Data Evaluation and Comparison

US EPA RECORDS CENTER REGION 5
466766

Introduction

Black & Veatch Special Projects Corp. (BVSPC), under the Alternative Remedial Contracting Strategy has been tasked by the U.S. Environmental Protection Agency (USEPA) to provide field oversight during the remedial design and expedited remedial action to USEPA Region V in their endeavor to complete remediation of the American Chemical Services site.

Purpose

The purpose of this document is to present BVSPC's evaluation and comparison of split sample analytical results with the respondent's data. BVSPC representatives collected split samples during sampling of monitoring wells by the respondent's contractor.

Sampling Effort

On March 12 to 14, 1996, four split samples were collected from lower aquifer monitoring wells MW29, MW30, MW32, and MW35 during the field oversight. Corresponding USEPA Contract Laboratory Program (CLP) numbers are shown in Table 1. Sampling was performed in accordance with the USEPA-approved field sampling plan and quality assurance project plan.

Laboratory

All samples were analyzed by CLP analytical services in accordance with the procedures outlined in the User's Guide to the CLP, USEPA, February 1995. USEPA Region V Central Regional Laboratory (CRL) analyzed the samples.

Data Validation

USEPA Region V CRL and BVSPC validated split sample data using the USEPA CLP National Functional Guidelines for Organic Data Review (EPA 540/R-94/012, February 1994) and USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (EPA 540/R-94/013, February 1994).

The respondents did not provide complete narratives to fully explain validation of the data analyzed by their laboratory. BVSPC has noted the lacking narratives in review comments of the lower aquifer technical memorandum, and has delivered these comments to USEPA. Overall, the split sample analytical results were acceptable; however, due to minor analytical quality control problems, some of the compounds/analytes were qualified. Appendix A is a copy of raw data sheets from USEPA for split samples, including data validation and case narratives. Qualifiers are fully explained in the narratives. Appendix B is a copy of raw data sheets for the respondent's data for the four wells discussed in this report.

Data Comparison

BVSPC reviewed the validated data and compared it to the respondent's data. Table 1 presents the lower aquifer monitoring well sample data comparison. Both data sets were consistent except for the following:

- MW29: Chloroethane was detected at 2 µg/L and qualified as estimated "J" in respondent's data while it was detected at 2 µg/L in USEPA's data with no qualifier applied.
- MW29: Methylene chloride was detected at 2 µg/L and qualified as estimated "J" in respondent's data and non-detected at 1 µg/L in USEPA's data. The respondent has later changed the concentration from 2 µg/L to 10 µg/L and qualified as non-detected "U". The data should be viewed with caution.
- MW30: Methylene chloride was non-detected in respondent's data while it was a non-detect at 0.7 µg/L and qualified as estimated "J" in USEPA's data.
- MW32: Methylene chloride was detected at 1 µg/L and qualified as estimated "J" in respondent's data while it was a non-detect at 2 µg/L in USEPA's data. The respondent has later changed the concentration from 1 µg/L to 10 µg/L and qualified as non detected "U". The data should be viewed with caution.
- MW35: Methylene chloride and acetone were detected at 2 µg/L and 6 µg/L respectively and qualified as estimated "J" in respondent's data while methylene chloride was a non-detect and acetone was detected at 3 µg/L in USEPA's data. The respondent has later changed the concentrations of methylene chloride and acetone from 2 µg/L and 6 µg/L to the method detection limits of 10 µg/L. The data should be viewed with caution.
- MW32: All semi-volatile compounds were non-detects in respondent's data and were unusable in USEPA's data (qualified as unusable "R")

- MW29 and MW30: 2,4-Dinitrophenol was a non-detect in both respondent's data and USEPA's data but qualified as estimated "J" in USEPA's data.
- MW29, MW30, MW32 and MW35: bis(2-Ethylhexyl)phthalate was detected at 27 µg/L, 68 µg/L, 30 µg/L and 11 µg/L in respondent's data while it was detected at 4 µg/L ("BUJ"), 7 µg/L ("BU"), 51 µg/L ("BJ") and 56 µg/L ("B") in USEPA's data. ("B" implies contaminant found in laboratory method blank and "J" implies as estimated)
- MW30: Anthracene was detected at 0.9 µg/L and qualified as estimated "J" in respondent's data while it was a non-detect in USEPA's data.

Precision of laboratory analyses performed by USEPA and respondent will be assessed by comparing the detected concentrations for each sample for organic and inorganic analysis. The relative percent difference (%RPD) will be calculated for each pair of analysis using the following equation:

$$RPD = \frac{Pc - Dc}{(Pc + Dc) / 2} \; x \; 100$$

where:

P_c = Primary Concentration (assumed USEPA's data)

D_C = Duplicate Concentration (assumed Respondent's data)

Table 2 presents the sample variation comparison for organic and inorganic analysis. A review of Table 2 shows that Bis(2-Ethylhexyl)phthalate exceeded the RPD criteria of ±30% for all samples. Respondent's data was a detect and USEPA's data was a non-detect for samples MW29 and MW30, and respondent's data was lower than USEPA's data for samples MW32 and MW35. Aluminum, chromium, iron, nickel, and vanadium concentrations were higher in USEPA's data and lower in respondent's data. All other compounds/analytes were consistent, comparable and within the ±30%/±20% RPD range between USEPA and respondent's data. However, BVSPC recommends that the detected compounds/analytes with higher concentrations should be viewed with caution.

Conclusions

The overall sample analytical results between USEPA and the Respondent's data were comparable. However, differences in concentrations for some compounds/analytes between USEPA and respondent's data were noted. These

compounds/analytes should be viewed carefully in future sampling events. Furthermore, due to lack of respondent's laboratory data narratives, the changes occurred in the concentrations of acetone and methylene chloride on the respondent's raw data sheets were not explained in this report.

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Table 1
Lower Aquifer Monitoring Well Sample Data Comparison
ACS

Compound/Analyte	Sample Location/Concentration (µg/l)							
	MW29	96ZB05S01	MW30	96ZB05S03	MW32	96ZB05S04	MW35	96ZB05S02
	PRP	USEPA	PRP	USEPA	PRP	USEPA	PRP	USEPA
Chloromethane	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
Bromomethane	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
Vinyl chloride	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
Chloroethane	2 J	2	10 U	1 U	10 U	1 U	10 U	1 U
Methylene chloride	10 U	1 U	10 U	0.7 UJ	10 U	2 U	10 U	2 U
Acetone	10 U	3 U	10 U	3 U	10 U	3 U	10 U	3
Carbon disulfide	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
1,1-Dichloroethene	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
1,1-Dichloroethane	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
Chloroform	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
1,2-Dichloroethane	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
2-Butanone	10 U	3 U	10 U	3 U	10 U	1 U	10 U	3 U
1,1,1-trichlorethane	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
Carbon tetrachloride	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
Bromodichloromethane	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
1,2-Dichloroopropane	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
cis-1,3-dichloropropene	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
Trichloroethene	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
Dibromochloromethane	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
1,1,2-Trichloroethane	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
Benzene	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
trans-1,3-Dichloropropene	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
Bromoform	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
4-Methyl-2-pentanone	10 U	2 U	10 U	2 U	10 U	2 U	10 U	2 U
2-Hexanone	10 U	2 U	10 U	2 U	10 U	2 U	10 U	2 U
Tetrachloroethene	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
1,1,2,2-Tetrachloroethane	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
Toluene	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
Chlorobenzene	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U

Table 1 (Continued)
Lower Aquifer Monitoring Well Sample Data Comparison
ACS

Compound/Analyte	Sample Location/Concentration (µg/l)							
	MW29	96ZB05S01	MW30	96ZB05S03	MW32	96ZB05S04	MW35	96ZB05S02
	PRP	USEPA	PRP	USEPA	PRP	USEPA	PRP	USEPA
Ethylbenzene	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
Styrene	10 U	1 U	10 U	1 U	10 U	1 U	10 U	1 U
Phenol	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
bis(2-Chloroethyl)ether	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
2-Chlorophenol	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
1,3-Dichlorobenzene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
1,4-Dichlorobenzene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
1,2-Dichlorobenzene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
2-Methylphenol	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
bis(2-Chloroisopropyl)ether	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
4-Methylphenol	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
N-Nitroso-di-n-propylamine	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Hexachloroethane	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Nitrobenzene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Isophorone	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
2-Nitrophenol	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
2,4-Dimethylphenol	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
bis(2-Chloroethoxymethane	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
2,4-Dichlorophenol	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
1,2,4-Trichlorobenzene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Naphthalene	10 U	5 U	10 U	5 U	10 U	55 RU	10 U	5 U
4-Chloroaniline	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Hexachlorobutadiene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
4-Chloro-3-methylphenol	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
2-Methylnaphthalene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Hexachlorocyclopentadiene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
2,4,6-Trichlorophenol	10 U	5 U	10 U	5 U	10 U	20 RU	10 U	5 U
2,4,5-Trichlorophenol	25 U	20 U	25 U	20 U	25 U	5 RU	25 U	20 U
2-Chloronaphthalene	10 U	5 U	10 U	5 U	10 U	20 RU	10 U	5 U

Table 1 (Continued)
Lower Aquifer Monitoring Well Sample Data Comparison
ACS

Compound/Analyte	Sample Location/Concentration (µg/l)							
	MW29	96ZB05S01	MW30	96ZB05S03	MW32	96ZB05S04	MW35	96ZB05S02
	PRP	USEPA	PRP	USEPA	PRP	USEPA	PRP	USEPA
2-Nitroaniline	25 U	20 U	25 U	20 U	25 U	5 RU	25 U	20 U
Dimethylphthalate	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Acenaphthylene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
2,6-Dinitrotoluene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
3-Nitroaniline	25 U	20 U	25 U	20 U	25 U	20 RU	25 U	20 U
Acenaphthene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
2,4-Dinitrophenol	25 U	20 UJ	25 U	20 UJ	25 U	20 RUJ	25 U	20 U
4-Nitrophenol	25 U	20 U	25 U	20 U	25 U	20 RU	25 U	20 U
Dibenzofuran	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
2,4-Dinitrotoluene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Diethylphthalate	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
4-Chlorophenyl-phenylether	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Fluorene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
4-Nitroaniline	25 U	20 U	25 U	20 U	25 U	20 RU	25 U	20 U
4,6-Dinitro-2-methylphenol	25 U	20 U	25 U	20 U	25 U	20 RU	25 U	20 U
N-Nitrosodiphenylamine	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
4-Bromophenyl-phenylether	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Hexachlorobenzene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Pentachlorophenol	25 U	20 U	25 U	20 U	25 U	20 RU	25 U	20 U
Phenanthrene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Anthracene	10 U	5 U	0.9 J	5 U	10 U	5 RU	10 U	5 U
Carbazole	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Di-n-butylphthalate	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Fluoranthene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Pyrene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Butylbenzylphthalate	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
3,3'-Dichlorobenzidine	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Benzo(a)anthracene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Chrysene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U

Table 1 (Continued)
Lower Aquifer Monitoring Well Sample Data Comparison
ACS

Compound/Analyte	Sample Location/Concentration (µg/l)							
	MW29	96ZB05S01	MW30	96ZB05S03	MW32	96ZB05S04	MW35	96ZB05S02
	PRP	USEPA	PRP	USEPA	PRP	USEPA	PRP	USEPA
bis(2-Ethylhexyl)phthalate	27	4 UBJ	68	7 UB	30	51 BJ	11	56 B
Di-n-octylphthalate	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Benzo(b)fluoranthene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Benzo(k)fluoranthene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Benzo(a)pyrene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Indeno(1,2,3-cd)pyrene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Dibenzo(a,h)anthracene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Benzo(g,h,i)perylene	10 U	5 U	10 U	5 U	10 U	5 RU	10 U	5 U
Aroclor 1016	1.0 U	0.2 U	1.0 U	0.2 U	1.0 U	0.2 U	1.0 U	0.2 U
Aroclor 1221	2.0 U	0.2 U	2.0 U	0.2 U	2.0 U	0.2 U	2.0 U	0.2 U
Aroclor 1232	1.0 U	0.2 U	1.0 U	0.2 U	1.0 U	0.2 U	1.0 U	0.2 U
Aroclor 1242	1.0 U	0.2 U	1.0 U	0.2 U	1.0 U	0.2 U	1.0 U	0.2 U
Aroclor 1248	1.0 U	0.2 U	1.0 U	0.2 U	1.0 U	0.2 U	1.0 U	0.2 U
Aroclor 1254	1.0 U	0.2 U	1.0 U	0.2 U	1.0 U	0.2 U	1.0 U	0.2 U
Aroclor 1260	1.0 U	0.2 U	1.0 U	0.2 U	1.0 U	0.2 U	1.0 U	0.2 U
Aluminum	13.0 U	96.6	36.9 UB	101	37.3 UB	3010	13.0 U	292
Barium	69.7 B	72.9	162 B	177	54.2 B	73.1	50.6 B	54.8
Beryllium	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Calcium	75800	72800	92200	97500	52600	55200	30100	33000
Chromium	1.0 U	18.7	1.0 U	10.4	1.0 U	9.7	1.0 U	26.4
Cobalt	1.0 U	6.0 U	1.0 B	6.0 U	1.0 U	6.0 U	1.0 U	6.0 U
Copper	1.0 U	6.0 U	1.0 U	7.6 U	1.0 U	10.3 U	1.3 UB	21.4 U
Iron	2390	3860	3820	6060	32.3 UB	2400	8.0 U	1440
Magnesium	39500	35800	48400	45700	25100	24700	21800	21100
Manganese	229	241	203	220	212	244	65.8	91.6
Mercury	0.20 U	0.1 U	0.20 U	0.1 U	0.20 U	0.1 U	0.20 U	0.1 U
Nickel	5.8 UB	29.1	15.3 UB	20.0 U	3.7 UB	20.0 U	7.3 UB	35.5
Silver	1.0 U	6.0 U	1.0 U	6.0 U	1.0 U	6.0 U	1.0 U	6.0 U
Sodium	60200	74300	39500	46700	61600	75800	15800	18900

Table 1 (Continued)
Lower Aquifer Monitoring Well Sample Data Comparison
ACS

Compound/Analyte	Sample Location/Concentration (µg/l)							
	MW29	96ZB05S01	MW30	96ZB05S03	MW32	96ZB05S04	MW35	96ZB05S02
	PRP	USEPA	PRP	USEPA	PRP	USEPA	PRP	USEPA
Vanadium	1.0 U	5.0 U	1.0 U	5.2	1.0 U	5.0 U	1.0 U	5.0 U
Zinc	9.5 UB	40.0 U	4.7 UB	40.0 U	7.7 UB	40.0 U	5.2 UB	40.0 U

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Table 2
Sample Variation Comparison

Compound/Analyte	MW29		MW30		MW32		MW35		Comments
	Diff. µg/L	RPD %	Diff. µg/L	RPD %	Diff. µg/L	RPD %	Diff. µg/L	RPD %	
Bis(2-Ethylhexyl)phthalate	23	148.4	61	162.6	21	51.8	45	134.3	Compound and analytes exceeded the RPD limits of ±30% and ±20% respectively. All other compounds/analytes were within the RPD limits.
Aluminum	83.6	152.5	64.1	92.9	2972.7	195	279	182.9	
Chromium	17.7	179.6	9.4	182.4	8.7	162.6	25.4	185.4	
Iron	1470	47	2240	45.3	2367.7	194.6	1432	197.7	
Nickel	23.3	133.5	---	---	---	---	28.2	131.7	
Vanadium	---	---	4.2	135.4	---	---	---	---	

Appendix A

USEPA Organic and Inorganic Analysis Data Sheets

Volatiles

71670-600

Site: American Chemical Service Project#: ~~[illegible]~~

Case: 960047 SDG: Date: 05/29/96

Data Validation Data Validator: M. Corcas

Data was qualified according to the results and findings described in the data narrative. The information in this narrative was validated and the calculations are provided in the attached pages. Data qualifiers were also applied to the results based on calibration outliers, surrogate recoveries and other appropriate results.

Validation was accomplished through the use of USEPA National Functional Guidelines for Organic Data Review (February 1994) and USEPA Region 5 Standard Operating Procedure for Validation of CLP Organic Data (August 25, 1993 revision). Calculations did not reveal any discrepancies other than those noted in the following pages.

The influence of sample bias for SSI and ESI data is indicated following each qualification. Bias is indicated by an upward arrow for high bias, a downward arrow for low bias and with unkbias for unknown bias. The sample bias for J qualifiers that are placed by the lab are of unknown bias. The sample bias designation for each J qualification is given in the following pages.

Additional Comments:

Site: american chemical Service Project#: 71670.600
Case: 960047 SDG: _____ Date: 05\29\96

1. **Holding Times**

05\29\96 mKc All samples were extracted and analyzed within the specified holding times according to the EPA reviewer.
____ See attached pages for qualification.

2. **GC/MS Tuning and GC Instrument Performance**

05\29\96 mKc Tuning and instrument performance checks were satisfactory as stated by the EPA reviewer in the narrative.
____ See attached pages for qualification.

3. **Calibration**

Calibration outliers are listed on the outlier forms for each parameter. All compounds that require qualification due to calibration outliers are qualified with a J for estimate and have an unknown bias. Samples and compounds that require qualification are listed on the calibration outlier pages in the EPA narrative.

VOA

~~[illegible]~~ 05\29\96 mKc No calibration outliers.
____ See EPA narrative for samples and compounds to be qualified and attached pages for calculations.

SVOA

____ No calibration outliers.
NIA See EPA narrative for samples and compounds to be qualified and attached pages for calculations.

Pest/PCB

____ No calibration outliers.
NIA See EPA narrative for samples and compounds to be qualified and attached pages for calculations.

4. **Blanks**

VOA

____ Samples were qualified appropriately by the EPA reviewer for VOA blank contaminants. See the narrative for sample and compound qualifications.
05\29\96 See the attached pages for additional VOA blank qualifications
mKc or corrections.

SVOA

____ Samples were qualified appropriately by the EPA reviewer for SVOA blank contaminants. See the narrative for sample and compound qualifications.
NIA See the attached pages for additional SVOA blank qualifications or corrections.

Pest/PCB

_____ Samples were qualified appropriately by the EPA reviewer for Pest/PCB blank contaminants. See the narrative for sample and compound qualifications.

N/A See the attached pages for additional Pest/PCB blank qualifications or corrections.

5. Surrogate Recovery

VOA

05/29/96 mKC VOA surrogate recoveries are within acceptable limits, no qualification is necessary.

_____ See attached pages and narrative for samples and compounds qualified for unacceptable VOA surrogate recovery.

SVOA

_____ SVOA surrogate recoveries are within acceptable limits, no qualification is necessary.

N/A See attached pages and narrative for samples and compounds qualified for unacceptable SVOA surrogate recovery.

Pest/PCB

_____ Pest/PCB surrogate recoveries are within acceptable limits, no qualification is necessary.

N/A See attached pages and narrative for samples and compounds qualified for unacceptable Pest/PCB surrogate recovery.

6. ~~MS/MSD and RPD~~ (Laboratory Control Sample)

See attached pages for calculations.

VOA

05/29/96 ~~Labor~~ ~~VOA MS/MSD~~ recoveries and RPD are within acceptable limits.

_____ mKC See attached pages and narrative for VOA compounds to be qualified in the unspiked sample due to unacceptable MS/MSD recoveries and/or RPD.

SVOA

_____ SVOA MS/MSD recoveries and RPD are within acceptable limits.

N/A See attached pages and narrative for SVOA compounds to be qualified in the unspiked sample due to unacceptable MS/MSD recoveries and/or RPD.

Pest/PCB

_____ Pest/PCB MS/MSD recoveries and RPD are within acceptable limits.

N/A See attached pages and narrative for Pest/PCB compounds to be qualified in the unspiked sample due to unacceptable MS/MSD recoveries and/or RPD.

7. **Field Blanks, Field Duplicates and other QC**

Field blanks and other QC are evaluated in the QC section. See the attached table comparing duplicate concentrations. No qualification of the sample results is made based on field duplicate recoveries per Region 5 Standard Operating Procedure for Validation of CLP Organic Data.

_____ There were no duplicates for any of the matrices.

VOA

05/29/96 mKC Duplicate results were acceptable (no conc. difference of 5X or greater).

_____ See attached table for unacceptable duplicate results.

SVOA

_____ Duplicate results were acceptable (no conc. difference of 5X or greater).

N/A See attached table for unacceptable duplicate results.

Pest/PCB

_____ Duplicate results were acceptable (no conc. difference of 5X or greater).

N/A See attached table for unacceptable duplicate results.

8. **Internal Standards**

VOA

05/29/96 mKC All internal standards met QC requirements according to the EPA reviewer.

_____ See attached pages for qualification of samples and compounds.

SVOA

_____ All internal standards met QC requirements according to the EPA reviewer.

N/A See attached pages for qualification of samples and compounds.

Pest/PCB

_____ All Pest/PCB QC requirements were met according to the EPA reviewer.

N/A See attached pages for qualification of samples and compounds.

9. **Compound Quantification and Reported Detection Limits**

05/29/96 mKC All target compounds and TICs were properly reported in the volatile, semi-volatile, and pesticide fractions; therefore data is acceptable according to the EPA reviewer.

_____ See the attached pages for samples and compounds to be qualified.

10. Compound Identification

05/29/96 mKC Target compounds and TICs were identified by 'best fit' library search method and appear to be correct according to the EPA reviewer.

_____ See attached pages for additional comments.

11. System Performance

05/29/96 mKC Acceptable according to the EPA reviewer.

_____ See attached pages for additional comments and/or deviations.

12. Overall Case Assessment

05/29/96 mKC No additional qualifications according to the EPA reviewer.

_____ See attached pages for additional qualifications.

Blank Analysis

_____ There were no field or trip blanks.

05/29/96 mKC See the blank analysis section for sample and compound qualifications based on blank results.

BLACK & VEATCH SPECIAL PROJECTS CORP.

Owner: American Chemical Service
Plant: Unit:
Project No. 71670.600 File No.
Title: Data validation of water samples -volatiles

Computed By: MKC
Date: 05/29/1996
Checked By:
Date: 19
Page 1 of 1

3. Calibration

The % Difference between the initian Calibration Relativ. Response Factor (RRF) and the continuing calibration RRF could not be calculated, since a calibration outlier sheet was not included in the data package.

4. BLANKS

The lab method blank was non-detect for all target compounds.

Sample 962B05R01 is a rinseate blank. the blank was non-detect for all target compounds, except for methylene chloride (0.7 ug/l) Two tentatively identified compounds (TICS) were also present in the blank: RT 5.88 (0.8 ug/l), and RT 19.82 (0.6 ug/l). Any volatile compound detected in a sample that was also detected in an associated blank is qualified "U" if the sample concentration is less than 5 X the blank concentration. (10 X for laboratory contaminants

methylene chloride = 0.7 X 10 = 7.0 ug/l

RT 5.88 = 0.8 ug/l X 5 = 4.0 ug/l

RT 19.82 = 0.6 ug/l X 5 = 3.0 ug/l

methylene chloride is a lab contaminant. This compound was qualified "U" in the following samples: 962B05S01, 962B05S02, 952B05D02, 962B05S03, and 962B05S04

RT 5.88 was not present in any samples.

RT 19.82 was qualified "U" in the following samples: 962B05S02, 962B05D02, 962B05S03, and 962B05S04.

Sample 962B05R02 is a trip blank. The blank was non-detect for all compounds, except methylene chloride (0.8 ug/l)

(CONT R.)

REVISED, SUPERSEDED, AND VOID CALCULATIONS MUST BE CLEARLY IDENTIFIED, INITIALED, AND DATED BY THE RESPONSIBLE INDIVIDUAL

DO NOT WRITE IN THIS SPACE

is detected in blanks and associated samples. the concentration in a sample is qualified "U" if it is less than 10X the blank value.

Methylene chloride

$= 0.2\ ug/l \times 10 = 8.0\ ug/l$

Methylene chloride was already qualified "U" in samples 962B05S01, 962B05S02, 962B05D02, 962B05S03, and 962B05S04 due to contamination in the rinsate blank.

6. Matrix Spike / Matrix Spike Duplicate

The laboratory prepared a laboratory control sample instead of a MS/MSD. The LCS data was within the QC limits of 60-140% for all compounds.

7. Duplicate Samples

Sample 962B05D02 is a field duplicate of sample 962B05S02. There was no concentration difference of 5X or greater between the samples.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CENTRAL REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605

Date: APR 1 6 1996

Subject: Review of Region 5 Data for **AMERICAN CHEMICAL SERVICE**

From: Charles T. Elly, Director Chuck E. Elly
Region 5 Central Regional Laboratory

To: B & V

Attached are the results for: **AMERICAN CHEMICAL SERVICE**
CRL request number: **960047**
Analyzed for: **VOA (Organics)**
Results are reported for sample designations: 96ZB05R01, R02, S01 to S04, and D02 (7 SAMPLES)

Results Status:
(X) Acceptable for Use
( ) Data Qualified but acceptable for use
( ) Data Unacceptable for Use
(X) Sewer Disposal Criteria Met; Exceptions: none

Comments on Data Quality by Reviewer:

Some site samples showed the presence of methylene chloride and tentative identified conpounds (TIC). Please see narrative for detailed QA/QC information.

Comments by Laboratory Director or Quality Control Coordinator

Review Record for **AMERICAN CHEMICAL SERVICE 960047 VOA**

Midia Fuentes 03/26/96

Peer and Task Monitor Date (X) Reviewed ( ) Unreviewed

Chi Rang 4/16/96

Organic Team Leader and Date (✓) Reviewed ( ) Unreviewed

Chuck Ellis 4/16/96

QC Coordinator and Date (VACANT) ( ) Reviewed (✓) Unreviewed

Sylvia Griffin APR 1 6 1996

Data Management Coordinator and Date Received

Date Transmitted APR 1 6 1996

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
ML - 10C

Received by and Date

Comments:

CASE NARRATIVE

DATE: March 20, 1996

PROJECT NAME: American Chemical Service - CRL Case #: 960047
Analysis of Volatile Organic Analytes (VOA)

ANALYSTS: Anthony Gugliotta, Lockheed/ESAT

REVIEWERS: Ziyad Rajabi, Lockheed/ESAT Organic Group Leader
Dennis Miller, Lockheed/ESAT Team Manager
Nidia Fuentes, EPA CRL Task Monitor

I. CASE DESCRIPTION:

The laboratory received seven preserved water samples (96ZB05R01, -R02, -S01 to -S04, and -D02) on 3/14/96 for volatile organic analyte (VOA) analysis. All samples were analyzed by CRL Method 624VOA (revised 12/15/95) using GC/MS#4 on 3/18/96. All site samples were analyzed within the sample holding time requirements. The QC criterion for sample holding times is 14 days for acid-preserved samples. These samples were received at the laboratory in good condition. No problems were observed.

II. INSTRUMENT QUALITY CONTROLS:

1. **Instrument Performance Checks (IPC):** On each day of analysis, GC/MS IPCs using *p*-BFB were made on GC/MS#4 to determine if acceptable EPA tuning criteria were met. The QC criteria are the same as those found in the Statement of Work under the EPA's Contract Laboratory Program. All criteria were met, no problems were observed.

2. **Initial Calibrations (IC):** An acceptable five-point IC is required for all target compounds before samples can be analyzed. The QC criterion for the IC states each analyte's %RSD must be ≤30%.

An initial calibration was generated on 3/12/96 on GC/MS#4. All QC criteria were acceptable for all target compounds.

3. **Continuing Calibrations (CC):** One continuing calibration was required for this case (file >A1791 on 3/18/96).

On 3/18/96, the CC had no outliers. No problems were observed with this continuing calibration.

4. **Internal Standard (IS) Area and Retention Time (RT) Summary:** The QC criteria states that the areas of ISs must be within a factor of two of the IS area of the corresponding

CC. The RT of the IS for samples must also be within 30 seconds of the RT of the IS for the corresponding CC.

All internal standard areas and retention times met the QC requirements on all samples analyzed on GC/MS#4. No problems were observed.

III. METHOD QUALITY CONTROL:

1. **Method Blank Results:** A Lab Blank (reagent water spiked with internal standards and surrogates) was analyzed to check the GC/MS, purge and trap systems and reagents for laboratory contamination (see Form I VOA). All QC data for the Lab Blank were acceptable.

In the Lab Blank analyzed on 3/18/96, no analytes and no TICs were detected. No problems were observed.

2. **Surrogate Spike Compound Results:** The surrogate spike compound recovery data were within the QC limits for all water samples on GC/MS#4. No problems were observed. (See Form II VOA-1.)

3. **Laboratory Control Sample (LCS):** The laboratory generated acceptable results for the LCS. (See Form XI VOA).

4. **Performance Evaluation Sample (PES):** The laboratory analyzed a Performance Evaluation Sample (960007S01) for March 1996. The QC criteria for the PES are the control limits established by EMSL-LV. The results were submitted to the EPA WAM for scoring.

IV. SAMPLE RESULTS:

Sample 96ZB05R02 was identified as a trip blank. This sample contained methylene chloride at an estimated level of 0.8 µg/L. No TICs were found in in this sample.

The laboratory met the qualitative and quantitative analysis requirements for TCLs and TICs.

2A
WATER VOLATILE SURROGATE RECOVERY

Lab Name: CRL REGION V Contract: ESAT

Lab code: 5SCRL Case No.: 960047 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (BEN)#	S2 (BFB)#	S3 (TOL)#	S4 ( )#	TOT OUT
01	LAB BLANK	102	88	101		0
02	96ZB05R02	103	88	103		0
03	96ZB05S01	94	101	96		0
04	96ZB05S02	104	87	100		0
05	96ZB05D02	93	96	100		0
06	96ZB05S03	100	97	97		0
07	96ZB05S04	99	93	99		0
08	96ZB05R01	101	92	98		0
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		QC LIMITS
S1 (BEN)	= BENZENE-D6	(70-130)
S2 (BFB)	= p-BROMOFLUOROBENZENE	(70-130)
S3 (TOL)	= TOLUENE-D8	(70-130)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out

FORM II VOA-1 1/87 Rev

4A
VOLATILE METHOD BLANK SUMMARY

Lab Name: CRL REGION V Contract: ESAT

Lab code: 5SCRL Case No.: 960047 SAS No.: SDG No.:

Lab File ID: >A1793 Lab Sample ID: LAB BLANK

Date Analyzed: 03/18/96 Time Analyzed: 11:18

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

Instrument ID: GCMS#4

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1	96ZB05R02	96ZB05R02	>A1795	13:01
2	96ZB05S01	96ZB05S01	>A1796	13:40
3	96ZB05S02	96ZB05S02	>A1797	14:18
4	96ZB05D02	96ZB05D02	>A1798	14:56
5	96ZB05S03	96ZB05S03	>A1799	15:34
6	96ZB05S04	96ZB05S04	>A1800	16:11
7	96ZB05R01	96ZB05R01	>A1801	16:49
8				
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COMMENTS:

FORM IV VOA 1/87 Rev.

11A
VOLATILE ORGANICS LAB CONTROL SPIKE

EPA SAMPLE NO.

LAB SPIKE

Lab Name: CRL REGION V Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: LAB SPIKE

Sample wt/vol: 25 (g/ml) ML Lab File ID: >A1734

Level: (low/med) LOW Date Received: 03/01/96

% Moisture: not dec. Date Analyzed: 03/01/96

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

COMPOUND	Conc	Spike	Recovery
Vinyl chloride	6	5	116
Carbon tetrachloride	5	5	95
Benzene	5	5	104
1,2-Dichloroethane	5	5	104
Trichloroethene	5	5	108
1,2-Dichloropropane	5	5	109
cis-1,3-Dichloropropene	5	5	107
Tetrachloroethene	5	5	97
1,1,2-Trichloroethane	5	5	104
1,2-Dibromoethane	5	5	105
Bromoform	5	5	92
1,4-Dichlorobenzene	5	5	90

QC LIMITS: 60% - 140%

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

LAB BLANK

Site Name:AMERICAN CHEMICAL SERVICE Contract:ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: LAB BLANK

Sample wt/vol: 25 (g/mL) ML Lab File ID: >A1793

Level: (low/med) LOW Date Received: 03/18/96

% Moisture: not dec.----- Date Analyzed: 3/18/96

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1.	U
75-01-4	Vinyl chloride	1.	U
74-83-9	Bromomethane	1.	U
75-00-3	Chloroethane	1.	U
75-35-4	1,1-Dichloroethene	1.	U
67-64-1	Acetone	3.	U
75-15-0	Carbon disulfide	1.	U
75-09-2	Methylene chloride	1.	U
156-60-5	trans-1,2-Dichloroethene	1.	U
75-34-3	1,1-Dichloroethane	1.	U
594-20-7	2,2-Dichloropropane	1.	U
156-59-2	cis-1,2-Dichloroethene	1.	U
78-93-3	2-Butanone	3.	U
74-97-5	Bromochloromethane	1.	U
67-66-3	Chloroform	1.	U
71-55-6	1,1,1-trichloroethane	1.	U
56-23-5	Carbon tetrachloride	1.	U
563-58-6	1,1-Dichloropropene	1.	U
71-43-2	Benzene	1.	U
107-06-2	1,2-Dichloroethane	1.	U
79-01-6	Trichloroethene	1.	U
78-87-5	1,2-Dichloropropane	1.	U
74-95-3	Dibromomethane	1.	U
75-27-4	Bromodichloromethane	1.	U
10061-01-5	cis-1,3-dichloropropene	1.	U
108-88-3	Toluene	1.	U
108-10-1	4-Methyl-2-pentanone	2.	U
10061-02-6	trans-1,3-Dichloropropene	1.	U
127-18-4	Tetrachloroethene	1.	U
79-00-5	1,1,2-Trichloroethane	1.	U
142-28-9	1,3-Dichloropropane	1.	U
591-78-6	2-Hexanone	2.	U
124-48-1	Dibromochloromethane	1.	U
106-93-4	1,2-Dibromoethane	1.	U
108-90-7	Chlorobenzene	1.	U
630-20-6	1,1,1,2-Tetrachloroethane	1.	U
100-41-4	Ethylbenzene	1.	U

Are there any TICs ? (Please check a box) YES |__| NO |_X_|

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

LAB BLANK

Site Name:AMERICAN CHEMICAL SERVICE Contract:ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: LAB BLANK

Sample wt/vol: 25 (g/mL) ML Lab File ID: >A1793

Level: (low/med) LOW Date Received: 03/18/96

% Moisture: not dec.----- Date Analyzed: 3/18/96

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) ug/L	Q
1083836423	m &/or p-Xylene	1.	U
95-47-6	o-Xylene	1.	U
100-42-5	Styrene	1.	U
75-25-2	Bromoform	1.	U
98-82-8	Isopropylbenzene	1.	U
108-86-1	Bromobenzene	1.	U
96-18-4	1,2,3-Trichloropropane	1.	U
79-34-5	1,1,2,2-Tetrachloroethane	1.	U
103-65-1	n-Propylbenzene	1.	U
95-49-8	2-Chlorotoluene	1.	U
106-43-4	4-Chlorotoluene	1.	U
108-67-8	1,3,5-Trimethylbenzene	1.	U
98-06-6	tert-Butylbenzene	1.	U
95-63-6	1,2,4-Trimethylbenzene	1.	U
135-98-8	sec-Butylbenzene	1.	U
541-73-1	1,3-Dichlorobenzene	1.	U
106-46-7	1,4-Dichlorobenzene	1.	U
99-87-6	p-Isopropyltoluene	1.	U
95-50-1	1,2-Dichlorobenzene	1.	U
104-51-8	n-Butylbenzene	1.	U
96-12-8	1,2-Dibromo-3-chloropropane	1.	U
120-82-1	1,2,4-Trichlorobenzene	1.	U
91-20-3	Naphthalene	1.	U
87-68-3	Hexachlorobutadiene	1.	U
87-61-6	1,2,3-Trichlorobenzene	1.	U

Data Qualifiers: U = Compounds were analyzed but not detected. The value reported is the method detection limit for reagent water; J = Estimated; D=Diluted Sample; X = Result rejected for failing mass spectral confirmation; E = Concentration exceeded calibration range; B_ = Contaminant found in laboratory method blank.

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

96ZB05R01

Site Name:AMERICAN CHEMICAL SERVICE Contract:ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05R01

Sample wt/vol: 25 (g/mL) ML Lab File ID: >A1801

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.----- Date Analyzed: 3/18/96

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1.	U
75-01-4	Vinyl chloride	1.	U
74-83-9	Bromomethane	1.	U
75-00-3	Chloroethane	1.	U
75-35-4	1,1-Dichloroethene	1.	U
67-64-1	Acetone	3.	U
75-15-0	Carbon disulfide	1.	U
75-09-2	Methylene chloride	.7	J
156-60-5	trans-1,2-Dichloroethene	1.	U
75-34-3	1,1-Dichloroethane	1.	U
594-20-7	2,2-Dichloropropane	1.	U
156-59-2	cis-1,2-Dichloroethene	1.	U
78-93-3	2-Butanone	3.	U
74-97-5	Bromochloromethane	1.	U
67-66-3	Chloroform	1.	U
71-55-6	1,1,1-trichloroethane	1.	U
56-23-5	Carbon tetrachloride	1.	U
563-58-6	1,1-Dichloropropene	1.	U
71-43-2	Benzene	1.	U
107-06-2	1,2-Dichloroethane	1.	U
79-01-6	Trichloroethene	1.	U
78-87-5	1,2-Dichloropropane	1.	U
74-95-3	Dibromomethane	1.	U
75-27-4	Bromodichloromethane	1.	U
10061-01-5	cis-1,3-dichloropropene	1.	U
108-88-3	Toluene	1.	U
108-10-1	4-Methyl-2-pentanone	2.	U
10061-02-6	trans-1,3-Dichloropropene	1.	U
127-18-4	Tetrachloroethene	1.	U
79-00-5	1,1,2-Trichloroethane	1.	U
142-28-9	1,3-Dichloropropane	1.	U
591-78-6	2-Hexanone	2.	U
124-48-1	Dibromochloromethane	1.	U
106-93-4	1,2-Dibromoethane	1.	U
108-90-7	Chlorobenzene	1.	U
630-20-6	1,1,1,2-Tetrachloroethane	1.	U
100-41-4	Ethylbenzene	1.	U

Are there any TICs ? (Please check a box) YES |_X| NO |___|

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

96ZB05R01

Site Name:AMERICAN CHEMICAL SERVICE Contract:ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05R01

Sample wt/vol: 25 (g/mL) ML Lab File ID: >A1801

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.----- Date Analyzed: 3/18/96

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) ug/L	Q
1083836423	m &/or p-Xylene	1.	U
95-47-6	o-Xylene	1.	U
100-42-5	Styrene	1.	U
75-25-2	Bromoform	1.	U
98-82-8	Isopropylbenzene	1.	U
108-86-1	Bromobenzene	1.	U
96-18-4	1,2,3-Trichloropropane	1.	U
79-34-5	1,1,2,2-Tetrachloroethane	1.	U
103-65-1	n-Propylbenzene	1.	U
95-49-8	2-Chlorotoluene	1.	U
106-43-4	4-Chlorotoluene	1.	U
108-67-8	1,3,5-Trimethylbenzene	1.	U
98-06-6	tert-Butylbenzene	1.	U
95-63-6	1,2,4-Trimethylbenzene	1.	U
135-98-8	sec-Butylbenzene	1.	U
541-73-1	1,3-Dichlorobenzene	1.	U
106-46-7	1,4-Dichlorobenzene	1.	U
99-87-6	p-Isopropyltoluene	1.	U
95-50-1	1,2-Dichlorobenzene	1.	U
104-51-8	n-Butylbenzene	1.	U
96-12-8	1,2-Dibromo-3-chloropropane	1.	U
120-82-1	1,2,4-Trichlorobenzene	1.	U
91-20-3	Naphthalene	1.	U
87-68-3	Hexachlorobutadiene	1.	U
87-61-6	1,2,3-Trichlorobenzene	1.	U

Data Qualifiers: U = Compounds were analyzed but not detected. The value reported is the method detection limit for reagent water; J = Estimated; D=Diluted Sample; X = Result rejected for failing mass spectral confirmation; E = Concentration exceeded calibration range; B_ = Contaminant found in laboratory method blank.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

96ZB05R01

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05R01

Sample wt/vol: 25 (g/mL) ML Lab File ID: >A1801

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.----- Date Analyzed: 3/18/96

Column: CAP Dilution Factor: 1.00000

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	5.88	0.8	J
2.	Unknown	19.82	0.6	J
3.				
4.				
5.				
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1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

96ZB05R02

Site Name:AMERICAN CHEMICAL SERVICE Contract:ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05R02

Sample wt/vol: 25 (g/mL) ML Lab File ID: >A1795

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.----- Date Analyzed: 3/18/96

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1.	U
75-01-4	Vinyl chloride	1.	U
74-83-9	Bromomethane	1.	U
75-00-3	Chloroethane	1.	U
75-35-4	1,1-Dichloroethene	1.	U
67-64-1	Acetone	3.	U
75-15-0	Carbon disulfide	1.	U
75-09-2	Methylene chloride	.8	J
156-60-5	trans-1,2-Dichloroethene	1.	U
75-34-3	1,1-Dichloroethane	1.	U
594-20-7	2,2-Dichloropropane	1.	U
156-59-2	cis-1,2-Dichloroethene	1.	U
78-93-3	2-Butanone	3.	U
74-97-5	Bromochloromethane	1.	U
67-66-3	Chloroform	1.	U
71-55-6	1,1,1-trichloroethane	1.	U
56-23-5	Carbon tetrachloride	1.	U
563-58-6	1,1-Dichloropropene	1.	U
71-43-2	Benzene	1.	U
107-06-2	1,2-Dichloroethane	1.	U
79-01-6	Trichloroethene	1.	U
78-87-5	1,2-Dichloropropane	1.	U
74-95-3	Dibromomethane	1.	U
75-27-4	Bromodichloromethane	1.	U
10061-01-5	cis-1,3-dichloropropene	1.	U
108-88-3	Toluene	1.	U
108-10-1	4-Methyl-2-pentanone	2.	U
10061-02-6	trans-1,3-Dichloropropene	1.	U
127-18-4	Tetrachloroethene	1.	U
79-00-5	1,1,2-Trichloroethane	1.	U
142-28-9	1,3-Dichloropropane	1.	U
591-78-6	2-Hexanone	2.	U
124-48-1	Dibromochloromethane	1.	U
106-93-4	1,2-Dibromoethane	1.	U
108-90-7	Chlorobenzene	1.	U
630-20-6	1,1,1,2-Tetrachloroethane	1.	U
100-41-4	Ethylbenzene	1.	U

Are there any TICs ? (Please check a box) YES |__| NO |_X|

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

96ZB05R02

Site Name:AMERICAN CHEMICAL SERVICE Contract:ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05R02

Sample wt/vol: 25 (g/mL) ML Lab File ID: >A1795

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.----- Date Analyzed: 3/18/96

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) ug/L	Q
1083836423	m &/or p-Xylene	1.	U
95-47-6	o-Xylene	1.	U
100-42-5	Styrene	1.	U
75-25-2	Bromoform	1.	U
98-82-8	Isopropylbenzene	1.	U
108-86-1	Bromobenzene	1.	U
96-18-4	1,2,3-Trichloropropane	1.	U
79-34-5	1,1,2,2-Tetrachloroethane	1.	U
103-65-1	n-Propylbenzene	1.	U
95-49-8	2-Chlorotoluene	1.	U
106-43-4	4-Chlorotoluene	1.	U
108-67-8	1,3,5-Trimethylbenzene	1.	U
98-06-6	tert-Butylbenzene	1.	U
95-63-6	1,2,4-Trimethylbenzene	1.	U
135-98-8	sec-Butylbenzene	1.	U
541-73-1	1,3-Dichlorobenzene	1.	U
106-46-7	1,4-Dichlorobenzene	1.	U
99-87-6	p-Isopropyltoluene	1.	U
95-50-1	1,2-Dichlorobenzene	1.	U
104-51-8	n-Butylbenzene	1.	U
96-12-8	1,2-Dibromo-3-chloropropane	1.	U
120-82-1	1,2,4-Trichlorobenzene	1.	U
91-20-3	Naphthalene	1.	U
87-68-3	Hexachlorobutadiene	1.	U
87-61-6	1,2,3-Trichlorobenzene	1.	U

Data Qualifiers: U = Compounds were analyzed but not detected. The value reported is the method detection limit for reagent water; J = Estimated; D=Diluted Sample; X = Result rejected for failing mass spectral confirmation; E = Concentration exceeded calibration range; B_ = Contaminant found in laboratory method blank.

1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

96ZB05S01

Site Name:AMERICAN CHEMICAL SERVICE Contract:ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05S01

Sample wt/vol: 25 (g/mL) ML Lab File ID: >A1796

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.----- Date Analyzed: 3/18/96

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1.	U
75-01-4	Vinyl chloride	1.	U
74-83-9	Bromomethane	1.	U
75-00-3	Chloroethane	2.	
75-35-4	1,1-Dichloroethene	1.	U
67-64-1	Acetone	3.	U
75-15-0	Carbon disulfide	1.	U
75-09-2	Methylene chloride	1.	U
156-60-5	trans-1,2-Dichloroethene	1.	U
75-34-3	1,1-Dichloroethane	1.	U
594-20-7	2,2-Dichloropropane	1.	U
156-59-2	cis-1,2-Dichloroethene	1.	U
78-93-3	2-Butanone	3.	U
74-97-5	Bromochloromethane	1.	U
67-66-3	Chloroform	1.	U
71-55-6	1,1,1-trichloroethane	1.	U
56-23-5	Carbon tetrachloride	1.	U
563-58-6	1,1-Dichloropropene	1.	U
71-43-2	Benzene	1.	U
107-06-2	1,2-Dichloroethane	1.	U
79-01-6	Trichloroethene	1.	U
78-87-5	1,2-Dichloropropane	1.	U
74-95-3	Dibromomethane	1.	U
75-27-4	Bromodichloromethane	1.	U
10061-01-5	cis-1,3-dichloropropene	1.	U
108-88-3	Toluene	1.	U
108-10-1	4-Methyl-2-pentanone	2.	U
10061-02-6	trans-1,3-Dichloropropene	1.	U
127-18-4	Tetrachloroethene	1.	U
79-00-5	1,1,2-Trichloroethane	1.	U
142-28-9	1,3-Dichloropropane	1.	U
591-78-6	2-Hexanone	2.	U
124-48-1	Dibromochloromethane	1.	U
106-93-4	1,2-Dibromoethane	1.	U
108-90-7	Chlorobenzene	1.	U
630-20-6	1,1,1,2-Tetrachloroethane	1.	U
100-41-4	Ethylbenzene	1.	U

05/29/96 MKC

Are there any TICs ? (Please check a box) YES |_X| NO |___|

FORM I VOA

1/89 Rev.

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

96ZB05S01

Site Name:AMERICAN CHEMICAL SERVICE Contract:ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05S01

Sample wt/vol: 25 (g/mL) ML Lab File ID: >A1796

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.----- Date Analyzed: 3/18/96

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) ug/L	Q
1083836423	m &/or p-Xylene	1.	U
95-47-6	o-Xylene	1.	U
100-42-5	Styrene	1.	U
75-25-2	Bromoform	1.	U
98-82-8	Isopropylbenzene	1.	U
108-86-1	Bromobenzene	1.	U
96-18-4	1,2,3-Trichloropropane	1.	U
79-34-5	1,1,2,2-Tetrachloroethane	1.	U
103-65-1	n-Propylbenzene	1.	U
95-49-8	2-Chlorotoluene	1.	U
106-43-4	4-Chlorotoluene	1.	U
108-67-8	1,3,5-Trimethylbenzene	1.	U
98-06-6	tert-Butylbenzene	1.	U
95-63-6	1,2,4-Trimethylbenzene	1.	U
135-98-8	sec-Butylbenzene	1.	U
541-73-1	1,3-Dichlorobenzene	1.	U
106-46-7	1,4-Dichlorobenzene	1.	U
99-87-6	p-Isopropyltoluene	1.	U
95-50-1	1,2-Dichlorobenzene	1.	U
104-51-8	n-Butylbenzene	1.	U
96-12-8	1,2-Dibromo-3-chloropropane	1.	U
120-82-1	1,2,4-Trichlorobenzene	1.	U
91-20-3	Naphthalene	1.	U
87-68-3	Hexachlorobutadiene	1.	U
87-61-6	1,2,3-Trichlorobenzene	1.	U

Data Qualifiers: U = Compounds were analyzed but not detected. The value reported is the method detection limit for reagent water; J = Estimated; D=Diluted Sample; X = Result rejected for failing mass spectral confirmation; E = Concentration exceeded calibration range; B_ = Contaminant found in laboratory method blank.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

96ZB05S01

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05S01

Sample wt/vol: 25 (g/mL) ML Lab File ID: >A1796

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.----- Date Analyzed: 3/18/96

Column: CAP Dilution Factor: 1.00000

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown hydrocarbon	5.98	0.7	J
2.				
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EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

96ZB05S02

Site Name:AMERICAN CHEMICAL SERVICE Contract:ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05S02

Sample wt/vol: 25 (g/mL) ML Lab File ID: >A1797

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.----- Date Analyzed: 3/18/96

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1.	U
75-01-4	Vinyl chloride	1.	U
74-83-9	Bromomethane	1.	U
75-00-3	Chloroethane	1.	U
75-35-4	1,1-Dichloroethene	1.	U
67-64-1	Acetone	3.	
75-15-0	Carbon disulfide	1.	U
75-09-2	Methylene chloride	2.	U
156-60-5	trans-1,2-Dichloroethene	1.	U
75-34-3	1,1-Dichloroethane	1.	U
594-20-7	2,2-Dichloropropane	1.	U
156-59-2	cis-1,2-Dichloroethene	1.	U
78-93-3	2-Butanone	3.	U
74-97-5	Bromochloromethane	1.	U
67-66-3	Chloroform	1.	U
71-55-6	1,1,1-trichloroethane	1.	U
56-23-5	Carbon tetrachloride	1.	U
563-58-6	1,1-Dichloropropene	1.	U
71-43-2	Benzene	1.	U
107-06-2	1,2-Dichloroethane	1.	U
79-01-6	Trichloroethene	1.	U
78-87-5	1,2-Dichloropropane	1.	U
74-95-3	Dibromomethane	1.	U
75-27-4	Bromodichloromethane	1.	U
10061-01-5	cis-1,3-dichloropropene	1.	U
108-88-3	Toluene	1.	U
108-10-1	4-Methyl-2-pentanone	2.	U
10061-02-6	trans-1,3-Dichloropropene	1.	U
127-18-4	Tetrachloroethene	1.	U
79-00-5	1,1,2-Trichloroethane	1.	U
142-28-9	1,3-Dichloropropane	1.	U
591-78-6	2-Hexanone	2.	U
124-48-1	Dibromochloromethane	1.	U
106-93-4	1,2-Dibromoethane	1.	U
108-90-7	Chlorobenzene	1.	U
630-20-6	1,1,1,2-Tetrachloroethane	1.	U
100-41-4	Ethylbenzene	1.	U

05/29/96 mKC

Are there any TICs ? (Please check a box) YES |_X| NO |___|

FORM I VOA

1/89 Rev.

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

96ZB05S02

Site Name:AMERICAN CHEMICAL SERVICE Contract:ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05S02

Sample wt/vol: 25 (g/mL) ML Lab File ID: >A1797

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.----- Date Analyzed: 3/18/96

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) ug/L	Q
1083836423	m &/or p-Xylene	1.	U
95-47-6	o-Xylene	1.	U
100-42-5	Styrene	1.	U
75-25-2	Bromoform	1.	U
98-82-8	Isopropylbenzene	1.	U
108-86-1	Bromobenzene	1.	U
96-18-4	1,2,3-Trichloropropane	1.	U
79-34-5	1,1,2,2-Tetrachloroethane	1.	U
103-65-1	n-Propylbenzene	1.	U
95-49-8	2-Chlorotoluene	1.	U
106-43-4	4-Chlorotoluene	1.	U
108-67-8	1,3,5-Trimethylbenzene	1.	U
98-06-6	tert-Butylbenzene	1.	U
95-63-6	1,2,4-Trimethylbenzene	1.	U
135-98-8	sec-Butylbenzene	1.	U
541-73-1	1,3-Dichlorobenzene	1.	U
106-46-7	1,4-Dichlorobenzene	1.	U
99-87-6	p-Isopropyltoluene	1.	U
95-50-1	1,2-Dichlorobenzene	1.	U
104-51-8	n-Butylbenzene	1.	U
96-12-8	1,2-Dibromo-3-chloropropane	1.	U
120-82-1	1,2,4-Trichlorobenzene	1.	U
91-20-3	Naphthalene	1.	U
87-68-3	Hexachlorobutadiene	1.	U
87-61-6	1,2,3-Trichlorobenzene	1.	U

Data Qualifiers: U = Compounds were analyzed but not detected. The value reported is the method detection limit for reagent water; J = Estimated; D=Diluted Sample; X = Result rejected for failing mass spectral confirmation; E = Concentration exceeded calibration range; B_ = Contaminant found in laboratory method blank.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

96ZB05S02

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05S02

Sample wt/vol: 25 (g/mL) ML Lab File ID: >A1797

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.----- Date Analyzed: 3/18/96

Column: CAP Dilution Factor: 1.00000

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown hydrocarbon	5.72	0.6	J
2.	Unknown	19.82	1.	UJ
3.	Unknown	24.00	2.	J
4.				
5.				
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EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

96ZB05D02

Site Name:AMERICAN CHEMICAL SERVICE Contract:ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05D02

Sample wt/vol: 25 (g/mL) ML Lab File ID: >A1798

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.----- Date Analyzed: 3/18/96

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1.	U
75-01-4	Vinyl chloride	1.	U
74-83-9	Bromomethane	1.	U
75-00-3	Chloroethane	1.	U
75-35-4	1,1-Dichloroethene	1.	U
67-64-1	Acetone	3.	U
75-15-0	Carbon disulfide	1.	U
75-09-2	Methylene chloride	2.	U
156-60-5	trans-1,2-Dichloroethene	1.	U
75-34-3	1,1-Dichloroethane	1.	U
594-20-7	2,2-Dichloropropane	1.	U
156-59-2	cis-1,2-Dichloroethene	1.	U
78-93-3	2-Butanone	3.	U
74-97-5	Bromochloromethane	1.	U
67-66-3	Chloroform	1.	U
71-55-6	1,1,1-trichloroethane	1.	U
56-23-5	Carbon tetrachloride	1.	U
563-58-6	1,1-Dichloropropene	1.	U
71-43-2	Benzene	1.	U
107-06-2	1,2-Dichloroethane	1.	U
79-01-6	Trichloroethene	1.	U
78-87-5	1,2-Dichloropropane	1.	U
74-95-3	Dibromomethane	1.	U
75-27-4	Bromodichloromethane	1.	U
10061-01-5	cis-1,3-dichloropropene	1.	U
108-88-3	Toluene	1.	U
108-10-1	4-Methyl-2-pentanone	2.	U
10061-02-6	trans-1,3-Dichloropropene	1.	U
127-18-4	Tetrachloroethene	1.	U
79-00-5	1,1,2-Trichloroethane	1.	U
142-28-9	1,3-Dichloropropane	1.	U
591-78-6	2-Hexanone	2.	U
124-48-1	Dibromochloromethane	1.	U
106-93-4	1,2-Dibromoethane	1.	U
108-90-7	Chlorobenzene	1.	U
630-20-6	1,1,1,2-Tetrachloroethane	1.	U
100-41-4	Ethylbenzene	1.	U

05/29/96 mKC

Are there any TICs ? (Please check a box) YES |_X| NO |___|

FORM I VOA

1/89 Rev.

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

96ZB05D02

Site Name:AMERICAN CHEMICAL SERVICE Contract:ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05D02

Sample wt/vol: 25 (g/mL) ML Lab File ID: >A1798

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.----- Date Analyzed: 3/18/96

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
1083836423	m &/or p-Xylene	1.	U
95-47-6	o-Xylene	1.	U
100-42-5	Styrene	1.	U
75-25-2	Bromoform	1.	U
98-82-8	Isopropylbenzene	1.	U
108-86-1	Bromobenzene	1.	U
96-18-4	1,2,3-Trichloropropane	1.	U
79-34-5	1,1,2,2-Tetrachloroethane	1.	U
103-65-1	n-Propylbenzene	1.	U
95-49-8	2-Chlorotoluene	1.	U
106-43-4	4-Chlorotoluene	1.	U
108-67-8	1,3,5-Trimethylbenzene	1.	U
98-06-6	tert-Butylbenzene	1.	U
95-63-6	1,2,4-Trimethylbenzene	1.	U
135-98-8	sec-Butylbenzene	1.	U
541-73-1	1,3-Dichlorobenzene	1.	U
106-46-7	1,4-Dichlorobenzene	1.	U
99-87-6	p-Isopropyltoluene	1.	U
95-50-1	1,2-Dichlorobenzene	1.	U
104-51-8	n-Butylbenzene	1.	U
96-12-8	1,2-Dibromo-3-chloropropane	1.	U
120-82-1	1,2,4-Trichlorobenzene	1.	U
91-20-3	Naphthalene	1.	U
87-68-3	Hexachlorobutadiene	1.	U
87-61-6	1,2,3-Trichlorobenzene	1.	U

Data Qualifiers: U = Compounds were analyzed but not detected. The value reported is the method detection limit for reagent water; J = Estimated; D=Diluted Sample; X = Result rejected for failing mass spectral confirmation; E = Concentration exceeded calibration range; B_ = Contaminant found in laboratory method blank.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

96ZB05D02

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05D02

Sample wt/vol: 25 (g/mL) ML Lab File ID: >A1798

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.----- Date Analyzed: 3/18/96

Column: CAP Dilution Factor: 1.00000

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown hydrocarbon	5.70	0.5	J
2.	Unknown alcohol	19.82	2.	UJ
3.	Unknown	24.01	2.	J
4.				
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EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

96ZB05S03

Site Name:AMERICAN CHEMICAL SERVICE Contract:ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05S03

Sample wt/vol: 25 (g/mL) ML Lab File ID: >A1799

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.----- Date Analyzed: 3/18/96

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1.	U
75-01-4	Vinyl chloride	1.	U
74-83-9	Bromomethane	1.	U
75-00-3	Chloroethane	1.	U
75-35-4	1,1-Dichloroethene	1.	U
67-64-1	Acetone	3.	U
75-15-0	Carbon disulfide	1.	U
75-09-2	Methylene chloride	.7 U	J
156-60-5	trans-1,2-Dichloroethene	1.	U
75-34-3	1,1-Dichloroethane	1.	U
594-20-7	2,2-Dichloropropane	1.	U
156-59-2	cis-1,2-Dichloroethene	1.	U
78-93-3	2-Butanone	3.	U
74-97-5	Bromochloromethane	1.	U
67-66-3	Chloroform	1.	U
71-55-6	1,1,1-trichloroethane	1.	U
56-23-5	Carbon tetrachloride	1.	U
563-58-6	1,1-Dichloropropene	1.	U
71-43-2	Benzene	1.	U
107-06-2	1,2-Dichloroethane	1.	U
79-01-6	Trichloroethene	1.	U
78-87-5	1,2-Dichloropropane	1.	U
74-95-3	Dibromomethane	1.	U
75-27-4	Bromodichloromethane	1.	U
10061-01-5	cis-1,3-dichloropropene	1.	U
108-88-3	Toluene	1.	U
108-10-1	4-Methyl-2-pentanone	2.	U
10061-02-6	trans-1,3-Dichloropropene	1.	U
127-18-4	Tetrachloroethene	1.	U
79-00-5	1,1,2-Trichloroethane	1.	U
142-28-9	1,3-Dichloropropane	1.	U
591-78-6	2-Hexanone	2.	U
124-48-1	Dibromochloromethane	1.	U
106-93-4	1,2-Dibromoethane	1.	U
108-90-7	Chlorobenzene	1.	U
630-20-6	1,1,1,2-Tetrachloroethane	1.	U
100-41-4	Ethylbenzene	1.	U

05/29/96 mKC

Are there any TICs ? (Please check a box) YES |_X| NO |___|

FORM I VOA

1/89 Rev.

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

96ZB05S03

Site Name:AMERICAN CHEMICAL SERVICE Contract:ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05S03

Sample wt/vol: 25 (g/mL) ML Lab File ID: >A1799

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.----- Date Analyzed: 3/18/96

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) ug/L	Q
1083836423	m &/or p-Xylene	1.	U
95-47-6	o-Xylene	1.	U
100-42-5	Styrene	1.	U
75-25-2	Bromoform	1.	U
98-82-8	Isopropylbenzene	1.	U
108-86-1	Bromobenzene	1.	U
96-18-4	1,2,3-Trichloropropane	1.	U
79-34-5	1,1,2,2-Tetrachloroethane	1.	U
103-65-1	n-Propylbenzene	1.	U
95-49-8	2-Chlorotoluene	1.	U
106-43-4	4-Chlorotoluene	1.	U
108-67-8	1,3,5-Trimethylbenzene	1.	U
98-06-6	tert-Butylbenzene	1.	U
95-63-6	1,2,4-Trimethylbenzene	1.	U
135-98-8	sec-Butylbenzene	1.	U
541-73-1	1,3-Dichlorobenzene	1.	U
106-46-7	1,4-Dichlorobenzene	1.	U
99-87-6	p-Isopropyltoluene	1.	U
95-50-1	1,2-Dichlorobenzene	1.	U
104-51-8	n-Butylbenzene	1.	U
96-12-8	1,2-Dibromo-3-chloropropane	1.	U
120-82-1	1,2,4-Trichlorobenzene	1.	U
91-20-3	Naphthalene	1.	U
87-68-3	Hexachlorobutadiene	1.	U
87-61-6	1,2,3-Trichlorobenzene	1.	U

Data Qualifiers: U = Compounds were analyzed but not detected. The value reported is the method detection limit for reagent water; J = Estimated; D=Diluted Sample; X = Result rejected for failing mass spectral confirmation; E = Concentration exceeded calibration range; B_ = Contaminant found in laboratory method blank.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

96ZB05S03

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05S03

Sample wt/vol: 25 (g/mL) ML Lab File ID: >A1799

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.----- Date Analyzed: 3/18/96

Column: CAP Dilution Factor: 1.00000

Number TICs found: 1

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown	19.83	0.6	UJ
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
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1A

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

96ZB05S04

Site Name:AMERICAN CHEMICAL SERVICE Contract:ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05S04

Sample wt/vol: 25 (g/mL) ML Lab File ID: >A1800

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.----- Date Analyzed: 3/18/96

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1.	U
75-01-4	Vinyl chloride	1.	U
74-83-9	Bromomethane	1.	U
75-00-3	Chloroethane	1.	U
75-35-4	1,1-Dichloroethene	1.	U
67-64-1	Acetone	3.	U
75-15-0	Carbon disulfide	1.	U
75-09-2	Methylene chloride	2.	U
156-60-5	trans-1,2-Dichloroethene	1.	U
75-34-3	1,1-Dichloroethane	1.	U
594-20-7	2,2-Dichloropropane	1.	U
156-59-2	cis-1,2-Dichloroethene	1.	U
78-93-3	2-Butanone	3.	U
74-97-5	Bromochloromethane	1.	U
67-66-3	Chloroform	1.	U
71-55-6	1,1,1-trichloroethane	1.	U
56-23-5	Carbon tetrachloride	1.	U
563-58-6	1,1-Dichloropropene	1.	U
71-43-2	Benzene	1.	U
107-06-2	1,2-Dichloroethane	1.	U
79-01-6	Trichloroethene	1.	U
78-87-5	1,2-Dichloropropane	1.	U
74-95-3	Dibromomethane	1.	U
75-27-4	Bromodichloromethane	1.	U
10061-01-5	cis-1,3-dichloropropene	1.	U
108-88-3	Toluene	1.	U
108-10-1	4-Methyl-2-pentanone	2.	U
10061-02-6	trans-1,3-Dichloropropene	1.	U
127-18-4	Tetrachloroethene	1.	U
79-00-5	1,1,2-Trichloroethane	1.	U
142-28-9	1,3-Dichloropropane	1.	U
591-78-6	2-Hexanone	2.	U
124-48-1	Dibromochloromethane	1.	U
106-93-4	1,2-Dibromoethane	1.	U
108-90-7	Chlorobenzene	1.	U
630-20-6	1,1,1,2-Tetrachloroethane	1.	U
100-41-4	Ethylbenzene	1.	U

05/29/96 mKC

Are there any TICs ? (Please check a box) YES |_X| NO |___|

FORM I VOA

1/89 Rev.

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET

96ZB05S04

Site Name:AMERICAN CHEMICAL SERVICE Contract:ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05S04

Sample wt/vol: 25 (g/mL) ML Lab File ID: >A1800

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.----- Date Analyzed: 3/18/96

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) ug/L	Q
1083836423	m &/or p-Xylene	1.	U
95-47-6	o-Xylene	1.	U
100-42-5	Styrene	1.	U
75-25-2	Bromoform	1.	U
98-82-8	Isopropylbenzene	1.	U
108-86-1	Bromobenzene	1.	U
96-18-4	1,2,3-Trichloropropane	1.	U
79-34-5	1,1,2,2-Tetrachloroethane	1.	U
103-65-1	n-Propylbenzene	1.	U
95-49-8	2-Chlorotoluene	1.	U
106-43-4	4-Chlorotoluene	1.	U
108-67-8	1,3,5-Trimethylbenzene	1.	U
98-06-6	tert-Butylbenzene	1.	U
95-63-6	1,2,4-Trimethylbenzene	1.	U
135-98-8	sec-Butylbenzene	1.	U
541-73-1	1,3-Dichlorobenzene	1.	U
106-46-7	1,4-Dichlorobenzene	1.	U
99-87-6	p-Isopropyltoluene	1.	U
95-50-1	1,2-Dichlorobenzene	1.	U
104-51-8	n-Butylbenzene	1.	U
96-12-8	1,2-Dibromo-3-chloropropane	1.	U
120-82-1	1,2,4-Trichlorobenzene	1.	U
91-20-3	Naphthalene	1.	U
87-68-3	Hexachlorobutadiene	1.	U
87-61-6	1,2,3-Trichlorobenzene	1.	U

Data Qualifiers: U = Compounds were analyzed but not detected. The value reported is the method detection limit for reagent water; J = Estimated; D=Diluted Sample; X = Result rejected for failing mass spectral confirmation; E = Concentration exceeded calibration range; B_ = Contaminant found in laboratory method blank.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

96ZB05S04

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05S04

Sample wt/vol: 25 (g/mL) ML Lab File ID: >A1800

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.----- Date Analyzed: 3/18/96

Column: CAP Dilution Factor: 1.00000

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	19.83	1.	UJ
2.	Unknown	24.01	0.8	J
3.				
4.				
5.				
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05/29/
mKC

Semivolatiles

Site: American Chemical Service Project#: 71670.600

Case: 960047 SDG: Date: 05/29/96

Data Validation Data Validator: M. Coleas

Data was qualified according to the results and findings described in the data narrative. The information in this narrative was validated and the calculations are provided in the attached pages. Data qualifiers were also applied to the results based on calibration outliers, surrogate recoveries and other appropriate results.

Validation was accomplished through the use of USEPA National Functional Guidelines for Organic Data Review (February 1994) and USEPA Region 5 Standard Operating Procedure for Validation of CLP Organic Data (August 25, 1993 revision). Calculations did not reveal any discrepancies other than those noted in the following pages.

The influence of sample bias for SSI and ESI data is indicated following each qualification. Bias is indicated by an upward arrow for high bias, a downward arrow for low bias and with unkbias for unknown bias. The sample bias for J qualifiers that are placed by the lab are of unknown bias. The sample bias designation for each J qualification is given in the following pages.

Additional Comments:

Site: American Chemical Service Project#: 71670.600
Case: 960047 SDG: _____ Date: 05/29/96

1. **Holding Times**

05/29/96 mKC All samples were extracted and analyzed within the specified holding times according to the EPA reviewer.
_____ See attached pages for qualification.

2. **GC/MS Tuning and GC Instrument Performance**

05/29/96 mKC Tuning and instrument performance checks were satisfactory as stated by the EPA reviewer in the narrative.
_____ See attached pages for qualification.

3. **Calibration**

Calibration outliers are listed on the outlier forms for each parameter. All compounds that require qualification due to calibration outliers are qualified with a J for estimate and have an unknown bias. Samples and compounds that require qualification are listed on the calibration outlier pages in the EPA narrative.

VOA

_____ No calibration outliers.
N/A See EPA narrative for samples and compounds to be qualified and attached pages for calculations.

SVOA

_____ No calibration outliers.
05/29/96 mKC See EPA narrative for samples and compounds to be qualified and attached pages for calculations.

Pest/PCB

_____ No calibration outliers.
N/A See EPA narrative for samples and compounds to be qualified and attached pages for calculations.

4. **Blanks**

VOA

_____ Samples were qualified appropriately by the EPA reviewer for VOA blank contaminants. See the narrative for sample and compound qualifications.
N/A
_____ See the attached pages for additional VOA blank qualifications or corrections.

SVOA

_____ Samples were qualified appropriately by the EPA reviewer for SVOA blank contaminants. See the narrative for sample and compound qualifications.
05/29/96 mKC See the attached pages for additional SVOA blank qualifications or corrections.

Pest/PCB

____ Samples were qualified appropriately by the EPA reviewer for Pest/PCB blank contaminants. See the narrative for sample and compound qualifications.

N/A

____ See the attached pages for additional Pest/PCB blank qualifications or corrections.

5. Surrogate Recovery

VOA

____ VOA surrogate recoveries are within acceptable limits, no qualification is necessary.

N/A

____ See attached pages and narrative for samples and compounds qualified for unacceptable VOA surrogate recovery.

SVOA

____ SVOA surrogate recoveries are within acceptable limits, no qualification is necessary.

05/29/96 See attached pages and narrative for samples and compounds

MKC qualified for unacceptable SVOA surrogate recovery.

Pest/PCB

____ Pest/PCB surrogate recoveries are within acceptable limits, no qualification is necessary.

N/A

____ See attached pages and narrative for samples and compounds qualified for unacceptable Pest/PCB surrogate recovery.

6. ~~MS/MSD and RPD (~~Laboratory Control Sample)

See attached pages for calculations.

VOA

____ VOA MS/MSD recoveries and RPD are within acceptable limits.

N/A

____ See attached pages and narrative for VOA compounds to be qualified in the unspiked sample due to unacceptable MS/MSD recoveries and/or RPD.

SVOA MKC LCS

05/29/96 SVOA ~~MS/MSD~~ recoveries and RPD are within acceptable limits.

____ See attached pages and narrative for SVOA compounds to be qualified in the unspiked sample due to unacceptable MS/MSD recoveries and/or RPD.

Pest/PCB

____ Pest/PCB MS/MSD recoveries and RPD are within acceptable limits.

N/A

____ See attached pages and narrative for Pest/PCB compounds to be qualified in the unspiked sample due to unacceptable MS/MSD recoveries and/or RPD.

7. **Field Blanks, Field Duplicates and other QC**

Field blanks and other QC are evaluated in the QC section. See the attached table comparing duplicate concentrations. No qualification of the sample results is made based on field duplicate recoveries per Region 5 Standard Operating Procedure for Validation of CLP Organic Data.

____ There were no duplicates for any of the matrices.

VOA

____ Duplicate results were acceptable (no conc. difference of 5X or greater).

N/A See attached table for unacceptable duplicate results.

SVOA mKC

05/30/96 Duplicate results were acceptable (no conc. difference of 5X or greater).

____ See attached table for unacceptable duplicate results.

Pest/PCB

____ Duplicate results were acceptable (no conc. difference of 5X or greater).

N/A See attached table for unacceptable duplicate results.

8. **Internal Standards**

VOA

____ All internal standards met QC requirements according to the EPA reviewer.

N/A See attached pages for qualification of samples and compounds.

SVOA mKC

05/30/96 All internal standards met QC requirements according to the EPA reviewer.

____ See attached pages for qualification of samples and compounds.

Pest/PCB

____ All Pest/PCB QC requirements were met according to the EPA reviewer.

N/A See attached pages for qualification of samples and compounds.

9. **Compound Quantification and Reported Detection Limits**

05/30/96 mKC All target compounds and TICs were properly reported in the volatile, semi-volatile, and pesticide fractions; therefore data is acceptable according to the EPA reviewer.

____ See the attached pages for samples and compounds to be qualified.

10. Compound Identification

05\30\96 mKC Target compounds and TICs were identified by 'best fit' library search method and appear to be correct according to the EPA reviewer.

_____ See attached pages for additional comments.

11. System Performance

05\30\96 mKC Acceptable according to the EPA reviewer.

_____ See attached pages for additional comments and/or deviations.

12. Overall Case Assessment

05\30\96 mKC No additional qualifications according to the EPA reviewer.

_____ See attached pages for additional qualifications.

Blank Analysis

_____ There were no field or trip blanks.

05\30\96 mKC See the blank analysis section for sample and compound qualifications based on blank results.

BLACK & VEATCH SPECIAL PROJECTS CORP.

Owner: American Chemical Service
Plant: Unit:
Project No. 71670.600 File No.
Title: Data Validation of water Samples - Semivolatiles

Computed By: [illegible]
Date: 05/20 19[illegible]
Checked By:
Date: 19
Page 1 of 1

DO NOT WRITE IN THIS SPACE

3. Calibration

For the initial calibration, 2,4-dinitrophenol exceeded the QC criteria of ≤ 30% RSD with an RSD of 30.3%.

2,4-Dinitrophenol was qualified "J" for detected compounds and "UJ" for non-detected compounds.

For the continuing calibration, all the compounds met the criteria of ≤ 25% D (difference between initial and continuing calibration).

The % difference between the initial and continuing calibration Relative Response Factors (RRFs) could not be calculated, since the laboratory did not include the calibration outlier sheets.

4. BLANKS

The lab method blank contained bis(2-ethylhexyl)phthalate, which is a common laboratory contaminant. The data narrator qualified bis(2-ethylhexyl) phthalate "B" in all of the associated samples.

Sample 96ZB05R01 is a rinseate blank. The blank was non-detect for all target compounds, except bis(2-ethylhexyl)phthalate). This compound is a laboratory contaminant. Any laboratory contaminant detected in a sample that was also detected in any associated blank is qualified if the sample concentration is less than 10X the blank concentration.

Bis(2-ethylhexyl)phthalate

$4.0\ ug/l \times 10 = 40\ ug/l$

Bis(2-ethylhexyl)phthalate was qualified "U" in the following samples: 96ZB05S01, 96ZB05S03, and 96ZB05S04.

5. SURROGATES

All of the surrogate recoveries were within the QC limits, except for nitrobenzene-d5, 2-Fluorobiphenyl,

REVISED, SUPERSEDED, AND VOID CALCULATIONS MUST BE CLEARLY IDENTIFIED, INITIALED, AND DATED BY THE RESPONSIBLE INDIVIDUAL

(over)

lower QC limit for sample 962B05S04. positive results for sample 962B05S04 were qualified "J", while non-detect results were qualified unusable "UR".

6. Matrix Spike/Matrix Spike Duplicate

The laboratory prepared a laboratory control sample instead of a MS/MSD. The recoveries of all compounds were within the QC limits.

7. Field Duplicates

Sample 962B05D02 is a field duplicate of sample 962B05S02. The only compounds detected in both samples were bis(2-ethylhexyl) phthalate and a TIC (RT 4.60). The concentrations were within 5X of each other.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CENTRAL REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605

Date: APR 0 2 1996

Subject: Review of Region 5 Data for **AMERICAN CHEMICAL SERVICE**

From: Charles T. Elly, Director Chuck Elly
Region 5 Central Regional Laboratory

To: Black & Veatch

Attached are the results for: **American Chemical Service**
CRL request number: **960047**
Analyzed for: **ABN (Organics)**
Results are reported for sample designations: 96ZB05S01 to -S04, -D02 and -R01 (6 water samples)

Results Status:
(X) Acceptable for Use **except** the compound results qualified **UR** and **UJ**. Please see case narrative for details.

(X) Data Qualified but acceptable for Use for the compounds qualified **UJ**. See the attached case narrative.

(X) Data Unacceptable for Use for the compounds qualified **UR**. See the attached case narrative on the field sample 96ZB05S04.

(X) Sewer Disposal Criteria Met; Exceptions: none
Comments on Data Quality by Reviewer:

- The surrogate spike compound recoveries in the field sample 96ZB05S04 were biased low for four of the six surrogates. Thus, its data were qualified estimated (J) for detected compounds and unacceptable (UR) for use for all non-detects. No other major problems were observed.

Comments by Laboratory Director or Quality Control Coordinator

Review Record for **American Chemical Service** **960047** **ABN (Organics)**

Robin Petruchuk 03/29/96

Task Monitor Date (X) Reviewed ( ) Unreviewed

Chi Tang 4/2/96

Team Leader Date (✓) Reviewed ( ) Unreviewed

Chuck Ellis 4/2/96

QC Coordinator (**VACANT**) Date ( ) Reviewed (✓) Unreviewed

Sylvia Griffin APR 0 2 1996

Data Management Coordinator and Date Received

Date Transmitted APR 0 2 1996

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
SL - 10C

Received by and Date

Comments:

960047

TFA301

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM: TOXIC SUBSTANCES

DIVISION/BRANCH SUPERFUND SAMPLE DATE 3/12-14/96 LAB ARRIVAL DATE 3/14/96 DUE DATE 4/4/96

DU NUMBER TFA DATA SET NUMBER 960047 STUDY AMERICAN CHEMICAL SERVICE PRIORITY N CONTRACTOR BLACK & VEATCH

CRL LOG NUMBER	SAMPLE DESCRIPTION	WATER VOLATILE ORGANICS SCAN UG/L TOX 17664	WATER ABN ORGANICS SCAN UG/L TOX 17674	SEDIMENTS SOLIDS VOLATILE ORGANICS SCAN MG/KG (DRY) TOX 216622	SEDIMENTS SOLIDS ABN ORGANICS SCAN MG/KG (DRY) TOX 215722
96ZB05S01	5-180456-57-58-59-60-61 ACS-GW01-001	X			
96ZB05S02	5-180470-471 ACS-GW02-001	X			
96ZB05D02	5-180476-477 ACS-GW02-101	X			
96ZB05S03	5-180482-483 ACS-GW03-001	X			
96ZB05S04	5-180151-152 ACS-GW04-001	X			
96ZB05R01	5-181919-920 ACS-RB01-201	X			
96ZB05R02	5-180488-489 ACS-TB01-201	X			
96ZB05S01	ACS-GW01-001 5-180462-463		X		
96ZB05S02	ACS-GW02-001 5-180472		X		
96ZB05D02	ACS-GW02-101 5-180478		X		
96ZB05S03	ACS-GW03-001 5-180484		X		
96ZB05S04	ACS-GW04-001 5-180153		X		
96ZB05R01	ACS-RB01-201 5-181921		X		

Bryan [illegible] 3-20-96

CASE NARRATIVE

DATE: March 25, 1996

PROJECT NAME: American Chemical Service
CRL Case #: 960047 Analysis of Semivolatile Organic Analysis (SVOA)

ANALYST: Ziyad Rajabi, Lockheed/ESAT Organic Group Leader

REVIEWERS: Ira Wilson, ESAT Organic Supervisor
Dennis Miller, Lockheed/ESAT Team Manager
Babu Paruchuri, EPA Task Monitor

I. CASE DESCRIPTION:

The laboratory received in good condition 6 residential well samples (96ZB05S01 to -S04, and -R01) on March 14, 1996 for semivolatile organic analyte (SVOA) analysis. The samples were collected March 12 to March 14, 1996 and were extracted on March 18, 1996 which is within the holding time requirements for water samples. [QC Criteria for holding time: Seven days from the date of collection]. Sample extracts were analyzed within the holding time requirements. [QC Criteria for sample holding time: Forty days from the date of the extraction]. No problems were observed.

II. INSTRUMENT QUALITY CONTROLS:

1. **Instrument Performance Check:** Performance checks using decafluorotriphenylphosphine (DFTPP) were made to determine if acceptable EPA tuning criteria were met. The QC criteria are the same as the CLP IFB's criteria. No problems were observed.

2. **Initial Calibrations (IC):** An acceptable five-point initial calibration (IC) is required for all target compounds before samples can be analyzed. (QC criteria for IC: %RSD must be ≤ 30%). The initial calibration was generated on March 15, 1996 on the HP5996. All of the target compounds %RSDs were acceptable except for 2,4-dinitrophenol (%RSD=30.3); therefore, results 2,4-dinitrophenol will be flagged as estimated (J) for detected compounds while all non-detects will be flagged as estimated (UJ). No other problems were observed.

3. **Continuing Calibrations (CC):** The QC criteria for the continuing calibration are (CC: %D must be ≤ 25%).

For the continuing calibrations generated on March 15, and March 20, 1996, all of the target compounds %D were acceptable; therefore, results are acceptable. No problems were observed.

4. **Internal Standard (IS) Area and Retention Time (RT) Summary:** The QC criteria states that the IS area of samples must be within 50% of the IS area of the corresponding CC. The RT of the IS for samples must also be within 30 seconds of the RT of the IS for the corresponding CC.

All internal standard areas met the QC requirements; therefore, results are acceptable. No problems were observed. See Form VIII

III. METHOD QUALITY CONTROL:

1. **Method Blank Results:** One Lab Blank (de-ionized water spiked with surrogates) was extracted with this data set to check for contamination.

The blank extracted on March 18, 1996 reported bis(2-Ethylhexyl)phthalate and no TICs. bis(2-Ethylhexyl)phthalate is a common laboratory contaminant. All positive results for bis(2-Ethylhexyl)phthalate are qualified (B) in all of the associated samples. [See Form I SVOA].

2. **Surrogate Spike Compound Results:** The surrogate spike compound recovery data are within the QC limits except for low nitrobenzene-d5, 2-fluorobiphenyl, phenol-d5, and 2-fluorophenol recoveries in sample 96ZB05S04; therefore, this sample results will be flagged as estimated (J) for detected compounds while all non-detects will be flagged as unusable (UR).

3. **Laboratory Control Sample (LCS):** Laboratory control samples were prepared by spiking deionized water with 750 µL of the ABN spike standard which contained all of the target analytes except for 2,4-dinitrotoluene. The final concentration in the extracted sample was expected to be 75 µg/L for all target analytes. ESAT was instructed by the Task Monitor to substitute 2,6-dinitrotoluene for 2,4-dinitrotoluene on form 3LCA.

For the LAB SPIKE extracted on March 18, 1996, all recoveries were within their QC limit; therefore, results are acceptable.

4.88 **Performance Evaluation Sample (PES):** The laboratory

77analyzed the March PES. The QC criteria for the PES are the control limits established by EMSL-LV.

IV. SAMPLE RESULTS

The laboratory met the qualitative and quantitative analysis requirements for TCLs and TICs.

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab code: 5SCRL Case No.: 960047 SAS No.: SDG No.:

	EPA SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (PHL) #	S5 (2FP) #	S6 (TBP) #	S7 ( ) #	TOT OUT
01	LAB BLANK	62	68	96	57	59	73		0
02	LAB SPIKE	98	93	96	76	90	99		0
03	96ZB05R01	90	82	95	72	82	80		0
04	96ZB05S01	95	84	83	78	87	93		0
05	96ZB05S02	93	73	103	80	83	85		0
06	96ZB05D02	102	88	115	78	86	91		0
07	96ZB05S03	96	85	117	83	84	90		0
08	96ZB05S04	2 *	12 *	105	5 *	2 *	75		4
09									
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		QC LIMITS
S1 (NBZ)	= Nitrobenzene-d5	(35-114)
S2 (FBP)	= 2-Fluorobiphenyl	(43-116)
S3 (TPH)	= Terphenyl-d14	(33-141)
S4 (PHL)	= Phenol-d5	(10-100)
S5 (2FP)	= 2-Fluorophenol	(21-110)
S6 (TBP)	= 2,4,6-Tribromophenol	(10-123)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogates diluted out

FORM II SV-1 1/87 Rev

11B
SEMIVOLATILE ORGANICS LAB CONTROL SPIKE

EPA SAMPLE NO.

LAB SPIKE

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: LAB SPIKE

Sample wt/vol: 1000 (g/ml) ML Lab File ID: >E1042

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec. ---- dec. 100 Date Extracted: 03/18/96

Extraction: (Sepf/Cont/Sonc) CONT Date Analyzed: 03/20/96

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

COMPOUND	Conc	Spike	Recovery
Phenol	65	75	86
bis(2-Chloroethyl)ether	67	75	90
2-Chlorophenol	68	75	90
N-Nitroso-di-n-propylamine	73	75	97
Hexachloroethane	62	75	83
Isophorone	71	75	94
1,2,4-Trichlorobenzene	67	75	89
Naphthalene	65	75	87
4-Chloroaniline	46	75	62
2,4,6-Trichlorophenol	74	75	99
2,6-Dinitrotoluene	75	75	100
2,4-Dinitrotoluene			
Diethylphthalate	66	75	88
N-Nitrosodiphenylamine	64	75	86
Hexachlorobenzene	64	75	85
Benzo(a)pyrene	74	75	98

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab code: 5SCRL Case No.: 960047 SAS No.: SDG No.:

Lab File ID: >E1041 Lab Sample ID: LAB BLANK

Date Extracted: 03/18/96 Extraction:(Sepf/Cont/Sonc) CONT

Date Analyzed: 03/20/96 Time Analyzed: 12:20

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

Instrument ID: HP5996

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
1	LAB SPIKE	LAB SPIKE	>E1042	03/20/96
2	96ZB05R01	96ZB05R01	>E1049	03/20/96
3	96ZB05S01	96ZB05S01	>E1050	03/20/96
4	96ZB05S02	96ZB05S02	>E1051	03/20/96
5	96ZB05D02	96ZB05D02	>E1052	03/20/96
6	96ZB05S03	96ZB05S03	>E1053	03/20/96
7	96ZB05S04	96ZB05S04	>E1054	03/20/96
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COMMENTS: _____

FORM IV SV 1/87 Rev.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LAB BLANK

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: LAB BLANK

Sample wt/vol: 1000 (g/ml) ML Lab File ID: >E1041

Level: (low/med) LOW Date Received: 03/18/96

% Moisture: not dec. ---- dec. 100 Date Extracted: 03/18/96

Extraction: (Sepf/Cont/Sonc) CONT Date Analyzed: 03/20/96

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

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

TENTATIVELY IDENTIFIED COMPOUNDS (TICs): YES [ ] NO [X]

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

LAB BLANK

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: LAB BLANK

Sample wt/vol: 1000 (g/ml) ML Lab File ID: >E1041

Level: (low/med) LOW Date Received: 03/18/96

% Moisture: not dec. ---- dec. 100 Date Extracted: 03/18/96

Extraction: (Sepf/Cont/Sonc) CONT Date Analyzed: 03/20/96

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	5	U
51-28-5	2,4-Dinitrophenol	20	U J
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U
86-74-8	Carbazole	5	U
56-55-3	Benzo(a)anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)phthalate	6	B
117-84-0	Di-n-octylphthalate	5	U
205-99-2	Benzo(b)fluoranthene	5	U
207-08-9	Benzo(k)fluoranthene	5	U
50-32-8	Benzo(a)pyrene	5	U
193-39-5	Indeno(1,2,3-cd)pyrene	5	U
53-70-3	Dibenzo(a,h)anthracene	5	U
191-24-2	Benzo(g,h,i)perylene	5	U

DP 4/1/96

Data Qualifiers: U = Compounds were analyzed but not detected. The value reported is the method detection limit for reagent water; J = Estimated; D=Diluted Sample; X = Result rejected for failing mass spectral confirmation; E = Concentration exceeded calibration range; B_ = Contaminant found in laboratory method blank.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

96ZB05R01

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05R01

Sample wt/vol: 1000 (g/ml) ML Lab File ID: >E1049

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec. ---- dec. 100 Date Extracted: 03/18/96

Extraction: (Sepf/Cont/Sonc) CONT Date Analyzed: 03/20/96

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

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

TENTATIVELY IDENTIFIED COMPOUNDS (TICs): YES [ ] NO [X]

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

96ZB05R01

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05R01

Sample wt/vol: 1000 (g/ml) ML Lab File ID: >E1049

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec. ---- dec. 100 Date Extracted: 03/18/96

Extraction: (Sepf/Cont/Sonc) CONT Date Analyzed: 03/20/96

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	5	U
51-28-5	2,4-Dinitrophenol	20	U J
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U
86-74-8	Carbazole	5	U
56-55-3	Benzo(a)anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)phthalate	4	BJ
117-84-0	Di-n-octylphthalate	5	U
205-99-2	Benzo(b)fluoranthene	5	U
207-08-9	Benzo(k)fluoranthene	5	U
50-32-8	Benzo(a)pyrene	5	U
193-39-5	Indeno(1,2,3-cd)pyrene	5	U
53-70-3	Dibenzo(a,h)anthracene	5	U
191-24-2	Benzo(g,h,i)perylene	5	U

AP 4/1/96

Data Qualifiers: U = Compounds were analyzed but not detected. The value reported is the method detection limit for reagent water; J = Estimated; D=Diluted Sample; X = Result rejected for failing mass spectral confirmation; E = Concentration exceeded calibration range; B_ = Contaminant found in laboratory method blank.

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

96ZB05S01

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05S01

Sample wt/vol: 1000 (g/ml) ML Lab File ID: >E1050

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec. ---- dec. 100 Date Extracted: 03/18/96

Extraction: (Sepf/Cont/Sonc) CONT Date Analyzed: 03/20/96

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

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

TENTATIVELY IDENTIFIED COMPOUNDS (TICs): YES [X] NO [ ]

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

96ZB05S01

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05S01

Sample wt/vol: 1000 (g/ml) ML Lab File ID: >E1050

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec. ---- dec. 100 Date Extracted: 03/18/96

Extraction: (Sepf/Cont/Sonc) CONT Date Analyzed: 03/20/96

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	5	U
51-28-5	2,4-Dinitrophenol	20	U
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U
86-74-8	Carbazole	5	U
56-55-3	Benzo(a)anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)phthalate	4	BJ U
117-84-0	Di-n-octylphthalate	5	U
205-99-2	Benzo(b)fluoranthene	5	U
207-08-9	Benzo(k)fluoranthene	5	U
50-32-8	Benzo(a)pyrene	5	U
193-39-5	Indeno(1,2,3-cd)pyrene	5	U
53-70-3	Dibenzo(a,h)anthracene	5	U
191-24-2	Benzo(g,h,i)perylene	5	U

4/1/96

05/29/96 mKC

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Data Qualifiers: U = Compounds were analyzed but not detected. The value reported is the method detection limit for reagent water; J = Estimated; D=Diluted Sample; X = Result rejected for failing mass spectral confirmation; E = Concentration exceeded calibration range; B_ = Contaminant found in laboratory method blank.

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

96ZB05S01

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05S01

Sample wt/vol: 1000 (g/mL) ML Lab File ID: >E1050

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.---- dec. 100 Date Extracted:03/18/96

Extraction: (Sepf/Cont/Sonc) CONT Date Analyzed: 3/20/96

GPC Cleanup: (Y/N) N pH:--- Dilution Factor: 1.00000

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown hydrocarbon	4.61	10.	J
2.	Unknown	6.06	30.	J
3.				
4.				
5.				
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

96ZB05S02

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05S02

Sample wt/vol: 1000 (g/ml) ML Lab File ID: >E1051

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec. ---- dec. 100 Date Extracted: 03/18/96

Extraction: (Sepf/Cont/Sonc) CONT Date Analyzed: 03/20/96

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

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

TENTATIVELY IDENTIFIED COMPOUNDS (TICs): YES [X] NO [ ]

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

96ZB05S02

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05S02

Sample wt/vol: 1000 (g/ml) ML Lab File ID: >E1051

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec. ---- dec. 100 Date Extracted: 03/18/96

Extraction: (Sepf/Cont/Sonc) CONT Date Analyzed: 03/20/96

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	5	U
51-28-5	2,4-Dinitrophenol	20	U
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U
86-74-8	Carbazole	5	U
56-55-3	Benzo(a)anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)phthalate	56	B
117-84-0	Di-n-octylphthalate	5	U
205-99-2	Benzo(b)fluoranthene	5	U
207-08-9	Benzo(k)fluoranthene	5	U
50-32-8	Benzo(a)pyrene	5	U
193-39-5	Indeno(1,2,3-cd)pyrene	5	U
53-70-3	Dibenzo(a,h)anthracene	5	U
191-24-2	Benzo(g,h,i)perylene	5	U

5

AP 4/1/96

Data Qualifiers: U = Compounds were analyzed but not detected. The value reported is the method detection limit for reagent water; J = Estimated; D=Diluted Sample; X = Result rejected for failing mass spectral confirmation; E = Concentration exceeded calibration range; B_ = Contaminant found in laboratory method blank.

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

96ZB05S02

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05S02

Sample wt/vol: 1000 (g/mL) ML Lab File ID: >E1051

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.---- dec. 100 Date Extracted:03/18/96

Extraction: (Sepf/Cont/Sonc) CONT Date Analyzed: 3/20/96

GPC Cleanup: (Y/N) N pH:--- Dilution Factor: 1.00000

Number TICs found: 1

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Unknown hydrocarbon	4.58	20.	J
2.					
3.					
4.					
5.					
6.					
7.					
8.					
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

96ZB05D02

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05D02

Sample wt/vol: 1000 (g/ml) ML Lab File ID: >E1052

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec. ---- dec. 100 Date Extracted: 03/18/96

Extraction: (Sepf/Cont/Sonc) CONT Date Analyzed: 03/20/96

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

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

TENTATIVELY IDENTIFIED COMPOUNDS (TICs): YES [X] NO [ ]

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

96ZB05D02

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05D02

Sample wt/vol: 1000 (g/ml) ML Lab File ID: >E1052

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec. ---- dec. 100 Date Extracted: 03/18/96

Extraction: (Sepf/Cont/Sonc) CONT Date Analyzed: 03/20/96

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	5	U
51-28-5	2,4-Dinitrophenol	20	U J
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U
86-74-8	Carbazole	5	U
56-55-3	Benzo(a)anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)phthalate	48	B
117-84-0	Di-n-octylphthalate	5	U
205-99-2	Benzo(b)fluoranthene	5	U
207-08-9	Benzo(k)fluoranthene	5	U
50-32-8	Benzo(a)pyrene	5	U
193-39-5	Indeno(1,2,3-cd)pyrene	5	U
53-70-3	Dibenzo(a,h)anthracene	5	U
191-24-2	Benzo(g,h,i)perylene	5	U

AP 4/1/96

Data Qualifiers: U = Compounds were analyzed but not detected. The value reported is the method detection limit for reagent water; J = Estimated; D=Diluted Sample; X = Result rejected for failing mass spectral confirmation; E = Concentration exceeded calibration range; B_ = Contaminant found in laboratory method blank.

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

96ZB05D02

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05D02

Sample wt/vol: 1000 (g/mL) ML Lab File ID: >E1052

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.---- dec. 100 Date Extracted: 03/18/96

Extraction: (Sepf/Cont/Sonc) CONT Date Analyzed: 3/20/96

GPC Cleanup: (Y/N) N pH:--- Dilution Factor: 1.00000

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown hydrocarbon	4.60	10.	J
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

96ZB05S03

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05S03

Sample wt/vol: 1000 (g/ml) ML Lab File ID: >E1053

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec. ---- dec. 100 Date Extracted: 03/18/96

Extraction: (Sepf/Cont/Sonc) CONT Date Analyzed: 03/20/96

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

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

TENTATIVELY IDENTIFIED COMPOUNDS (TICs): YES [X] NO [ ]

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

96ZB05S03

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05S03

Sample wt/vol: 1000 (g/ml) ML Lab File ID: >E1053

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec. ---- dec. 100 Date Extracted: 03/18/96

Extraction: (Sepf/Cont/Sonc) CONT Date Analyzed: 03/20/96

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
99-09-2	3-Nitroaniline	20	U
83-32-9	Acenaphthene	5	U
51-28-5	2,4-Dinitrophenol	20	U 5
100-02-7	4-Nitrophenol	20	U
132-64-9	Dibenzofuran	5	U
121-14-2	2,4-Dinitrotoluene	5	U
84-66-2	Diethylphthalate	5	U
7005-72-3	4-Chlorophenyl-phenylether	5	U
86-73-7	Fluorene	5	U
100-01-6	4-Nitroaniline	20	U
534-52-1	4,6-Dinitro-2-methylphenol	20	U
86-30-6	N-Nitrosodiphenylamine	5	U
101-55-3	4-Bromophenyl-phenylether	5	U
118-74-1	Hexachlorobenzene	5	U
87-86-5	Pentachlorophenol	20	U
85-01-8	Phenanthrene	5	U
120-12-7	Anthracene	5	U
84-74-2	Di-n-butylphthalate	5	U
206-44-0	Fluoranthene	5	U
129-00-0	Pyrene	5	U
85-68-7	Butylbenzylphthalate	5	U
91-94-1	3,3'-Dichlorobenzidine	5	U
86-74-8	Carbazole	5	U
56-55-3	Benzo(a)anthracene	5	U
218-01-9	Chrysene	5	U
117-81-7	bis(2-Ethylhexyl)phthalate	7	B U
117-84-0	Di-n-octylphthalate	5	U
205-99-2	Benzo(b)fluoranthene	5	U
207-08-9	Benzo(k)fluoranthene	5	U
50-32-8	Benzo(a)pyrene	5	U
193-39-5	Indeno(1,2,3-cd)pyrene	5	U
53-70-3	Dibenzo(a,h)anthracene	5	U
191-24-2	Benzo(g,h,i)perylene	5	U

BP 4/1/96

05/29/96 mKC

FORM I SV-2 1/87 Rev

Data Qualifiers: U = Compounds were analyzed but not detected. The value reported is the method detection limit for reagent water; J = Estimated; D=Diluted Sample; X = Result rejected for failing mass spectral confirmation; E = Concentration exceeded calibration range; B_ = Contaminant found in laboratory method blank.

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

96ZB05S03

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05S03

Sample wt/vol: 1000 (g/mL) ML Lab File ID: >E1053

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec.---- dec. 100 Date Extracted:03/18/96

Extraction: (Sepf/Cont/Sonc) CONT Date Analyzed: 3/20/96

GPC Cleanup: (Y/N) N pH:--- Dilution Factor: 1.00000

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown hydrocarbon	4.59	6.	J
2.	Unknown	5.14	30.	J
3.	Unknown	6.26	100.	J
4.				
5.				
6.				
7.				
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

96ZB05S04

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05S04

Sample wt/vol: 1000 (g/ml) ML Lab File ID: >E1054

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec. ---- dec. 100 Date Extracted: 03/18/96

Extraction: (Sepf/Cont/Sonc) CONT Date Analyzed: 03/20/96

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

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

TENTATIVELY IDENTIFIED COMPOUNDS (TICs): YES [ ] NO [X]

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

96ZB05S04

Lab Name: AMERICAN CHEMICAL SERVICE Contract: ESAT

Lab Code: 5SCRL Case No.: 960047 SAS No.: ------ SDG No.: ------

Matrix: (soil/water) WATER Lab Sample ID: 96ZB05S04

Sample wt/vol: 1000 (g/ml) ML Lab File ID: >E1054

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec. ---- dec. 100 Date Extracted: 03/18/96

Extraction: (Sepf/Cont/Sonc) CONT Date Analyzed: 03/20/96

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
99-09-2	3-Nitroaniline	20	UR
83-32-9	Acenaphthene	5	UR
51-28-5	2,4-Dinitrophenol	20	UR J 05/29/96 mKC
100-02-7	4-Nitrophenol	20	UR
132-64-9	Dibenzofuran	5	UR
121-14-2	2,4-Dinitrotoluene	5	UR
84-66-2	Diethylphthalate	5	UR
7005-72-3	4-Chlorophenyl-phenylether	5	UR
86-73-7	Fluorene	5	UR
100-01-6	4-Nitroaniline	20	UR
534-52-1	4,6-Dinitro-2-methylphenol	20	UR
86-30-6	N-Nitrosodiphenylamine	5	UR
101-55-3	4-Bromophenyl-phenylether	5	UR
118-74-1	Hexachlorobenzene	5	UR
87-86-5	Pentachlorophenol	20	UR
85-01-8	Phenanthrene	5	UR
120-12-7	Anthracene	5	UR
84-74-2	Di-n-butylphthalate	5	UR
206-44-0	Fluoranthene	5	UR
129-00-0	Pyrene	5	UR
85-68-7	Butylbenzylphthalate	5	UR
91-94-1	3,3'-Dichlorobenzidine	5	UR
86-74-8	Carbazole	5	UR
56-55-3	Benzo(a)anthracene	5	UR 05/29/96 mKC
218-01-9	Chrysene	5	UR
117-81-7	bis(2-Ethylhexyl)phthalate	51	BJ
117-84-0	Di-n-octylphthalate	5	UR
205-99-2	Benzo(b)fluoranthene	5	UR
207-08-9	Benzo(k)fluoranthene	5	UR
50-32-8	Benzo(a)pyrene	5	UR
193-39-5	Indeno(1,2,3-cd)pyrene	5	UR
53-70-3	Dibenzo(a,h)anthracene	5	UR
191-24-2	Benzo(g,h,i)perylene	5	UR

Data Qualifiers: U = Compounds were analyzed but not detected. The value reported is the method detection limit for reagent water; J = Estimated; D=Diluted Sample; X = Result rejected for failing mass spectral confirmation; E = Concentration exceeded calibration range; B_ = Contaminant found in laboratory method blank.

metals

Site: American Chemical Service Project#: 71670.600

Case: 960047 SDG: - Date: 05/30/96

Data Validation Data Validator: M. Enlow

Data was qualified according to the results and findings described in the data narrative. The information in this narrative was validated and the calculations are provided in the attached pages. Data qualifiers were also applied to the results based on preparation blank results and duplicate analyses, when applicable.

Validation was accomplished through the use of USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses (February 1994) and USEPA Region 5 Standard Operating Procedure for Validation of CLP Inorganic Data (September, 1993). Calculations did not reveal any discrepancies other than those noted in the following pages.

The influence of sample bias for SSI and ESI data is indicated following each qualification. Bias is indicated by an upward arrow for high bias, a downward arrow for low bias and with unkbias for unknown bias. The sample bias for J qualifiers that are placed by the lab are of unknown bias. The sample bias designation for each J qualification is given in the following pages.

Additional Comments:

BLACK & VEATCH SPECIAL PROJECTS CORP.

Owner: American Chemical Service
Plant: Unit:
Project No. 71670.600 File No.
Title: Data validation of Groundwater Samples - metals

Computed By: MKC
Date: 05/30 19 96
Checked By:
Date: 19
Page 1 of 1

Holding Times

All samples were analyzed within the technical holding time criteria. The laboratory did not report the analysis date for cyanide and mercury. It is assumed that the laboratory would have mentioned any compounds analyzed outside the technical holding times in the data narrative.

BLANKS

a laboratory method blank was analyzed for all target compounds the results of the blank were non-detect.

Sample 962B05R01 is a Rinsate blank. Detected analytes in the blank include Cobalt (7.6 ug/l), Copper (12.6 ug/l), and Lead (26.0 ug/l). Corresponding samples with analyte concentrations greater than the detection limit, but less than 5 times the concentration found in any blank should be qualified "U".

Cobalt

7.6 ug/l x 5 = 38 ug/l

All corresponding samples already had cobalt concentrations below the detection limit

Copper

12.6 ug/l x 5 = 63 ug/l

Copper was qualified "U" in the following samples: 962B05S02, 952B05D02, 962B05S03, and 962B05S04.

Lead

26.0 ug/l x 5 = 130 ug/l

Lead was qualified "U" in the following samples:

(over)

DO NOT WRITE IN THIS SPACE

REVISED, SUPERSEDED, AND VOID CALCULATIONS MUST BE CLEARLY IDENTIFIED, INITIALED, AND DATED BY THE RESPONSIBLE INDIVIDUAL

501, 962B05S02, 962B05D02, 962B05S03, and 962B05S04.

* The laboratory did not provide data or include information on surrogates or matrix spike/matrix spike duplicates

Field Duplicates

Sample 962B05D02 is a field duplicate of 962B05S02. The following equation is used to obtain the RPD values for the duplicate sample analysis:

$$RPD = \frac{S - D}{\frac{1}{2}(S + D)} \times 100\%$$

where:

RPD = Relative Percent Difference

S = original sample value

D = Duplicate value.

A control limit of ±20% for the RPD is used for original and duplicate values greater than or equal to 5X the CRDL. A control limit of ± the CRPL is used if either the sample or duplicate value is less than 5X the CRPL

Analyte	Sample Result	Duplicate	CRDL	CRDLX5	RPD	Criteria
Aluminum	292	369	100	500		±CRDL
Barium	54.8	56.2	10.0	50	-2.52%	±20% RPD
Calcium	33,000	36,200	200	1,000	-9.25%	±20% RPD
Chromium	26.4	50.1	500	2,500		±CRDL
Iron	1440	2250	100	500	-43.9%	±20% RPD
Magnesium	21,100	22,100	5,000	25,000		±CRDL
Manganese	91.6	113	15.0	75	-20.9%	±20% RPD
Nickel	35.5	54.5	20	100		±CRPL
Sodium	18,900	19,700	5,000	25,000		±CRDL

Iron and manganese exceeded the duplicate criteria of ±20% RPD with RPDs of -43.9% and -20.9%, respectively. Compounds are not qualified based on the duplicate results alone.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CENTRAL REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605

Date: APR 2 6 1996

Subject: Review of Region 5 Data for American Chemical Services Code:J7

From: Charles T. Elly, Director Chuck Elly
Region 5 Central Regional Laboratory

To: Black and Veatch

Attached are the results for American Chemical Services Code:J7
CRL request number 960047
for analyses for ICP
Results are reported for sample designations: 96ZB05S01, 96ZB05S02, 96ZB05D02, 96ZB05S03, 96ZB05S04 and 96ZB05R01

Results Status:
(x) Acceptable for Use
( ) Data Qualified, but Acceptable for use
( ) Data Unacceptable for Use
(x) Sewer Disposal Criteria Met; Exceptions: Acid preserved samples must be neutralized prior to disposal. Samples 96ZB05S01, 96ZB05D02, 96ZB05S03 and 96ZB05S04 exceed the disposal criterion for iron.

Comments on Data Quality by Reviewer

The second laboratory check standard for beryllium was 5.3% high, outside the ±5% acceptance criteria, but this had no effect on the quality of the beryllium data, as all were below detection. Cobalt and copper were found slightly above detectable levels in the field blank, 96ZB05R01, when it was confirmed by analyzing an undigested aliquot. Potassium was not reported because the analytical channel was not functional at the time of this analysis. If K is required, please notify John Morris at (312) 353-3594. The field duplicates 96ZB05S02 and 96ZB05D02 appear to have differing amounts of some metals. Small amounts of solids were observed on the bottom of both sample bottles, so the differences can be either from subsampling or from field splitting of the sample. Chromium observed in these samples, while not exceeding the SDWA MCL (0.1 mg/L), was above the old MCL (0.05 mg/L) for one sample, 96ZB05D02.

Comments by Laboratory Director or Quality Control Coordinator

Review Record for American Chemical Services Code:J7

John U Moore 25 Apr 96

Peer/Task Monitor Review and Date (✓) Reviewed ( ) Unreviewed

John U Moore 25 Apr 96

Team Leader and Date (✓) Reviewed ( ) Unreviewed

Chuck E Eby 4/25/96

QC Coordinator and Date ( ) Reviewed (✓) Unreviewed
(position vacant)

Sylvia Griffin APR 2 6 1996

Data Management Coordinator and Date Received

Date Transmitted APR 2 6 1996

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
SL - 10C

Received by and Date

Comments:

RD
4-3-96

SAMPLE REPORT

Sample 960047 96ZB05S01 Operator RD

Date analyzed 03/28/96 Correction 1.22000 File name RUN522

Element	Concentration	Units
Aluminum	96.6	micrograms/liter
Barium	72.9	micrograms/liter
Beryllium	1.0 U	micrograms/liter
Calcium	72800.	micrograms/liter
Chromium	18.7	micrograms/liter
Cobalt	6.0 U	micrograms/liter
Copper	6.0 U	micrograms/liter
Iron	3860.	micrograms/liter
Magnesium	35800.	micrograms/liter
Manganese	241.	micrograms/liter
Nickel	29.1	micrograms/liter
Silver	6.0 U	micrograms/liter
Sodium	74300.	micrograms/liter
Vanadium	5.0 U	micrograms/liter
Zinc	40.0 U	micrograms/liter

JVM
25 Apr 96

RD
4-3-96

SAMPLE REPORT

Sample 960047 96ZB05S02 Operator RD

Date analyzed 03/28/96 Correction 1.22000 File name RUN522

Element	Concentration	Units
Aluminum	292.	micrograms/liter
Barium	54.8	micrograms/liter
Beryllium	1.0 U	micrograms/liter
Calcium	33000.	micrograms/liter
Chromium	26.4	micrograms/liter
Cobalt	6.0 U	micrograms/liter
Copper	21.4 U	micrograms/liter
Iron	1440.	micrograms/liter
Magnesium	21100.	micrograms/liter
Manganese	91.6	micrograms/liter
Nickel	35.5	micrograms/liter
Silver	6.0 U	micrograms/liter
Sodium	18900.	micrograms/liter
Vanadium	5.0 U	micrograms/liter
Zinc	40.0 U	micrograms/liter

05/30/96
MKC

Jm
25 Apr 96

RD
4-3-96

SAMPLE REPORT

Sample 960047 96ZB05D02 Operator RD

Date analyzed 03/28/96 Correction 1.22000 File name RUN522

Element	Concentration	Units
Aluminum	369.	micrograms/liter
Barium	56.2	micrograms/liter
Beryllium	1.0 U	micrograms/liter
Calcium	36200.	micrograms/liter
Chromium	50.1	micrograms/liter
Cobalt	6.0 U	micrograms/liter
Copper	33.1 U	micrograms/liter
Iron	2250.	micrograms/liter
Magnesium	22100.	micrograms/liter
Manganese	113.	micrograms/liter
Nickel	54.5	micrograms/liter
Silver	6.0 U	micrograms/liter
Sodium	18700.	micrograms/liter
Vanadium	5.0 U	micrograms/liter
Zinc	40.0 U	micrograms/liter

0513096
mKC

jm
25 Apr 96

4-3-96

SAMPLE REPORT

Sample 960047 96ZB05S03 Operator RD

Date analyzed 03/28/96 Correction 1.22000 File name RUN522

Element	Concentration	Units
Aluminum	101.	micrograms/liter
Barium	177.	micrograms/liter
Beryllium	1.0 U	micrograms/liter
Calcium	97500.	micrograms/liter
Chromium	10.4	micrograms/liter
Cobalt	6.0 U	micrograms/liter
Copper	7.6 U	micrograms/liter
Iron	6060.	micrograms/liter
Magnesium	45700.	micrograms/liter
Manganese	220.	micrograms/liter
Nickel	20.0 U	micrograms/liter
Silver	6.0 U	micrograms/liter
Sodium	46700.	micrograms/liter
Vanadium	5.2	micrograms/liter
Zinc	40.0 U	micrograms/liter

05/30/96 KC

JVM 25 Apr 96

RD
4-3-96

SAMPLE REPORT

Sample 960047 96ZB05S04 Operator RD

Date analyzed 03/28/96 Correction 1.22000 File name RUN522

Element	Concentration		Units
Aluminum	3010.		micrograms/liter
Barium	73.1		micrograms/liter
Beryllium	1.0	U	micrograms/liter
Calcium	55200.		micrograms/liter
Chromium	9.7		micrograms/liter
Cobalt	6.0	U	micrograms/liter
Copper	10.3	U	micrograms/liter
Iron	2400.		micrograms/liter
Magnesium	24700.		micrograms/liter
Manganese	244.		micrograms/liter
Nickel	20.0	U	micrograms/liter
Silver	6.0	U	micrograms/liter
Sodium	75800.		micrograms/liter
Vanadium	5.0	U	micrograms/liter
Zinc	40.0	U	micrograms/liter

05/30/96 mKC

Jun 25 Apr 96

RD
4-3-96

SAMPLE REPORT

Sample 960047 96ZB05R01 Operator RD

Date analyzed 03/28/96 Correction 1.22000 File name RUN522

Element	Concentration	Units
Aluminum	80.0 U	micrograms/liter
Barium	6.0 U	micrograms/liter
Beryllium	1.0 U	micrograms/liter
Calcium	500. U	micrograms/liter
Chromium	8.0 U	micrograms/liter
Cobalt	7.6	micrograms/liter
Copper	12.6	micrograms/liter
Iron	80.0 U	micrograms/liter
Magnesium	100. U	micrograms/liter
Manganese	5.0 U	micrograms/liter
Nickel	20.0 U	micrograms/liter
Silver	6.0 U	micrograms/liter
Sodium	1000. U	micrograms/liter
Vanadium	5.0 U	micrograms/liter
Zinc	40.0 U	micrograms/liter

jm
25 Apr 96

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CENTRAL REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605

Date: APR 2 6 1996

Subject: Review of Region 5 Data for American Chemical Services Code:J7

From: Charles T. Elly, Director Chuck E. Elly
Region 5 Central Regional Laboratory

To: Black and Veatch

Attached are the results for American Chemical Services Code:J7
CRL request number 960047
for analyses for Antimony, Arsenic, Cadmium, Lead, Selenium and Thallium
Results are reported for sample designations: 96ZB05S01, 96ZB05S02, 96ZB05D02, 96ZB05S03, 96ZB05S04 and 96ZB05R01

Results Status:
(x) Acceptable for Use
( ) Data Qualified, but Acceptable for use
( ) Data Unacceptable for Use

(x) Sewer Disposal Criteria Met; Exceptions: Acid preserved samples must be neutralized prior to disposal.

Comments on Data Quality by Reviewer

The finding of lead contamination in the field blank, 96ZB05R01, was confirmed by analysis of an undigested aliquot of this sample.

Comments by Laboratory Director or Quality Control Coordinator

Review Record for American Chemical Services Code:J7

25 Apr 96

Peer/Task Monitor Review and Date (✓) Reviewed ( ) Unreviewed

25 Apr 96

Team Leader and Date (✓) Reviewed ( ) Unreviewed

4/25/96

QC Coordinator and Date ( ) Reviewed (✓) Unreviewed
(position vacant)

APR 2 6 1996

Data Management Coordinator and Date Received

Date Transmitted APR 2 6 1996

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
SL - 10C

Received by and Date

Comments:

FINAL SAMPLE REPORT FOR GFAA/FIAS
DATA SET 960047
AMERICAN CHEMICAL SERVICES
(µg/L)

05/30/96
mKC

SAMPLE 96ZB05	As RESULT	Cd RESULT	Pb RESULT	Sb RESULT	Se RESULT	Tl RESULT
S01	2U	0.2U	3 U	1U	2U	2U
S02	2U	0.2U	3 U	1U	2U	2U
D02	2U	0.2U	6 U	1	2U	2U
S03	2U	0.2U	2 U	1U	2U	2U
S04	2U	0.2U	4 U	1U	2U	2U
R01	2U	0.2U	26	1U	2U	2U

20 Apr 96

4-11-96

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CENTRAL REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605

Date: APR 2 6 1996

Subject: Review of Region 5 Data for AMERICAN CHEMICAL SERVICES

From: Charles T. Elly, Director Charles Elly
Region 5 Central Regional Laboratory

To: Black and Veatch

Attached are the results for AMERICAN CHEMICAL SERVICES
CRL request number 960047
for analyses for Cyanide and Mercury.
Results are reported for sample designations: 96ZB05S01, 96ZB05S02, 96ZB05D02, 96ZB05S03, 96ZB05S04, and 96ZB05R01.

Results Status:

(X) Acceptable for Use: Cyanide and Mercury
( ) Data Qualified, but Acceptable for use:
( ) Data Unacceptable for Use:

( ) Sewer Disposal Criteria Met;

Mercury: All portion of the above samples which were collected and submitted for mercury analysis are preserved with acid/dichromate reagents. Those samples should be disposed of in a drum. The preservative utilized is toxic.

Cyanide: Portions of all of the above samples which were collected and submitted for cyanide analyses are preserved with sodium hydroxide reagents. Cyanide concentration in those samples were found to be below the laboratory detection limit. All the samples can be neutralized prior to disposal down the drain provided that the concentrations of other analytes are less than the laboratory detection or other controlling limits.

Comments on Data Quality by Reviewer:

All the water samples submitted for cyanide and mercury analyses were assayed and the results are attached. Samples submitted for mercury analysis were received preserved with nitric acid only. Dichromate preservative was added to those samples as required by the laboratory procedure for mercury analysis. All the necessary quality control criteria for the laboratory, method, and system performance audits were evaluated and determined to be within the limits. The Cyanide and Mercury results are acceptable for use.

Comments on Sample Results:

All the Cyanide and Mercury results were found to be below the laboratory detection limit. Those limits are 0.008 mg/L (8 μg/L) for Cyanide and 0.0001 mg/L (0.1μg/L) for Mercury. All the samples are considered safe with respect to two Cyanide and Mercury.

Comments by Laboratory Director or Quality Control Coordinator:

Francis A. Awanga 4/16/96
Reviewer/Task Monitor and Date (X) Reviewed ( ) Unreviewed

John V. Moore 24 Apr-96
Team Leader and Date (✓) Reviewed ( ) Unreviewed

Chuck Elly 4/24/96
QC Coordinator and Date ( ) Reviewed (✓) Unreviewed

Sylvia Griffin APR 26 1996
Data Management Coordinator and Date Received

Date Transmitted APR 2 6 1996

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
SL - 10C

_____

Received by and Date

Comments:

FINAL SAMPLE REPORT FOR HG DATA (SF 960047)
AMERICAN CHEMICAL SERVICES
(µg/L)

SAMPLE	RESULT REPORTED
96ZB05R01	0.1 U
96ZB05S01	0.1 U
96ZB05S02	0.1 U
96ZB05D02	0.1 U
96ZB05S03	0.1 U
96ZB05S04	0.1 U

Leanne
4/16/96

4/16/96

FINAL SAMPLE REPORT FOR CN
DATA SET 960047
AMERICAN CHEMICAL SERVICES
(µg/L)

SAMPLE	RESULT REPORTED
96ZB05R01	8 U
96ZB05S01	8 U
96ZB05S02	8 U
96ZB05D02	8 U
96ZB05S03	8 U
96ZB05S04	8 U

M. Kapp
4-16-96

FAA 4/16/96

PCBS/Pesticides

Site: American Chemical Service Project#: 71670.600

Case: 960047 SDG: Date: 05/30/96

Data Validation Data Validator: M. Conlee

Data was qualified according to the results and findings described in the data narrative. The information in this narrative was validated and the calculations are provided in the attached pages. Data qualifiers were also applied to the results based on calibration outliers, surrogate recoveries and other appropriate results.

Validation was accomplished through the use of USEPA National Functional Guidelines for Organic Data Review (February 1994) and USEPA Region 5 Standard Operating Procedure for Validation of CLP Organic Data (August 25, 1993 revision). Calculations did not reveal any discrepancies other than those noted in the following pages.

The influence of sample bias for SSI and ESI data is indicated following each qualification. Bias is indicated by an upward arrow for high bias, a downward arrow for low bias and with unkbias for unknown bias. The sample bias for J qualifiers that are placed by the lab are of unknown bias. The sample bias designation for each J qualification is given in the following pages.

Additional Comments:

Site: American Chemical Service Project#: 71670.600
Case: 960047 SDG: _____ Date: 05/30/96

1. **Holding Times**

05/30/96 mkc All samples were extracted and analyzed within the specified holding times according to the EPA reviewer.
_____ See attached pages for qualification.

2. **GC/MS Tuning and GC Instrument Performance**

05/30/96 mkc Tuning and instrument performance checks were satisfactory as stated by the EPA reviewer in the narrative.
_____ See attached pages for qualification.

3. **Calibration**

Calibration outliers are listed on the outlier forms for each parameter. All compounds that require qualification due to calibration outliers are qualified with a J for estimate and have an unknown bias. Samples and compounds that require qualification are listed on the calibration outlier pages in the EPA narrative.

VOA

_____ No calibration outliers.
N/A See EPA narrative for samples and compounds to be qualified and attached pages for calculations.

SVOA

_____ No calibration outliers.
N/A See EPA narrative for samples and compounds to be qualified and attached pages for calculations.

Pest/PCB

~~[illegible]~~ 05/30/96 mkc No calibration outliers.
_____ See EPA narrative for samples and compounds to be qualified and attached pages for calculations.

4. **Blanks**

VOA

_____ Samples were qualified appropriately by the EPA reviewer for VOA blank contaminants. See the narrative for sample and compound qualifications.
N/A See the attached pages for additional VOA blank qualifications or corrections.

SVOA

_____ Samples were qualified appropriately by the EPA reviewer for SVOA blank contaminants. See the narrative for sample and compound qualifications.
N/A See the attached pages for additional SVOA blank qualifications or corrections.

Pest/PCB

05/30/96 mKC Samples were qualified appropriately by the EPA reviewer for Pest/PCB blank contaminants. See the narrative for sample and compound qualifications.

____ See the attached pages for additional Pest/PCB blank qualifications or corrections.

5. Surrogate Recovery

VOA

____ VOA surrogate recoveries are within acceptable limits, no qualification is necessary.

N/A See attached pages and narrative for samples and compounds qualified for unacceptable VOA surrogate recovery.

SVOA

____ SVOA surrogate recoveries are within acceptable limits, no qualification is necessary.

N/A See attached pages and narrative for samples and compounds qualified for unacceptable SVOA surrogate recovery.

Pest/PCB

____ Pest/PCB surrogate recoveries are within acceptable limits, no qualification is necessary.

05/30/96 mKC See a~~ttached pages and~~ narrative for samples and compounds qualified for unacceptable Pest/PCB surrogate recovery.

6. ~~MS/MSD and RPD~~ (Laboratory Control Sample)

See attached pages for calculations.

VOA

____ VOA MS/MSD recoveries and RPD are within acceptable limits.

N/A See attached pages and narrative for VOA compounds to be qualified in the unspiked sample due to unacceptable MS/MSD recoveries and/or RPD.

SVOA

____ SVOA MS/MSD recoveries and RPD are within acceptable limits.

N/A See attached pages and narrative for SVOA compounds to be qualified in the unspiked sample due to unacceptable MS/MSD recoveries and/or RPD.

Pest/PCB

05/30/96 mKC Pest/PCB MS/MSD recoveries and RPD are within acceptable limits.

____ See attached pages and narrative for Pest/PCB compounds to be qualified in the unspiked sample due to unacceptable MS/MSD recoveries and/or RPD.

7. **Field Blanks, Field Duplicates and other QC**

Field blanks and other QC are evaluated in the QC section. See the attached table comparing duplicate concentrations. No qualification of the sample results is made based on field duplicate recoveries per Region 5 Standard Operating Procedure for Validation of CLP Organic Data.

____ There were no duplicates for any of the matrices.

VOA

____ Duplicate results were acceptable (no conc. difference of 5X or greater).

N/A See attached table for unacceptable duplicate results.

SVOA

____ Duplicate results were acceptable (no conc. difference of 5X or greater).

N/A See attached table for unacceptable duplicate results.

Pest/PCB

05/30/96 mKC Duplicate results were acceptable (no conc. difference of 5X or greater).

____ See attached table for unacceptable duplicate results.

8. **Internal Standards**

VOA

____ All internal standards met QC requirements according to the EPA reviewer.

N/A See attached pages for qualification of samples and compounds.

SVOA

____ All internal standards met QC requirements according to the EPA reviewer.

N/A See attached pages for qualification of samples and compounds.

Pest/PCB

05/30/96 mKC All Pest/PCB QC requirements were met according to the EPA reviewer.

____ See attached pages for qualification of samples and compounds.

9. **Compound Quantification and Reported Detection Limits**

05/30/96 mKC All target compounds and TICs were properly reported in the volatile, semi-volatile, and pesticide fractions; therefore data is acceptable according to the EPA reviewer.

____ See the attached pages for samples and compounds to be qualified.

10. **Compound Identification**

mKC

05/30/96 Target compounds and TICs were identified by 'best fit' library search method and appear to be correct according to the EPA reviewer.

_____ See attached pages for additional comments.

11. **System Performance**

mKC

05/30/96 Acceptable according to the EPA reviewer.

_____ See attached pages for additional comments and/or deviations.

12. **Overall Case Assessment**

mKC

05/30/96 No additional qualifications according to the EPA reviewer.

_____ See attached pages for additional qualifications.

Blank Analysis

_____ There were no field or trip blanks.

05/30/96 See the blank analysis section for sample and compound qualifications based on blank results.

mKC

BLACK & VEATCH SPECIAL PROJECTS CORP.

Owner: American Chemical Service
Plant: Unit:
Project No. 71670.600 File No.
Title: Data validation of Groundwater Samples - PCBS/pesticides

Computed By: MKC
Date: 05/30/ 19 96
Checked By:
Date: 19
Page 1 of 1

3. CALIBRATION

The difference between the initial Calibration Relative Response Factors (RRFS) and the Continuing Calibration RRFS could not be calculated, since the laboratory did not include the calibration outlier sheets.
Continuing Calibration Check Standards were within the acceptable % difference limit of 15% on the primary and confirmatory columns.

4. BLANKS

A laboratory method blank was analyzed for target compounds. The results of the blank was not included with the laboratory data. The data narrator stated that no target analytes were detected above the method detection limit.

Sample 962B05SR01 is a Rinseate blank. The blank was nondetect for all target compounds. Therefore, no compounds were qualified.

5. SURROGATES

The laboratory did not include data on surrogate recoveries. The data narrator stated that the TCMX surrogate recovery was within the QC limits. The PCB recovery for sample 962B05R01 and the method blank was below the QC limit. The data narrator did not state that qualification was necessary.

6. Matrix Spike/Matrix Spike Duplicate

The laboratory performed laboratory control/laboratory control duplicate samples instead of a MS/MSD.
The laboratory duplicate sample could not be extracted.

All spiked compounds were within the QC limits, except for endosulfan sulfate, which was detected slightly above the QC limit. No qualifications were applied.

(COVER)

DO NOT WRITE IN THIS SPACE

REVISED, SUPERSEDED, AND VOID CALCULATIONS MUST BE CLEARLY IDENTIFIED, INITIALED, AND DATED BY THE RESPONSIBLE INDIVIDUAL

7. Field Duplicates

Sample 962B05D02 is a field duplicate of Sample 962B05S02
Both samples were non-detect for all target compounds.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CENTRAL REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605

Date: APR 1 5 1996

Subject: Review of Region 5 Data for SF 960047 AMERICAN CHEMICAL SERVICES

From: Charles T. Elly, Director Chuck Elly
Region 5 Central Regional Laboratory

To: B&V

Attached are the results for SF 960047 AMERICAN CHEMICAL SERVICES
CRL request number 960047
for analyses for PCB/PESTICIDES IN WATER
Results are reported for sample designations: 96ZB05S01 - 96ZB05S04; 96ZB05D02, 96ZB05R01

Results Status:
(X) Acceptable for Use
( ) Data Qualified, but Acceptable for use
( ) Data Unacceptable for Use

( ) Sewer Disposal Criteria Met; Exceptions: none

Comments on Data Quality by Reviewer

Instrument performance audits and QC data were acceptable. See case narrative for detailed comments.

Data are acceptable for use.

Comments by Laboratory Director or Quality Control Coordinator

Review Record for SF 960047 AMERICAN CHEMICAL SERVICES

Erlinda Evangelista E. Evangelista 4/12/96

Task Monitor/Peer Review and Date (X) Reviewed ( ) Unreviewed

Chi M. Tang Chi Tang 4/15/96

Team Leader and Date (X) Reviewed ( ) Unreviewed

Vacant Chuck Ellis 4/15/96

QC Coordinator and Date ( ) Reviewed (X) Unreviewed

Sylvia Griffin APR 1 5 1996

Data Management Coordinator and Date Received

Date Transmitted APR 1 5 1996

Please sign and date this form below and return it with any comments to:

Sylvia Griffin
Data Management Coordinator
Region 5 Central Regional Laboratory
SL - 10C

Received by and Date

Comments:

960047 TFA301

ENVIRONMENTAL PROTECTION AGENCY
FOR THE TEAM: PESTICIDES AND PCB'S

DIVISION/BRANCH SUPERFUND SAMPLE DATE 3/12-14/96 LAB ARRIVAL DATE 3/14/96 DUE DATE 4/4/96

DU NUMBER TFA DATA SET NUMBER 960047 STUDY AMERICAN CHEMICAL SERVICE PRIORITY N CONTRACTOR BLACK + VEATCH

CRL LOG NUMBER	SAMPLE DESCRIPTION	WATER TRIHALOMETHANES UG/L PES17414	WATER POLYCHLORINATED BIPHENYLS UG/L PES 17144	WATER CHLORINATED PESTICIDES UG/L PES 17134	WATER HERBICIDES UG/L PES 17424	WATER OIL AND GREASE MG/L PES 17439
96ZB05S01	ACS-GW01-001 5-180464 465		X	X		
96ZB05S02	ACS-GW02-001 5-180473		X	X		
96ZB05D02	ACS-GW02-101 5-180480		X	X		
96ZB05S03	ACS-GW03-001 5-180485		X	X		
96ZB05S04	ACS-GW04-001 5-180154		X	X		
96ZB05R01	ACS-RB01-201 5-181922		X	X		

Stephanie W. Tobin 3/14/96

CASE NARRATIVE

DATE: April 01, 1996

PROJECT NAME: American Chemical Services/CRL Case #: SF 960047
Analysis of Pesticides/PCBs

ANALYST: Steffanie N. Tobin, ESAT Chemist

REVIEWERS: Ziyad Rajabi, Lockheed/ESAT Organic Group Leader
W.Ira Wilson, Lockheed/ESAT Organic Supervisor
Dennis Miller, Lockheed/ESAT Team Manager
Babu Paruchuri, EPA CRL Work Assignment Manager

I. CASE DESCRIPTION:

The laboratory received six (6) residential well water samples (96ZB05R01, 96ZB05S01, 96ZB05S02, 96ZB05D02, 96ZB05S03 and 96ZB05S04) for pesticide/PCB analysis using CRL method 608 Pest/PCB DNS on 03/27/96 and 03/28/96. In addition, the March Residential Well Performance Evaluation Sample (PE PQ698) was assigned to ESAT.

Samples were extracted on 03/18/96 utilizing one-step continuous liquid/liquid extractors per OLC01 methodology and were analyzed between 03/27/96 and 03/28/96 utilizing the HP5890 GC/EC#4. The samples were extracted within the holding time requirements of seven (7) days after collection and the extracts were analyzed within forty (40) days of sample extraction.

Aroclor 1242 was used for the initial calibration and was used to calculate PCB spike recoveries.

II. INSTRUMENT QUALITY CONTROLS:

1. **Instrument Performance Check:** Initial and continuing calibration DDT degradation checks for both the primary and confirmatory columns were within CRL QC limits of <10%. The initial and continuing calibration Endrin degradation checks for the confirmatory column were within CRL QC limits of <10%. The initial and continuing calibration Endrin degradation for the primary column slightly exceeded the 10% QC limit with 10.67%, 12.39% and 12.72% degradation values.

2. **Initial Calibration Check (IC):** An acceptable initial calibration is required before samples can be analyzed. For the primary column, correlation coefficients generated for Pest A and Aroclor 1242 standards using five points were 0.995 or greater. A 4-point calibration was used for the Pest B standards to achieve the correlation coefficient of 0.995. For the confirmation column, Correlation coefficients generated for Pest A, Pest B and Aroclor 1242 standards using five points were 0.995 or greater.

3. **Continuing Calibration Check (CC):** Continuing calibration check standards (Level 3 Pest A, Pest B & Aroclor 1242) were within the acceptable %Ds limit of <15% on the primary and confirmatory columns. For Pest B primary column, since Pest B L3 was not used as a part of the calibration the standard concentration of Pest B L3 was used for %Ds calculation and they were within the QC limit of 15%.

4. **Retention Time (RT) Summary:** The retention time %Ds for each individual compound in the Pest A, Pest B mixes & Aroclor 1242 standards ranged between 0.00% to 0.12% on both columns.

III. METHOD QUALITY CONTROL:

1. **Method Blank Results:** A DI water sample was used as the method blank and was spiked with surrogate, was extracted and was analyzed with the sample batch. No target analytes were detected above the method detection limit.

2. **Surrogate Spike Compound Results:** The TCMX surrogate spike recovery was within the QC limits (50-150%) on both the primary and confirmatory columns for all samples.

The DCB spike recovery for sample 96ZB05R01 was below the QC limit (50-150%) on both columns. The DCB spike recoveries for the method blank (MB031896) and for sample 96ZB05S04 on the secondary column were below the QC limit. The DCB recovery for the remaining samples was within the QC limit.

3. **Laboratory Control/Laboratory Control Duplicate Sample Results:** Due to the limited number of extractors available on 03/18/96, a Laboratory Control Duplicate Sample was not extracted. The Laboratory Control Sample was accidently spiked with 1.0 mL spiking solution instead of 0.5 mL. The spike recoveries were calculated base on 1.0 ml spike solution. All spiked compounds were within the QC limits with the exception of endosulfan sulfate of the primary column which was detected slightly above the QC limit (151%).

4. **Performance Evaluation Samples (PEs):** Sample PQ698 was identified as the PES sample for the month of March and was analyzed with dataset # SF960046. All compounds for the PE sample were detected within window.

5. **Florisil Cartridge Check:** Florisil Cartridge Check gave acceptable percent recoveries (80-120%) on both primary and confirmation columns

IV. SAMPLE RESULTS:

No target compounds were detected above the method detection limits. y

CRL-REGION V
FINAL RESULTS REPORT
Parameter: PEST/PCB

Sample organization: BLACK & VEATCH
Sample requestor: BLACK & VEATCH
Facility: American Chemical Services
Matrix: Water
Date Collected: 03/12-14/96
Date Extracted: 03/18/96

Method 608W_P/P_DNS

Sample Batch ID: 960047
Account No: TGB 301
Sample ID: 96ZB050S01
Units: µg/L
Date Received: 14-MAR-96
Date Analyzed: 27-MAR-96

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
319846	Alpha-BHC	.01	U
58899	Lindane	.01	U
76448	Heptachlor	.01	U
309002	Aldrin	.01	U
1024573	Heptachlor Epoxide	.01	U
959988	Endosulfan I	.01	U
60571	Dieldrin	.02	U
72208	Endrin	.02	U
3312659	Endosulfan II	.02	U
50293	p,p'-DDT	.02	U
72-43-5	Methoxychlor	.1	U
319857	Beta-BHC	.01	U
419868	Delta-BHC	.01	U
5103-74-2	Gamma-Chlordane	.01	U
5103-71-9	Alpha-Chlordane	.01	U
72559	p,p'-DDE	.02	U
72548	p,p'-DDD	.02	U
7421934	Endrin Aldehyde	.02	U
1031078	Endosulfan Sulfate	.02	U
53494-70-5	Endrin Ketone	.02	U
57-74-9	Chlordane,Technical	.2	U
8001352	Toxaphene	1	U
1104-28-2	Aroclor 1221	.2	U
11141165	Aroclor 1232	.2	U
1104-28-2	Aroclor 1221	.2	U
11141165	Aroclor 1232	.2	U
53469219	Aroclor 1242	.2	U
12674-11-2	Aroclor 1016	.2	U
12672296	Aroclor 1248	.2	U
11097691	Aroclor 1254	.2	U
11096825	Aroclor 1260	.2	U

Analyzed by: [illegible]/Lockheed/ESAT
Team Leader: [illegible]

CRL-REGION V
FINAL RESULTS REPORT
Parameter: PEST/PCB

Sample organization: BLACK & VEATCH
Sample requestor: BLACK & VEATCH
Facility: American Chemical Services
Matrix: Water
Date Collected: 03/12-14/96
Date Extracted: 03/18/96

Method 608W_P/P_DNS

Sample Batch ID: 960047
Account No: TGB 301
Sample ID: 96ZB050S02
Units: µg/L
Date Received: 14-MAR-96
Date Analyzed: 27-MAR-96

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
319846	Alpha-BHC	.01	U
58899	Lindane	.01	U
76448	Heptachlor	.01	U
309002	Aldrin	.01	U
1024573	Heptachlor Epoxide	.01	U
959988	Endosulfan I	.01	U
60571	Dieldrin	.02	U
72208	Endrin	.02	U
3312659	Endosulfan II	.02	U
50293	p,p'-DDT	.02	U
72-43-5	Methoxychlor	.1	U
319857	Beta-BHC	.01	U
419868	Delta-BHC	.01	U
5103-74-2	Gamma-Chlordane	.01	U
5103-71-9	Alpha-Chlordane	.01	U
72559	p,p'-DDE	.02	U
72548	p,p'-DDD	.02	U
7421934	Endrin Aldehyde	.02	U
1031078	Endosulfan Sulfate	.02	U
53494-70-5	Endrin Ketone	.02	U
57-74-9	Chlordane,Technical	.2	U
8001352	Toxaphene	1	U
1104-28-2	Aroclor 1221	.2	U
11141165	Aroclor 1232	.2	U
1104-28-2	Aroclor 1221	.2	U
11141165	Aroclor 1232	.2	U
53469219	Aroclor 1242	.2	U
12674-11-2	Aroclor 1016	.2	U
12672296	Aroclor 1248	.2	U
11097691	Aroclor 1254	.2	U
11096825	Aroclor 1260	.2	U

Analyzed by: [illegible]/Lockheed/ESAT
Team Leader: [illegible]

CRL-REGION V
FINAL RESULTS REPORT
Parameter: PEST/PCB

Sample organization: BLACK & VEATCH
Sample requestor: BLACK & VEATCH
Facility: American Chemical Services
Matrix: Water
Date Collected: 03/12-14/96
Date Extracted: 03/18/96

Method 608W_P/P_DNS

Sample Batch ID: 960047
Account No: TGB 301
Sample ID: 96ZB050D02
Units: µg/L
Date Received: 14-MAR-96
Date Analyzed: 27-MAR-96

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
319846	Alpha-BHC	.01	U
58899	Lindane	.01	U
76448	Heptachlor	.01	U
309002	Aldrin	.01	U
1024573	Heptachlor Epoxide	.01	U
959988	Endosulfan I	.01	U
60571	Dieldrin	.02	U
72208	Endrin	.02	U
3312659	Endosulfan II	.02	U
50293	p,p'-DDT	.02	U
72-43-5	Methoxychlor	.1	U
319857	Beta-BHC	.01	U
419868	Delta-BHC	.01	U
5103-74-2	Gamma-Chlordane	.01	U
5103-71-9	Alpha-Chlordane	.01	U
72559	p,p'-DDE	.02	U
72548	p,p'-DDD	.02	U
7421934	Endrin Aldehyde	.02	U
1031078	Endosulfan Sulfate	.02	U
53494-70-5	Endrin Ketone	.02	U
57-74-9	Chlordane,Technical	.2	U
8001352	Toxaphene	1	U
1104-28-2	Aroclor 1221	.2	U
11141165	Aroclor 1232	.2	U
1104-28-2	Aroclor 1221	.2	U
11141165	Aroclor 1232	.2	U
53469219	Aroclor 1242	.2	U
12674-11-2	Aroclor 1016	.2	U
12672296	Aroclor 1248	.2	U
11097691	Aroclor 1254	.2	U
11096825	Aroclor 1260	.2	U

Analyzed by: /Lockheed/ESAT
Team Leader:

CRL-REGION V
FINAL RESULTS REPORT
Parameter: PEST/PCB

Sample organization: BLACK & VEATCH
Sample requestor: BLACK & VEATCH
Facility: American Chemical Services
Matrix: Water
Date Collected: 03/12-14/96
Date Extracted: 03/18/96

Method 608W_P/P_DNS

Sample Batch ID: 960047
Account No: TGB 301
Sample ID: 96ZB050S03
Units: µg/L
Date Received: 14-MAR-96
Date Analyzed: 27-MAR-96

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
319846	Alpha-BHC	.01	U
58899	Lindane	.01	U
76448	Heptachlor	.01	U
309002	Aldrin	.01	U
1024573	Heptachlor Epoxide	.01	U
959988	Endosulfan I	.01	U
60571	Dieldrin	.02	U
72208	Endrin	.02	U
3312659	Endosulfan II	.02	U
50293	p,p'-DDT	.02	U
72-43-5	Methoxychlor	.1	U
319857	Beta-BHC	.01	U
419868	Delta-BHC	.01	U
5103-74-2	Gamma-Chlordane	.01	U
5103-71-9	Alpha-Chlordane	.01	U
72559	p,p'-DDE	.02	U
72548	p,p'-DDD	.02	U
7421934	Endrin Aldehyde	.02	U
1031078	Endosulfan Sulfate	.02	U
53494-70-5	Endrin Ketone	.02	U
57-74-9	Chlordane,Technical	.2	U
8001352	Toxaphene	1	U
1104-28-2	Aroclor 1221	.2	U
11141165	Aroclor 1232	.2	U
1104-28-2	Aroclor 1221	.2	U
11141165	Aroclor 1232	.2	U
53469219	Aroclor 1242	.2	U
12674-11-2	Aroclor 1016	.2	U
12672296	Aroclor 1248	.2	U
11097691	Aroclor 1254	.2	U
11096825	Aroclor 1260	.2	U

Analyzed by: [illegible]/Lockheed/ESAT
Team Leader: [illegible]

CRL-REGION V
FINAL RESULTS REPORT
Parameter: PEST/PCB

Sample organization: BLACK & VEATCH
Sample requestor: BLACK & VEATCH
Facility: American Chemical Services
Matrix: Water
Date Collected: 03/12-14/96
Date Extracted: 03/18/96

Method 608W_P/P_DNS

Sample Batch ID: 960047
Account No: TGB 301
Sample ID: 96ZB050S04
Units: µg/L
Date Received: 14-MAR-96
Date Analyzed: 27-MAR-96

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
319846	Alpha-BHC	.01	U
58899	Lindane	.01	U
76448	Heptachlor	.01	U
309002	Aldrin	.01	U
1024573	Heptachlor Epoxide	.01	U
959988	Endosulfan I	.01	U
60571	Dieldrin	.02	U
72208	Endrin	.02	U
3312659	Endosulfan II	.02	U
50293	p,p'-DDT	.02	U
72-43-5	Methoxychlor	.1	U
319857	Beta-BHC	.01	U
419868	Delta-BHC	.01	U
5103-74-2	Gamma-Chlordane	.01	U
5103-71-9	Alpha-Chlordane	.01	U
72559	p,p'-DDE	.02	U
72548	p,p'-DDD	.02	U
7421934	Endrin Aldehyde	.02	U
1031078	Endosulfan Sulfate	.02	U
53494-70-5	Endrin Ketone	.02	U
57-74-9	Chlordane,Technical	.2	U
8001352	Toxaphene	1	U
1104-28-2	Aroclor 1221	.2	U
11141165	Aroclor 1232	.2	U
1104-28-2	Aroclor 1221	.2	U
11141165	Aroclor 1232	.2	U
53469219	Aroclor 1242	.2	U
12674-11-2	Aroclor 1016	.2	U
12672296	Aroclor 1248	.2	U
11097691	Aroclor 1254	.2	U
11096825	Aroclor 1260	.2	U

Analyzed by: Tony/Lockheed/ESAT
Team Leader:

CRL-REGION V
FINAL RESULTS REPORT
Parameter: PEST/PCB

Sample organization: BLACK & VEATCH
Sample requestor: BLACK & VEATCH
Facility: American Chemical Services
Matrix: Water
Date Collected: 03/12-14/96
Date Extracted: 03/18/96

Method 608W_P/P_DNS

Sample Batch ID: 960047
Account No: TGB 301
Sample ID: 96ZB050R01
Units: µg/L
Date Received: 14-MAR-96
Date Analyzed: 27-MAR-96

CAS NUMBER	COMPOUND	AMOUNT	QUALIFIERS
319846	Alpha-BHC	.01	U
58899	Lindane	.01	U
76448	Heptachlor	.01	U
309002	Aldrin	.01	U
1024573	Heptachlor Epoxide	.01	U
959988	Endosulfan I	.01	U
60571	Dieldrin	.02	U
72208	Endrin	.02	U
3312659	Endosulfan II	.02	U
50293	p,p'-DDT	.02	U
72-43-5	Methoxychlor	.1	U
319857	Beta-BHC	.01	U
419868	Delta-BHC	.01	U
5103-74-2	Gamma-Chlordane	.01	U
5103-71-9	Alpha-Chlordane	.01	U
72559	p,p'-DDE	.02	U
72548	p,p'-DDD	.02	U
7421934	Endrin Aldehyde	.02	U
1031078	Endosulfan Sulfate	.02	U
53494-70-5	Endrin Ketone	.02	U
57-74-9	Chlordane,Technical	.2	U
8001352	Toxaphene	1	U
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1104-28-2	Aroclor 1221	.2	U
11141165	Aroclor 1232	.2	U
53469219	Aroclor 1242	.2	U
12674-11-2	Aroclor 1016	.2	U
12672296	Aroclor 1248	.2	U
11097691	Aroclor 1254	.2	U
11096825	Aroclor 1260	.2	U

Analyzed by: Staff Chem/Lockheed/ESAT
Team Leader:

Appendix B

Respondent Organic and Inorganic Analysis Data Sheets

MW29 - PRP

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO

MW29

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-137 SDG No.: 03349

Matrix: (soil/water) WATER Lab Sample ID: 960334905

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 0319914.D

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec. _____ Date Analyzed: 03/19/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

	CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1	74-87-3	Chloromethane	10	U
2	74-83-9	Bromomethane	10	U
3	75-01-4	Vinyl Chloride	10	U
4	75-00-3	Chloroethane	2	J
5	75-09-2	Methylene Chloride	10 U ~~2~~	~~J~~
6	67-64-1	Acetone	10	U
7	75-15-0	Carbon Disulfide	10	U
8	75-35-4	1,1-Dichloroethene	10	U
9	75-34-3	1,1-Dichloroethane	10	U
10	540-59-0	1,2-Dichloroethene (total)	10	U
11	67-66-3	Chloroform	10	U
12	107-06-2	1,2-Dichloroethane	10	U
13	78-93-3	2-Butanone	10	U
14	71-55-6	1,1,1-Trichloroethane	10	U
15	56-23-5	Carbon Tetrachloride	10	U
16	75-27-4	Bromodichloromethane	10	U
17	78-87-5	1,2-Dichloropropane	10	U
18	10061-01-5	cis-1,3-Dichloropropene	10	U
19	79-01-6	Trichloroethene	10	U
20	124-48-1	Dibromochloromethane	10	U
21	79-00-5	1,1,2-Trichloroethane	10	U
22	71-43-2	Benzene	10	U
23	10061-02-6	trans-1,3-Dichloropropene	10	U
24	75-25-2	Bromoform	10	U
25	108-10-1	4-Methyl-2-Pentanone	10	U
26	591-78-6	2-Hexanone	10	U
27	127-18-4	Tetrachloroethene	10	U
28	79-34-5	1,1,2,2-Tetrachloroethane	10	U
29	108-88-3	Toluene	10	U
30	108-90-7	Chlorobenzene	10	U
31	100-41-4	Ethylbenzene	10	U
	100-42-5	Styrene	10	U
	1330-20-7	Xylene (total)	10	U

VALIDATED

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW29

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-137 SDG No.: 03349

Matrix: (soil/water) WATER Lab Sample ID: 960334905

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0406408.D

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/18/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 04/06/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

	CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
32	108-95-2	Phenol	10	U
33	111-44-4	bis(2-Chloroethyl)ether	10	U
34	95-57-8	2-Chlorophenol	10	U
35	541-73-1	1,3-Dichlorobenzene	10	U
36	106-46-7	1,4-Dichlorobenzene	10	U
37	95-50-1	1,2-Dichlorobenzene	10	U
38	95-48-7	2-Methylphenol	10	U
39	108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
40	106-44-5	4-Methylphenol	10	U
41	621-64-7	N-Nitroso-di-n-propylamine	10	U
42	67-72-1	Hexachloroethane	10	U
43	98-95-3	Nitrobenzene	10	U
44	78-59-1	Isophorone	10	U
45	88-75-5	2-Nitrophenol	10	U
46	105-67-9	2,4-Dimethylphenol	10	U
47	111-91-1	bis(2-Chloroethoxy)methane	10	U
48	120-83-2	2,4-Dichlorophenol	10	U
49	120-82-1	1,2,4-Trichlorobenzene	10	U
50	91-20-3	Naphthalene	10	U
51	106-47-8	4-Chloroaniline	10	U
52	87-68-3	Hexachlorobutadiene	10	U
53	59-50-7	4-Chloro-3-methylphenol	10	U
54	91-57-6	2-Methylnaphthalene	10	U
55	77-47-4	Hexachlorocyclopentadiene	10	U
56	88-06-2	2,4,6-Trichlorophenol	10	U
57	95-95-4	2,4,5-Trichlorophenol	25	U
58	91-58-7	2-Chloronaphthalene	10	U
59	88-74-4	2-Nitroaniline	25	U
60	131-11-3	Dimethylphthalate	10	U
61	208-96-8	Acenaphthylene	10	U
62	606-20-2	2,6-Dinitrotoluene	10	U
63	99-09-2	3-Nitroaniline	25	U
64	83-32-9	Acenaphthene	10	U

VALIDATED

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW29

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-137 SDG No.: 03349

Matrix: (soil/water) WATER Lab Sample ID: 960334905

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0406408.D

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/18/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 04/06/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

	CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
65	51-28-5	2,4-Dinitrophenol	25	U
66	100-02-7	4-Nitrophenol	25	U
67	132-64-9	Dibenzofuran	10	U
68	121-14-2	2,4-Dinitrotoluene	10	U
69	84-66-2	Diethylphthalate	10	U
70	7005-72-3	4-Chlorophenyl-phenylether	10	U
71	86-73-7	Fluorene	10	U
72	100-01-6	4-Nitroaniline	25	U
73	534-52-1	4,6-Dinitro-2-methylphenol	25	U
74	86-30-6	N-Nitrosodiphenylamine (1)	10	U
75	101-55-3	4-Bromophenyl-phenylether	10	U
76	118-74-1	Hexachlorobenzene	10	U
77	87-86-5	Pentachlorophenol	25	U
78	85-01-8	Phenanthrene	10	U
79	120-12-7	Anthracene	10	U
80	86-74-8	Carbazole	10	U
81	84-74-2	Di-n-butylphthalate	10	U
82	206-44-0	Fluoranthene	10	U
83	129-00-0	Pyrene	10	U
84	85-68-7	Butylbenzylphthalate	10	U
85	91-94-1	3,3'-Dichlorobenzidine	10	U
86	56-55-3	Benzo(a)anthracene	10	U
87	218-01-9	Chrysene	10	U
88	117-81-7	bis(2-Ethylhexyl)phthalate	27	
89	117-84-0	Di-n-octylphthalate	10	U
90	205-99-2	Benzo(b)fluoranthene	10	U
91	207-08-9	Benzo(k)fluoranthene	10	U
92	50-32-8	Benzo(a)pyrene	10	U
93	193-39-5	Indeno(1,2,3-cd)pyrene	10	U
94	53-70-3	Dibenz(a,h)anthracene	10	U
95	191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW29

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-137 SDG No.: 03349

Matrix: (soil/water) WATER Lab Sample ID: 960334905

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P3031396_179.D

% Moisture: _____ decanted: (Y/N)___ Date Received: 03/14/96

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 03/19/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 03/28/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Sulfur Cleanup: (Y/N) N

	CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96	12674-11-2	Aroclor-1016	1.0	U
97	11104-28-2	Aroclor-1221	2.0	U
98	11141-16-5	Aroclor-1232	1.0	U
99	53469-21-9	Aroclor-1242	1.0	U
100	12672-29-6	Aroclor-1248	1.0	U
101	11097-69-1	Aroclor-1254	1.0	U
102	11096-82-5	Aroclor-1260	1.0	U

VALIDATED

APD-GW-MW29

FILTERED

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW29F

Lab Name: INDUSTRIAL_AND_ENVIRONMEN Contract: _____

Lab Code: IEA___ Case No:1589_137___ SAS No.: _____ SDG No.: 03349_

Matrix (soil/water): WATER Lab Sample ID: 960334905F

Level (low/med): LOW__ Date Received: 03/14/96

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

	CAS No.	Analyte	Concentration	C	Q	M
103	7429-90-5	Aluminum_	13.0	U		P_
	7440-36-0	Antimony_	3.4	B		P_
	7440-38-2	Arsenic__	3.0	U		P_
104	7440-39-3	Barium___	69.7	B	E	P_
105	7440-41-7	Beryllium	1.0	U		P_
	7440-43-9	Cadmium__	1.0	U		P_
106	7440-70-2	Calcium__	75800			P_
107	7440-47-3	Chromium_	1.0	U		P_
108	7440-48-4	Cobalt___	1.0	U		P_
109	7440-50-8	Copper___	1.0	U		P_
110	7439-89-6	Iron____	2390		E*	P_
	7439-92-1	Lead____	1.0	U		P_
111	7439-95-4	Magnesium	39500			P_
112	7439-96-5	Manganese	229			P_
113	7439-97-6	Mercury__	0.20	U		CV
114	7440-02-0	Nickel___	U 5.8	B		P_
	7440-09-7	Potassium	7760		E	P_
	7782-49-2	Selenium_	2.0	U		P_
115	7440-22-4	Silver___	1.0	U		P_
116	7440-23-5	Sodium___	60200			P_
	7440-28-0	Thallium_	3.0	U		P_
117	7440-62-2	Vanadium_	1.0	U		P_
118	7440-66-6	Zinc____	U 9.5	B		P_
		Cyanide__				NR

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

VALIDATED

FORM I - IN

3/90

MW30

MPD-GW-MW30

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO

MW30

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-137 SDG No.: 03349

Matrix: (soil/water) WATER Lab Sample ID: 960339912

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 0320904.D

Level: (low/med) LOW Date Received: 03/15/96

% Moisture: not dec. _____ Date Analyzed: 03/20/96

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

	CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1	74-87-3	Chloromethane	10	U
2	74-83-9	Bromomethane	10	U
3	75-01-4	Vinyl Chloride	10	U
4	75-00-3	Chloroethane	10	U
5	75-09-2	Methylene Chloride	10	U
6	67-64-1	Acetone	10	U
7	75-15-0	Carbon Disulfide	10	U
8	75-35-4	1,1-Dichloroethene	10	U
9	75-34-3	1,1-Dichloroethane	10	U
	540-59-0	1,2-Dichloroethene (total)	10	U
10	67-66-3	Chloroform	10	U
11	107-06-2	1,2-Dichloroethane	10	U
12	78-93-3	2-Butanone	10	U
13	71-55-6	1,1,1-Trichloroethane	10	U
14	56-23-5	Carbon Tetrachloride	10	U
15	75-27-4	Bromodichloromethane	10	U
16	78-87-5	1,2-Dichloropropane	10	U
17	10061-01-5	cis-1,3-Dichloropropene	10	U
18	79-01-6	Trichloroethene	10	U
19	124-48-1	Dibromochloromethane	10	U
20	79-00-5	1,1,2-Trichloroethane	10	U
21	71-43-2	Benzene	10	U
22	10061-02-6	trans-1,3-Dichloropropene	10	U
23	75-25-2	Bromoform	10	U
24	108-10-1	4-Methyl-2-Pentanone	10	U
25	591-78-6	2-Hexanone	10	U
26	127-18-4	Tetrachloroethene	10	U
27	79-34-5	1,1,2,2-Tetrachloroethane	10	U
28	108-88-3	Toluene	10	U
29	108-90-7	Chlorobenzene	10	U
30	100-41-4	Ethylbenzene	10	U
31	100-42-5	Styrene	10	U
	1330-20-7	Xylene (total)	10	U

VALIDATED

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW30

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-137 SDG No.: 03349

Matrix: (soil/water) WATER Lab Sample ID: 960339912

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0406412.D

Level: (low/med) LOW Date Received: 03/15/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/20/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 04/06/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

	CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
32	108-95-2	Phenol	10	U
33	111-44-4	bis(2-Chloroethyl)ether	10	U
34	95-57-8	2-Chlorophenol	10	U
35	541-73-1	1,3-Dichlorobenzene	10	U
36	106-46-7	1,4-Dichlorobenzene	10	U
37	95-50-1	1,2-Dichlorobenzene	10	U
38	95-48-7	2-Methylphenol	10	U
39	108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
40	106-44-5	4-Methylphenol	10	U
41	621-64-7	N-Nitroso-di-n-propylamine	10	U
42	67-72-1	Hexachloroethane	10	U
43	98-95-3	Nitrobenzene	10	U
44	78-59-1	Isophorone	10	U
45	88-75-5	2-Nitrophenol	10	U
46	105-67-9	2,4-Dimethylphenol	10	U
47	111-91-1	bis(2-Chloroethoxy)methane	10	U
48	120-83-2	2,4-Dichlorophenol	10	U
49	120-82-1	1,2,4-Trichlorobenzene	10	U
50	91-20-3	Naphthalene	10	U
51	106-47-8	4-Chloroaniline	10	U
52	87-68-3	Hexachlorobutadiene	10	U
53	59-50-7	4-Chloro-3-methylphenol	10	U
54	91-57-6	2-Methylnaphthalene	10	U
55	77-47-4	Hexachlorocyclopentadiene	10	U
56	88-06-2	2,4,6-Trichlorophenol	10	U
57	95-95-4	2,4,5-Trichlorophenol	25	U
58	91-58-7	2-Chloronaphthalene	10	U
59	88-74-4	2-Nitroaniline	25	U
60	131-11-3	Dimethylphthalate	10	U
61	208-96-8	Acenaphthylene	10	U
62	606-20-2	2,6-Dinitrotoluene	10	U
63	99-09-2	3-Nitroaniline	25	U
64	83-32-9	Acenaphthene	10	U

VALIDATED

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW30

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-137 SDG No.: 03349

Matrix: (soil/water) WATER Lab Sample ID: 960339912

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0406412.D

Level: (low/med) LOW Date Received: 03/15/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/20/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 04/06/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

	CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
65	51-28-5	2,4-Dinitrophenol	25	U
66	100-02-7	4-Nitrophenol	25	U
67	132-64-9	Dibenzofuran	10	U
68	121-14-2	2,4-Dinitrotoluene	10	U
69	84-66-2	Diethylphthalate	10	U
70	7005-72-3	4-Chlorophenyl-phenylether	10	U
71	86-73-7	Fluorene	10	U
72	100-01-6	4-Nitroaniline	25	U
73	534-52-1	4,6-Dinitro-2-methylphenol	25	U
74	86-30-6	N-Nitrosodiphenylamine (1)	10	U
75	101-55-3	4-Bromophenyl-phenylether	10	U
76	118-74-1	Hexachlorobenzene	10	U
77	87-86-5	Pentachlorophenol	25	U
78	85-01-8	Phenanthrene	10	U
79	120-12-7	Anthracene	0.9	J
80	86-74-8	Carbazole	10	U
81	84-74-2	Di-n-butylphthalate	10	U
82	206-44-0	Fluoranthene	10	U
83	129-00-0	Pyrene	10	U
84	85-68-7	Butylbenzylphthalate	10	U
85	91-94-1	3,3'-Dichlorobenzidine	10	U
86	56-55-3	Benzo(a)anthracene	10	U
87	218-01-9	Chrysene	10	U
88	117-81-7	bis(2-Ethylhexyl)phthalate	68	
89	117-84-0	Di-n-octylphthalate	10	U
90	205-99-2	Benzo(b)fluoranthene	10	U
91	207-08-9	Benzo(k)fluoranthene	10	U
92	50-32-8	Benzo(a)pyrene	10	U
93	193-39-5	Indeno(1,2,3-cd)pyrene	10	U
94	53-70-3	Dibenz(a,h)anthracene	10	U
95	191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW30

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-137 SDG No.: 03349

Matrix: (soil/water) WATER Lab Sample ID: 960339912

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P3031396_183.D

% Moisture: _____ decanted: (Y/N)___ Date Received: 03/14/96

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 03/19/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 03/28/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Sulfur Cleanup: (Y/N) N

	CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96	12674-11-2	Aroclor-1016	1.0	U
97	11104-28-2	Aroclor-1221	2.0	U
98	11141-16-5	Aroclor-1232	1.0	U
99	53469-21-9	Aroclor-1242	1.0	U
100	12672-29-6	Aroclor-1248	1.0	U
101	11097-69-1	Aroclor-1254	1.0	U
102	11096-82-5	Aroclor-1260	1.0	U

VALIDATED

APD - GW - MW30

U.S. EPA - CLP

FILTERED

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

MW30F

ab Name: INDUSTRIAL_AND_ENVIRONMEN Contract: _____

ab Code: IEA___ Case No:1589_137___ SAS No.: _____ SDG No.: 03349_

atrix (soil/water): WATER Lab Sample ID: 960339912F

evel (low/med): LOW__ Date Received: 03/15/96

Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

	CAS No.	Analyte	Concentration	C	Q	M
103	7429-90-5	Aluminum_	U 36.9	B		P_
	7440-36-0	Antimony_	2.0	U		P_
	7440-38-2	Arsenic__	3.0	U		P_
104	7440-39-3	Barium___	162	B	E	P_
105	7440-41-7	Beryllium	1.0	U		P_
	7440-43-9	Cadmium__	1.0	U		P_
106	7440-70-2	Calcium__	92200			P_
107	7440-47-3	Chromium_	1.0	U		P_
108	7440-48-4	Cobalt___	1.0	B		P_
109	7440-50-8	Copper___	1.0	U		P_
110	7439-89-6	Iron____	3820		E*	P_
	7439-92-1	Lead____	1.0	U		P_
111	7439-95-4	Magnesium	48400			P_
112	7439-96-5	Manganese	203			P_
113	7439-97-6	Mercury__	0.20	U		CV
114	7440-02-0	Nickel___	U 15.3	B		P_
	7440-09-7	Potassium	4910	B	E	P_
	7782-49-2	Selenium_	U 2.1	B		P_
115	7440-22-4	Silver___	1.0	U		P_
116	7440-23-5	Sodium___	39500			P_
	7440-28-0	Thallium_	3.0	U		P_
117	7440-62-2	Vanadium_	1.0	U		P_
118	7440-66-6	Zinc____	U 4.7	B		P_
		Cyanide__				NR

olor Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

olor After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

omments:

FORM I - IN

VALIDATED

3/90

MW32-PRP

APD-GW-MW32

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO

MW32

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-137 SDG No.: 03349

Matrix: (soil/water) WATER Lab Sample ID: 960339914

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 0320906.D

Level: (low/med) LOW Date Received: 03/15/96

% Moisture: not dec. _____ Date Analyzed: 03/20/96

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

	CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1	74-87-3	Chloromethane	10	U
2	74-83-9	Bromomethane	10	U
3	75-01-4	Vinyl Chloride	10	U
4	75-00-3	Chloroethane	10	U
5	75-09-2	Methylene Chloride	10u ~~1~~	~~J~~
6	67-64-1	Acetone	10	U
7	75-15-0	Carbon Disulfide	10	U
8	75-35-4	1,1-Dichloroethene	10	U
9	75-34-3	1,1-Dichloroethane	10	U
	540-59-0	1,2-Dichloroethene (total)	10	U
10	67-66-3	Chloroform	10	U
11	107-06-2	1,2-Dichloroethane	10	U
12	78-93-3	2-Butanone	10	U
13	71-55-6	1,1,1-Trichloroethane	10	U
14	56-23-5	Carbon Tetrachloride	10	U
15	75-27-4	Bromodichloromethane	10	U
16	78-87-5	1,2-Dichloropropane	10	U
17	10061-01-5	cis-1,3-Dichloropropene	10	U
18	79-01-6	Trichloroethene	10	U
19	124-48-1	Dibromochloromethane	10	U
20	79-00-5	1,1,2-Trichloroethane	10	U
21	71-43-2	Benzene	10	U
22	10061-02-6	trans-1,3-Dichloropropene	10	U
23	75-25-2	Bromoform	10	U
24	108-10-1	4-Methyl-2-Pentanone	10	U
25	591-78-6	2-Hexanone	10	U
26	127-18-4	Tetrachloroethene	10	U
27	79-34-5	1,1,2,2-Tetrachloroethane	10	U
28	108-88-3	Toluene	10	U
29	108-90-7	Chlorobenzene	10	U
30	100-41-4	Ethylbenzene	10	U
31	100-42-5	Styrene	10	U
	1330-20-7	Xylene (total)	10	U

VALIDATED

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO

MW32

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-137 SDG No.: 03349

Matrix: (soil/water) WATER Lab Sample ID: 960339914

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0406414.D

Level: (low/med) LOW Date Received: 03/15/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/20/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 04/06/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

	CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
32	108-95-2	Phenol	10	U
33	111-44-4	bis(2-Chloroethyl)ether	10	U
34	95-57-8	2-Chlorophenol	10	U
35	541-73-1	1,3-Dichlorobenzene	10	U
36	106-46-7	1,4-Dichlorobenzene	10	U
37	95-50-1	1,2-Dichlorobenzene	10	U
38	95-48-7	2-Methylphenol	10	U
39	108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
40	106-44-5	4-Methylphenol	10	U
41	621-64-7	N-Nitroso-di-n-propylamine	10	U
42	67-72-1	Hexachloroethane	10	U
43	98-95-3	Nitrobenzene	10	U
44	78-59-1	Isophorone	10	U
45	88-75-5	2-Nitrophenol	10	U
46	105-67-9	2,4-Dimethylphenol	10	U
47	111-91-1	bis(2-Chloroethoxy)methane	10	U
48	120-83-2	2,4-Dichlorophenol	10	U
49	120-82-1	1,2,4-Trichlorobenzene	10	U
50	91-20-3	Naphthalene	10	U
51	106-47-8	4-Chloroaniline	10	U
52	87-68-3	Hexachlorobutadiene	10	U
53	59-50-7	4-Chloro-3-methylphenol	10	U
54	91-57-6	2-Methylnaphthalene	10	U
55	77-47-4	Hexachlorocyclopentadiene	10	U
56	88-06-2	2,4,6-Trichlorophenol	10	U
57	95-95-4	2,4,5-Trichlorophenol	25	U
58	91-58-7	2-Chloronaphthalene	10	U
59	88-74-4	2-Nitroaniline	25	U
60	131-11-3	Dimethylphthalate	10	U
61	208-96-8	Acenaphthylene	10	U
62	606-20-2	2,6-Dinitrotoluene	10	U
63	99-09-2	3-Nitroaniline	25	U
64	83-32-9	Acenaphthene	10	U

VALIDATED

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW32

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-137 SDG No.: 03349

Matrix: (soil/water) WATER Lab Sample ID: 960339914

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0406414.D

Level: (low/med) LOW Date Received: 03/15/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/20/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 04/06/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

	CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
65	51-28-5	2,4-Dinitrophenol	25	U
66	100-02-7	4-Nitrophenol	25	U
67	132-64-9	Dibenzofuran	10	U
68	121-14-2	2,4-Dinitrotoluene	10	U
69	84-66-2	Diethylphthalate	10	U
70	7005-72-3	4-Chlorophenyl-phenylether	10	U
71	86-73-7	Fluorene	10	U
72	100-01-6	4-Nitroaniline	25	U
73	534-52-1	4,6-Dinitro-2-methylphenol	25	U
74	86-30-6	N-Nitrosodiphenylamine (1)	10	U
75	101-55-3	4-Bromophenyl-phenylether	10	U
76	118-74-1	Hexachlorobenzene	10	U
77	87-86-5	Pentachlorophenol	25	U
78	85-01-8	Phenanthrene	10	U
79	120-12-7	Anthracene	10	U
80	86-74-8	Carbazole	10	U
81	84-74-2	Di-n-butylphthalate	10	U
82	206-44-0	Fluoranthene	10	U
83	129-00-0	Pyrene	10	U
84	85-68-7	Butylbenzylphthalate	10	U
85	91-94-1	3,3'-Dichlorobenzidine	10	U
86	56-55-3	Benzo(a)anthracene	10	U
87	218-01-9	Chrysene	10	U
88	117-81-7	bis(2-Ethylhexyl)phthalate	30	
89	117-84-0	Di-n-octylphthalate	10	U
90	205-99-2	Benzo(b)fluoranthene	10	U
91	207-08-9	Benzo(k)fluoranthene	10	U
92	50-32-8	Benzo(a)pyrene	10	U
93	193-39-5	Indeno(1,2,3-cd)pyrene	10	U
94	53-70-3	Dibenz(a,h)anthracene	10	U
95	191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW32

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-137 SDG No.: 03349

Matrix: (soil/water) WATER Lab Sample ID: 960339914

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P3033096_026.D

% Moisture: _____ decanted: (Y/N)___ Date Received: 03/15/96

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 03/19/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 04/02/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Sulfur Cleanup: (Y/N) N

	CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96	12674-11-2	Aroclor-1016	1.0	U
97	11104-28-2	Aroclor-1221	2.0	U
98	11141-16-5	Aroclor-1232	1.0	U
99	53469-21-9	Aroclor-1242	1.0	U
100	12672-29-6	Aroclor-1248	1.0	U
101	11097-69-1	Aroclor-1254	1.0	U
102	11096-82-5	Aroclor-1260	1.0	U

VALIDATED

APD-GW-MW32

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

FILTERED

EPA SAMPLE NO.

MW32F

ab Name: INDUSTRIAL_AND_ENVIRONMEN Contract: _____

ab Code: IEA___ Case No:1589_137___ SAS No.: _____ SDG No.: 03349_

atrix (soil/water): WATER Lab Sample ID: 960339914F

evel (low/med): LOW__ Date Received: 03/15/96

Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

	CAS No.	Analyte	Concentration	C	Q	M
103	7429-90-5	Aluminum_	U 37.3	B		P_
	7440-36-0	Antimony_	2.0	U		P_
	7440-38-2	Arsenic__	3.0	U		P_
104	7440-39-3	Barium___	54.2	B	E	P_
105	7440-41-7	Beryllium	1.0	U		P_
	7440-43-9	Cadmium__	1.0	U		P_
106	7440-70-2	Calcium__	52600			P_
107	7440-47-3	Chromium_	1.0	U		P_
108	7440-48-4	Cobalt___	1.0	U		P_
109	7440-50-8	Copper___	1.0	U		P_
110	7439-89-6	Iron_____	U 32.3	B	E*	P_
	7439-92-1	Lead_____	1.0	U		P_
111	7439-95-4	Magnesium	25100			P_
112	7439-96-5	Manganese	212			P_
113	7439-97-6	Mercury__	0.20	U		CV
114	7440-02-0	Nickel___	U 3.7	B		P_
	7440-09-7	Potassium	6230		E	P_
	7782-49-2	Selenium_	2.0	U		P_
115	7440-22-4	Silver___	1.0	U		P_
116	7440-23-5	Sodium___	61600			P_
	7440-28-0	Thallium_	3.0	U		P_
117	7440-62-2	Vanadium_	1.0	U		P_
118	7440-66-6	Zinc_____	U 7.7	B		P_
		Cyanide__				NR

olor Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

olor After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

omments:

FORM I - IN

VALIDATED

3/90

MW35-PRP

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW35

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-137 SDG No.: 03349

Matrix: (soil/water) WATER Lab Sample ID: 960334903

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 0319912.D

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: not dec. _____ Date Analyzed: 03/19/96

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
1 74-87-3	Chloromethane	10	U
2 74-83-9	Bromomethane	10	U
3 75-01-4	Vinyl Chloride	10	U
4 75-00-3	Chloroethane	10	U
5 75-09-2	Methylene Chloride	10 U ~~2~~	~~J~~
6 67-64-1	Acetone	10 U ~~6~~	~~J~~
7 75-15-0	Carbon Disulfide	10	U
8 75-35-4	1,1-Dichloroethene	10	U
9 75-34-3	1,1-Dichloroethane	10	U
~~540-59-0~~	~~1,2-Dichloroethene (total)~~	~~10~~	~~U~~
10 67-66-3	Chloroform	10	U
11 107-06-2	1,2-Dichloroethane	10	U
12 78-93-3	2-Butanone	10	U
13 71-55-6	1,1,1-Trichloroethane	10	U
14 56-23-5	Carbon Tetrachloride	10	U
15 75-27-4	Bromodichloromethane	10	U
16 78-87-5	1,2-Dichloropropane	10	U
17 10061-01-5	cis-1,3-Dichloropropene	10	U
18 79-01-6	Trichloroethene	10	U
19 124-48-1	Dibromochloromethane	10	U
20 79-00-5	1,1,2-Trichloroethane	10	U
21 71-43-2	Benzene	10	U
22 10061-02-6	trans-1,3-Dichloropropene	10	U
23 75-25-2	Bromoform	10	U
24 108-10-1	4-Methyl-2-Pentanone	10	U
25 591-78-6	2-Hexanone	10	U
26 127-18-4	Tetrachloroethene	10	U
27 79-34-5	1,1,2,2-Tetrachloroethane	10	U
28 108-88-3	Toluene	10	U
29 108-90-7	Chlorobenzene	10	U
30 100-41-4	Ethylbenzene	10	U
31 100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

VALIDATED

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW35

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-137 SDG No.: 03349

Matrix: (soil/water) WATER Lab Sample ID: 960334903

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0406406.D

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/18/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 04/06/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

	CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
32	108-95-2	Phenol	10	U
33	111-44-4	bis(2-Chloroethyl)ether	10	U
34	95-57-8	2-Chlorophenol	10	U
35	541-73-1	1,3-Dichlorobenzene	10	U
36	106-46-7	1,4-Dichlorobenzene	10	U
37	95-50-1	1,2-Dichlorobenzene	10	U
38	95-48-7	2-Methylphenol	10	U
39	108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
40	106-44-5	4-Methylphenol	10	U
41	621-64-7	N-Nitroso-di-n-propylamine	10	U
42	67-72-1	Hexachloroethane	10	U
43	98-95-3	Nitrobenzene	10	U
44	78-59-1	Isophorone	10	U
45	88-75-5	2-Nitrophenol	10	U
46	105-67-9	2,4-Dimethylphenol	10	U
47	111-91-1	bis(2-Chloroethoxy)methane	10	U
48	120-83-2	2,4-Dichlorophenol	10	U
49	120-82-1	1,2,4-Trichlorobenzene	10	U
50	91-20-3	Naphthalene	10	U
51	106-47-8	4-Chloroaniline	10	U
52	87-68-3	Hexachlorobutadiene	10	U
53	59-50-7	4-Chloro-3-methylphenol	10	U
54	91-57-6	2-Methylnaphthalene	10	U
55	77-47-4	Hexachlorocyclopentadiene	10	U
56	88-06-2	2,4,6-Trichlorophenol	10	U
57	95-95-4	2,4,5-Trichlorophenol	25	U
58	91-58-7	2-Chloronaphthalene	10	U
59	88-74-4	2-Nitroaniline	25	U
60	131-11-3	Dimethylphthalate	10	U
61	208-96-8	Acenaphthylene	10	U
62	606-20-2	2,6-Dinitrotoluene	10	U
63	99-09-2	3-Nitroaniline	25	U
64	83-32-9	Acenaphthene	10	U

VALIDATED

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW35

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-137 SDG No.: 03349

Matrix: (soil/water) WATER Lab Sample ID: 960334903

Sample wt/vol: 1000 (g/mL) mL Lab File ID: 0406406.D

Level: (low/med) LOW Date Received: 03/14/96

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 03/18/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 04/06/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____

	CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
65	51-28-5	2,4-Dinitrophenol	25	U
66	100-02-7	4-Nitrophenol	25	U
67	132-64-9	Dibenzofuran	10	U
68	121-14-2	2,4-Dinitrotoluene	10	U
69	84-66-2	Diethylphthalate	10	U
70	7005-72-3	4-Chlorophenyl-phenylether	10	U
71	86-73-7	Fluorene	10	U
72	100-01-6	4-Nitroaniline	25	U
73	534-52-1	4,6-Dinitro-2-methylphenol	25	U
74	86-30-6	N-Nitrosodiphenylamine (1)	10	U
75	101-55-3	4-Bromophenyl-phenylether	10	U
76	118-74-1	Hexachlorobenzene	10	U
77	87-86-5	Pentachlorophenol	25	U
78	85-01-8	Phenanthrene	10	U
79	120-12-7	Anthracene	10	U
80	86-74-8	Carbazole	10	U
81	84-74-2	Di-n-butylphthalate	10	U
82	206-44-0	Fluoranthene	10	U
83	129-00-0	Pyrene	10	U
84	85-68-7	Butylbenzylphthalate	10	U
85	91-94-1	3,3'-Dichlorobenzidine	10	U
86	56-55-3	Benzo(a)anthracene	10	U
87	218-01-9	Chrysene	10	U
88	117-81-7	bis(2-Ethylhexyl)phthalate	11	
89	117-84-0	Di-n-octylphthalate	10	U
90	205-99-2	Benzo(b)fluoranthene	10	U
91	207-08-9	Benzo(k)fluoranthene	10	U
92	50-32-8	Benzo(a)pyrene	10	U
93	193-39-5	Indeno(1,2,3-cd)pyrene	10	U
94	53-70-3	Dibenz(a,h)anthracene	10	U
95	191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

VALIDATED

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MW35

Lab Name: INDUSTRIAL & ENVIRONMENTA Contract: SOW 1/91

Lab Code: IEA Case No.: 1589-137 SDG No.: 03349

Matrix: (soil/water) WATER Lab Sample ID: 960334903

Sample wt/vol: 1000 (g/mL) ML Lab File ID: P3031396_177.D

% Moisture: _____ decanted: (Y/N)___ Date Received: 03/14/96

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 03/19/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 03/28/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ____ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
96 12674-11-2	Aroclor-1016	1.0	U
97 11104-28-2	Aroclor-1221	2.0	U
98 11141-16-5	Aroclor-1232	1.0	U
99 53469-21-9	Aroclor-1242	1.0	U
100 12672-29-6	Aroclor-1248	1.0	U
101 11097-69-1	Aroclor-1254	1.0	U
102 11096-82-5	Aroclor-1260	1.0	U

VALIDATED

APD-GW-MW35

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

FILTERED

EPA SAMPLE NO.

MW35F

ab Name: INDUSTRIAL_AND_ENVIRONMEN Contract: _____

ab Code: IEA___ Case No:1589_137___ SAS No.: _____ SDG No.: 03349_

atrix (soil/water): WATER Lab Sample ID: 960334903F

evel (low/med): LOW__ Date Received: 03/14/96

Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

	CAS No.	Analyte	Concentration	C	Q	M
103	7429-90-5	Aluminum_	13.0	U		P_
	7440-36-0	Antimony_	2.9	B		P_
	7440-38-2	Arsenic__	3.0	U		P_
104	7440-39-3	Barium___	50.6	B	E	P_
105	7440-41-7	Beryllium	1.0	U		P_
	7440-43-9	Cadmium__	1.0	U		P_
106	7440-70-2	Calcium__	30100			P_
107	7440-47-3	Chromium_	1.0	U		P_
108	7440-48-4	Cobalt___	1.0	U		P_
109	7440-50-8	Copper___	u 1.3	B		P_
110	7439-89-6	Iron____	8.0	U	E*	P_
	7439-92-1	Lead____	1.0	U		P_
111	7439-95-4	Magnesium	21800			P_
112	7439-96-5	Manganese	65.8			P_
113	7439-97-6	Mercury__	0.20	U		CV
114	7440-02-0	Nickel___	u 7.3	B		P_
	7440-09-7	Potassium	7090		E	P_
	7782-49-2	Selenium_	2.0	U		P_
115	7440-22-4	Silver___	1.0	U		P_
116	7440-23-5	Sodium___	15800			P_
	7440-28-0	Thallium_	3.0	U		P_
117	7440-62-2	Vanadium_	1.0	U		P_
118	7440-66-6	Zinc____	u 5.2	B		P_
		Cyanide__				NR

olor Before: COLORLESS Clarity Before: CLEAR_ Texture: _____

olor After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

omments:

FORM I - IN

VALIDATED

3/90

IEA

SDG NARRATIVE VOLATILE FRACTION

PROJECT: 1589-137 BATCH: 03349 METHOD: 1/91 SOW

SAMPLES: Fifteen (15) Soil Samples

These samples were received at Industrial and Environmental Analysts, Inc. (IEA) on March 14 and 15, 1996. Each sample was assigned a 9-character "IEA" lab identification number (lab ID) and an abbreviated client ID for simplicity in forms generation. This package makes reference to these ID's as listed on the IEA Assigned Number Index. In addition the pH for the water samples are listed on this index. All analyses were performed according to the EPA 1/91 SOW and meet the requirements of the IEA Quality Assurance Program. Please see the enclosed data package for your results and Chain of Custody (COC) documentation.

There is an air peak that is common to all of the volatile analyses and a solvent peak that is common to some volatile analyses. These peaks are present at the beginning of the Reconstructed Ion Chromatograms (RIC) and are labeled. These peaks are not searched as Tentatively Identified Compounds (TIC's).

The chromatographic separation of the analytes is performed using a J & W Scientific 75 m X 0.53 mm DB-624 fused silica capillary column with a 3.0 μm film thickness.

The trap used in the purge-and-trap apparatus is a Supelco trap K (VOCARB 3000) consisting of 10 cm of Carbopack B, 6 cm of Carboxen 1000, and 1 cm of Carboxen 1001. This trap meets the criteria in the SOW for contract OLM03.1 for an equivalent trap. Documentation is maintained within the QA department for on-site review.

The "J" flag used on the Form I VOA indicates an estimated concentration between the Contract Required Quantitation Limit (CRQL) and the Method Detection Limit (MDL), not accounting for dilution of the sample prior to analysis. This flag is also used on the Form I VOA-TIC to indicate an estimated amount for all non-target concentrations.

The "N" flag used on the Form I VOA-TIC indicates that there is the presumptive evidence of a compound based on the mass spectral library search and the interpretation of the mass spectral interpretation specialist.

The "B" flag used on the Form I VOA and/or Form I VOA-TIC indicates that this compound was present in the associated method blank.

The "Y" flag is used as a qualifier on the Form I VOA-TIC to indicate a siloxane contaminant attributed to trap breakdown.

IEA

SDG NARRATIVE VOLATILE FRACTION

The "M" flag used on the data system report form designates that a manual integration was required to provide an accurate quantification of that analyte. Manual integrations have been initialled and dated by the analyst.

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 and in the computer-readable data submitted on diskette has been authorized by the laboratory manager or his designee, as verified by the following signature.

Brian D. Neptune 04/12/96

Brian D. Neptune
Lead Analyst, GC/MS Final Review
IEA, Inc.

IEA

SDG NARRATIVE SEMIVOLATILE FRACTION

PROJECT: 1589-137 BATCH: 03349 METHOD: CLP 1/91

Samples: Ten (10) Water Samples

The samples were received at Industrial and Environmental Analysts, Inc. (IEA) on 03/15/96. Each sample was assigned a 9-character "IEA" lab identification number (lab ID) and an abbreviated client ID which is referenced on the IEA Assigned Number Index. All analyses are performed in accordance with EPA approved methodologies and meet the requirements of the IEA Quality Assurance Program. Please see the enclosed data package for your results and Chain of Custody documentation.

The chromatographic separation of the analytes was performed using a Restek 30 X 0.32 XTI-5 fused silica capillary column with a 0.5 μm bonded phase film thickness.

Instrument data printouts identify the compound 2,2'-oxybis(1-Chloropropane) with CAS number 108-60-1. Alternative nomenclature for this compound is bis(2-Chloroisopropyl)ether which is included on report forms submitted.

The "J" flag used on the Form I SV indicates an estimated concentration between the CRQL and the Method Detection Limit (MDL) on column in the sample extract, not accounting for dilution of the extract prior to analysis.

The "B" flag used on the Form I SV indicates that this compound was present in the associated extraction blank.

The "M" flag used on the data system report form designates that a manual integration was required to provide an accurate quantification of that analyte. Manual integrations have been initialed and dated by the analyst.

The "X" flag used on the Form I SV indicates that this compound is an extraction artifact.

Any nonconformances associated with the analysis of the samples in this project are as follows:

Sample MW-35 recovered Phenol d-5 below method criteria. The sample was re-extracted and the re-extraction is reported. The re-extraction just passed the minimum criteria. This indicates a definate matrix effect on the surrogate. The internal standard recoveries for the sample MW-35RE failed criteria for Acenaphthene d-10 and Perylene d-12. These internal standard failures were confirmed through re-analysis. The re-analysis is identified as MW-35RE1 and is included in the data package.

I certify that this data package is in compliance with the procedures and methods defined for this project, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data (if applicable) as submitted has been authorized by the laboratory manager or his designee, as verified by the following signature.

_____ 04/12/96

Keith B. Scott
Organic Laboratory Manager
IEA, Inc.

IEA SDG NARRATIVE PESTICIDE FRACTION

PROJECT:1589-137 SDG:03349 METHOD:SOW 1/91 (PCB ONLY)

Samples: (12) Water Samples

This case was closed at Industrial and Environmental Analysts, Inc. (IEA) on March 15, 1996. Each sample was assigned a 9-character "IEA" lab identification number (lab ID) and an abbreviated client ID which is referenced on the IEA Assigned Number Index. All analyses are performed in accordance with EPA approved methodologies and meet the requirements of the IEA Quality Assurance Program. Please see the enclosed data package for your results and Chain of Custody documentation.

The chromatographic separation of the analytes was performed using a J & W 30 m X 0.53 mm DB-1701 fused silica capillary column with a 1.0 μm bonded phase film thickness and a Restek 30 m X 0.53 mm Rt_x-35 fused silica capillary column with a 1.0 μm bonded phase film thickness.

Any nonconformances associated with the analysis of the samples in this project are as follows:

Surrogate recovery was above the method limits for samples MW33 and PBLK42 on the RTX-35 column. The recoveries were within the criteria on the DB-1701 column. No target compounds were present.

The matrix spike/matrix spike duplicate were spiked with an Aroclor-1260 spike instead of the CLP pesticide spiking solution because the samples analyzed were for PCBs only. Matrix spike/matrix spike duplicate recovery was within the method limits.

I certify that this data package is in compliance with the procedures and methods defined for this project, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data (if applicable) as submitted has been authorized by the laboratory manager or his designee, as verified by the following signature.

04/12/96

Katrina L. Travis
GC Volatile Supervisor
IEA, Inc.

IEA SDG NARRATIVE INORGANIC/METALS FRACTION

CASE: 1589-137 SDG NO.: 03349 CONTRACT: N\A

Sample Numbers: 960335407 (APGW) 960335407F (APGWF) 960334904 (MW28) 960334904F (MW28F) 960334905 (MW29) 960334905F (MW29F) 960339912 (MW30) 960339912F (MW30F) 960339911 (MW31) 960339911F (MW31F) 960339914 (MW32) 960339915 (MW32D) 960339915F (MW32D) 960339914F (MW32F) 960339913 (MW33) 960339913F (MW33F) 960334901 (MW34) 960334901F (MW34F) 960334903 (MW35) 960334903F (MW35F) 960335409 (MW36) 960335409 (MW36F) for all TAL Metals by method 200.7M. Mercury was analyzed by method 245.5.

This case was closed on 03/15/96. The temperature of the samples upon receipt by Industrial and Environmental Analysts, Inc. (IEA) was 3°C. All samples were received intact.

The pH of all samples for Metals analysis was less than two (2) at the time of sample preparation. with the following exception: sample MW32 was at a pH of seven (7) at the time of sample preparation.

Each sample has been assigned a 9-character IEA lab identification number.

The "E" flag is used on Form 1 to identify a value that is estimated due to the presence of an interference. All Total samples were flagged with an "E" for Potassium and all Dissolved samples were flagged with an "E" for Barium, Iron, and Potassium due to due to interference.

The "*" flag is used to identify that the sample duplicate analysis exceeds the 20% RPD criteria. The following sample(s) are flagged with a "*" for the metal(s) listed:

Sample ID	Metal
All Dissolved Samples	Iron

Samples designated as dissolved, were labeled with a "F".

Any nonconformances associated with the analysis of samples in this case are noted as follows:
The Sample Spike for sample MW34 (MW34S) was inadvertently not spiked during digestion, batch number 03209607. The redigest batch number is 03279609, and was reanalyzed on 03/28/96 on instrument 61T.
All Samples associated with this case that were analyzed on 03/25/96 on instrument 61T, were reanalyzed for Sodium due to a failed CCV at 13:03:08 on 03/25/96. These samples were reanalyzed on 03/25/96 on instrument 61E.