 ~~2500~~	U
91-20-3	Naphthalene	3300	U
106-47-8	4-Chloroaniline	3300	U
87-68-3	Hexachlorobutadiene	3300	U
59-50-7	4-Chloro-3-Methylphenol	3300	U
91-57-6	2-Methylnaphthalene	3300	U
77-47-4	Hexachlorocyclopentadiene	3300	U
88-06-2	2,4,6-Trichlorophenol		
95-95-4	2,4,5-Trichlorophenol	16000	U
91-58-7	2-Chloronaphthalene	3300	U
88-74-4	2-Nitroaniline	16000	U
131-11-3	Dimethyl Phthalate	3300	U
208-96-8	Acenaphthylene	3300	U
606-20-2	2,6-Dinitrotoluene	3300	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5256C-01MS

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C-TN43 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DQM01MS

Sample wt/vol: 50.0 (g/mL) G Lab File ID: SVDQM01MS

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 78 dec. ____ Date Extracted: 03/13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/26/90

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/~~KG~~ CHM FISH	Q
121-73-3	m-Chloronitrobenzene	3000	U
95-94-3	1,2,4,5-Tetrachlorobenzene	410	J
634-66-2	1,2,3,4-Tetrachlorobenzene	1100	J
608-93-5	Pentachlorobenzene	320	J

(1) - Cannot be separated from Diphenylamine

AR300827

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5256C-02MS

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C-Task3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DQM-02MS

Sample wt/vol: 50.0 (g/mL) G Lab File ID: SVDQM02MS

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 80 dec. ____ Date Extracted: 03/13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/26/90

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/~~KG~~ FISH	Q
99-09-2	3-Nitroaniline	16000	U
83-32-9	Acenaphthene	3300	U
51-28-5	2,4-Dinitrophenol	16000	U
100-02-7	4-Nitrophenol	16000	U
132-64-9	Dibenzofuran	3300	U
121-14-2	2,4-Dinitrotoluene	3300	U
84-66-2	Diethylphthalate	3300	U
7005-72-3	4-Chlorophenyl-phenylether	3300	U
86-73-7	Fluorene	3300	U
100-01-6	4-Nitroaniline	16000	U
534-52-1	4,6-Dinitro-2-Methylphenol	16000	U
86-30-6	N-Nitrosodiphenylamine (1)	3300	U
101-55-3	4-Bromophenyl-phenylether	3300	U
118-74-1	Hexachlorobenzene	3300 ~~4700~~	U
87-86-5	Pentachlorophenol	16000	U
85-01-8	Phenanthrene	3300	U
120-12-7	Anthracene	3300	U
84-74-2	Di-n-Butylphthalate	3300	U
206-44-0	Fluoranthene	3300	U
129-00-0	Pyrene	3300	U
85-68-7	Butylbenzylphthalate	3300	U
91-94-1	3,3'-Dichlorobenzidine	6600	U
56-55-3	Benzo(a)Anthracene	3300	U
218-01-9	Chrysene	3300	U
117-81-7	bis(2-Ethylhexyl)Phthalate	380	BJ
117-84-0	Di-n-Octyl Phthalate		
205-99-2	Benzo(b)Fluoranthene		
207-08-9	Benzo(k)Fluoranthene	3300	U
50-32-8	Benzo(a)Pyrene	3300	U
193-39-5	Indeno(1,2,3-cd)Pyrene	3300	U
53-70-3	Dibenz(a,h)Anthracene	3300	U
191-24-2	Benzo(g,h,i)Perylene	3300	U
108-70-3	1,3,5-Trichlorobenzene	3300	U
87-61-6	1,2,3-Trichlorobenzene	3300	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5256C-02MS

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C-Tax3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DQM-02MS

Sample wt/vol: 50.0 (g/mL) G Lab File ID: SVDQM02MS

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. 80 dec. _____ Date Extracted: 03/13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/26/90

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/~~KG~~ FISH	Q
121-73-3	m-Chloronitrobenzene	3300	U
95-94-3	1,2,4,5-Tetrachlorobenzene	3300	U
634-66-2	1,2,3,4-Tetrachlorobenzene	3300	U
608-93-5	Pentachlorobenzene	3300	U

(1) - Cannot be separated from Diphenylamine

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BLKMS

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C-Task3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: BLKMS

Sample wt/vol: 50.0 (g/mL) G Lab File ID: SVDQMBLMS

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/26/90

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/~~KG~~ CHM FISH	Q
108-95-2	Phenol	660	U
111-44-4	bis(2-Chloroethyl)Ether	660	U
95-57-8	2-Chlorophenol	660	U
541-73-1	1,3-Dichlorobenzene	260	U
106-46-7	1,4-Dichlorobenzene	660	U
100-51-6	Benzyl Alcohol	660	U
95-50-1	1,2-Dichlorobenzene	660 ~~260~~ CHM	U
95-48-7	2-Methylphenol	660	U
108-60-1	bis(2-Chloroisopropyl)Ether	660	U
106-44-5	4-Methylphenol	660	U
621-64-7	N-Nitroso-Di-n-Propylamine	660	U
67-72-1	Hexachloroethane	660	U
98-95-3	Nitrobenzene	660	U
78-59-1	Isophorone	660	U
88-75-5	2-Nitrophenol	660	U
105-67-9	2,4-Dimethylphenol	660	U
65-85-0	Benzoic Acid	3200	U
111-91-1	bis(2-Chloroethoxy)Methane	660	U
120-83-2	2,4-Dichlorophenol	660	U
120-82-1	1,2,4-Trichlorobenzene	340	U
91-20-3	Naphthalene	660	U
106-47-8	4-Chloroaniline	660	U
87-68-3	Hexachlorobutadiene	660	U
59-50-7	4-Chloro-3-Methylphenol	660	U
91-57-6	2-Methylnaphthalene	660	U
77-47-4	Hexachlorocyclopentadiene		
88-06-2	2,4,6-Trichlorophenol		
95-95-4	2,4,5-Trichlorophenol	3200	U
91-58-7	2-Chloronaphthalene	660	U
88-74-4	2-Nitroaniline	3200	U
131-11-3	Dimethyl Phthalate	660	U
208-96-8	Acenaphthylene	660	U
606-20-2	2,6-Dinitrotoluene	660	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BLKMS

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C-TAKS SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: BLKMS

Sample wt/vol: 50.0 (g/mL) G Lab File ID: SVDQMBLMS

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/26/90

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/~~KG~~ CHM FISH	Q
99-09-2	3-Nitroaniline	3200	U
83-32-9	Acenaphthene	660	U
51-28-5	2,4-Dinitrophenol	3200	U
100-02-7	4-Nitrophenol	3200	U
132-64-9	Dibenzofuran	660	U
121-14-2	2,4-Dinitrotoluene	660	U
84-66-2	Diethylphthalate	660	U
7005-72-3	4-Chlorophenyl-phenylether	660	U
86-73-7	Fluorene	660	U
100-01-6	4-Nitroaniline	3200	U
534-52-1	4,6-Dinitro-2-Methylphenol	3200	U
86-30-6	N-Nitrosodiphenylamine (1)	660	U
101-55-3	4-Bromophenyl-phenylether	660	U
118-74-1	Hexachlorobenzene	830	U
87-86-5	Pentachlorophenol	3200	U
85-01-8	Phenanthrene	660	U
120-12-7	Anthracene	660	U
84-74-2	Di-n-Butylphthalate	660	U
206-44-0	Fluoranthene	660	U
129-00-0	Pyrene	660	U
85-68-7	Butylbenzylphthalate	660	U
91-94-1	3,3'-Dichlorobenzidine	1300	U
56-55-3	Benzo(a)Anthracene	660	U
218-01-9	Chrysene	660	U
117-81-7	bis(2-Ethylhexyl)Phthalate	58	BJ
117-84-0	Di-n-Octyl Phthalate		
205-99-2	Benzo(b)Fluoranthene		
207-08-9	Benzo(k)Fluoranthene	660	U
50-32-8	Benzo(a)Pyrene	660	U
193-39-5	Indeno(1,2,3-cd)Pyrene	660	U
53-70-3	Dibenz(a,h)Anthracene	660	U
191-24-2	Benzo(g,h,i)Perylene	660	U
108-70-3	1,3,5-Trichlorobenzene	660	U
87-61-6	1,2,3-Trichlorobenzene	660	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BLKMS

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C-T&K3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: BLKMS

Sample wt/vol: 50.0 (g/mL) G Lab File ID: SVDQMBLMS

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/26/90

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/~~KG~~ FISH	Q
121-73-3	m-Chloronitrobenzene	660	U
95-94-3	1,2,4,5-Tetrachlorobenzene	660	U
634-66-2	1,2,3,4-Tetrachlorobenzene	660	U
608-93-5	Pentachlorobenzene	660	U

(1) - Cannot be separated from Diphenylamine

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKL1

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C TASK 3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: VBLKL1

Sample wt/vol: 10.0 (g/mL) ML Lab File ID: EVB031290B

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 03/12/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	6	
67-64-1	Acetone	8	J
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane		
108-88-3	Toluene		
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKL1

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C TASK 3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: VBLKL1

Sample wt/vol: 10.0 (g/mL) ML Lab File ID: EVB031290B

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ Date Analyzed: 03/12/90

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	5.00	1.1	J

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKL2

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C TASK 3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DRY ICE BLANK

Sample wt/vol: 0.50 (g/mL) G Lab File ID: EVB031290C

Level: (low/med) LOW Date Received: ~~03/06/90~~ CHN

% Moisture: not dec. ____ Date Analyzed: 03/12/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	4	BJ
67-64-1	Acetone	8	BJ
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene		
108-90-7	Chlorobenzene	[illegible]	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKL2

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C TASK 3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DRY ICE BLANK

Sample wt/vol: 0.50 (g/mL) G Lab File ID: EVB031290C

Level: (low/med) LOW Date Received: ~~03/08/90~~ CAM

% Moisture: not dec. ____ Date Analyzed: 03/12/90

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	5.00	0.58	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKL3

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C TASK 3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: BOTTLE RESIDUE

Sample wt/vol: 10.0 (g/mL) ML Lab File ID: EVB031290D

Level: (low/med) LOW Date Received: ~~03/08/90~~ CLM

% Moisture: not dec. ____ Date Analyzed: 03/12/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	B
67-64-1	Acetone	8	BJ
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone		
591-78-6	2-Hexanone		
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKL3

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C TASK 3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: BOTTLE RESIDUE

Sample wt/vol: 10.0 (g/mL) ML Lab File ID: EVB031290D

Level: (low/med) LOW Date Received: ~~03/08/90~~ 03/08/90 CAM

% Moisture: not dec. ____ Date Analyzed: 03/12/90

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKL4

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C TASK 3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DRY ICE TRIP

Sample wt/vol: 10.0 (g/mL) ML Lab File ID: EVB031290E

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ Date Analyzed: 03/12/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	B
67-64-1	Acetone	7	BJ
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane		
108-88-3	Toluene	[illegible]	[illegible]
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

AR300839

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKL4

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C TASK 3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: DRY ICE TRIP BLAK

Sample wt/vol: 10.0 (g/mL) ML Lab File ID: EVB031290E

Level: (low/med) LOW Date Received: 03/08/90

% Moisture: not dec. ____ Date Analyzed: 03/12/90

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKL1

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C-TASK3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: SBLKL1

Sample wt/vol: 50.0 (g/mL) G Lab File ID: SVDQMSBL1

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/26/90

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/~~KG~~ FISH	Q
108-95-2	Phenol	660	U
111-44-4	bis(2-Chloroethyl)Ether	660	U
95-57-8	2-Chlorophenol	660	U
541-73-1	1,3-Dichlorobenzene	660	U
106-46-7	1,4-Dichlorobenzene	660	U
100-51-6	Benzyl Alcohol	660	U
95-50-1	1,2-Dichlorobenzene	660	U
95-48-7	2-Methylphenol	660	U
108-60-1	bis(2-Chloroisopropyl)Ether	660	U
106-44-5	4-Methylphenol	660	U
621-64-7	N-Nitroso-Di-n-Propylamine	660	U
67-72-1	Hexachloroethane	660	U
98-95-3	Nitrobenzene	660	U
78-59-1	Isophorone	660	U
88-75-5	2-Nitrophenol	660	U
105-67-9	2,4-Dimethylphenol	660	U
65-85-0	Benzoic Acid	3200	U
111-91-1	bis(2-Chloroethoxy)Methane	660	U
120-83-2	2,4-Dichlorophenol	660	U
120-82-1	1,2,4-Trichlorobenzene	660	U
91-20-3	Naphthalene	660	U
106-47-8	4-Chloroaniline	660	U
87-68-3	Hexachlorobutadiene	660	U
59-50-7	4-Chloro-3-Methylphenol	660	U
91-57-6	2-Methylnaphthalene		
77-47-4	Hexachlorocyclopentadiene	660	U
88-06-2	2,4,6-Trichlorophenol	660	U
95-95-4	2,4,5-Trichlorophenol	3200	U
91-58-7	2-Chloronaphthalene	660	U
88-74-4	2-Nitroaniline	3200	U
131-11-3	Dimethyl Phthalate	660	U
208-96-8	Acenaphthylene	660	U
606-20-2	2,6-Dinitrotoluene	660	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKL1

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C-Task 3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: SBLKL1

Sample wt/vol: 50.0 (g/mL) G Lab File ID: SVDQMSBL1

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/26/90

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/~~KG~~ FISH	Q
99-09-2	3-Nitroaniline	3200	U
83-32-9	Acenaphthene	660	U
51-28-5	2,4-Dinitrophenol	3200	U
100-02-7	4-Nitrophenol	3200	U
132-64-9	Dibenzofuran	660	U
121-14-2	2,4-Dinitrotoluene	660	U
84-66-2	Diethylphthalate	660	U
7005-72-3	4-Chlorophenyl-phenylether	660	U
86-73-7	Fluorene	660	U
100-01-6	4-Nitroaniline	3200	U
534-52-1	4,6-Dinitro-2-Methylphenol	3200	U
86-30-6	N-Nitrosodiphenylamine (1)	660	U
101-55-3	4-Bromophenyl-phenylether	660	U
118-74-1	Hexachlorobenzene	660	U
87-86-5	Pentachlorophenol	3200	U
85-01-8	Phenanthrene	660	U
120-12-7	Anthracene	660	U
84-74-2	Di-n-Butylphthalate	660	U
206-44-0	Fluoranthene	660	U
129-00-0	Pyrene	660	U
85-68-7	Butylbenzylphthalate	660	U
91-94-1	3,3'-Dichlorobenzidine	1300	U
56-55-3	Benzo(a)Anthracene	660	U
218-01-9	Chrysene	660	U
117-81-7	bis(2-Ethylhexyl)Phthalate	88	J
117-84-0	Di-n-Octyl Phthalate	660	U
205-99-2	Benzo(b)Fluoranthene		
207-08-9	Benzo(k)Fluoranthene		
50-32-8	Benzo(a)Pyrene	660	U
193-39-5	Indeno(1,2,3-cd)Pyrene	660	U
53-70-3	Dibenz(a,h)Anthracene	660	U
191-24-2	Benzo(g,h,i)Perylene	660	U
108-70-3	1,3,5-Trichlorobenzene	660	U
87-61-6	1,2,3-Trichlorobenzene	660	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKL1

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C-TSK3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: SBLKL1

Sample wt/vol: 50.0 (g/mL) G Lab File ID: SVDQMSBL1

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/26/90

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/~~KG~~ FISH	Q
121-73-3	m-Chloronitrobenzene	660	U
95-94-3	1,2,4,5-Tetrachlorobenzene	660	U
634-66-2	1,2,3,4-Tetrachlorobenzene	660	U
608-93-5	Pentachlorobenzene	660	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SBLKL1

Lab Name: G S E L I Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C-TS3 SDG No.: _____

Matrix: (soil/water) FISH Lab Sample ID: SBLKL1

Sample wt/vol: 50.0 (g/mL) G Lab File ID: SVDQMSBL1

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. ____ dec. ____ Date Extracted: 03/13/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 03/26/90

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

Number TICs found: 5

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/~~KG~~ FISH

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN KETONE	5.98	56	J
2.	UNKNOWN	6.37	51	J
3.	UNKNOWN KETONE	6.78	75	J
4. 103-23-1	HEXANEDIOIC ACID, BIS(2-ETHY	22.42	1700	J
5.	UNKNOWN STEROL	28.97	180	J

1

GC/ECD ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE ID

~~DQM~~ PBLK L1

Lab Name: GULF SOUTH ENVIRONMENTAL LABORATORY Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256CTX3 SDG No.: _____

Matrix: FISH Lab Sample ID: DQMPL1

Level: Low Lab File ID: N:A624223

Sample wt : 10 g pH: _____ Date Received: 03-08-90 N/A 7/4/5/90

Extraction: SOXHLET Date Extracted: 03-12-90

Moisture: not dec: 0% dec: _____% Date Analyzed: 03-29-90

Cleanup (Y/N - Type): N - NONE Dilution Factor: 1.0

CAS No.	COMPOUND	CONCENTRATION ~~ppb~~ EPW ug/kg	Q
319-84-6	alpha-BHC	250	U
319-85-7	beta-BHC	250	U
319-86-8	delta-BHC	250	U
58-89-9	gamma-BHC (Lindane)	250	U
76-44-8	Heptachlor	250	U
309-00-2	Aldrin	250	U
1024-57-3	Heptachlor epoxide	250	U
959-98-8	Endosulfan I	250	U
60-57-1	Dieldrin	250	U
72-55-9	4,4'-DDE	250	U
72-20-8	Endrin	250	U
33213-65-9	Endosulfan II	250	U
72-54-8	4,4'-DDD	250	U
1031-07-8	Endosulfan sulfate	250	U
50-29-3	4,4'-DDT	250	U
72-43-5	Methoxychlor	250	U
53494-70-5	Endrin ketone	250	U
5103-71-9	alpha-Chlordane	250	U
5103-74-2	gamma-Chlordane	250	U
8001-35-2	Toxaphene	250	U
12674-11-2	Aroclor 1016	250	U
11104-28-2	Aroclor 1221	250	U
11141-16-5	Aroclor 1232	250	U
53469-21-9	Aroclor 1242	250	U
12672-29-6	Aroclor 1248	250	U
11097-69-6	Aroclor 1254	250	U
11096-82-5	Aroclor 1260		

Target Compound List C:\NELSON\5256C.TCL 00:33:53 04-04-1990

FRM1XE32

page ___ of ___ FORM I GC-8000 AR300845 8/89 rev

1

GC/ECD ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE ID

DQM PBLK L3

Lab Name: GULF SOUTH ENVIRONMENTAL LABORATORY Contract: _____

Lab Code: GULF Case No.: _____ SAS No.: 5256C SDG No.: _____

Matrix: FISH Lab Sample ID: DQMPL3

Level: Low Lab File ID: N:A624225

Sample wt : 10 g pH: _____ Date Received: 03-~~08-90~~ 04/05/90

Extraction: SOXHLET Date Extracted: 03-14-90

Moisture: not dec: 0% dec: _____% Date Analyzed: 03-29-90

Cleanup (Y/N - Type): N - NONE Dilution Factor: 1.0

CAS No.	COMPOUND	CONCENTRATION ~~ppb~~ ug/Kg	Q
319-84-6	alpha-BHC	250	U
319-85-7	beta-BHC	250	U
319-86-8	delta-BHC	250	U
58-89-9	gamma-BHC (Lindane)	250	U
76-44-8	Heptachlor	250	U
309-00-2	Aldrin	250	U
1024-57-3	Heptachlor epoxide	250	U
959-98-8	Endosulfan I	250	U
60-57-1	Dieldrin	250	U
72-55-9	4,4'-DDE	250	U
72-20-8	Endrin	250	U
33213-65-9	Endosulfan II	250	U
72-54-8	4,4'-DDD	250	U
1031-07-8	Endosulfan sulfate	250	U
50-29-3	4,4'-DDT	250	U
72-43-5	Methoxychlor	250	U
53494-70-5	Endrin ketone	250	U
5103-71-9	alpha-Chlordane	250	U
5103-74-2	gamma-Chlordane	250	U
8001-35-2	Toxaphene	250	U
12674-11-2	Aroclor 1016	250	U
11104-28-2	Aroclor 1221	250	U
11141-16-5	Aroclor 1232	250	U
53469-21-9	Aroclor 1242	250	U
12672-29-6	Aroclor 1248		
11097-69-6	Aroclor 1254		
11096-82-5	Aroclor 1260	250	U

Target Compound List C:\NELSON\5256C.TCL 01:11:24 04-04-1990

AR300846

FRM1XE32

FORM I GC 8000 000210 8/89 rev

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
CENTRAL REGIONAL LABORATORY
839 BESTGATE ROAD
ANNAPOLIS, MARYLAND 21401
(301) 266-9180

DATE : May 17, 1990

SUBJECT: Inorganic Data Validation for the Standard Chlorine Site SAS 5256C

FROM : Theresa A. Simpson TAS
Region III ESAT DPO (3ES23)

TO : Robert Guarni
Regional Project Manager (3HW25)

THRU : Patricia J. Krantz, Chief TAS for
Quality Assurance Branch (3ES23)

Attached is the inorganic data review for the Standard Chlorine Site (SAS 5256C) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III ESD.

If you have any questions regarding this review, please call me.

Attachment

cc: Dave Basko, Versar
Elaine Spiewak (3HW14) (w/o attachments)

TID File: 03900414 Task 1353

WESTON
MANAGERS DESIGNERS/CONSULTANTS
2568A RIVA ROAD
SUITE 300
ANNAPOLIS, MD 21401
PHONE: 301-266-9887

DATE: 15 MAY 1990

SUBJECT: INORGANIC DATA VALIDATION, SAS 5256C
SITE: STANDARD CHLORINE

FROM: MARSHA BURRELL mjb
SR.INORGANIC DATA REVIEWER

MAHBOOBEH MECANIC MM
SR.INORGANIC DATA REVIEWER

TO: TERRY SIMPSON
EPA DEPUTY PROJECT OFFICER

THRU: RICHARD D. DRESSER
ESAT TEAM MANAGER

OVERVIEW

The set of samples for SAS 5256C contained two (2) fish samples, which were analyzed through the Contract Laboratory Program (CLP) Special Analytical Service (SAS). The samples were analyzed according to the CLP Inorganic Statement of Work (SOW) 7/88.

SUMMARY

All analytes were successfully analyzed in all samples. Areas of concern with respect to data usability are listed according to the seriousness of the problem. These include:

MINOR ISSUES

The preparation blank had a reported result for the Pb analyte that was >IDL. The reported result for Pb in sample 5256-02 was <5X the blank concentration and therefore, has been qualified "B".

The laboratory duplicate result for the Hg analyte was outside of the control limit. Therefore, the reported results for this analyte have been qualified estimated, "J".

The Se analyte was quantitated using the MSA technique for both of the samples. However, the correlation coefficients were <0.995 for sample 5256-(the reported result for sample 5256-02 has [illegible] estimated, "J".

The matrix spike recoveries were low (30-74%) for the As, Pb, Se and Ag analytes. The quantitation limits and reported results may be biased low and, therefore, have been qualified "UL" and "L", respectively, unless superceded by "J", as discussed above.

The analytical spike recoveries were low for the As and Tl analytes in both samples. The quantitation limits for As and Tl in the samples may be biased low, and therefore, have been qualified "UL".

NOTES:

The laboratory used an EPA Trace Metals in Fish Water Pollution Quality Control Ampul. All results were within the 95% confidence intervals as supplied by the EPA. There were several problems with the As and Se analytes for this QC sample: The analytical spike recoveries were <40% for both As and Se, and the %RSD for the duplicate injections for the Se analyte could not be met. These criteria are based on the individual sample, and therefore, do not qualify the entire sample delivery group.

The data was reviewed in accordance with the National Functional Guidelines for Evaluating Inorganic Analyses.

INFORMATION REGARDING REPORT CONTENT

Table 1A is a summary of qualifiers added to the laboratory's results during evaluation.

ATTACHMENTS

TABLE 1A	SUMMARY OF QUALIFIERS ON DATA SUMMARY AFTER DATA VALIDATION
TABLE 1B	CODES USED IN COMMENTS COLUMN
TABLE 2	GLOSSARY OF DATA QUALIFIER CODES
TABLE 3	DATA SUMMARY FORM
APPENDIX A	RESULTS REPORTED BY LABORATORY FORM Is
APPENDIX B	DPO REPORT

MB005A06.SC

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TABLE 1A

SUMMARY OF QUALIFIERS ON DATA SUMMARY
AFTER DATA VALIDATION

ANALYTE	SAMPLES AFFECTED	POSITIVE VALUES	NON-DETECTED VALUES	BIAS	COMMENTS*
As	5256C-01,5256C-02		UL	Low	A (47.8%) B (47.0-54.0%)
Pb	5256-01	L		Low	A (39.1%)
	5256-02	B		High	C (2.7 ppb) A (39.1%)
Hg	5256-01,5256-02	J			D (67.6%)
Se	5256-01	L		Low	A (73.1%)
	5256-02	J			E (.9879) A (73.1%)
Ag	5256-01,5256-02		UL	Low	A (54.3%)
Tl	5256-01,5256-02		UL	Low	B (81.2-82.8%)

WESTON

TABLE 1B
CODES USED IN COMMENTS COLUMN

A = Due to a low matrix spike recovery (% recovery is in parentheses), the reported results and/or quantitaion limits may be biased low.

B = Due to a low analytical spike recovery (% recovery is in parentheses), the quantitation limits may be biased low.

C = The laboratory preparation blank had a result >IDL and the reported result was <5X the blank concentration (results are in parentheses). The reported result may be biased high.

D = The laboratory duplicate result was outside of the control limits of RPD >35% (relative percent difference is in parentheses). Therefore, the reported results are estimated.

E = Both the correlation coefficients of the MSA were <0.995 (the highest value is in parentheses). Therefore, the reported result is estimated.

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TABLE 2

GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)

CODES RELATED TO IDENTIFICATION
(confidence concerning presence or absence of analytes):

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

CODES RELATED TO QUANTITATION
(can be used for both positive results and sample quantitation limits):

J = Analyte Present. Reported value may not be accurate or precise.

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.

[] = Analyte present. As values approach the IDL the quantitation may not be accurate.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

UL = Not detected, quantitation limit is probably higher.

OTHER CODES

Q = No analytical result.

Table 3

Page 1 of 1

DATA SUMMARY FORM: INORGANICS

Site Name: Standard Chlorine

FISH SAMPLES (mg/Kg)

SAS Case #: 5256 C Task 4

Sampling Date(s): 3-5-90

*Due to dilution, sample quantit limit is affected. See dilution table for specific

	Sample No.	01		02	
	Dilution Factor	1.0		1.0	
	% Solids	18.6		18.3	
	Location	F-1		F-2	
CRDL	ANALYTE				
40	Aluminum				
12	Antimony				
2	Arsenic		UL		UL
40	Barium	[1.9]		[2.6]	
1	Beryllium				
1	Cadmium				
1000	Calcium	2100		4240	
2	Chromium			[1.7]	
10	Cobalt				
5	Copper	[6.6]		[1.1]	
20	Iron	99.9		31.4	
1	*Lead	1.2	L	[1.2]	P
1000	Magnesium	[1320]		1500	
3	Manganese	[3.3]		5.9	
0.2	Mercury	2.7	J	0.47	J
8	Nickel				
1000	Potassium	19600		19000	
1	Selenium	10.8	L	4.7	J
2	Silver		UL		UL
1000	Sodium	1690		1910	
2	Thallium		UL		UL
10	Vanadium				
4	Zinc	35.1		37.4	
2	Cyanide		Q		Q

CRDL = Contract Required Detection Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

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APPENDIX A

RESULTS REPORTED BY LABORATORY

FORM I'S

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

01

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: SAS No.: 5256C SDG No.: 01

Matrix (soil/water): SOIL Lab Sample ID: 03045-01S

Level (low/med): LOW Date Received: 03/07/90

% Solids: 18.6

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13.10	U		P
7440-36-0	Antimony	5.40	U		P
7440-38-2	Arsenic	1.10	U	NW	F
7440-39-3	Barium	1.70	B		P
7440-41-7	Beryllium	0.27	U		P
7440-41-7	Cadmium	0.80	U		P
7440-70-2	Calcium	2100.00			P
7440-47-3	Chromium	1.10	U		P
7440-48-4	Cobalt	0.80	U		P
7440-50-8	Copper	6.60	B		P
7439-89-6	Iron	99.90			P
7439-92-1	Lead	7.20		N*	F
7439-95-4	Magnesium	1320.00	B		P
7439-96-5	Manganese	3.30	B		P
7439-97-6	Mercury	2.70		*	CV
7440-02-0	Nickel	1.30	U		P
7440-09-7	Potassium	19600.00			P
7782-49-2	Selenium	10.80		N*S	F
7440-22-4	Silver	0.80	U	N	P
7440-23-5	Sodium	1690.00			P
7440-28-0	Thallium	1.60	U	W	F
7440-62-2	Vanadium	1.10	U		P
7440-66-6	Zinc	35.10		*	P
	Cyanide				NR

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

FISH FILLETS

00000

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

02

Lab Name: SKINNER & SHERMAN LABS. Contract: 68-D9-0088

Lab Code: SKINER Case No.: SAS No.: 5256C SDG No.: 01

Matrix (soil/water): SOIL Lab Sample ID: 03045-02S

Level (low/med): LOW Date Received: 03/07/90

% Solids: 18.3

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13.10	U		P
7440-36-0	Antimony	5.30	U		P
7440-38-2	Arsenic	1.00	U	NW	F
7440-39-3	Barium	2.60	B		P
7440-41-7	Beryllium	0.27	U		P
7440-41-7	Cadmium	0.80	U		P
7440-70-2	Calcium	4240.00			P
7440-47-3	Chromium	1.70	B		P
7440-48-4	Cobalt	0.80	U		P
7440-50-8	Copper	1.80	B		P
7439-89-6	Iron	31.40			P
7439-92-1	Lead	1.20	B	N*	F
7439-95-4	Magnesium	1500.00			P
7439-96-5	Manganese	5.90			P
7439-97-6	Mercury	0.97		*	CV
7440-02-0	Nickel	1.30	U		P
7440-09-7	Potassium	19000.00			P
7782-49-2	Selenium	4.70		N*+	F
7440-22-4	Silver	0.80	U	N	P
7440-23-5	Sodium	1980.00			P
7440-28-0	Thallium	1.50	U	W	F
7440-62-2	Vanadium	1.10	U		P
7440-66-6	Zinc	37.40		*	P
	Cyanide				NR

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

FISH FILLETS

C00003

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APPENDIX B

DPO REPORT

5256-C
task IV

SAS 664

U. S. Environmental Protection Agency
HWI Sample Management Office
P. O. Box 818 Alexandria, VA 22313
PHONE (703) 557-2490 or FTS 557-2490

SAS Number _____

SPECIAL ANALYTICAL SERVICES
Regional Request

_____ Regional Transmittal _____Telephone Request

A. EPA Region and Client: EPA Region III

B. Regional Representative: Colleen K. Walling

C. Telephone Number: (301) 266-9180

D. Date of Request: February 6, 1990

E. Site Name: Standard Chlorine, Delaware City, DE sent to SMO 2-15-90

Please provide below a description of your request for Special Analytical Services under the Contract Laboratory Program. In order to most efficiently obtain laboratory capability for your request, please address the following considerations, if applicable. Incomplete or erroneous information may result in delay in the processing of your request. Please continue response on additional sheets, or attach supplementary information as needed.

The awarded laboratory is responsible for meeting all requirements as specified in this client request. Any changes in method(s) or other specifications must be approved by Region III prior to the award. The referenced Statement of Work must be used including all current revisions of the SOW. **If these stipulations are not met, Region III will recommend review for reduced payment.**

1. General description of analytical service requested:

   Digestion and analysis of four (4) low concentration fillet or whole body fish samples for TAL metals by the 7/88 Inorganic CLP-SOW with revisions. Fish are to be composited and homogenized by the laboratory.

2. Definition and number of work units involved (specify whether whole samples or fractions; whether organics or inorganics; whether aqueous or soil and sediments; and whether low, medium, or high concentration):

   Four (4) low concentration fillet or whole body fish samples plus 1 laboratory duplicate for a total of ~~five (5)~~ six (6) analysis for TAL metals only by the CLP-SOW (7/88) with revisions. + 1 PE sample (NBS, RM 50, all but

AR300858

DPO: [ ] ACTION [X] FYI Region III

INORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO: SAS 5256C
SDG NO: 01
SOW: 7/88
NO. OF SAMPLES: two (2)

LABORATORY: SKINNER & SHERMAN
DATA USER: Debra Szaro
REVIEW COMPLETION DATE: 5/8/90
MATRIX: Fish

REVIEWER: ESAT

	ICP	AA	Hg	CYANIDE
1. HOLDING TIMES	O	O	O	
2. INITIAL CALIBRATIONS	O	O	O	
3. CONTINUING CALIBRATIONS	O	O	O	
4. FIELD BLANKS(F=NOT APPLICABLE)	F	F	F	
5. LABORATORY BLANKS	O	X	O	
6. ICS	O			
7. LCS	O	O		
8. DUPLICATE ANALYSIS	O	O	M	
9. MATRIX SPIKE	X	M	O	
10. MSA		X		
11. SERIAL DILUTION	O			
12. SAMPLE VERIFICATION	O	O	O	
13. REGIONAL QC(F-NOT APPLICABLE)	F	F	F	
14. OVERALL ASSESSMENT	X	M	M	

O = No problems or minor problems that do not affect data usability
X = No more than about 5% of the data points are qualified as either estimated or unusable.
M = More than about 5% of the data points are qualified as estimated.
Z = More than about 5% of the data points are qualified as unusable.
A = DPO action requested; use in conjunction with one of the above codes.

DPO ACTION ITEMS:

AREAS OF CONCERN:

AR300859

3. Program (specify whether Superfund (Remedial or Enforcement), RCRA, NPDES, etc.), and justification for analysis and Site Account Number:

   Superfund Enforcement OTGB03NPH6

   SAS Approved by:

4. Estimated date(s) of collection:

   March 5 through March 12, 1990

5. Estimated date(s) and method of shipment:

   March 5 through March 13, 1990.
   Federal Express Overnight Delivery.

6. Number of days results required after lab receipt of samples:

   Data package due 35 days after VTSR of last sample.

7. Analytical protocol required (attach copy if other than a protocol currently used in this program):

   As per Inorganic CLP-SOW 7/88 with revisions

8. Special technical instructions (if outside protocol requirements, specify compound names, CAS numbers, detection limits, etc.):

   Determine percent solids as per SOW 7/88 with revisions.

9. Analytical results required (if known, specify format for date sheets, QA/QC reports, Chain-of-Custody documentation, etc.). If not completed, format of results will be left to program discretion.

   All SOW deliverables with the exception of Diskette deliverables at SMO's discretion.

   Data package must include: all raw data, all instrument and/or equipment calibration results, calculations, blank results, duplicate results, chain-of-custody forms, SAS request forms, SAS packing list(s) or traffic report(s), copy of airbill(s), and copies of analyst's logbooks (signed by analyst) with date and time of sample preparation and analysis.

   The cover page and all sample report forms MUST be labeled with the complete EPA sample number as it appears on chain-of-custody and CLP paperwork.

   The case narrative must document all problems encountered and the subsequent resolutions. List instrumentation and methods employed for analysis.

10. Other (use additional sheets or attach supplementary information, as needed):

11. Name of sampling/shipping contact: David Spencer
Versar, Inc.
Phone: (215) 741-4211

12. Data Requirements

Parameter	Detection Limit	Precision Desired (+ or - Concentration)

As per Inorganic SOW 7/88 with revisions.

13. QC Requirements

Audits Required	Frequency of Audits	Limits (Percent or Concentration)

As per Inorganic SOW 7/88 with revisions.
1 PE Sample (NBS, RM 50, albacore tuna or equivalent)

14. Action required if limits are exceeded

As per Inorganic SOW 7/88 with revisions.

15. Request prepared by: Chuck Sands

Date: 1/25/90

16. Request reviewed by: Stevie Wilding

Date: 2/14/90

Please return this request to the Sample Management Office as soon as possible to expedite processing of your request for special analytical services. Should you have any questions or need any assistance, please contact your Regional representative at the Sample Management Office.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
CENTRAL REGIONAL LABORATORY
839 BESTGATE ROAD
ANNAPOLIS, MARYLAND 21401
(301) 266-9180

DATE : May 3, 1990

SUBJECT: Inorganic Data Validation for the Standard Chlorine Site
SAS 5165C Task 4

FROM : Theresa A. Simpson TAS
Region III ESAT DPO (3ES23)

TO : Robert Guarni
Regional Project Manager (3HW25)

THRU : Patricia J. Krantz, Chief TAS for
Quality Assurance Branch (3ES23)

Attached is the inorganic data review for the Standard Chlorine Site (SAS 5165C Task 4) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III ESD.

If you have any questions regarding this review, please call me.

Attachment

cc: Dave Basko, Versar
Elaine Spiewak (3HW14) (w/o attachment)

TID File: 03900414 Task 1319

WESTON
MANAGERS DESIGNERS CONSULTANTS
2568A RIVA ROAD
SUITE 300
ANNAPOLIS, MD 21401
PHONE: 301-266-9887

DATE: 2 MAY 1990

SUBJECT: DETERMINATION OF GRAIN SIZE DATA VALIDATION FOR SAS CASE 5165C-TASK 4
SITE: STANDARD CHLORINE

FROM: PETE CHAPMAN
SENIOR DATA REVIEWER

MARSHA BURRELL
SENIOR DATA REVIEWER

TO: TERRY SIMPSON
ESAT DEPUTY PROJECT OFFICER

THRU: RICHARD D. DRESSER
ESAT TEAM MANGER

OVERVIEW

SAS Case 5165C Task 4 consisted of seven (7) soil samples which were analyzed to determine grain size. The sample were analyzed using ASTM D422 "Methods for Particle - Size Analysis of Soils" and prepared by using ASTM D421-58 "Dry Preparation of Soil Samples for Particle - Size Analysis and Determination of Soil Constants". The samples were analyzed as a Contract Laboratory Program (CLP) Special Analytical Service (SAS).

SUMMARY

The analytical and gravimetric data for the set of soil/sediment samples meet the requirements of the SAS request. No problems occurred that would qualify the data.

NOTES

The following documentation was submitted as part of the data package: analytical results; bench data sheets for the sieve analysis and the hydrometer analysis of the material passing through the sieves and equipment calibration results.

WESTON

One (1) laboratory duplicate pair was analyzed. The Relative Percent Difference (RPD) results were all within the quality control limits (±35%). Following is a table of results and precision estimates for this analysis:

Laboratory Duplicate
(% Finer)

Sample I.D.	5165C-03	5165C-03 QC (Dup)	RPD
Sieve Size			
#4	100	100	0.0
#10	99	99	0.0
#16	97	97	0.0
#30	92	91	1.1
#50	80	79	1.2
#100	78	77	1.3
#200	64.7	64.1	0.9
Hydrometer Size (mm)			
0.033	41.9	45.7	8.7
0.022	33.9	33.8	0.3
0.013	24.9	26.8	7.4
0.009	20.9	20.9	0.0
0.007	15.9	15.9	0.0
0.003	11.0	10.9	0.9
0.001	7.0	7.0	0.0

One (1) field duplicate pair was analyzed. The Relative Percent Difference (RPD) results were all within the quality control limits (±35%). Following is a table of results and precision estimates for this analysis:

	Field Duplicate (% Finer)		
Sample I.D.	5165C-01	5165C-02	
			RPD
Sieve Size			
#4	100	100	0.0
#200	98.3	98.2	0.1
Hydrometer Size (mm)			
0.029	78.7	76.6	2.7
0.019	66.6	64.5	3.2
0.012	53.5	48.4	10.0
0.009	43.4	40.3	7.4
0.006	34.3	32.2	6.3
0.003	24.2	22.2	8.6
0.001	16.1	16.1	0.0

INFORMATION REGARDING REPORT CONTENT

These data were reviewed according to the original SAS request documents which accompanied the data sets to be reviewed.

ATTACHMENTS

TABLE I DATA SUMMARY FORM

APPENDIX A RESULTS REPORTED BY LABORATORY

APPENDIX B DPO REPORT

APPENDIX C SUPPORT DOCUMENTATION

PC004A10.STA

TABLE 1

DATA SUMMARY FORM

Site Name: Standard Chlorine
SAS #: 5165C Task 4
Date(s) Sampled : 1/4-5/90

SAS Sample No.	5165C-01	5165C-02	5165C-03
Sieve Size	% Finer	% Finer	% Finer
#4			100
#8			99
#10	100	100	99
#16	-	-	97
#30	-	-	92
#40	-	-	84
#50	-	-	80
#80	-	-	79
#100	-	-	78
#200	98.3	98.2	64.7

Hydrometer Size (mm)	% Finer	Hydrometer Size (mm)	% Finer	Hydrometer Size (mm)	% Finer
0.029	78.7	0.029	76.6	0.033	41.9
0.019	66.6	0.020	64.5	0.022	33.9
0.012	53.5	0.012	48.4	0.013	24.9
0.009	43.4	0.009	40.3	0.009	20.9
0.006	34.3	0.006	32.2	0.007	15.9
0.003	24.2	0.003	22.2	0.003	11.0
0.001	16.1	0.001	16.1	0.001	7.0

TABLE 1

DATA SUMMARY FORM

Site Name: Standard Chlorine
SAS #: 5165C Task 4
Date(s) Sampled : 1/4-5/90

SAS Sample No.	5165C-04	5165C-05
Sieve Size	% Finer	% Finer
#4		
#8		
#10	100	100
#16	-	-
#30	-	-
#40	-	-
#50	-	-
#80	-	-
#100	-	-
#200	97.9	98.5

Hydrometer Size (mm)	% Finer	Hydrometer Size (mm)	% Finer
0.033	72.4	0.029	80.3
0.022	56.3	0.019	78.2
0.013	40.2	0.011	66.9
0.009	31.2	0.008	59.7
0.007	24.1	0.006	51.5
0.003	18.1	0.003	37.1
0.001	12.1	0.001	22.6

TABLE 1

DATA SUMMARY FORM

Site Name: Standard Chlorine
SAS #: 5165C Task 4
Date(s) Sampled : 1/4-5/90

SAS Sample No.	5165C-06	5165C-07
Sieve Size	% Finer	% Finer
#10	100	100
#16	-	-
#30	-	-
#40	-	-
#50	-	-
#80	-	-
#100	-	-
#200	97.6	99.0

Hydrometer Size (mm)	% Finer	Hydrometer Size (mm)	% Finer
0.029	81.5	0.029	80.5
0.019	75.4	0.019	76.4
0.011	60.1	0.011	65.0
0.008	47.9	0.008	56.8
0.006	39.7	0.006	47.5
0.003	26.5	0.003	35.1
0.001	15.3	0.001	20.6

WESTON

Appendix A

RESULTS REPORTED BY LABORATORY

USEPA Region III
SAS 5165-C-04
ATEC Project No. 21-02023
March 1, 1990

SAS Sample No.	5165C-01	5165C-02	5165C-03
Sieve Size	% Finer	% Finer	% Finer
#4			100
#8			99
#10	100	100	99
#16	-	-	97
#30	-	-	92
#40	-	-	84
#50	-	-	80
#80	-	-	79
#100	-	-	78
#200	98.3	98.2	64.7

Hydrometer Size (mm)	% Finer	Hydrometer Size (mm)	% Finer	Hydrometer Size (mm)	% Finer
0.029	78.7	0.029	76.6	0.033	41.9
0.019	66.6	0.020	64.5	0.022	33.9
0.012	53.5	0.012	48.4	0.013	24.9
0.009	43.4	0.009	40.3	0.009	20.9
0.006	34.3	0.006	32.2	0.007	15.9
0.003	24.2	0.003	22.2	0.003	11.0
0.001	16.1	0.001	16.1	0.001	7.0

USEPA Region III
SAS 5165-C-04
ATEC Project No. 21-02023
March 1, 1990

SAS Sample No.	5165C-03 - QC	5165C-04	5165C-05
Sieve Size	% Finer	% Finer	% Finer
#4	100		
#8	99		
#10	99	100	100
#16	97	-	-
#30	91	-	-
#40	83	-	-
#50	79	-	-
#80	78	-	-
#100	77	-	-
#200	64.1	97.9	98.5

Hydrometer Size (mm)	% Finer	Hydrometer Size (mm)	% Finer	Hydrometer Size (mm)	% Finer
0.033	45.7	0.030	72.4	0.029	80.3
0.022	33.8	0.020	56.3	0.019	78.2
0.013	26.8	0.012	40.2	0.011	66.9
0.009	20.9	0.009	31.2	0.008	59.7
0.007	15.9	0.006	24.1	0.006	51.5
0.003	10.9	0.003	18.1	0.003	37.1
0.001	7.0	0.001	12.1	0.001	22.6

USEPA Region III
SAS 5165-C-04
ATEC Project No. 21-02023
March 1, 1990

SAS Sample No.	5165C-06	5165C-07
Sieve Size	% Finer	% Finer
#10	100	100
#16	-	-
#30	-	-
#40	-	-
#50	-	-
#80	-	-
#100	-	-
#200	97.6	99.0

Hydrometer Size (mm)	% Finer	Hydrometer Size (mm)	% Finer
0.029	81.5	0.029	80.5
0.019	75.4	0.019	76.4
0.011	60.1	0.011	65.0
0.008	47.9	0.008	56.8
0.006	39.7	0.006	47.5
0.003	26.5	0.003	35.1
0.001	15.3	0.001	20.6

WESTON

Appendix B

DPO REPORT

WESTON SM

DPO: FYI

Region III

GRAIN SIZE REGIONAL DATA ASSESSMENT SUMMARY

SAS No: 5165C - Task 4
No. of Samples: 7
Matrix: Soil
Method: Method for Particle - Size Analysis of Soils

Laboratory: ATEC
Data User: Pat Churilla
Review Completion: April 26, 1990

Reviewer: ESAT

		Grain Size
1.	Blank Evaluation	N/A
2.	Duplicate	O
3.	Sample Preparation	O
4.	Equipment Checks o Sieve Calibration o Balance Calibration	O
5.	OVERALL ASSESSMENT	O

O = little or no problems that affect data usability

N/A = Not Applicable

WESTON

APPENDIX C

SUPPORT DOCUMENTATION

5165 C Task IV

Site file

ATEC

SAS 610

U.S. Environmental Protection Agency
CLP Sample Management Office
209 Madison Street, Alexandria, VA 22313
PHONE: (703) 557-2490 or FTS 557-2490

SAS Number

SPECIAL ANALYTICAL SERVICES
Regional Request

☐ Regional Transmittal

☐ Telephone Request

A. EPA Region and Client: EPA Region III

B. Regional Representative: Colleen K. Walling

C. Telephone Number: (301) 266-9180

sent to SMO 12-21-89

D. Date of Request: December 15, 1989

E. Site Name: Standard Chlorine of Delaware, Delaware City, Delaware

Please provide below a description of your request for Special Analytical Services under the Contract Laboratory Program. In order to most efficiently obtain laboratory capability for your request, please address the following considerations, if applicable. Incomplete or erroneous information may result in delay in the processing of your request. Please continue response on additional sheets, or attach supplementary information as needed.

1. General description of analytical service requested:
Analysis of seven sediment samples for the determination of grain size. Analysis to be performed by ASTM* Method D422 "Methods for Particle-Si Analysis of Soils" 04.08 (Attached - First approved in 1963, Section 2 adde in July 1984.). All samples are of low contaminant concentration levels. ASTM* Method D421 is also attached for sample preparation

* ASTM = American Society for Testing and Materials, 1985 Edition.

2. Definition and number of work units involved (specify whether whole samples or fractions; whether organics or inorganics; whether aqueous or soil and sediments; and whether low, medium, or high concentration):
Seven low concentration sediment samples to be ana ... e, including six samples and one duplicate.

AR300876

3. Program (specify whether Superfund (Remedial or Enforcement), RCRA, NPDES, etc.), Justification for analysis and Site Account Number:

Superfund Enforcement; RP RI/FS Oversight
OTGB03NPH6

SAS Approved By:

4. Estimated date(s) of collection: January 2 through January 12, 1990 (may extend through the week beginning January 15,

5. Estimated date(s) and method of shipment: January 3 through January 12, 1990 (may extend through the week beginning January 15,)

Federal Express - Overnight Delivery

6. Approximate number of days results required after lab receipt of samples:

Data package within 45 days of laboratory receipt of last sample.

7. Analytical protocol required (attach copy if other than a protocol currently used in this program):

Analysis for texture by ASTM D 422-63 (Reapproved in 1972; Section 2 added July 1984) (attachment
sample prep. by ASTM D 421-58 (Preparation method; Reapproved in 1978; Section 2 added Ju
sieve calibration by - Chpt 3 from "Procedures in Sedimentary Petrology" (attachment 2)

8. Special technical instructions (if outside protocol requirements, specify compound names, CAS numbers, detection limits, etc.):

Standardize instruments according to manufacturer's instructions. Analytical procedu as described in the attached methods, MUST be followed even if the text merely indicates that those procedures should be followed.

9. Analytical results required (if known, specify format for data sheets, QA/QC reports, Chain-of-Custody documentation, etc.). If not completed, format of results will be left to program discretion.

Data package must include: all instrument and/or equipment calibration results, all raw data, calculations, duplicate results, chain-of-custody forms, SAS request forms, SAS Packing Lists and Traffic Reports, copy of Airbills, and a copy of the analyst's logbook (signed by the analyst) with date and time of sample preparati and analysis. See also addendum 1. Also include results of sieve and balanc calibrations.

10. Other (use additional sheets or attach supplementary information, as needed):

None.

11. Name of sampling/shipping contact: David A. Basko

Phone: (215) 741-4211

12. Data Requirements

Parameter	Detection Limit	Precision Desired (+ or - Concentration)
grain size	N/A	± 30 %

13. QC Requirements

Audits Required	Frequency of Audits	Limits (Percent or Concentration)
LAB Duplicate(s)	1/20 or 1/batch	+/- 35% RPD
Sieve Calibration	1/20 or 1/batch	(see Attachment #2)
Class S weights balance check	1/sample	As per manufacturer's specifications (include in deliverables)

14. Action Required if Limits are Exceeded

Duplicates: Reanalyze the sample and duplicate one time and report both sets of dat

15. Request prepared by: David A. Basko

Date: December 15, 1989

16. Request reviewed by: Laurie L.A. Brown C. Smith 12/21/89

Date: 12-21-89

Please return this request to the Sample Management Office as soon
o expedite processing of your request for special analytical serv
you have any questions or need any assistance, please contact your Regional
representative at the Sample Management Office.

ADDENDUM 1

Data package must include: all raw data, all instrument and/or equipment calibration results, calculations, blank results, duplicate results, chain of custody forms, SAS request forms, SAS packing list(s) or traffic report(s), copy of airbill(s), and copies of analyst's logbooks(signed by analyst) with date and time of sample preparation and analysis.

The cover page and all sample report forms MUST be labled with the complete EPA sample number as it appears on chain of custody and CLP paperwork.

The case narrative must document all problems encountered and the subsequent resolutions. List instrumentation and methods employed for analysis. Also, note whether samples were preserved or not and the procedure utilized in preservation. EPA QC reference samples, or equivalent reference samples must be identified as to source and lot number. Documentation of "true" value and associated 95 % confidence limits must be provided for any reference samples used.

ATTACHMENT 2

ACCURACY OF SIEVES

Three different types of sieves may be purchased. Most commercially available sieves are manufactured to meet the tolerances established under ASTM Specifications Ell-61. (See Table 1.) The National Bureau of Standards will, for a fee, check a set of sieves and will certify them if they meet ASTM specifications. The manufacturer selects matched sieves to give results for a given sample that are comparable to those obtained from the manufacturer's Master Sieves. Matched sieves are the most accurate available.

TESTING SIEVES

Sieves may be checked for accuracy in several different ways (ASTM, 1966, and W. S. Tyler Co., 1967, p. 39).

Use of Standard Samples

The use of calibrated glass spheres is recommended for checking and determining the effective sieve openings. Calibrated glass spheres may be obtained from the Supply Division, National Bureau of Standards, Washington, D. C. Three standard samples are now available at $9.50 each: No. 1017, 0.050 to 0.230 mm; No. 1018, 0.210 to 0.980 mm; and No. 1019, 0.90 to 2.55 mm. Instructions are provided for using the glass spheres in calibrating sieves.

For routine checking of sieves each laboratory should maintain its own standard sample. A set of sieves should be checked periodically with a standard size split of the standard sample to see if the set continues to give the same results. A new set of sieves can also be checked against the standard to see if the sets give comparable results. If they do not, calibration factors can be calculated for each sieve that will make the results comparable.

Measurement of Openings

Several methods of measuring openings are given in ASTM Specification Ell-61. One method is to use a microscope and measure the openings. Six nonoverlapping fields of view are selected. In each

field measure at least 50 openings perpendicular to the wires, with the openings being located in a diagonal direction across the field (Fig. 8). The openings in three of the fields should be measured at right angles to those in the other three fields. Tabulate the results and check against Table 1.

REFERENCES

American Society for Testing Materials, 1963, Grain size analysis of soils, D422–63, pp. 203–214, *in* 1967 Book of ASTM Standards, Pt. 11, Philadelphia.

——, 1966, Sieves for testing purposes, Ell-61, pp. 446–452, *in* 1966 Book of ASTM Standards, Pt. 30, Philadelphia.

Folk, R. L., 1968, Petrology of sedimentary rocks, Hemphills, Austin, Texas, 170 pp.

Jackson, M. L., L. D. Whitting, and R. P. Pennington, 1949,

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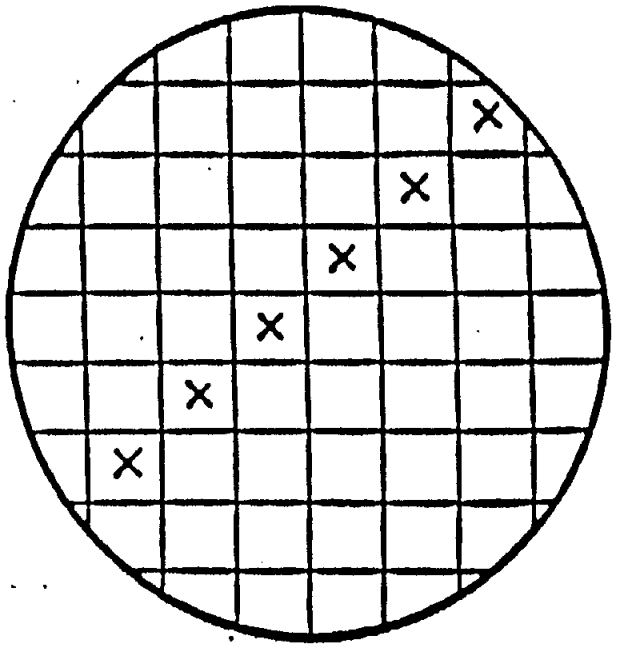


Fig. 8 Testing sieves by microscopic measurement of openings located along diagonals of openings.

CHAPTER 3

SIEVE ANALYSIS

ROY L. INGRAM

University of North Carolina, Chapel Hill, North Carolina

The distribution of sizes of sedimentary particles with intermediate diameters in the range of 1/16 to 16 mm (sand and fine gravel) is most commonly determined by sieving. In the United States, the United States Standard sieves or the Tyler Standard sieves (Table 1) are used by most workers.

TABLE 1 Sieve openings

Wentworth Scale, mm	Phi Scale	$\sqrt[4]{2}$ Scale, mm	U. S. Standard[a]				Tyler[b] Mesh
			Opening, mm	Mesh	Permissable Variation		
					Average ± %	Maxi. + %	
16	−4.00	16.000	16.0		3	6	
	−3.75	13.454	13.5		3	6	
	−3.50	11.314	11.2		3	6	
	−3.25	9.514	9.51		3	6	
8	−3.00	8.000	8.00		3	6	2½
	−2.75	6.727	6.73		3	6	3
	−2.50	5.657	5.66	3½	3	10	3½
	−2.25	4.757	4.76	4	3	10	4

TABLE 1 Sieve openings (Continued)

Wentworth Scale, mm	Phi Scale	$\sqrt[4]{2}$ Scale, mm	U. S. Standard[a]				Tyler[b] Mesh
			Opening, mm	Mesh	Permissable Variation		
					Average ± %	Maxi. + %	
4	−2.00	4.000	4.00	5	3	10	5
	−1.75	3.364	3.36	6	3	10	6
	−1.50	2.828	2.83	7	3	10	7
	−1.25	2.378	2.38	8	3	10	8
2	−1.00	2.000	2.00	10	3	10	9
	−0.75	1.682	1.68	12	3	10	10
	−0.50	1.414	1.41	14	3	10	12
	−0.25	1.189	1.19	16	3	10	14
1	0.00	1.000	1.00	18	5	15	16
	0.25	0.841	0.841	20	5	15	20
	0.50	0.707	0.707	25	5	15	24
	0.75	0.595	0.595	30	5	15	28
1/2	1.00	0.500	0.500	35	5	15	32
	1.25	0.420	0.420	40	5	25	35
	1.50	0.354	0.354	45	5	25	42
	1.75	0.297	0.297	50	5	25	48
1/4	2.00	0.250	0.250	60	5	25	60
	2.25	0.210	0.210	70	5	25	65
	2.50	0.177	0.177	80	6	40	80
	2.75	0.149	0.149	100	6	40	100
1/8	3.00	0.125	0.125	120	6	40	115
	3.25	0.105	0.105	140	6	40	150
	3.50	0.088	0.088	170	6	40	170
	3.75	0.074	0.074	200	7	60	200
1/16	4.00	0.062	0.063	230	7	60	250
	4.25	0.053	0.053	270	7	60	270
	4.50	0.044	0.044	325	7	60	325
	4.75	0.037	0.037	400	7	60	400
1/32	5.00	0.031					

[a] A.S.T.M., 1966, pp. 447–448.
[b] W. S. Tyler Co., 1967, p. 10.

AR300088

ATTACHMENT 3

Designation: D 421 – 58 (Re[redacted]ved 1978)[1]

Standard Method for DRY PREPARATION OF SOIL SAMPLES FOR PARTICLE-SIZE ANALYSIS AND DETERMINATION OF SOIL CONSTANTS[1]

This standard is issued under the fixed designation D 421; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

[1] NOTE—Section 2 was added editorially and subsequent sections renumbered in July 1984.

1. Scope

1.1 This method covers the dry preparation of soil samples as received from the field for particle-size analysis and the determination of the soil constants.

2. Applicable Document

2.1 *ASTM Standard:*

E 11 Specification for Wire-Cloth Sieves for Testing Purposes[2]

3. Apparatus

3.1 *Balance*—A balance sensitive to 0.1 g.

3.2 *Mortar*—A mortar and rubber-covered pestle suitable for breaking up the aggregations of soil particles.

3.3 *Sieves*—A series of sieves, of square mesh woven wire cloth, conforming to Specification E 11. The sieves required are as follows:

No. 4 (4.75-mm)
No. 10 (2.00-mm)
No. 40 (425-μm)

3.4 *Sampler*—A riffle sampler or sample splitter, for quartering the samples.

4. Sampling

4.1 Expose the soil sample as received from the field to the air at room temperature until dried thoroughly. Break up the aggregations thoroughly in the mortar with a rubber-covered pestle. Select a representative sample of the amount required to perform the desired tests by the method of quartering or by the use of a sampler. The amounts of material required to perform the individual tests are as follows:

4.1.1 *Particle-Size Analysis*—For the particle-size analysis, material passing a No. 10 (2.00-mm) sieve is required in amounts equal to 115 g of sandy soils and 65 g of either silt or clay soils.

4.1.2 *Tests for Soil Constants*—For the tests for soil constants, material passing the No. 40 (425-μm) sieve is required in total amount of 220 g, allocated as follows:

Test	Grams
Liquid limit	100
Plastic limit	15
Centrifuge moisture equivalent	10
Volumetric shrinkage	30
Check tests	65

5. Preparation of Test Sample

5.1 Select that portion of the air-dried sample selected for purpose of tests and record the mass as the mass of the total test sample uncorrected for hygroscopic moisture. Separate the test sample by sieving with a No. 10 (2.00-mm) sieve. Grind that fraction retained on the No. 10 sieve in a mortar with a rubber-covered pestle until the aggregations of soil particles are broken up into the separate grains. Then separate the ground soil into two fractions by sieving with a No. 10 sieve.

[1] This method is under the jurisdiction of ASTM Committee D-18 on Soil and Rock and is the direct responsibility of Subcommittee D18.03 on Texture, Plasticity, and Density Characteristics of Soils.

Current edition approved Sept. 22, 1958. Originally issued 1935. Replaces D 421 – 38.

[2] *Annual Book of ASTM Standards*, Vol 14.02.

5.2 Wash that fraction retained after the second sieving free of all fine material, dry, and weigh. Record this mass as the mass of coarse material. Sieve the coarse material after being washed and dried, on the No. 4 (4.75-mm) sieve and record the mass retained on the No. 4 sieve.

6. Test Sample for Particle-Size Analysis

6.1 Mix the fractions passing the No. 10 (2.00-mm) sieve in both sieving operations thoroughly together, and by the method of quartering or the use of a sampler, select a portion weighing approximately 115 g for sandy soils and approximately [illegible] g for silt and clay soil for particle-size analysis.

7. Test Sample for Soil Constants

7.1 Separate the remaining portion of the material passing the No. 10 (2.00-mm) sieve into two parts by means of a No. 40 (425-μm) sieve. Discard the fraction retained on the No. 40 sieve. Use the fraction passing the No. 40 sieve for the determination of the soil constants.

Standard Method for PARTICLE-SIZE ANALYSIS OF SOILS[1]

This standard is issued under the fixed designation D 422; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

[a] NOTE—Section 2 was added editorially and subsequent sections renumbered in July 1984.

1. Scope

1.1 This method covers the quantitative determination of the distribution of particle sizes in soils. The distribution of particle sizes larger than 75 μm (retained on the No. 200 sieve) is determined by sieving, while the distribution of particle sizes smaller than 75 μm is determined by a sedimentation process, using a hydrometer to secure the necessary data (Notes 1 and 2).

NOTE 1—Separation may be made on the No. 4 (4.75-mm), No. 40 (425-μm), or No. 200 (75-μm) sieve instead of the No. 10. For whatever sieve used, the size shall be indicated in the report.

NOTE 2—Two types of dispersion devices are provided: (1) a high-speed mechanical stirrer, and (2) air dispersion. Extensive investigations indicate that air-dispersion devices produce a more positive dispersion of plastic soils below the 20 μm size and appreciably less degradation on all sizes when used with sandy soils. Because of the definite advantages favoring air dispersion, its use is recommended. The results from the two types of devices differ in magnitude, depending upon soil type, leading to marked differences in particle size distribution, especially for sizes finer than 20 μm.

2. Applicable Documents

2.1 *ASTM Standards:*

D 421 Method for Dry Preparation of Soil Samples for Particle-Size Analysis and Determination of Soil Constants[2]

E 11 Specification for Wire-Cloth Sieves for Testing Purposes[3]

E 100 Specification for ASTM Hydrometers[4]

3. Apparatus

3.1 *Balances*—A balance sensitive to 0.01 g for weighing the material passing a No. 10 (2.00-mm) sieve, and a balance sensitive to 0.1 % of the mass of the sample to be weighed for weighing the material retained on a No. 10 sieve.

3.2 *Stirring Apparatus*—Either apparatus A or B may be used.

3.2.1 Apparatus A shall consist of a mechanically operated stirring device in which a suitably mounted electric motor turns a vertical shaft at a speed of not less than 10 000 rpm without load. The shaft shall be equipped with a replaceable stirring paddle made of metal, plastic, or hard rubber, as shown in Fig. 1. The shaft shall be of such length that the stirring paddle will operate not less than ¾ in. (19.0 mm) nor more than 1½ in. (38.1 mm) above the bottom of the dispersion cup. A special dispersion cup conforming to either of the designs shown in Fig. 2 shall be provided to hold the sample while it is being dispersed.

3.2.2 Apparatus B shall consist of an air-jet dispersion cup[5] (Note 3) conforming to the general details shown in Fig. 3 (Notes 4 and 5).

NOTE 3—The amount of air required by an air-jet dispersion cup is of the order of 2 ft^3/min; some small air compressors are not capable of supplying sufficient air to operate a cup.

NOTE 4—Another air-type dispersion device, known as a dispersion tube, developed by Chu and Davidson at Iowa State College, has been shown to give results equivalent to those secured by the air-jet dispersion cups. When it is used, soaking of the sample can be done in the sedimentation cylinder, thus eliminating the need for transferring the slurry. When the air-dispersion tube is used, it shall be so indicated in the report.

NOTE 5—Water may condense in air lines when not in use. This water must be removed, either by using a water trap on the air line, or by blowing the water out of the line before using any of the air for dispersion purposes.

3.3 *Hydrometer*—An ASTM hydrometer, graduated to read in either specific gravity of the suspension or grams per litre of suspension, and conforming to the requirements for hydrometers 151H or 152H in Specifications E 100. Dimensions of both hydrometers are the same, the scale being the only item of difference.

3.4 *Sedimentation Cylinder*—A glass cylinder essentially 18 in. (457 mm) in height and 2½ in. (63.5 mm) in diameter, and marked for a volume of 1000 mL. The inside diameter shall be such that the 1000-mL mark is 36 ± 2 cm from the bottom on the inside.

3.5 *Thermometer*—A thermometer accurate to 1°F (0.5°C).

3.6 *Sieves*—A series of sieves, of square-mesh woven-wire cloth, conforming to the requirements of Specification E 11. A full set of sieves includes the following (Note 6):

3-in. (75-mm)	No. 10 (2.00-mm)
2-in. (50-mm)	No. 20 (850-μm)
1½-in. (37.5-mm)	No. 40 (425-μm)
1-in. (25.0-mm)	No. 60 (250-μm)
¾-in. (19.0-mm)	No. 140 (106-μm)
⅜-in. (9.5-mm)	No. 200 (75-μm)
No. 4 (4.75-mm)	

NOTE 6—A set of sieves giving uniform spacing of points for the graph, as required in Section 17, may be used if desired. This set consists of the following sieves:

3-in. (75-mm)	No. 16 (1.18-mm)
1½-in. (37.5-mm)	No. 30 (600-μm)
¾-in. (19.0-mm)	No. 50 (300-μm)
⅜-in. (9.5-mm)	No. 100 (150-μm)
No. 4 (4.75-mm)	No. 200 (75-μm)
No. 8 (2.36-mm)	

3.7 *Water Bath or Constant-Temperature Room*—A water bath or constant-temperature room for maintaining the soil suspension at a constant temperature during the hydrometer analysis. A satisfactory water tank is an insulated tank that maintains the temperature of the suspension at a convenient constant temperature at or near 68°F (20°C). Such a device is illustrated in Fig. 4. In cases where the work is performed in a room at an automatically controlled constant temperature, the water ba[illegible] not necessary.

3.8 *Beaker*—A [illegible]er [illegible]0-mL capacity.

3.9 *Timing De[illegible]*—A watch or clock with a second hand.

4. Dispersing Ag[illegible]

4.1 A solution [illegible]lium hexametaphosphate (sometimes called [illegible]m metaphosphate) shal[illegible] be used in distilled [illegible]mineralized water, at the rate of 40 g of sod[illegible] hexametaphosphate/litr[illegible] of solution (Note 7[illegible]

NOTE 7—Solutio[illegible] is salt, if acidic, slowly re[illegible]vert or hydrolyze back [illegible] orthophosphate form wit[illegible] a resultant decrease in dispersive action. Solutio[illegible] should be prepared frequently (at least once a month[illegible]) or adjusted to pH of 8 or 9 by means of sodiu[illegible] carbonate. Bottles containing solutions should have t[illegible] date of preparation marked on them.

4.2 All water used shall be either distilled [illegible] demineralized water. The water for a hydromet[illegible] test shall be brought to the temperature that [illegible] expected to prevail during the hydrometer te[illegible] For example, if the sedimentation cylinder is [illegible] be placed in the water bath, the distilled or [illegible]mineralized water to be used shall be brought [illegible] the temperature of the controlled water bath; [illegible] if the sedimentation cylinder is used in a roo[illegible] with controlled temperature, the water for [illegible] test shall be at the temperature of the room. T[illegible] basic temperature for the hydrometer test is 68[illegible] (20°C). Small variations of temperature do [illegible] introduce differences that are of practical sig[illegible]icance and do not prevent the use of correcti[illegible] derived as prescribed.

5. Test Sample

5.1 Prepare the test sample for mechan[illegible] analysis as outlined in Method D 421. Du[illegible] the preparation procedure the sample is div[illegible] into two portions. One portion contains [illegible] particles retained on the No. 10 (2.00-mm) [illegible] while the other portion contains only part[illegible] passing the No. 10 sieve. The mass of air-[illegible] soil selected for purpose of tests, as prescrib[illegible] Method D 421, shall be sufficient to yield q[illegible]tities for mechanical analysis as follows:

5.1.1 The size of the portion retained o[illegible] No. 10 sieve shall depend on the maximum [illegible] of particle, according to the following schedu[illegible]

Nominal Diameter of Largest Particles, in. (mm)	Approximate Mi[illegible] Mass of Portio[illegible]
⅜ (9.5)	500
¾ (19.0)	1000

[1] This method is under the jurisdiction of ASTM Committee D 18 on Soil and Rock and is the direct responsibility of Subcommittee D18.03 on Texture, Plasticity, and Density Characteristics of Soils.

Current edition approved Nov. 21, 1963. Originally published 1935. Replaces D 422 – 62.

[2] *Annual Book of ASTM Standards*, Vol 04.08.

[3] *Annual Book of ASTM Standards*, Vol 14.02.

[4] *Annual Book of ASTM Standards*, Vol 14.04.

[5] Detailed working drawings for this cup are available at a nominal cost from the American Society for Testing and Materials, 1916 Race St., Philadelphia, PA 19103. Order Adjunct No. 12-404220-00.

AR 300883

Nominal Diameter of Largest Particles, in. (mm)	Approximate Minimum Mass of Portion, g
1 (25.4)	2000
1½ (38.1)	3000
2 (50.8)	4000
3 (76.2)	5000

5.1.2 The size of the portion passing the No. 10 sieve shall be approximately 115 g for sandy soils and approximately 65 g for silt and clay soils.

5.2 Provision is made in Section 5 of Method D 421 for weighing of the air-dry soil selected for purpose of tests, the separation of the soil on the No. 10 sieve by dry-sieving and washing, and the weighing of the washed and dried fraction retained on the No. 10 sieve. From these two masses the percentages retained and passing the No. 10 sieve can be calculated in accordance with 12.1.

NOTE 8—A check on the mass values and the thoroughness of pulverization of the clods may be secured by weighing the portion passing the No. 10 sieve and adding this value to the mass of the washed and oven-dried portion retained on the No. 10 sieve.

SIEVE ANALYSIS OF PORTION RETAINED ON NO. 10 (2.00-mm) SIEVE

6. Procedure

6.1 Separate the portion retained on the No. 10 (2.00-mm) sieve into a series of fractions using the 3-in. (75-mm), 2-in. (50-mm), 1½-in. (37.5-mm), 1-in. (25.0-mm), ¾-in. (19.0-mm), ⅜-in. (9.5-mm), No. 4 (4.75-mm), and No. 10 sieves, or as many as may be needed depending on the sample, or upon the specifications for the material under test.

6.2 Conduct the sieving operation by means of a lateral and vertical motion of the sieve, accompanied by a jarring action in order to keep the sample moving continuously over the surface of the sieve. In no case turn or manipulate fragments in the sample through the sieve by hand. Continue sieving until not more than 1 mass % of the residue on a sieve passes that sieve during min of sieving. When mechanical sieving is used, test the thoroughness of sieving by using the hand method of sieving as described above.

6.3 Determine the mass of each fraction on a balance conforming to the requirements of 3.1. At the end of weighing, the sum of the masses retained on all the sieves used should equal closely the original mass of the quantity sieved.

HYDROMETER AND SIEVE ANALYSIS OF PORTION PASSING THE NO. 10 (2.00-mm) SIEVE

7. Determination of Composite Correction for Hydrometer Reading

7.1 Equations for percentages of soil remaining in suspension, as given in 14.3, are based on the use of distilled or demineralized water. A dispersing agent is used in the water, however, and the specific gravity of the resulting liquid is appreciably greater than that of distilled or demineralized water.

7.1.1 Both soil hydrometers are calibrated at 68°F (20°C), and variations in temperature from this standard temperature produce inaccuracies in the actual hydrometer readings. The amount of the inaccuracy increases as the variation from the standard temperature increases.

7.1.2 Hydrometers are graduated by the manufacturer to be read at the bottom of the meniscus formed by the liquid on the stem. Since it is not possible to secure readings of soil suspensions at the bottom of the meniscus, readings must be taken at the top and a correction applied.

7.1.3 The net amount of the corrections for the three items enumerated is designated as the composite correction, and may be determined experimentally.

7.2 For convenience, a graph or table of composite corrections for a series of 1° temperature differences for the range of expected test temperatures may be prepared and used as needed. Measurement of the composite corrections may be made at two temperatures spanning the range of expected test temperatures, and corrections for the intermediate temperatures calculated assuming a straight-line relationship between the two observed values.

7.3 Prepare 1000 mL of liquid composed of distilled or demineralized water and dispersing agent in the same proportion as will prevail in the sedimentation (hydrometer) test. Place the liquid in a sedimentation cyclinder and the cylinder in the constant-temperature water bath, set for one of the two temperatures to be used. When the temperature of the liquid becomes constant, insert the hydrometer, and, after a short interval to permit the hydrometer to come to the temperature of the liquid, read the hydrometer at the top of the meniscus formed on the stem. For hydrometer 151H the composite correction is the difference between this reading and one for hydrometer 152H it is the difference between the reading and zero. Bring the liquid and the hydrometer to the other temperature to be used, and secure the composite correction as before.

8. Hygroscopic Moisture

8.1 When the sample is weighed for the hydrometer test, weigh out an auxiliary portion of from 10 to 15 g in a small metal or glass container, dry the sample to a constant mass in an oven at 230 ± 9°F (110 ± 5°C), and weigh again. Record the masses.

9. Dispersion of Soil Sample

9.1 When the soil is mostly of the clay and silt sizes, weigh out a sample of air-dry soil of approximately 50 g. When the soil is mostly sand the sample should be approximately 100 g.

9.2 Place the sample in the 250-mL beaker and cover with 125 mL of sodium hexametaphosphate solution (40 g/l). Stir until the soil is thoroughly wetted. Allow to soak for at least 16 h.

9.3 At the end of the soaking period, disperse the sample further, using either stirring apparatus A or B. If stirring apparatus A is used, transfer the soil - water slurry from the beaker into the special dispersion cup shown in Fig. 2, washing any residue from the beaker into the cup with distilled or demineralized water (Note 9). Add distilled or demineralized water, if necessary, so that the cup is more than half full. Stir for a period of 1 min.

NOTE 9—A large size syringe is a convenient device for handling the water in the washing operation. Other devices include the wash-water bottle and a hose with nozzle connected to a pressurized distilled water tank.

9.4 If stirring apparatus B (Fig. 3) is used, remove the cover cap and connect the cup to a compressed air supply by means of a rubber hose. A air gage must be on the line between the cup and the control valve. Open the control valve so that the gage indicates 1 psi (7 kPa) pressure (Note 10). Transfer the soil - water slurry from the beaker to the air-jet dispersion cup by washing with distilled or demineralized water. Add distilled or demineralized water, if necessary, so that the total volume in the cup is 250 mL, but no more.

NOTE 10—The initial air pressure of 1 psi is required to prevent the soil - water mixture from entering the air-jet chamber when the mixture is transferred to the dispersion cup.

9.5 Place the cover cap on the cup an the air cont[illegible] until the gage pressu psi (140 kPa [illegible] rse the soil accordin following sc[illegible]

Plastic	Dispersion Pe min
Un	5
6 [illegible]	10
Ov	15

Soils contai[illegible] e percentages of mi be dispersed [illegible] 1 min. After the di period, redu[illegible] age pressure to 1 psi atory to transfer of soil - water slurry to imentation cylinder.

10. Hydrometer Test

10.1 Immediately after dispersion, tra soil - water slurry to the glass sedimenta inder, and add distilled or demineraliz until the total volume is 1000 mL.

10.2 Using the palm of the hand over end of the cylinder (or a rubber stopp open end), turn the cylinder upside d back for a period of 1 min to com agitation of the slurry (Note 11). At th min set the cylinder in a convenient loc take hydrometer readings at the follow vals of time (measured from the beg sedimentation), or as many as may b depending on the sample or the specifi the material under test: 2, 5, 15, 30, 60 1440 min. If the controlled water bat the sedimentation cylinder should be the bath between the 2- and 5-min rea

NOTE 11—The number of turns during should be approximately 60, counting the down and back as two turns. Any soil rema bottom of the cylinder during the first few t be loosened by vigorous shaking of the cy it is in the inverted position.

10.3 When it is desired to take a h reading, carefully insert the hydromet to 25 s before the reading is due to app the depth it will have when the readir As soon as the reading is taken, carefu the hydrometer and place it with motion in a graduate of clean distilled eralized water.

NOTE 12—It is important to remove the immediately after each reading. Readings a at the top of th[illegible]niscus formed by the around the ste[illegible]ce it is not possibl readings at the bottom of the meniscus.

10.4 After [illegible] reading, take the temperature of the suspension by inserting the thermometer into the suspension.

11. Sieve Analysis

11.1 After taking the final hydrometer reading, transfer the suspension to a No. 200 (75-μm) sieve and wash with tap water until the wash water is clear. Transfer the material on the No. 200 sieve to a suitable container, dry in an oven at 230 ± 9°F (110 ± 5°C) and make a sieve analysis of the portion retained, using as many sieves as desired, or required for the material, or upon the specification of the material under test.

CALCULATIONS AND REPORT

12. Sieve Analysis Values for the Portion Coarser than the No. 10 (2.00-mm) Sieve

12.1 Calculate the percentage passing the No. 10 sieve by dividing the mass passing the No. 10 sieve by the mass of soil originally split on the No. 10 sieve, and multiplying the result by 100. To obtain the mass passing the No. 10 sieve, subtract the mass retained on the No. 10 sieve from the original mass.

12.2 To secure the total mass of soil passing the No. 4 (4.75-mm) sieve, add to the mass of the material passing the No. 10 sieve the mass of the fraction passing the No. 4 sieve and retained on the No. 10 sieve. To secure the total mass of soil passing the ⅜-in. (9.5-mm) sieve, add to the total mass of soil passing the No. 4 sieve, the mass of the fraction passing the ⅜-in. sieve and retained on the No. 4 sieve. For the remaining sieves, continue the calculations in the same manner.

12.3 To determine the total percentage passing for each sieve, divide the total mass passing (see 12.2) by the total mass of sample and multiply the result by 100.

13. Hygroscopic Moisture Correction Factor

13.1 The hydroscopic moisture correction factor is the ratio between the mass of the oven-dried sample and the air-dry mass before drying. It is a number less than one, except when there is no hygroscopic moisture.

14. Percentages of Soil in Suspension

14.1 Calculate the oven-dry mass of soil used in the hydrometer analysis by multiplying the air-dry mass by the hygroscopic moisture correction factor.

14.2 Calculate the mass of a total sample represented by the mass of soil used in the hydrometer test, by dividing the oven-dry mass used by the percentage passing the No. 10 (2.00-mm) sieve, and multiplying the result by 100. This value is the weight W' in the equation for percentage remaining in suspension.

14.3 The percentage of soil remaining in suspension at the level at which the hydrometer is measuring the density of the suspension may be calculated as follows (Note 13): For hydrometer 151H:

$$P = [(100\,000/W') \times G/(G - G_1)](R - G_1)$$

NOTE 13—The bracketed portion of the equation for hydrometer 151H is constant for a series of readings and may be calculated first and then multiplied by the portion in the parentheses.

For hydrometer 152H:

$$P = (Ra/W') \times 100$$

where:

a = correction faction to be applied to the reading of hydrometer 152H. (Values shown on the scale are computed using a specific gravity of 2.65. Correction factors are given in Table 1),

P = percentage of soil remaining in suspension at the level at which the hydrometer measures the density of the suspension,

R = hydrometer reading with composite correction applied (Section 7),

W' = oven-dry mass of soil in a total test sample represented by mass of soil dispersed (see 14.2), g,

G = specific gravity of the soil particles, and

G_1 = specific gravity of the liquid in which soil particles are suspended. Use numerical value of one in both instances in the equation. In the first instance any possible variation produces no significant effect, and in the second instance, the composite correction for R is based on a value of one for G_1.

15. Diameter of Soil Particles

15.1 The diameter of a particle corresponding to the percentage indicated by a given hydrometer reading shall be calculated according to Stokes' law (Note 14), on the basis that a particle of this diameter was at the surface of the suspension at the beginning of sedimentation and had settled to the level at which the hydrometer is measuring the density of the suspension. Accord-

TABLE 1 Values of Correction Factor, a, for Different Specific Gravities of Soil Particles[A]

Specific Gravity	Correction Factor[A]
2.95	0.94
2.90	0.95
2.85	0.96
2.80	0.97
2.75	0.98
2.70	0.99
2.65	1.00
2.60	1.01
2.55	1.02
2.50	1.03
2.45	1.05

[A] For use in equation for percentage of soil remaining in suspension when using Hydrometer 152H.

TABLE 2 Values of Effective Depth Based on Hydrometer and Sedimentation Cylinder of Specified Sizes[A]

Hydrometer 151H		Hydrometer 152H			
Actual Hydrometer Reading	Effective Depth, L, cm	Actual Hydrometer Reading	Effective Depth, L, cm	Actual Hydrometer Reading	Effective Depth, L, cm
1.000	16.3	0	16.3	31	11.2
1.001	16.0	1	16.1	32	11.1
1.002	15.8	2	16.0	33	10.9
1.003	15.5	3	15.8	34	10.7
1.004	15.2	4	15.6	35	10.6
1.005	15.0	5	15.5		
1.006	14.7	6	15.3	36	10.4
1.007	14.4	7	15.2	37	10.2
1.008	14.2	8	15.0	38	10.1
1.009	13.9	9	14.8	39	9.9
1.010	13.7	10	14.7	40	9.7
1.011	13.4	11	14.5	41	9.6
1.012	13.1	12	14.3	42	9.4
1.013	12.9	13	14.2	43	9.2
1.014	12.6	14	14.0	44	9.1
1.015	12.3	15	13.8	45	8.9
1.016	12.1	16	13.7	46	8.8
1.017	11.8	17	13.5	47	8.6
1.018	11.5	18	13.3	48	8.4
1.019	11.3	19	13.2	49	8.3
1.020	11.0	20	13.0	50	8.1
1.021	10.7	21	12.9	51	7.9
1.022	10.5	22	12.7	52	7.8
1.023	10.2	23	12.5	53	7.6
1.024	10.0	24	12.4	54	7.4
1.025	9.7	25	12.2	55	7.3
1.026	9.4	26	12.0	56	7.1
1.027	9.2	27	11.9	57	7.0
1.028	8.9	28	11.7	58	6.8
1.029	8.6	29	11.5	59	6.6
1.030	8.4	30	11.4	60	6.5

TABLE 2 Continued

Hydrometer 151H		Hydrometer 152H			
Actual Hydrometer Reading	Effective Depth, L, cm	Actual	Effective Depth, L, cm	Actual Hydrometer Reading	E D L
1.031	8.1				
1.032	7.8				
1.033	7.6				
1.034	7.3				
1.035	7.0				
1.036	6.8				
1.037	6.5				
1.038	6.2				

[A] Values of effec [illegible] are calculated from the [illegible]

$$L = L_1 + \tfrac{1}{2}[L_2 - (V_B/A)]$$

where:

L = effective depth, cm,

L_1 = distance along the stem of the hydrometer fro[illegible] of the bulb to the mark for a hydrometer readi[illegible]

L_2 = overall length of the hydrometer bulb, cm,

V_B = volume of hydrometer bulb, cm³, and

A = cross-sectional area of sedimentation cylinder, [illegible]

Values used in calculating the values in Table 2 are a[illegible]

For both hydrometers, 151H and 152H:

L_2 = 14.0 cm

V_B = 67.0 cm³

A = 27.8 cm²

For hydrometer 151H:

L_1 = 10.5 cm for a reading of 1.000

= 2.3 cm for a reading of 1.031

For hydrometer 152H:

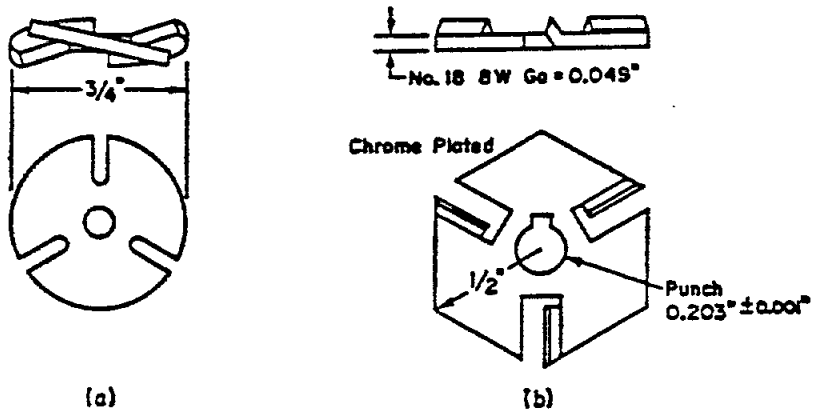
L_1 = 10.5 cm for a reading of 0 g/litre

= 2.3 cm for a reading of 50 g/litre

AR300885

AR300886

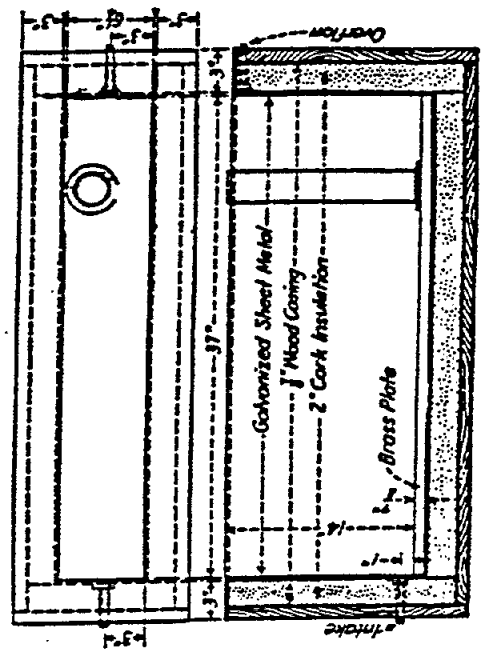
C	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85
6	0.01510	0.01505	0.01481	0.01457	0.01435	0.01414	0.01394	0.01374	0.01356
7	0.01511	0.01486	0.01462	0.01439	0.01417	0.01396	0.01376	0.01356	0.01338
8	0.01492	0.01467	0.01443	0.01421	0.01399	0.01378	0.01359	0.01339	0.01321
9	0.01474	0.01449	0.01425	0.01403	0.01382	0.01361	0.01342	0.1323	0.01305
10	0.01456	0.01431	0.01408	0.01386	0.01365	0.01344	0.01325	0.01307	0.01289
11	0.01438	0.01414	0.01391	0.01369	0.01348	0.01328	0.01309	0.01291	0.01273
12	0.01421	0.01397	0.01374	0.01353	0.01332	0.01312	0.01294	0.01276	0.01258
13	0.01404	0.01381	0.01358	0.01337	0.01317	0.01297	0.01279	0.01261	0.01243
14	0.			[illegible]21	0.01301	0.01282	0.01264	0.01246	0.01229
15	0.			[illegible]6	0.01286	0.01267	0.01249	0.01232	0.01215
16	0.1			[illegible]01	0.01272	0.01253	0.01235	0.01218	0.01201
17	0.01342	0.01319	0.01297	0.01277	0.01258	0.01239	0.01221	0.01204	0.01188
18	0.01327	0.01304	0.01283	0.01264	0.01244	0.01255	0.01208	0.01191	0.01175
19	0.01312	0.01290	0.01269	0.01249	0.01230	0.01212	0.01195	0.01178	0.01162
20	0.01298	0.01276	0.01256	0.01236	0.01217	0.01199	0.01182	0.01165	0.01149



Metric Equivalents

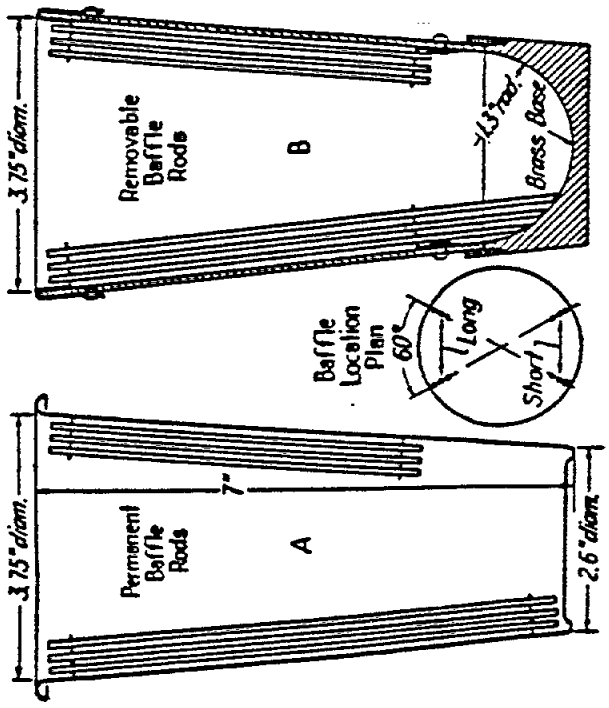
in.	0.001	0.049	0.203	½	¾
mm	0.03	1.24	5.16	12.7	19.0

FIG. 1 Detail of Stirring Paddles



Metric Equivalents

in.	¼	½	1	3	6¼	14	37
mm	22.2	25.4	76.2	158.2	356	940	



Metric Equivalents

in.	1.3	2.6	3.75
mm	33	66	95.2

FIG. 2 Dispersion Cups of Apparatus

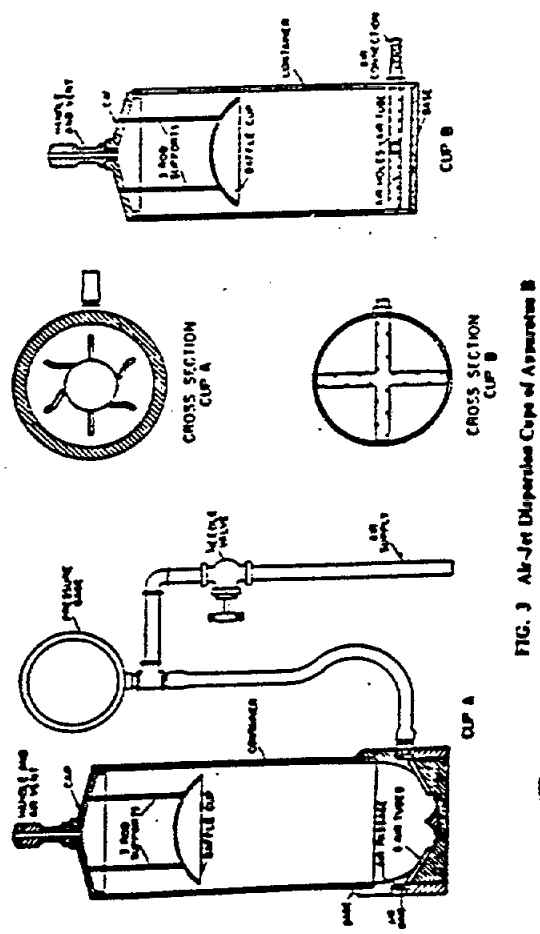


FIG. 3 Air-Jet Dispersion Cups of Apparatus B

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
CENTRAL REGIONAL LABORATORY
839 BESTGATE ROAD
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(301) 266-9180

DATE : May 2, 1990

SUBJECT: Organic Data Validation for the Standard Chlorine Site
Case 13149

FROM : Theresa A. Simpson
Region III ESAT DPO (3ES23)

TO : Robert Guarni
Regional Project Manager (3HW25)

THRU : Patricia J. Krantz, Chief
Quality Assurance Branch (3ES23)

Attached is the organic data review for the Standard Chlorine Site (Case 13149) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III ESD.

If you have any questions regarding this review, please call me.

Attachment

cc: Dave Basko, VERSAR
Elaine Spiewak (3HW14) (w/o attachment)

TID File: 03900116 Task 1229

WESTON
MANAGERS DESIGNERS/CONSULTANTS
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DATE: 30 APRIL 1990

SUBJECT: ORGANIC DATA VALIDATION FOR CASE 13149
Site: STANDARD CHLORINE

FROM: MARSHA BURRELL
ORGANIC DATA REVIEWER

DOUG MCINNES
ORGANIC DATA REVIEWER

TO: TERRY SIMPSON
ESAT DEPUTY PROJECT OFFICER

THRU: DAN DRESSER
ESAT TEAM MANAGER

OVERVIEW

Case 13149 consisted of two (2) low level water, two (2) low level, and two (2) medium level soil samples, submitted for full organic analyses. Included in this data set were two (2) trip blanks. The trip blanks were analyzed for volatiles only. The samples were analyzed as a Contract Laboratory Program (CLP) Routine Analytical Service (RAS).

SUMMARY

All samples were successfully analyzed for all target compounds with the exception of 2-butanone in the volatile fraction. All remaining instrument and method sensitivities were according to the Contract Laboratory Program (CLP) Routine Analytical Service (RAS) protocol.

MAJOR PROBLEM

- The response factor (RF) for 2-butanone was less than 0.05 in several of the initial and continuing volatile calibrations. The quantitation limits for this compound in the affected samples were qualified unreliable, "R". (See Table I in Appendix F for the affected samples.)

MINOR PROBLEMS

- Several compounds failed precision criteria for initial and/or continuing calibrations. Quantitation limits and the reported results for these compounds may be biased and, therefore, have been qualified estimated, "UJ" and "J", respectively. (See Table I in Appendix F for the affected samples)

- The volatiles analysis of sample CZ431 was performed ten (10) days from the date of sample collection. The technical holding time for volatile aromatics in water samples of seven (7) days has been exceeded by three (3) days. The quantitation limits for the aromatic compounds in sample CZ431 have been qualified biased, "UL".

- The volatiles analyses of several soil samples were performed twenty-one (21) to twenty-five (25) days from the date of sample collection. Although no technical holding time for volatiles analysis has been established for soil samples, the technical holding time for volatile compounds in water samples of fourteen (14) days has been exceeded by seven (7) to eleven (11) days. The reported results and quantitation limits for volatiles in the affected samples have been qualified biased, "L" and "UL", respectively.

- The semivolatile analyses of the soil samples were performed eight (8) to eleven (11) days from the date of sample collection. Although no technical holding time for semivolatile analysis has been established for soil samples, the technical holding time for semivolatile analyses in water samples of seven (7) days has been exceeded by one (1) to four (4) days. The reported results and quantitation limits for semivolatiles in the soil samples have been qualified biased, "J" and "UJ", respectively.

NOTES

- The reported Tentatively Identified Compounds (TIC's) in Appendix D have been reviewed and accepted.

- The maximum concentration of compounds found in the trip blanks, field blanks, or method blanks are listed below. All samples with concentrations of common laboratory contaminants less than ten times (<10x) the blank concentration have been qualified "B" in the data summary table. (See Appendix F).

Compound	Concentration (ug/L)
Methylene chloride *	14 J
Acetone *	8 J

* Common Laboratory Contaminant

- Because of the high concentration of 1,4-dichlorobenzene, surrogate compounds for the semivolatile analysis of sample CZ415 were diluted out. (See Appendix F).

- All data for Case 13149 were reviewed in accordance with the Functional Guidelines for Evaluating Organic Analyses with modifications for use within Region III. The text of this report addresses only those problems affecting usability.

ATTACHMENTS

APPENDIX A - Glossary of Data Qualifiers
APPENDIX B - Data Summary. These include:
(a) All positive results for target compounds with qualifier codes where applicable.
(b) All unusable detection limits (qualified "R").
APPENDIX C - Results as Reported by the Laboratory for All Target Compounds
APPENDIX D - Reviewed and Corrected Tentatively Identified Compounds
APPENDIX E - Organic Regional Data Assessment Summary
APPENDIX F - Support Documentation

DCN - MB004A12.STA

In Reference to Case No(s):
13149

Task 1229
Site: Std Chlorin
TID: 03900116

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM
Telephone Record Log

Date of Call: March 15, 1990

Laboratory Name: Wadsworth / Alert

Lab Contact: Anthony Pizzatola (412-826-5477)

Region: III

Regional Contact: Marsha Burrell (ESAT)

Call Initiated By: ___ Laboratory ✓ Region

In reference to data for the following sample number(s):

Summary of Questions/Issues Discussed:

Volatiles: CZ41E 80%; this doesn't match % Moisture than for Semivolatiles & pest/PCBs (

Pest/PCBs - α BHC CZ4B5 - called interference in original sample, yet it's quantitated in MS/MSD - pls clarify.

Summary of Resolution:

Lab will look into problems & resubmit form T's as necessary

M. Burrell
Signature

3-15-90
Date

Distribution: (1) Lab Copy, (2) Region Copy, (3) SMO Copy

AR300891

In Reference to Case No(s):

13149

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM
Telephone Record Log

Task 1229
Site Hd Chlorin
TID 03900116

Date of Call: March 29, 1990

Laboratory Name: Wadsworth / Alert

Lab Contact: A. Pizzotela 1412-826-5477

Region: III

Regional Contact: D. McInnes for H. Burrell (ESAT)

Call Initiated By: ___ Laboratory ✓ Region

In reference to data for the following sample number(s):

Summary of Questions/Issues Discussed:

- No response from call of 3/15/90

Volatiles: C2418 reported % moisture doesn't match for this sample for BNA & pest.

Pest/PCBs - BHC C2415 was id'd as interference in original sample; however was identified final in MS/MSD

Summary of Resolution:

Please check & respond ASAP

Signature _____ Date _____

Distribution: (1) Lab Copy, (2) Region Copy, (3) SMO Copy

AR300892

WESTON
MANAGERS DESIGNERS CONSULTANTS
2568A RIVA ROAD
SUITE 300
ANNAPOLIS, MD 21401
PHONE: 301-266-9887

02 April 1990

Mr. V. A. Pizzitola
Wadsworth/Alert Laboratories, Inc.,
450 William Pitt Way
Pittsburgh, PA 15238

Dear Mr. Pizzitola,

Our office has been unable to reach you by telephone, and we are currently waiting for a reply on three cases, one of which (13232) has been prioritized by the EPA Region III CRL DPO as most urgent.

The three cases mentioned above, and the data reviewer requesting information, and the major questions to be addressed follow:

Case 13232 - Doug McInnes

1) Sample CAY07 - 3,3'-dichlorobenzidine was reported as a positive result on the Form I, but was not found on the quantitation sheet for this sample.

2) Please identify the pesticide/PCB standard or standards against which the DBC surrogate recoveries were quantitated, and please note the concentrations of DBC added to the water and soil samples, respectively.

Case 13191 - Mahboobeh Mecanic

1) The dilution factor for the pesticide/PCB analysis of sample CZ010 should be 21X, not 22X as noted on the Form I.

2) Same as Item 2 above...

3) The narrative states that two internal standard recoveries were out-of-control for sample CZ012, yet only one internal standard recovery does not meet the criteria on the Form VIII's.

4) There were several other minor concerns for this case, noted on the CLP telephone log dated 03/14/90. A copy of this telephone log was sent to you by regular mail during the week of 03/14/90.

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Case 13149 - Marsha Burrell

1) The percent moisture values for sample CZ418 do not match for the semivolatile and pesticide/PCB analyses.

2) The pesticide/PCB analyses of sample CZ415 are not consistent for the compound alpha-BHC. For the original sample analysis, the compound is dismissed as an interference, but has been quantitated during the matrix spike and matrix spike duplicate analyses.

Please call me as soon as you can at (301) 266-9887 to set dates by which this information can be made available to us. In particular, the Case 13232 information is needed.

I spoke with Chuck Sands and Colleen Walling last week about the need for this information, and they assured me that you and your laboratory have been most responsive in the past. I realize that the CLP workload is heavy at this time, but I need some sort of target dates for completion of these cases to present to the EPA CRL Region III Deputy Project Officer (T. Simpson).

Since I talked with you last, we have installed a FAX machine in our office. Please reply by FAX if that is more convenient. The telephone number for our FAX machine is (301) 266-1624.

Sincerely,

Douglas J. McInnes
Senior Scientist

DJM
04/02/90

cc: R. Dresser
T. Simpson
File

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
CENTRAL REGIONAL LABORATORY
839 BESTGATE ROAD
ANNAPOLIS, MARYLAND 21401
(301) 266-9180

DATE :

SUBJECT: Region III CLP Data QA Review

FROM : Patricia J. Krantz, Chief
Region III Quality Assurance Branch (3ES23)

TO : Quality Assurance Officer
Analytical Operations Branch (OS230)

Attached is a Region III CLP Data Review done by reviewers under the ESAT contract.

Case Number: 13149

Sitename: Standard Chlorine

Laboratory: Wadsworth / Alert

Reviewer: Marsha Burrell

Attachment:

cc: EPA Site Regional Project Manager
Edward Kantor, EMSL-LV
Regional CLP TPO: Charles Sands Region: III

revised 04/90

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Appendix A

Glossary of Data Qualifiers

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GLOSSARY OF DATA QUALIFIER CODES (ORGANIC)

CODES RELATING TO IDENTIFICATION
(confidence concerning presence or absence of compounds)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

NO CODE = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

N = Tenative identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.

CODES RELATED TO QUANTITATION
(can be used for both positive results and sample quantitation limits):

J = Analyte present. Reported value may not be accurate or precise.

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

UL = Not detected, quantitation limit is probably higher.

OTHER CODES

Q = No analytical result.

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Appendix B

Data Summary Forms

DATA SUMMARY FORM: VOLATILES 1

Site Name: Standard Chlorine

Case #: 13149 Sampling Date(s): 11-17, 21-87

WATER SAMPLES
(ug/L)

To calculate sample quantitation limit:
(CRQL * Dilution Factor)

	Sample No.	C2430		C2431																	
	Dilution Factor	1.0		1.0																	
	Location																				
CRQL	COMPOUND	Trip Blank		Trip Blank																	
10	Chloromethane																				
10	Bromomethane																				
10	*Vinyl Chloride																				
10	Chloroethane																				
5	*Methylene Chloride		UJ		UJ																
10	Acetone		UJ		UJ																
5	Carbon Disulfide																				
5	*1,1-Dichloroethene																				
5	1,1-Dichloroethane																				
5	*Total-1,2-Dichloroethene																				
5	Chloroform																				
5	*1,2-Dichloroethane																				
10	*2-Butanone		R		R																
5	*1,1,1-Trichloroethane																				
5	*Carbon Tetrachloride																				
10	Vinyl Acetate																				
5	Bromodichloromethane																				

CRDL = Contract Required Detection Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

AR300899

DATA SUMMARY FORM: V O L A T I L E S 2

WATER SAMPLES
(ug/L)

Site Name: Standard Chlorine

Case #: 13149 Sampling Date(s): 11-17,21-89

To calculate sample quantitation limit:
(CRQL * Dilution Factor)

	Sample No.	[illegible]	C2431
	Dilution Factor	[illegible]	1.0
	Location	[illegible]	

QL	COMPOUND	Trip Blank		Trip Blank	
	*1,2-Dichloropropane				
	Cis-1,3-Dichloropropene				
	Trichloroethene				
	Dibromochloromethane				
	1,1,2-Trichloroethane				
	*Benzene				UL
	Trans-1,3-Dichloropropene				
	Bromoform				
10	4-Methyl-2-pentanone				
10	2-Hexanone		UJ		UJ
	*Tetrachloroethene				
	1,1,2,2-Tetrachloroethane				
	*Toluene				UL
	*Chlorobenzene				UL
	*Ethylbenzene				UL
	*Styrene				UL
	*Total Xylenes				UL

CRQL = Con[illegible] Required Detection Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

AR300900

DATA SUMMARY FORM: VOLATILES 1

Site Name: Standard Chlorine

Case #: 13149 Sampling Date(s): 11-17,21-89

SOIL SAMPLES (ug/Kg)

To calculate sample quantitation limit: (CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	C2415		C2416		C2417		C2418											
	Dilution Factor	250		125		1.0		1.0											
	% Moisture	34		14		20		11											
	Location	SP-1		SD-2		SD-3		SD-4											
		Med level		Med Level		Low level		low level											
CRQL	COMPOUND																		
10	Chloromethane		UL		UL														
10	Bromomethane		↓		↓														
10	Vinyl Chloride		↓		↓														
10	Chloroethane		↓		↓														
5	Methylene Chloride	780	B	430	B	25	B	23	B										
10	Acetone		UL		UL		UJ		UJ										
5	Carbon Disulfide		↓		↓														
5	1,1-Dichloroethene		↓		↓														
5	1,1-Dichloroethane		UJ		UJ														
5	Total-1,2-Dichloroethene		UL		UL														
5	Chloroform		↓		↓														
5	1,2-Dichloroethane		↓		↓														
10	2-Butanone		R		R		R		R										
5	1,1,1-Trichloroethane		UL		UL														
5	Carbon Tetrachloride		↓		↓														
10	Vinyl Acetate		↓		↓														
5	Bromodichloromethane		↓		↓														

CRQL = Contract Required Detection Limit

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

R300901

DATA SUMMARY FORM: V O L A T I L E S 2

Site Name: Standard Chlorine

SOIL SAMPLES (ug/Kg)

Case #: 13149 Sampling Date(s): 11-17,21-87

To calculate sample quantitation limit: (CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	[illegible]		CZ416		CZ417		CZ418											
	Dilution Factor	[illegible]		125		1.0		1.0											
	% Moisture	[illegible]		14		20		11											
	Location	SP-1		SD-2		SD-3		SD-4											
		Med Level		Med level		Low level		Low level											
CRQL	COMPOUND																		
5	1,2-Dichloropropane		UL		UL														
5	Cis-1,3-Dichloropropene																		
5	Trichloroethene																		
5	Dibromochloromethane																		
5	1,1,2-Trichloroethane																		
5	Benzene	6300	L																
5	Trans-1,3-Dichloropropene		UL																
5	Bromoform																		
10	4-Methyl-2-pentanone																		
10	2-Hexanone		UJ		UJ														
5	Tetrachloroethene		UL		UL														
5	1,1,2,2-Tetrachloroethane																		
5	Toluene		UL			5	J	5	J										
5	Chlorobenzene	65000	L																
5	Ethylbenzene		UL																
5	Styrene		UL																
5	Total Xylenes		UL																

CRQL = Con[illegible] Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

300902

DATA SUMMARY FORM: B N A S 1

Site Name: Standard Chlorine

Case #: 13149 Sampling Date(s): 11-17,21-89

SOIL SAMPLES (ug/Kg)

To calculate sample quantitation limit: (CRQL * Dilution Factor) / ((100 - % moisture)/100)

AR300903

	Sample No.	CZ415		CZ416		CZ417		CZ418	
	Dilution Factor	2.0		2.0		2.0		2.0	
	% Moisture	24		14		20		11	
	Location	SD-1		SD-2		SD-3		SD-4	
CRQL	COMPOUND								
330	Phenol		UJ		UJ		UJ		UJ
330	bis(2-Chloroethyl)ether								
330	2-Chlorophenol								
330	1,3-Dichlorobenzene								
330	1,4-Dichlorobenzene	13000	J	11000	J	270	J	140	J
330	Benzyl Alcohol		UJ		UJ		UJ		UJ
330	1,2-Dichlorobenzene								
330	2-Methylphenol								
330	bis(2-Chloroisopropyl)ether								
330	4-Methylphenol								
330	N-Nitroso-di-n-propylamine								
330	Hexachloroethane								
330	Nitrobenzene								
330	Isophorone								
330	2-Nitrophenol								
330	2,4-Dimethylphenol								
1600	Benzoic Acid			130	J				
330	bis(2-Chl[illegible]ethoxy)methane				UJ				
330	2,4-Dic[illegible]henol				UJ				
330	1,2,4-Tr[illegible]benzene	580	J	170	J				
330	Naphth[illegible]		UJ		UJ				
330	4-Chlo[illegible]e		UJ		UJ				

CRQL = C[illegible]act Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: B N A S 2

Site Name: Standard Chemical

SOIL SAMPLES (ug/Kg)

Case #: 13149 Sampling Date(s): 11-17,21 89

To calculate sample quantitation limit: (CRQL * Dilution Factor) / ((100 - % moisture)/100)

CRQL	COMPOUND	C2415		C2416		C2417		C2418	
	Sample No.	C2415		C2416		C2417		C2418	
	Dilution Factor	2.0		2.0		2.0		2.0	
	% Moisture	14		14		20		11	
	Location	SD-1		SD-2		SD-3		SD-4	
330	Hexachlorobutadiene		UJ		UJ		UJ		UJ
330	4-Chloro-3-methylphenol			100	J				
330	2-Methylnaphthalene				UJ				
330	Hexachlorocyclopentadiene								
330	2,4,6-Trichlorophenol								
1600	2,4,5-Trichlorophenol								
330	2-Chloronaphthalene								
1600	2-Nitroaniline								
330	Dimethylphthalate								
330	Acenaphthylene								
330	2,6-Dinitrotoluene								
1600	3-Nitroaniline								
330	Acenaphthene								
1600	2,4-Dinitrophenol								
1600	4-Nitrophenol								
330	Dibenz[illegible]								
330	2,4-Din[illegible]ene								
330	Diethyl[illegible]ate								
330	4-Chlor[illegible]yl phenylether								
330	Fluorer[illegible]								
1600	4-Nitro[illegible]								
1600	4,6-Din[illegible]methylphenol								

CRQL = ([illegible]act Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

AR300984

DATA SUMMARY FORM: B N A S 3

Site Name: Standard Chlorine

Case #: 13149 Sampling Date(s): 11-17, 21-89

SOIL SAMPLES (ug/Kg)

To calculate sample quantitation limit: (CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	[illegible]15	CZ416	CZ417	CZ418
	Dilution Factor	[illegible]	2.0	2.0	2.0
	% Moisture	[illegible]	14	20	11
	Location	SP-1	SD-2	SD-3	SD-4
CRQL	COMPOUND				
330	N-Nitrosodiphenylamine	UJ	UJ	UJ	UJ
330	4-Bromophenyl-phenylether				
330	Hexachlorobenzene				
1600	Pentachlorophenol				
330	Phenanthrene				
330	Anthracene				
330	Di-n-butylphthalate		150 J	99 J	84 J
330	Fluoranthene		UJ	UJ	UJ
330	Pyrene				
330	Butylbenzylphthalate				
1600	3,3-Dichlorobenzidine				
330	Benzo(a)anthracene				
330	Chrysene				
330	bis(2-Ethylhexyl)phthalate				
330	Di-n-octy[illegible]ilate				
330	Benzo(b[illegible]nthene				
330	Benzo(k[illegible]nthene				
330	Benzo(a[illegible]e				
330	Indeno([illegible]d)pyrene				
330	Dibenz(a[illegible]hracene				
330	Benzo(g[illegible]rylene				

CRQL = C[illegible]ct Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

BAR30905

DATA SUMMARY FORM: PESTICIDES AND PCBS

Site Name: Standard Chlorine

SOIL SAMPLES (ug/Kg)

Case #: 13149 Sampling Date(s): 11-17,21-89

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

	Sample No.	C2415	C2416	C2417	C2418					
	Dilution Factor	2.0	2.0	2.0	2.0					
	% Moisture	24	14	20	11					
	Location	SD-1	SD-2	SD-3	SD-4					
CRQL	COMPOUND									
8	alpha-BHC									
8	beta-BHC									
8	delta-BHC									
8	Gamma-BHC (Lindane)									
8	Heptachlor									
8	Aldrin									
8	Heptachlor Epoxide									
8	Endosulfan I									
16	Dieldrin									
16	4,4'-DDE									
16	Endrin									
16	Endosulfan II									
16	4,4'-DDD									
16	Endosulfan Sulfate									
16	4,4'-DDT									
80	Methoxychlor									
16	Endrin ke									
80	Alpha-Chl									
80	Gamma-Cl									
160	Toxaphen									
80	Aroclor-10									
80	Aroclor-12									
80	Aroclor-12									
80	Aroclor-12									
80	Aroclor-12									
160	Aroclor-12									
160	Aroclor-1260									

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

Revised 12/88

AR 300906

WESTON SM

Appendix C

Results as Reported by the Laboratory
for all Target Compounds

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CZ41S

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0877

Sample wt/vol: 4.0 (g/mL) G Lab File ID: C2611

Level: (low/med) MED Date Received: 11/18/89

% Moisture: not dec. 24. Date Analyzed: 12/12/89

Column: (pack/cap) PACK Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	3300.	U
74-83-9	Bromomethane	3300.	U
75-01-4	Vinyl Chloride	3300.	U
75-00-3	Chloroethane	3300.	U
75-09-2	Methylene Chloride	780.	BJ
67-64-1	Acetone	3300.	U
75-15-0	Carbon Disulfide	1600.	U
75-35-4	1,1-Dichloroethene	1600.	U
75-34-3	1,1-Dichloroethane	1600.	U
540-59-0	1,2-Dichloroethene (total)	1600.	U
67-66-3	Chloroform	1600.	U
107-06-2	1,2-Dichloroethane	1600.	U
78-93-3	2-Butanone	3300.	U
71-55-6	1,1,1-Trichloroethane	1600.	U
56-23-5	Carbon Tetrachloride	1600.	U
108-05-4	Vinyl Acetate	3300.	U
75-27-4	Bromodichloromethane	1600.	U
78-87-5	1,2-Dichloropropane	1600.	U
10061-01-5	cis-1,3-Dichloropropene	1600.	U
79-01-6	Trichloroethene	1600.	U
124-48-1	Dibromochloromethane	1600.	U
79-00-5	1,1,2-Trichloroethane	1600.	U
71-43-2	Benzene	6300.	
10061-02-6	trans-1,3-Dichloropropene	1600.	U
75-25-2	Bromoform	1600.	U
108-10-1	4-Methyl-2-Pentanone	3300.	U
591-78-6	2-Hexanone	3300.	U
127-18-4	Tetrachloroethene	[illegible]	[illegible]
79-34-5	1,1,2,2-Tetrachloroethane		
108-88-3	Toluene		
108-90-7	Chlorobenzene	65000.	
100-41-4	Ethylbenzene	1600.	U
100-42-5	Styrene	1600.	U
1330-20-7	Xylenes (total)	1600.	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CZ415

Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0877

Sample wt/vol: 30.2 (g/mL) G Lab File ID: B2660

Level: (low/med) LOW Date Received: 11/18/89

% Moisture: not dec. 24. dec. 0. Date Extracted: 11/28/89

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/19/89

GPC Cleanup: (Y/N) Y pH: 5.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	860.	U
111-44-4	bis(2-Chloroethyl)ether	860.	U
95-57-8	2-Chlorophenol	860.	U
541-73-1	1,3-Dichlorobenzene	860.	U
106-46-7	1,4-Dichlorobenzene	12000.	
100-51-6	Benzyl Alcohol	860.	U
95-50-1	1,2-Dichlorobenzene	860.	U
95-48-7	2-Methylphenol	860.	U
108-60-1	bis(2-Chloroisopropyl)Ether	860.	U
106-44-5	4-Methylphenol	860.	U
621-64-7	N-Nitroso-di-n-propylamine	860.	U
67-72-1	Hexachloroethane	860.	U
98-95-3	Nitrobenzene	860.	U
78-59-1	Isophorone	860.	U
88-75-5	2-Nitrophenol	860.	U
105-67-9	2,4-Dimethylphenol	860.	U
65-85-0	Benzoic Acid	4200.	U
111-91-1	bis(2-Chloroethoxy)Methane	860.	U
120-83-2	2,4-Dichlorophenol	860.	U
120-82-1	1,2,4-Trichlorobenzene	580.	J
91-20-3	Naphthalene	860.	U
106-47-8	4-Chloroaniline	860.	U
87-68-3	Hexachlorobutadiene	860.	U
59-50-7	4-Chloro-3-Methylphenol	860.	U
91-57-6	2-Methylnaphthalene	860.	U
77-47-4	Hexachlorocyclopentadiene	860.	U
88-06-2	2,4,6-Trichlorophenol	860.	U
95-95-4	2,4,5-Trichlorophenol	4200.	U
91-58-7	2-Chloronaphthalene	860.	U
88-74-4	2-Nitroaniline	4200.	U
131-11-3	Dimethylphthalate	[illegible]	
208-96-8	Acenaphthylene	[illegible]	
606-20-2	2,6-Dinitrotoluene	860.	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CZ415

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0877

Sample wt/vol: 30.2 (g/mL) G Lab File ID: B2660

Level: (low/med) LOW Date Received: 11/18/89

% Moisture: not dec. 24. dec. 0. Date Extracted: 11/28/89

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/19/89

GPC Cleanup: (Y/N) Y pH: 5.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	4200.	U
83-32-9	Acenaphthene	860.	U
51-28-5	2,4-Dinitrophenol	4200.	U
100-02-7	4-Nitrophenol	4200.	U
132-64-9	Dibenzofuran	860.	U
121-14-2	2,4-Dinitrotoluene	860.	U
84-66-2	Diethylphthalate	860.	U
7005-72-3	4-Chlorophenyl-phenylether	860.	U
86-73-7	Fluorene	860.	U
100-01-6	4-Nitroaniline	4200.	U
534-52-1	4,6-Dinitro-2-Methylphenol	4200.	U
86-30-6	N-Nitrosodiphenylamine (1)	860.	U
101-55-3	4-Bromophenyl-phenylether	860.	U
118-74-1	Hexachlorobenzene	860.	U
87-86-5	Pentachlorophenol	4200.	U
85-01-8	Phenanthrene	860.	U
120-12-7	Anthracene	860.	U
84-74-2	Di-n-butylphthalate	860.	U
206-44-0	Fluoranthene	860.	U
129-00-0	Pyrene	860.	U
85-68-7	Butylbenzylphthalate	860.	U
91-94-1	3,3'-Dichlorobenzidine	1700.	U
56-55-3	Benzo(a)anthracene	860.	U
218-01-9	Chrysene	860.	U
117-81-7	bis(2-Ethylhexyl)phthalate	860.	U
117-84-0	Di-n-octylphthalate	860.	U
205-99-2	Benzo(b)fluoranthene	860.	U
207-08-9	Benzo(k)fluoranthene	860.	U
50-32-8	Benzo(a)pyrene	[illegible]	
193-39-5	Indeno(1,2,3-cd)pyrene	[illegible]	
53-70-3	Dibenz(a,h)anthracene	860.	U
191-24-2	Benzo(g,h,i)perylene	860.	U

(1) - Cannot be separated from diphenylamine

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CZ415

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0877

Sample wt/vol: 30. (g/mL) G Lab File ID: G836

Level: (low/med) LOW Date Received: 11/18/89

% Moisture: not dec. 24. dec. 0. Date Extracted: 11/28/89

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/19/89

GPC Cleanup: (Y/N) Y pH: 5.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	21.	U
319-85-7	beta-BHC	21.	U
319-86-8	delta-BHC	21.	U
58-89-9	gamma-BHC (Lindane)	21.	U
76-44-8	Heptachlor	21.	U
309-00-2	Aldrin	21.	U
1024-57-3	Heptachlor epoxide	21.	U
959-98-8	Endosulfan I	21.	U
60-57-1	Dieldrin	42.	U
72-55-9	4,4'-DDE	42.	U
72-20-8	Endrin	42.	U
33213-65-9	Endosulfan II	42.	U
72-54-8	4,4'-DDD	42.	U
1031-07-8	Endosulfan sulfate	42.	U
50-29-3	4,4'-DDT	42.	U
72-43-5	Methoxychlor	210.	U
53494-70-5	Endrin ketone	42.	U
5103-71-9	alpha-Chlordane	210.	U
5103-74-2	gamma-Chlordane	210.	U
8001-35-2	Toxaphene	420.	U
12674-11-2	Aroclor-1016	210.	U
11104-28-2	Aroclor-1221	210.	U
11141-16-5	Aroclor-1232	210.	U
53469-21-9	Aroclor-1242	210.	U
12672-29-6	Aroclor-1248	210.	U
11097-69-1	Aroclor-1254	420.	U
11096-82-5	Aroclor-1260	420.	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CZ416

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0879

Sample wt/vol: 3.9 (g/mL) G Lab File ID: C2609

Level: (low/med) MED Date Received: 11/22/89

% Moisture: not dec. 14. Date Analyzed: 12/12/89

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1500.	U
74-83-9	Bromomethane	1500.	U
75-01-4	Vinyl Chloride	1500.	U
75-00-3	Chloroethane	1500.	U
75-09-2	Methylene Chloride	430.	BJ
67-64-1	Acetone	1500.	U
75-15-0	Carbon Disulfide	750.	U
75-35-4	1,1-Dichloroethene	750.	U
75-34-3	1,1-Dichloroethane	750.	U
540-59-0	1,2-Dichloroethene (total)	750.	U
67-66-3	Chloroform	750.	U
107-06-2	1,2-Dichloroethane	750.	U
78-93-3	2-Butanone	1500.	U
71-55-6	1,1,1-Trichloroethane	750.	U
56-23-5	Carbon Tetrachloride	750.	U
108-05-4	Vinyl Acetate	1500.	U
75-27-4	Bromodichloromethane	750.	U
78-87-5	1,2-Dichloropropane	750.	U
10061-01-5	cis-1,3-Dichloropropene	750.	U
79-01-6	Trichloroethene	750.	U
124-48-1	Dibromochloromethane	750.	U
79-00-5	1,1,2-Trichloroethane	750.	U
71-43-2	Benzene	750.	U
10061-02-6	trans-1,3-Dichloropropene	750.	U
75-25-2	Bromoform	750.	U
108-10-1	4-Methyl-2-Pentanone	1500.	U
591-78-6	2-Hexanone	1500.	U
127-18-4	Tetrachloroethene	750.	U
79-34-5	1,1,2,2-Tetrachloroethane	750.	U
108-88-3	Toluene		
108-90-7	Chlorobenzene		
100-41-4	Ethylbenzene		
100-42-5	Styrene	750.	U
1330-20-7	Xylenes (total)	750.	U

AR300912

AR 300912

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CZ416

Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0879

Sample wt/vol: 30.2 (g/mL) G Lab File ID: B2669

Level: (low/med) LOW Date Received: 11/22/89

% Moisture: not dec. 14. dec. 0. Date Extracted: 11/29/89

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/20/89

GPC Cleanup: (Y/N) Y pH: 5.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	760.	U
111-44-4	bis(2-Chloroethyl)ether	760.	U
95-57-8	2-Chlorophenol	760.	U
541-73-1	1,3-Dichlorobenzene	760.	U
106-46-7	1,4-Dichlorobenzene	11000.	
100-51-6	Benzyl Alcohol	760.	U
95-50-1	1,2-Dichlorobenzene	760.	U
95-48-7	2-Methylphenol	760.	U
108-60-1	bis(2-Chloroisopropyl)Ether	760.	U
106-44-5	4-Methylphenol	760.	U
621-64-7	N-Nitroso-di-n-propylamine	760.	U
67-72-1	Hexachloroethane	760.	U
98-95-3	Nitrobenzene	760.	U
78-59-1	Isophorone	760.	U
88-75-5	2-Nitrophenol	760.	U
105-67-9	2,4-Dimethylphenol	760.	U
65-85-0	Benzoic Acid	130.	J
111-91-1	bis(2-Chloroethoxy)Methane	760.	U
120-83-2	2,4-Dichlorophenol	760.	U
120-82-1	1,2,4-Trichlorobenzene	170.	J
91-20-3	Naphthalene	760.	U
106-47-8	4-Chloroaniline	760.	U
87-68-3	Hexachlorobutadiene	760.	U
59-50-7	4-Chloro-3-Methylphenol	100.	J
91-57-6	2-Methylnaphthalene	760.	U
77-47-4	Hexachlorocyclopentadiene	760.	U
88-06-2	2,4,6-Trichlorophenol	760.	U
95-95-4	2,4,5-Trichlorophenol	3700.	U
91-58-7	2-Chloronaphthalene	760.	U
88-74-4	2-Nitroaniline	3700	
131-11-3	Dimethylphthalate	760	
208-96-8	Acenaphthylene	760	
606-20-2	2,6-Dinitrotoluene	760.	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CZ416

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0879

Sample wt/vol: 30.2 (g/mL) G Lab File ID: B2669

Level: (low/med) LOW Date Received: 11/22/89

% Moisture: not dec. 14. dec. 0. Date Extracted: 11/29/89

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/20/89

GPC Cleanup: (Y/N) Y pH: 5.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	3700.	U
83-32-9	Acenaphthene	760.	U
51-28-5	2,4-Dinitrophenol	3700.	U
100-02-7	4-Nitrophenol	3700.	U
132-64-9	Dibenzofuran	760.	U
121-14-2	2,4-Dinitrotoluene	760.	U
84-66-2	Diethylphthalate	760.	U
7005-72-3	4-Chlorophenyl-phenylether	760.	U
86-73-7	Fluorene	760.	U
100-01-6	4-Nitroaniline	3700.	U
534-52-1	4,6-Dinitro-2-Methylphenol	3700.	U
86-30-6	N-Nitrosodiphenylamine (1)	760.	U
101-55-3	4-Bromophenyl-phenylether	760.	U
118-74-1	Hexachlorobenzene	760.	U
87-86-5	Pentachlorophenol	3700.	U
85-01-8	Phenanthrene	760.	U
120-12-7	Anthracene	760.	U
84-74-2	Di-n-butylphthalate	150.	J
206-44-0	Fluoranthene	760.	U
129-00-0	Pyrene	760.	U
85-68-7	Butylbenzylphthalate	760.	U
91-94-1	3,3'-Dichlorobenzidine	1500.	U
56-55-3	Benzo(a)anthracene	760.	U
218-01-9	Chrysene	760.	U
117-81-7	bis(2-Ethylhexyl)phthalate	760.	U
117-84-0	Di-n-octylphthalate	760.	U
205-99-2	Benzo(b)fluoranthene	760.	U
207-08-9	Benzo(k)fluoranthene	760.	U
50-32-8	Benzo(a)pyrene	760.	U
193-39-5	Indeno(1,2,3-cd)pyrene		
53-70-3	Dibenz(a,h)anthracene		
191-24-2	Benzo(g,h,i)perylene	760.	U

(1) - Cannot be separated from diphenylamine

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CZ416

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0879

Sample wt/vol: 30. (g/mL) G Lab File ID: G841

Level: (low/med) LOW Date Received: 11/22/89

% Moisture: not dec. 14. dec. 0. Date Extracted: 11/28/89

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/19/89

GPC Cleanup: (Y/N) Y pH: 5.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	19.	U
319-85-7	beta-BHC	19.	U
319-86-8	delta-BHC	19.	U
58-89-9	gamma-BHC (Lindane)	19.	U
76-44-8	Heptachlor	19.	U
309-00-2	Aldrin	19.	U
1024-57-3	Heptachlor epoxide	19.	U
959-98-8	Endosulfan I	19.	U
60-57-1	Dieldrin	37.	U
72-55-9	4,4'-DDE	37.	U
72-20-8	Endrin	37.	U
33213-65-9	Endosulfan II	37.	U
72-54-8	4,4'-DDD	37.	U
1031-07-8	Endosulfan sulfate	37.	U
50-29-3	4,4'-DDT	37.	U
72-43-5	Methoxychlor	190.	U
53494-70-5	Endrin ketone	37.	U
5103-71-9	alpha-Chlordane	190.	U
5103-74-2	gamma-Chlordane	190.	U
8001-35-2	Toxaphene	370.	U
12674-11-2	Aroclor-1016	190.	U
11104-28-2	Aroclor-1221	190.	U
11141-16-5	Aroclor-1232	190.	U
53469-21-9	Aroclor-1242	190.	U
12672-29-6	Aroclor-1248	190.	U
11097-69-1	Aroclor-1254	370.	U
11096-82-5	Aroclor-1260	370.	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CZ417

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0880

Sample wt/vol: 4.8 (g/mL) G Lab File ID: C2503

Level: (low/med) LOW Date Received: 11/22/89

% Moisture: not dec. 20. Date Analyzed: 11/28/89

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13.	U
74-83-9	Bromomethane	13.	U
75-01-4	Vinyl Chloride	13.	U
75-00-3	Chloroethane	13.	U
75-09-2	Methylene Chloride	25.	B
67-64-1	Acetone	13.	U
75-15-0	Carbon Disulfide	7.	U
75-35-4	1,1-Dichloroethene	7.	U
75-34-3	1,1-Dichloroethane	7.	U
540-59-0	1,2-Dichloroethene (total)	7.	U
67-66-3	Chloroform	7.	U
107-06-2	1,2-Dichloroethane	7.	U
78-93-3	2-Butanone	13.	U
71-55-6	1,1,1-Trichloroethane	7.	U
56-23-5	Carbon Tetrachloride	7.	U
108-05-4	Vinyl Acetate	13.	U
75-27-4	Bromodichloromethane	7.	U
78-87-5	1,2-Dichloropropane	7.	U
10061-01-5	cis-1,3-Dichloropropene	7.	U
79-01-6	Trichloroethene	7.	U
124-48-1	Dibromochloromethane	7.	U
79-00-5	1,1,2-Trichloroethane	7.	U
71-43-2	Benzene	7.	U
10061-02-6	trans-1,3-Dichloropropene	7.	U
75-25-2	Bromoform	7.	U
108-10-1	4-Methyl-2-Pentanone	13.	U
591-78-6	2-Hexanone	13.	U
127-18-4	Tetrachloroethene	7.	U
79-34-5	1,1,2,2-Tetrachloroethane	7.	U
108-88-3	Toluene		
108-90-7	Chlorobenzene		
100-41-4	Ethylbenzene		U
100-42-5	Styrene	7.	U
1330-20-7	Xylenes (total)	7.	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CZ417

Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0880

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B2674

Level: (low/med) LOW Date Received: 11/22/89

% Moisture: not dec. 20. dec. 0. Date Extracted: 11/29/89

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/20/89

GPC Cleanup: (Y/N) Y pH: 5.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	830.	U
111-44-4	bis(2-Chloroethyl)ether	830.	U
95-57-8	2-Chlorophenol	830.	U
541-73-1	1,3-Dichlorobenzene	830.	U
106-46-7	1,4-Dichlorobenzene	270.	J
100-51-6	Benzyl Alcohol	830.	U
95-50-1	1,2-Dichlorobenzene	830.	U
95-48-7	2-Methylphenol	830.	U
108-60-1	bis(2-Chloroisopropyl)Ether	830.	U
106-44-5	4-Methylphenol	830.	U
621-64-7	N-Nitroso-di-n-propylamine	830.	U
67-72-1	Hexachloroethane	830.	U
98-95-3	Nitrobenzene	830.	U
78-59-1	Isophorone	830.	U
88-75-5	2-Nitrophenol	830.	U
105-67-9	2,4-Dimethylphenol	830.	U
65-85-0	Benzoic Acid	4000.	U
111-91-1	bis(2-Chloroethoxy)Methane	830.	U
120-83-2	2,4-Dichlorophenol	830.	U
120-82-1	1,2,4-Trichlorobenzene	830.	U
91-20-3	Naphthalene	830.	U
106-47-8	4-Chloroaniline	830.	U
87-68-3	Hexachlorobutadiene	830.	U
59-50-7	4-Chloro-3-Methylphenol	830.	U
91-57-6	2-Methylnaphthalene	830.	U
77-47-4	Hexachlorocyclopentadiene	830.	U
88-06-2	2,4,6-Trichlorophenol	830.	U
95-95-4	2,4,5-Trichlorophenol	4000.	U
91-58-7	2-Chloronaphthalene	830.	U
88-74-4	2-Nitroaniline	4[illegible]	
131-11-3	Dimethylphthalate	[illegible]	
208-96-8	Acenaphthylene	[illegible]	U
606-20-2	2,6-Dinitrotoluene	830.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CZ417

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0880

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B2674

Level: (low/med) LOW Date Received: 11/22/89

% Moisture: not dec. 20. dec. 0. Date Extracted: 11/29/89

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/20/89

GPC Cleanup: (Y/N) Y pH: 5.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	4000.	U
83-32-9	Acenaphthene	830.	U
51-28-5	2,4-Dinitrophenol	4000.	U
100-02-7	4-Nitrophenol	4000.	U
132-64-9	Dibenzofuran	830.	U
121-14-2	2,4-Dinitrotoluene	830.	U
84-66-2	Diethylphthalate	830.	U
7005-72-3	4-Chlorophenyl-phenylether	830.	U
86-73-7	Fluorene	830.	U
100-01-6	4-Nitroaniline	4000.	U
534-52-1	4,6-Dinitro-2-Methylphenol	4000.	U
86-30-6	N-Nitrosodiphenylamine (1)	830.	U
101-55-3	4-Bromophenyl-phenylether	830.	U
118-74-1	Hexachlorobenzene	830.	U
87-86-5	Pentachlorophenol	4000.	U
85-01-8	Phenanthrene	830.	U
120-12-7	Anthracene	830.	U
84-74-2	Di-n-butylphthalate	99.	J
206-44-0	Fluoranthene	830.	U
129-00-0	Pyrene	830.	U
85-68-7	Butylbenzylphthalate	830.	U
91-94-1	3,3'-Dichlorobenzidine	1700.	U
56-55-3	Benzo(a)anthracene	830.	U
218-01-9	Chrysene	830.	U
117-81-7	bis(2-Ethylhexyl)phthalate	830.	U
117-84-0	Di-n-octylphthalate	830.	U
205-99-2	Benzo(b)fluoranthene	830.	U
207-08-9	Benzo(k)fluoranthene	830.	U
50-32-8	Benzo(a)pyrene		
193-39-5	Indeno(1,2,3-cd)pyrene		
53-70-3	Dibenz(a,h)anthracene	830.	U
191-24-2	Benzo(g,h,i)perylene	830.	U

(1) - Cannot be separated from diphenylamine

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CZ417

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0880

Sample wt/vol: 30. (g/mL) G Lab File ID: G842

Level: (low/med) LOW Date Received: 11/22/89

% Moisture: not dec. 20. dec. 0. Date Extracted: 11/28/89

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/19/89

GPC Cleanup: (Y/N) Y pH: 5.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	20.	U
319-85-7	beta-BHC	20.	U
319-86-8	delta-BHC	20.	U
58-89-9	gamma-BHC (Lindane)	20.	U
76-44-8	Heptachlor	20.	U
309-00-2	Aldrin	20.	U
1024-57-3	Heptachlor epoxide	20.	U
959-98-8	Endosulfan I	20.	U
60-57-1	Dieldrin	40.	U
72-55-9	4,4'-DDE	40.	U
72-20-8	Endrin	40.	U
33213-65-9	Endosulfan II	40.	U
72-54-8	4,4'-DDD	40.	U
1031-07-8	Endosulfan sulfate	40.	U
50-29-3	4,4'-DDT	40.	U
72-43-5	Methoxychlor	200.	U
53494-70-5	Endrin ketone	40.	U
5103-71-9	alpha-Chlordane	200.	U
5103-74-2	gamma-Chlordane	200.	U
8001-35-2	Toxaphene	400.	U
12674-11-2	Aroclor-1016	200.	U
11104-28-2	Aroclor-1221	200.	U
11141-16-5	Aroclor-1232	200.	U
53469-21-9	Aroclor-1242	200.	U
12672-29-6	Aroclor-1248	200.	U
11097-69-1	Aroclor-1254	400.	U
11096-82-5	Aroclor-1260	400.	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CZ418

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0881

Sample wt/vol: 4.7 (g/mL) G Lab File ID: C2504

Level: (low/med) LOW Date Received: 11/22/89

% Moisture: not dec. ~~20.~~ 11 4-9-90 Date Analyzed: 11/28/89

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q
74-87-3	Chloromethane	12	~~13.~~	U
74-83-9	Bromomethane	12	~~13.~~	U
75-01-4	Vinyl Chloride	12	~~13.~~	U
75-00-3	Chloroethane	12	~~13.~~	U
75-09-2	Methylene Chloride	23	~~26.~~	B
67-64-1	Acetone	12	~~13.~~	U
75-15-0	Carbon Disulfide	6	~~7.~~	U
75-35-4	1,1-Dichloroethene	6	~~7.~~	U
75-34-3	1,1-Dichloroethane	6	~~7.~~	U
540-59-0	1,2-Dichloroethene (total)	6	~~7.~~	U
67-66-3	Chloroform	6	~~7.~~	U
107-06-2	1,2-Dichloroethane		~~7.~~	U
78-93-3	2-Butanone	12	~~13.~~	U
71-55-6	1,1,1-Trichloroethane	6	~~7.~~	U
56-23-5	Carbon Tetrachloride	6	~~7.~~	U
108-05-4	Vinyl Acetate	12	~~13.~~	U
75-27-4	Bromodichloromethane	6	~~7.~~	U
78-87-5	1,2-Dichloropropane	6	~~7.~~	U
10061-01-5	cis-1,3-Dichloropropene	6	~~7.~~	U
79-01-6	Trichloroethene	6	~~7.~~	U
124-48-1	Dibromochloromethane	6	~~7.~~	U
79-00-5	1,1,2-Trichloroethane	6	~~7.~~	U
71-43-2	Benzene	6	~~7.~~	U
10061-02-6	trans-1,3-Dichloropropene	6	~~7.~~	U
75-25-2	Bromoform	6	~~7.~~	U
108-10-1	4-Methyl-2-Pentanone	12	~~13.~~	U
591-78-6	2-Hexanone	12	~~13.~~	U
127-18-4	Tetrachloroethene	6	~~7.~~	U
79-34-5	1,1,2,2-Tetrachloroethane	6	~~7.~~	U
108-88-3	Toluene		5	J
108-90-7	Chlorobenzene			
100-41-4	Ethylbenzene	6		
100-42-5	Styrene	6	~~7.~~	U
1330-20-7	Xylenes (total)	6	~~7.~~	U

4-9-90

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CZ418

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0881

Sample wt/vol: 30.6 (g/mL) G Lab File ID: B2671

Level: (low/med) LOW Date Received: 11/22/89

% Moisture: not dec. 11. dec. 0. Date Extracted: 11/29/89

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/20/89

GPC Cleanup: (Y/N) Y pH: 5.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	730.	U
111-44-4	bis(2-Chloroethyl)ether	730.	U
95-57-8	2-Chlorophenol	730.	U
541-73-1	1,3-Dichlorobenzene	730.	U
106-46-7	1,4-Dichlorobenzene	140.	J
100-51-6	Benzyl Alcohol	730.	U
95-50-1	1,2-Dichlorobenzene	730.	U
95-48-7	2-Methylphenol	730.	U
108-60-1	bis(2-Chloroisopropyl)Ether	730.	U
106-44-5	4-Methylphenol	730.	U
621-64-7	N-Nitroso-di-n-propylamine	730.	U
67-72-1	Hexachloroethane	730.	U
98-95-3	Nitrobenzene	730.	U
78-59-1	Isophorone	730.	U
88-75-5	2-Nitrophenol	730.	U
105-67-9	2,4-Dimethylphenol	730.	U
65-85-0	Benzoic Acid	3600.	U
111-91-1	bis(2-Chloroethoxy)Methane	730.	U
120-83-2	2,4-Dichlorophenol	730.	U
120-82-1	1,2,4-Trichlorobenzene	730.	U
91-20-3	Naphthalene	730.	U
106-47-8	4-Chloroaniline	730.	U
87-68-3	Hexachlorobutadiene	730.	U
59-50-7	4-Chloro-3-Methylphenol	730.	U
91-57-6	2-Methylnaphthalene	730.	U
77-47-4	Hexachlorocyclopentadiene	730.	U
88-06-2	2,4,6-Trichlorophenol	730.	U
95-95-4	2,4,5-Trichlorophenol	3600.	U
91-58-7	2-Chloronaphthalene		
88-74-4	2-Nitroaniline		
131-11-3	Dimethylphthalate	730.	U
208-96-8	Acenaphthylene	730.	U
606-20-2	2,6-Dinitrotoluene	730.	U

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FORM I SV-1

1/87 Rev.

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CZ418

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0881

Sample wt/vol: 30.6 (g/mL) G Lab File ID: B2671

Level: (low/med) LOW Date Received: 11/22/89

% Moisture: not dec. 11. dec. 0. Date Extracted: 11/29/89

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/20/89

GPC Cleanup: (Y/N) Y pH: 5.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	3600.	U
83-32-9	Acenaphthene	730.	U
51-28-5	2,4-Dinitrophenol	3600.	U
100-02-7	4-Nitrophenol	3600.	U
132-64-9	Dibenzofuran	730.	U
121-14-2	2,4-Dinitrotoluene	730.	U
84-66-2	Diethylphthalate	730.	U
7005-72-3	4-Chlorophenyl-phenylether	730.	U
86-73-7	Fluorene	730.	U
100-01-6	4-Nitroaniline	3600.	U
534-52-1	4,6-Dinitro-2-Methylphenol	3600.	U
86-30-6	N-Nitrosodiphenylamine (1)	730.	U
101-55-3	4-Bromophenyl-phenylether	730.	U
118-74-1	Hexachlorobenzene	730.	U
87-86-5	Pentachlorophenol	3600.	U
85-01-8	Phenanthrene	730.	U
120-12-7	Anthracene	730.	U
84-74-2	Di-n-butylphthalate	84.	J
206-44-0	Fluoranthene	730.	U
129-00-0	Pyrene	730.	U
85-68-7	Butylbenzylphthalate	730.	U
91-94-1	3,3'-Dichlorobenzidine	1500.	U
56-55-3	Benzo(a)anthracene	730.	U
218-01-9	Chrysene	730.	U
117-81-7	bis(2-Ethylhexyl)phthalate	730.	U
117-84-0	Di-n-octylphthalate	730.	U
205-99-2	Benzo(b)fluoranthene	730.	U
207-08-9	Benzo(k)fluoranthene	730.	U
50-32-8	Benzo(a)pyrene	730.	U
193-39-5	Indeno(1,2,3-cd)pyrene		
53-70-3	Dibenz(a,h)anthracene		
191-24-2	Benzo(g,h,i)perylene		

(1) - Cannot be separated from diphenylamine

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CZ418

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0881

Sample wt/vol: 30. (g/mL) G Lab File ID: G843

Level: (low/med) LOW Date Received: 11/22/89

% Moisture: not dec. 11. dec. 0. Date Extracted: 11/28/89

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/19/89

GPC Cleanup: (Y/N) Y pH: 5.0 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	18.	U
319-85-7	beta-BHC	18.	U
319-86-8	delta-BHC	18.	U
58-89-9	gamma-BHC (Lindane)	18.	U
76-44-8	Heptachlor	18.	U
309-00-2	Aldrin	18.	U
1024-57-3	Heptachlor epoxide	18.	U
959-98-8	Endosulfan I	18.	U
60-57-1	Dieldrin	36.	U
72-55-9	4,4'-DDE	36.	U
72-20-8	Endrin	36.	U
33213-65-9	Endosulfan II	36.	U
72-54-8	4,4'-DDD	36.	U
1031-07-8	Endosulfan sulfate	36.	U
50-29-3	4,4'-DDT	36.	U
72-43-5	Methoxychlor	180.	U
53494-70-5	Endrin ketone	36.	U
5103-71-9	alpha-Chlordane	180.	U
5103-74-2	gamma-Chlordane	180.	U
8001-35-2	Toxaphene	360.	U
12674-11-2	Aroclor-1016	180.	U
11104-28-2	Aroclor-1221	180.	U
11141-16-5	Aroclor-1232	180.	U
53469-21-9	Aroclor-1242	180.	U
12672-29-6	Aroclor-1248	180.	U
11097-69-1	Aroclor-1254	360.	U
11096-82-5	Aroclor-1260	360.	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CZ430

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) WATER Lab Sample ID: RAS0882

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C2489

Level: (low/med) LOW Date Received: 11/22/89

% Moisture: not dec. 100. Date Analyzed: 11/27/89

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	5.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene (total)	5.	U
67-66-3	Chloroform	5.	U
107-06-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	5.	U
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene	5.	U
100-42-5	Styrene		
1330-20-7	Xylenes (total)		

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

CZ431

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) WATER Lab Sample ID: RAS0878

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C2488

Level: (low/med) LOW Date Received: 11/18/89

% Moisture: not dec. 100. Date Analyzed: 11/27/89

Column: (pack/cap) PACK Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10.	U
74-83-9	Bromomethane	10.	U
75-01-4	Vinyl Chloride	10.	U
75-00-3	Chloroethane	10.	U
75-09-2	Methylene Chloride	5.	U
67-64-1	Acetone	10.	U
75-15-0	Carbon Disulfide	5.	U
75-35-4	1,1-Dichloroethene	5.	U
75-34-3	1,1-Dichloroethane	5.	U
540-59-0	1,2-Dichloroethene (total)	5.	U
67-66-3	Chloroform	5.	U
107-06-2	1,2-Dichloroethane	5.	U
78-93-3	2-Butanone	10.	U
71-55-6	1,1,1-Trichloroethane	5.	U
56-23-5	Carbon Tetrachloride	5.	U
108-05-4	Vinyl Acetate	10.	U
75-27-4	Bromodichloromethane	5.	U
78-87-5	1,2-Dichloropropane	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U
79-01-6	Trichloroethene	5.	U
124-48-1	Dibromochloromethane	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U
71-43-2	Benzene	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U
75-25-2	Bromoform	5.	U
108-10-1	4-Methyl-2-Pentanone	10.	U
591-78-6	2-Hexanone	10.	U
127-18-4	Tetrachloroethene	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U
108-88-3	Toluene	5.	U
108-90-7	Chlorobenzene	5.	U
100-41-4	Ethylbenzene		
100-42-5	Styrene		
1330-20-7	Xylenes (total)	5.	U

WESTON

Appendix D

Reviewed and Corrected
Tentatively Identified Compounds

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

CZ415

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0877

Sample wt/vol: 4.0 (g/mL) G Lab File ID: C2611

Level: (low/med) MED Date Received: 11/18/89

% Moisture: not dec. 24. Date Analyzed: 12/12/89

Column: (pack/cap) PACK Dilution Factor: 2.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
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23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

AR300927

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

CZ415

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0877

Sample wt/vol: 30.2 (g/mL) G Lab File ID: B2660

Level: (low/med) LOW Date Received: 11/18/89

% Moisture: not dec. 24. dec. 0. Date Extracted: 11/28/89

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/19/89

GPC Cleanup: (Y/N) Y pH: 5.0 Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

AR300928

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

CZ416

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0879

Sample wt/vol: 3.9 (g/mL) G Lab File ID: C2609

Level: (low/med) MED Date Received: 11/22/89

% Moisture: not dec. 14. Date Analyzed: 12/12/89

Column: (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

AR300929

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

CZ416

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0879

Sample wt/vol: 30.2 (g/mL) G Lab File ID: B2669

Level: (low/med) LOW Date Received: 11/22/89

% Moisture: not dec. 14. dec. 0. Date Extracted: 11/29/89

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/20/89

GPC Cleanup: (Y/N) Y pH: 5.0 Dilution Factor: 1.00

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. - -	UNKNOWN HYDROCARBON	9.08	700.	J
2. - -	UNKNOWN HYDROCARBON	9.77	1000.	J
3. - -	UNKNOWN HYDROCARBON	11.78	900.	J
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
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21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

CZ417

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0880

Sample wt/vol: 4.8 (g/mL) G Lab File ID: C2503

Level: (low/med) LOW Date Received: 11/22/89

% Moisture: not dec. 20. Date Analyzed: 11/28/89

Column: (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
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16.					
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22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

CZ417

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0880

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B2674

Level: (low/med) LOW Date Received: 11/22/89

% Moisture: not dec. 20. dec. 0. Date Extracted: 11/29/89

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/20/89

GPC Cleanup: (Y/N) Y pH: 5.0 Dilution Factor: 1.00

Number TICs found: 8

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN HYDROCARBON	7.72	500.	J
2.	- -	UNKNOWN HYDROCARBON	9.08	900.	J
3.	- -	UNKNOWN HYDROCARBON	9.42	700.	J
4.	- -	UNKNOWN HYDROCARBON	9.78	900.	J
5.	- -	UNKNOWN HYDROCARBON	10.10	2000.	J
6.	- -	UNKNOWN HYDROCARBON	10.68	800.	J
7.	- -	UNKNOWN HYDROCARBON	11.63	400.	J
8.	- -	UNKNOWN HYDROCARBON	11.80	2000.	J
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
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26.					
27.					
28.					
29.					
30.					

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

CZ418

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0881

Sample wt/vol: 4.7 (g/mL) G Lab File ID: C2504

Level: (low/med) LOW Date Received: 11/22/89

% Moisture: not dec. ~~28.11~~ 94-9-90 Date Analyzed: 11/28/89

Column: (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

CZ418

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) SOIL Lab Sample ID: RAS0881

Sample wt/vol: 30.6 (g/mL) G Lab File ID: B2671

Level: (low/med) LOW Date Received: 11/22/89

% Moisture: not dec. 11. dec. 0. Date Extracted: 11/29/89

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 12/20/89

GPC Cleanup: (Y/N) Y pH: 5.0 Dilution Factor: 1.00

Number TICs found: 9

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. - -	UNKNOWN HYDROCARBON	9.08	1000.	J
2. - -	UNKNOWN HYDROCARBON	9.78	1000.	J
3. - -	UNKNOWN HYDROCARBON	10.17	3000.	J
4. - -	UNKNOWN HYDROCARBON	10.68	300.	J
5. - -	UNKNOWN HYDROCARBON	11.80	800.	J
6. - -	UNKNOWN HYDROCARBON	28.57	2000.	J
7. - -	UNKNOWN HYDROCARBON	31.98	2000.	J
8. - -	UNKNOWN HYDROCARBON	39.03	5000.	J
9. - -	UNKNOWN HYDROCARBON	39.18	1000.	J
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
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26.				
27.				
28.				
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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

CZ430

Lab Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) WATER Lab Sample ID: RAS0882

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C2489

Level: (low/med) LOW Date Received: 11/22/89

% Moisture: not dec. 100. Date Analyzed: 11/27/89

Column: (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
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30.				

AR300935

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

CZ431

Name: 3RIVER Contract: 68-W8-0020

Lab Code: 3RIVER Case No.: 13149 SAS No.: SDG No.: CZ415

Matrix: (soil/water) WATER Lab Sample ID: RAS0878

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C2488

Level: (low/med) LOW Date Received: 11/18/89

% Moisture: not dec. 100. Date Analyzed: 11/27/89

Column: (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
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30.					

Appendix E

Organic Regional Data Assessment Summary

WESTON SM

DPO: [ ] ACTION [X] FYI

Region III

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO: 13149
SDG NO: CZ415
SOW: 1-87
NO. OF SAMPLES: 2

LABORATORY: 3 RIVERS
DATA USER: CHARLES SANDS
REVIEW COMPLETION DATE: 2-15-90
MATRIX: AQUEOUS

REVIEWER: ESAT

	VOA	BNA	PEST	OTHER
1. HOLDING TIMES	X			
2. GC-MS TUNE/GC PERFORMANCE	O			
3. INITIAL CALIBRATIONS	X			
4. CONTINUING CALIBRATION	X			
5. FIELD BLANKS (F=NOT APPLICABLE)	O			
6. LABORATORY BLANKS	X			
7. SURROGATES	O			
8. MATRIX SPIKE/DUPLICATES	O			
9. REGIONAL QC (F=NOT APPLICABLE)	F			
10. INTERNAL STANDARDS	O			
11. COMPOUND IDENTIFICATION	O			
12. COMPOUND QUANTITATION	O			
13. SYSTEM PERFORMANCE	O			
14. OVERALL ASSESSMENT	M			

O = No problems or minor problems that do not affect data usability
X = No more than about 5% of the data points are qualified as either estimated or unusable.
M = More than about 5% of the data points are qualified as estimated.
Z = More than about 5% of the data points are qualified as unusable.
A = DPO action requested; use in conjunction with one of the above codes.

DPO ACTION ITEMS: SEE ATTACHED PAGES FOR DETAILED EXPLANATION

AREAS OF CONCERN: SEE ATTACHED PAGES FOR DETAILED EXPLANATIONS

Case: 13149

ORGANIC DATA VALIDATION SUMMARY

1A The technical holding time of seven (7) days from sampling for the aromatic compounds sample CZ431 was exceeded by three (3) days.

3A The response factor (RF) for 2-butanone was <0.05 in the initial calibration. (See Table I, Appendix F).

4A The response factor (RF) for 2-butanone was <0.05 in the continuing calibration. (See Table I, Appendix F).

4A The Percent Relative Standard Deviation (%RSD) for several compounds was greater than 25% in the continuing calibrations. (See Table I, Appendix F).

6A The maximum concentrations of the following common laboratory contaminants were found in the laboratory method blanks.

Compound	Concentration (ug/L)
methylene chloride	14 J
acetone	8 J

WESTON

DPO: [ ] ACTION [X] FYI

Region III

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE NO: 13149
SDG NO: CZ415
SOW: 1-87
NO. OF SAMPLES: 4

LABORATORY: 3 RIVERS
DATA USER: CHARLES SANDS
REVIEW COMPLETION DATE: 2-15-90
MATRIX: SOIL (Low, Medium)

REVIEWER: ESAT

	VOA	BNA	PEST	OTHER
1. HOLDING TIMES	X	X	O	
2. GC-MS TUNE/GC PERFORMANCE	O	O	O	
3. INITIAL CALIBRATIONS	X	O	O	
4. CONTINUING CALIBRATION	X	X	O	
5. FIELD BLANKS (F=NOT APPLICABLE)	O	O	O	
6. LABORATORY BLANKS	X	O	O	
7. SURROGATES	O	O	O	
8. MATRIX SPIKE/DUPLICATES	O	O	O	
9. REGIONAL QC (F=NOT APPLICABLE)	F	F	F	
10. INTERNAL STANDARDS	O	O		
11. COMPOUND IDENTIFICATION	O	O	O	
12. COMPOUND QUANTITATION	O	O	O	
13. SYSTEM PERFORMANCE	O	O	O	
14. OVERALL ASSESSMENT	X	X	O	

O = No problems or minor problems that do not affect data usability
X = No more than about 5% of the data points are qualified as either estimated or unusable.
M = More than about 5% of the data points are qualified as estimated.
Z = More than about 5% of the data points are qualified as unusable.
A = DPO action requested; use in conjunction with one of the above codes.

DPO ACTION ITEMS: _____

AREAS OF CONCERN: SEE ATTACHED PAGE FOR DETAILED EXPLANATIONS

Case: 13149

ORGANIC DATA VALIDATION SUMMARY

1A Although no technical holding time for volatiles in soils has been established, the technical holding time for volatile aromatics in water samples of seven (7) days from sampling has been exceeded by eleven (11) to fourteen (14) days for several soil samples.

1B Although no technical holding time for semivolatiles in soils has been established, the technical holding time for semivolatiles in water samples of seven (7) days has been exceeded by one (1) to four (4) days for all soil samples.

3A The response factor (RF) for 2-butanone was <0.05 in both of the initial calibrations. (See Table I, Appendix F).

3B The Percent Relative Standard Deviation (%RSD) for several compounds was >30% in the initial calibrations. (See Table I, Appendix F).

4A,B The Percent Relative Standard Deviation (%RSD) for several compounds was >25% in some of the continuing calibrations. (See Table I, Appendix F).

6A The maximum concentrations of the following common laboratory contaminants were found in the laboratory method blanks:

Compound	Concentration (ug/Kg)
methylene chloride	14 J
acetone	8 J

7A The volatile surrogate BFB for samples CZ415MS and CZ415 MSD was outside of the QC limits. (See Form II, Appendix F).

7B The semivolatile surrogates for sample CZ415 were outside of the QC limits due to dilution of the sample. (See Form II, Appendix F).

7C The pesticide/PCB surrogate compound was outside of the control limit for sample CZ415MSD.

ORGANIC DATA VALIDATION SUMMARY (Cont'd)

8A The volatile MS/MSD analysis of sample CZ415 had a total of one (1) out of five (5) RPD values and one (1) out of ten (10) spike recoveries outside of the control limits. (See Table II, Appendix F).

8B The semivolatile MS/MSD compounds for sample CZ415 were diluted out of the sample. (See Table II, Appendix F).

8C The pesticide/PCB MS/MSD analyses had three (3) out of twelve (12) spike recoveries and six (6) out of six (6) RPD values outside of the QC limits. (See Form III, Appendix F).