142889

4

Remedial Investigation/Feasibility Study Phase I Technical Memorandum

Appendix D

Waukegan Manufactured Gas and Coke Plant Site Waukegan, Illinois

Prepared for North Shore Gas Company

Under the Administrative Order on Consent Re: Remedial Investigation and Feasibility Study for the Waukegan Manufactured Gas and Coke Plant Site Waukegan, Illinois

August 1992

Barr
Engineering Company

Appendix D

Laboratory Analytical Data and Quality Assurance/ Quality Control Review Summary

APPENDIX D

LABORATORY ANALYTICAL DATA AND QUALITY ASSURANCE/QUALITY CONTROL REVIEW SUMMARY

INTRODUCTION

A review of quality control data was conducted to assess the integrity of the sampling procedures and analytical results from samples collected during March and April 1992 at the Waukegan Manufactured Gas and Coke Plant Site. The quality control procedures followed during collection and analysis of the samples are discussed in the Quality Assurance Project Plan (QAPP) (Barr, October 1991). Internal and external quality control procedures used during the collection and analysis of samples are discussed in the following sections.

QUALITY CONTROL PROCEDURES

Internal quality control included initial and ongoing programs of quality assurance performed by CH_2M Hill Analytical Laboratory in accordance with their laboratory QAPP. External Quality control involved the collection and analysis of field blanks, trip blanks, and matrix spike and matrix spike duplicate samples.

CH_2M Hill analyzed the samples using gas chromatography according to the EPA Contract Laboratory Program (CLP) Statement Of Work (SOW). The results were reviewed following the EPA Laboratory Data Validation Functional Guidelines For Evaluating Organic Analyses, and Inorganic Analyses.

DATA VALIDATION

Data validation included reviewing the following items: Holding times, instrument tuning, calibration, blank samples, surrogate recoveries, and matrix spike/matrix spike duplicate samples, interference check samples, laboratory control samples, and serial dilution samples.

Method blanks are clean sample equivalents composed of distilled, deionized water that are processed and analyzed as a sample to determine the existence and magnitude of potential contamination introduced during sample preparation and analysis.

Field blank samples are collected to identify contamination from improper decontamination, sampling procedures, bottle transport, and laboratory procedures.

Trip blank samples are used to indicate potential contamination due to migration of volatile organic chemicals from the sample shipping containers during sample transport, from the sample containers themselves or the analyte free water provided by the laboratory.

Both field and laboratory duplicate samples are analyzed to determine data precision, a measure of the reproducibility of field sampling and laboratory analysis. The results are reported as relative percent difference (RPD) and calculated by:

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

where:

S = concentration of sample

D = concentration of duplicate sample

A "surrogate spike" in organic analysis is a compound not expected to be present in environmental samples, but with properties similar to those of the target compounds. It is added to all samples before extraction and other sample preparation. It is measured by the percent recovery. Percent recovery (%R) is calculated by:

$$\%R = (SSR/SA) \times 100$$

where:

SSR = quantity measured in spiked sample

SA = quantity of spike added

A "matrix spike" consists of target compounds added to a sample just before analysis. It is performed to evaluate matrix effects on the analytical methodology and data accuracy. Percent recovery for a matrix spike is calculated by:

$$\%R = \frac{SSR-SR}{SA} \times 100$$

where:

SR = quantity measured in unspiked sample

For inorganic inductively coupled plasma (ICP) analysis, a serial dilution is done for each set of samples of similar matrix type and concentration. For an analyte concentration at least a factor of 50 above the instrument detection limit (IDL), the measured concentrations of the undiluted sample and of the sample after a five-fold dilution should agree within 10 percent. If the difference is greater than 10 percent, the results for that compound are considered estimated because of matrix interference.

The pesticide/PCB quality control evaluation was limited to a review of the laboratory case narrative and the quality control data summary forms.

Eighty-six samples were collected during March and April, 1992. These samples were analyzed by CH_2M Hill Analytical Laboratory for volatiles, semivolatiles, PAH and phenolic, pesticides and PCB, and metals parameters. Two samples (report 21193: TT0604 and TT0604 duplicate) were analyzed for volatiles and semivolatiles TCLP parameters. These data were reviewed for compliance with the Chain-of-Custody form and holding times only. No difficulties were encountered.

Overall Assessment

All sample data were considered acceptable with the recommended qualifiers except "R" qualified data. Antimony results were "R" qualified in Samples SS01, SS06, SS07, SS08, SS09, SS11, SS12, SS14, T03W02 and TT1402. Cyanide results were "R" qualified in samples BS07 and BS08. This data is unusable.

Analytical Data Review and Report Detail

The data that follows is organized in numeric order using a five digit laboratory number. The laboratory number is assigned by the laboratory and can be found on the data sheets and other analytical information that makes up the Laboratory Report.

The laboratory number has been included in the quality control review summaries and is located at the top of the first page and at the bottom left corner of the continuation pages in each summary. The original analytical results consist of the "Data Summary Package" and follow each corresponding data summary.

Laboratory No. 21107

-- Volatiles

-- Semivolatiles

-- Pesticides/PCBS

-- Metals

Five investigative soil samples (BS01, BS02, BS03, BS04, and BS05) were collected March 5, 1992 and analyzed for volatiles, semivolatiles, pesticides/PCBS and metals. The results of these analyses were reported in this case and qualified as described in the following sections.

Holding Times

Holding times were met on all samples and analyses using the EPA holding time criteria for water samples.

Instrument Tuning

Volatiles

GC/MS Tuning met the established method performance criteria for compounds, concentrations, frequencies and relative ion abundances for the volatiles analyses.

Semivolatiles

GC/MS Tuning met the established method performance criteria for compounds, concentrations, frequencies and relative ion abundances for the semivolatiles analyses.

Pesticides

Decachlorobiphenyl was excessively late for several injections on both GC columns for samples BS03, BS03DL, and BS04DL. As a result, the chromatographic data were interpreted using identification windows wider than usual. Since adequate separation of components was achieved no further action was taken.

Instrument performance was acceptable for retention times, retention time windows, and DDT and Endrin degradation for all other samples.

Metals

Instrument tuning does not apply to the metals analyses.

Instrument Calibration

Volatiles

Initial calibration percent relative standard deviation (%RSD) and continuing calibration percent difference (%D) values for three volatile parameters were outside the appropriate control limits. Control limits for %RSD and %D were ≤30 percent and ≤25 percent, respectively.

The volatiles analyses initial calibration parameter and associated %RSD value beyond control limits was chloromethane (32.4 percent). Parameters with %D outlier values were target compounds bromomethane (-38.7 percent) and chloroethane (-33.8 percent). These compounds were not detected in any of the associated samples, so no action was taken.

Semivolatiles

Initial calibration percent relative standard deviation (%RSD) and continuing calibration percent difference (%D) values for two semivolatile parameters were outside the appropriate control limits. Control limits for %RSD and %D were ≤30 percent and ≤25 percent, respectively.

The semivolatiles analyses initial calibration parameter and associated %RSD value beyond control limits was the surrogate standard 1,2-dichlorobenzene-d4 (36.4 percent). Compounds with %D outlier values were the surrogate standard 1,2-dichlorobenzene-d4 (31.5 percent) and target compound 1,2-dichlorobenzene (-27.1 percent). 1,2-dichlorobenzene was not detected in any of the associated samples, so no data were qualified.

Pesticides

Pesticide/PCB analyses instrument calibration %RSD and %D values were within the appropriate quality control limits. Resolution check mixture and performance evaluation mixture samples were analyzed at the proper frequency. All retention time and RPD values were within control limits.

Metals

Instrument calibrations were completed the proper number of times using the appropriate number and type of standards and blanks. Initial and continuing calibration percent recovery values were acceptable for all metals analyses.

Blanks

Volatiles

Methylene chloride (5 J µg/kg), acetone (11 µg/kg), and chloroform (2 J µg/kg) were detected in the volatiles blank. Associated sample results less than five times the blank concentration of chloroform or less than ten times the blank concentration of either remaining compound were qualified as nondetects and flagged "U."

Semivolatiles

The semivolatiles method blank had concentrations of di-n-butylphthalate (190 J µg/kg), and bis(2-ethylhexyl)phthalate (96 J µg/kg). Associated sample results less than ten times the blank concentration of either compound were qualified as nondetects and flagged "U."

Pesticides

No compounds were detected in the pesticide/PCB method blank.

Metals

Total metals analyses calibration and preparation blanks had concentrations of aluminum, arsenic, barium, beryllium, calcium, chromium, copper, iron, magnesium, manganese, sodium, thallium, vanadium, and zinc. These concentrations were greater than the instrument detection limit (IDL) but less than the contract required detection limit (CRDL). Sample results for these compounds less than five times the associated blank concentration were qualified as nondetects and flagged "U."

Surrogate Recovery

Volatiles

Recoveries for the volatiles system monitoring compounds were within the established quality control limits.

Semivolatiles

Semivolatiles surrogate recoveries were within the established quality control limits.

Pesticides

Pesticide/PCB surrogate compounds were diluted out of sample BS03. This sample also had elevated reporting limits due to sample dilution. These data were accepted without qualification.

Metals

Total metals analyses ICP interference check sample recoveries and laboratory control sample results were within the established quality control limits.

Matrix Spike/Matrix Spike Duplicate

Volatiles

Volatiles analyses matrix spike/matrix spike duplicate samples percent recovery and RPD values were within the appropriate control limits for all spike compounds.

Semivolatiles

Semivolatiles analyses matrix spike/matrix spike duplicate samples had recoveries beyond control limits for 2,4-dinitrotoluene (93 percent and 100 percent). The percent recovery control limits for this compound were 28-89 percent. However, since the recoveries for 2,4-dinitrotoluene were high, it was not detected in any of the associated samples, and all other spike compounds met the established performance criteria, no action was taken.

Pesticides

Pesticide/PCB matrix spike/matrix spike duplicate samples had acceptable recovery and RPD values for all compounds.

Metals

Metals analyses quality control samples included a duplicate sample, a spike sample, post digestion spike samples, and an ICP serial dilution sample.

Duplicate samples RPD values for beryllium (11.3 percent) and lead (9.3 percent) were beyond the control limits. Investigative sample results for these two compounds were qualified as estimated and flagged "J."

Recoveries for the spike sample were beyond control limits (75-125 percent) for antimony (67.3 percent) and lead (47.9 percent). Results for these compounds in the investigative samples were qualified as estimated and flagged "J."

Selenium (80.2 percent) recoveries for Sample BS03 and arsenic (116.9 percent) recoveries for Sample BS05 on the post digestion spike samples were beyond the 85-115 percent control limits. These compounds were qualified as estimated and flagged "J" in the affected samples. All other post digestion spike sample recoveries were within the control limits.

ICP serial dilution results for aluminum (100 percent) and barium (44 percent) were outside the 10 percent difference control limit. These compounds were qualified as estimated and flagged "J" in the associated samples.

Field Duplicates

No field duplicates were collected.

Overall Assessment

The data are considered acceptable with the recommended qualifiers.

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APR 0 9. 92

April 3, 1992

LMG33486.XY

Ms. Marti Harding-Smith
Barr Engineering Company
8300 Norman Center Drive
Suite 300
Minneapolis, Minnesota 55437-1026

RE: Analytical Data for LMG Laboratory No. 21107

Dear Ms. Harding-Smith:

On March 6, 1992, the CH2M HILL Montgomery Laboratory received five samples with a request for analysis of selected organic parameters.

The analytical results and associated quality control data are enclosed. Any unusual difficulties encountered during the analyses of these samples are discussed in the case narratives.

If you should have any questions concerning the data, please inquire.

The CH2M HILL policy is to store samples for up to 30 days after reporting. If you desire, our laboratory will maintain your samples for a longer period at a cost of $5.00 per sample per month. Samples determined to be hazardous can either be returned to you or disposed of at a cost of $25.00 per sample.

Sincerely,

Wanda L. Hall

Wanda L. Hall
Data Package Supervisor

Enclosures

cc: Mr. Jim Langseth

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TABLE OF CONTENTS

CH2M HILL Laboratory No. 21107

	Page No.
List of Organic EPA-defined Qualifiers	i
List of Sample ID Qualifiers	ii
Sample Cross-Reference	iii
List of Internal Standards and Surrogates (Volatiles)	iv
List of Internal Standards and Surrogates (Semivolatiles)	v
SAMPLE DATA SUMMARY PACKAGE	1-57
SAMPLE DATA PACKAGE	58
Case Narratives	59-65
Shipping Receipts	66-67
Volatile Data	68
QC Summary	69-75
Sample Data (Analytical Results of Field Samples)	76
BS-01 (LMG #21107001)	
Form I	77
Form I - TIC	78
Raw Data	79-90
BS-02 (LMG #21107002)	
Form I	91
Form I - TIC	92
Raw Data	93-106
BS-03 (LMG #21107003)	
Form I	107
Form I - TIC	108
Raw Data	109-126
BS-04 (LMG #21107004)	
Form I	127
Form I - TIC	128
Raw Data	129-138
BS-05 (LMG #21107005)	
Form I	139
Form I - TIC	140
Raw Data	141-150

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TABLE OF CONTENTS (cont.)

CH2M HILL Laboratory No. 21107

	Page No.
Volatile Data (cont.)	
Standards Data	151
Initial Calibration Data	152-178
Continuing Calibration Data	179-185
Raw QC Data	186
BFB Data	187-195
Blank Data	196-208
MS/MSD Data	209-219
Semivolatile Data	220
QC Summary	221-228
Sample Data (Analytical Results of Field Samples)	229
BS-01 (LMG #21107001)	
Form I	230-231
Form I - TIC	232
Raw Data	233-269
BS-02 (LMG #21107002)	
Form I	270-271
Form I - TIC	272
Raw Data	273-331
BS-03 (LMG #21107003)	
Form I	332-333
Form I - TIC	334
Raw Data	335-422
BS-04 (LMG #21107004)	
Form I	423-424
Form I - TIC	425
Raw Data	426-454
BS-05 (LMG #21107005)	
Form I	455-456
Form I - TIC	457
Raw Data	458-528
Standards Data	529
Initial Calibration Data	530-580
Continuing Calibration Data	581-591
GPC Calibration	592-593
Raw QC Data	594
DFTPP Data	595-603
Blank Data	604-636
MS/MSD Data	637-653

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TABLE OF CONTENTS (cont.)

CH2M HILL Laboratory No. 21107

	Page No.
Pesticide/PCB Data	654
QC Summary	655-658
Sample Data (Analytical Results of Field Samples)	659
BS-01 (LMG #21107001)	
Form I	660
Raw Data	661-666
BS-02 (LMG #21107002)	
Form I	667
Raw Data	668-673
BS-03 (LMG #21107003)	
Form I	674
Raw Data	675-696
BS-03DL (LMG #21107003DL)	
Form I	697
Raw Data	698-703
BS-04 (LMG #21107004)	
Form I	704
Raw Data	705-710
BS-04DL (LMG #21107004DL)	
Form I	711
Raw Data	712-717
BS-05 (LMG #21107005)	
Form I	718
Raw Data	719-725
Standards Data	726
Summary Forms	727-760
Raw Data (Primary Column)	761-820
Raw Data (Confirmation Column)	821-882
GPC Calibration	883-884
Raw QC Data	885
Blank Data	886-922
MS/MSD Data	923-938

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EPA - DEFINED QUALIFIERS

ORGANICS

Definitions for the EPA-defined qualifiers:

U -- Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the quantitation limit for that compound. The detection limit can vary from sample to sample depending on dilution factors or percent moisture adjustment when indicated.

J -- Indicates an estimated value. This flag is used when the data indicates the presence of a compound below the stated quantitation limit.

C -- This flag applies to pesticide results only. The "C" flag indicates the presence of this compound has been confirmed by GC/MS analysis.

B -- This flag is used when the analyte is found in the associated blank as well as the sample. This notation indicates possible blank contamination and suggests the data user evaluate these compounds and their amounts carefully.

E -- This flag applies to GC/MS only. The "E" qualifier indicates a compound may be above or below the linear range of the instrument. If the particular compound level is deemed above the linear calibration range, then the sample should be reanalyzed at an appropriate dilution. Therefore, the "E" qualified amount is an estimated concentration. The results for the dilution will be reported on a separate Form I and will be flagged with a "D" if the dilution brings the concentration within proper calibration.

D -- This flag identifies compounds which have been run at a dilution to bring the concentration of that compound within the linear range of the instrument. "D" qualifiers are only used for samples that have been run initially with results above acceptable ranges. For secondary dilutions the "DL" suffix is appended to the sample number on the Form I.

A -- Indicates the Tentatively Identified Compound (TIC) is a suspected aldol-condensation product.

X -- Indicates the compound concentration has been manually modified or the EPA qualifier has been manually modified or added.

P -- This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC cloumns (see Form X). The lower of the two values is reported on the Form I and flagged with a "P".

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CLIENT SAMPLE ID QUALIFIERS

LEVEL 3

The qualifiers that GC/MS and GC use with the client sample ID are defined below:

DL -- Dilution Run

R -- Rerun (may be followed by a digit to indicate multiple reruns)

RD -- Diluted Rerun

RX -- Re-extraction Analysis

MS -- Matrix Spike (may be followed by a digit to indicate multiple matrix spikes within a sample set)

MSD -- Matrix Spike Duplicate (may be followed by a digit to indicate multiple matrix spike duplicates within a sample set)

VBLK -- Volatile Blank (will be followed by a "W" for waters, "S" for soils run at a low level, or "SM" for soils run at a medium level -- these letters may be followed by a digit to indicate multiple blanks of that type).

SBLK -- Semivolatile Blank (will be followed by a "W" for waters, "S" for soils run at a low level, or "SM" for soils run at a medium level -- these letters may be followed by a digit to indicate multiple blanks of that type).

PBLK -- Pesticide/PCB Blank (may be followed by digits to indicate multiple blanks)

These qualifiers allow GC/MS and GC to have unique client sample ID's so that the client can get more accurate information from the data reported.

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TABLE 1

SAMPLE CROSS-REFERENCE SUMMARY

CH2M HILL Laboratory No. 21107

CH2M HILL Sample No.	Sample Description				
21107001	BS-01	03/05/91	COMP	13/49-003JSL31	PO#01906
21107002	BS-02	03/05/91	COMP	13/49-003JSL31	PO#01906
21107003	BS-03	03/05/91	COMP	13/49-003JSL31	PO#01906
21107004	BS-04	03/05/91	COMP	13/49-003JSL31	PO#01906
21107005	BS-05	03/05/91	COMP	13/49-003JSL31	PO#01906

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INTERNAL STANDARD AND SURROGATE COMPOUNDS

VOLATILE ANALYSIS

The internal standards on the GC/MS volatile chromatograms are designated as IS1, IS2, and IS3. The surrogate standards are labelled as SS1, SS2, and SS3. The compounds corresponding to these labels are listed below.

LABEL	INTERNAL STANDARD COMPOUND
IS1	BROMOCHLOROMETHANE
IS2	1,4-DIFLUOROBENZENE
IS3	D5-CHLOROBENZENE

LABEL	SURROGATE STANDARD COMPOUND
SS1	D4-1,2-DICHLOROETHANE
SS2	D8-TOLUENE
SS3	1,4-BROMOFLUOROBENZENE

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INTERNAL STANDARD AND SURROGATE COMPOUNDS

SEMIVOLATILE ANALYSIS

The internal standards on the GC/MS semivolatile chromatograms are designated as IS1, IS2, IS3, IS4, IS5, and IS6. The surrogate standards are labelled as SS1, SS2, SS3, SS4, SS5, and SS6. The compounds corresponding to these labels are listed below.

LABEL	INTERNAL STANDARD COMPOUND
IS1	D4-1,4-DICHLOROBENZENE
IS2	D8-NAPHTHALENE
IS3	D10-ACENAPHTHENE
IS4	D10-PHENANTHRENE
IS5	D12-CHRYSENE
IS6	D12-PERYLENE

LABEL	SURROGATE STANDARD COMPOUND
SS1	2-FLUOROPHENOL
SS2	D5-PHENOL
SS3	D5-NITROBENZENE
SS4	2-FLUOROBIPHENYL
SS5	2,4,6-TRIBROMOPHENOL
SS6	D14-TERPHENYL

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SAMPLE DATA SUMMARY PACKAGE

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CASE NARRATIVE FOR VOLATILE MASS SPECTROMETRY SAMPLES

LABORATORY: CH2M HILL LABORATORIES CLIENT: BARR ENGINEERING

CASE NO. : N/A CONTRACT NO.: N/A

LAB NO. : 21107 SDG NO.: N/A

I. RECEIPT

A. DATE: March 6, 1992

B. SAMPLE INFORMATION

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
21107001	BS-01	SOIL	03/05/92	NA	03/12/92
21107002	BS-02	SOIL	03/05/92	NA	03/12/92
21107003	BS-03	SOIL	03/05/92	NA	03/12/92
21107004	BS-04	SOIL	03/05/92	NA	03/12/92
21107005	BS-05	SOIL	03/05/92	NA	03/12/92
21107M02	BS-02MS	SOIL	03/05/92	NA	03/12/92
21107D02	BS-02MSD	SOIL	03/05/92	NA	03/12/92
Y03122B1	VBLKS	SOIL	NA	NA	03/12/92

C. Documentation
Exceptions : No exceptions were encountered.

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II. EXTRACTION

A. Holding Times: Medium level protocol was not performed; therefore, extraction time is not applicable.

B. Extraction Exceptions : Not applicable.

III. ANALYSIS

A. Holding times: All holding times were met.

B. Analytical Exceptions : Unless otherwise indicated, all water volatile samples were analyzed using the HCl-preserved vial.

No exceptions were encountered.

IV. QUALITY CONTROL

A. Method Blank : All associated method blanks met acceptable QC criteria.

B. Surrogate Recoveries : All samples met acceptable QC limits.

C. Matrix Spike Results : All spike recoveries were within CLP advisory limits.

Please note that Forms II, IV, V, and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to CH2M HILL identification numbers.

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 floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Herb Kelly 4/3/92

Herb Kelly Date
Manager, Organic Division

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CASE NARRATIVE FOR SEMIVOLATILE MASS SPECTROMETRY SAMPLES

LABORATORY: CH2M HILL LABORATORIES CLIENT: BARR ENGINEERING

CASE NO. : N/A CONTRACT NO.: N/A

LAB NO. : 21107 SDG NO.: N/A

I. RECEIPT

A. DATE: March 6, 1992

B. SAMPLE INFORMATION

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
21107001	BS-01	SOIL	03/05/92	03/10/92	03/27/92
21107002	BS-02	SOIL	03/05/92	03/10/92	03/27/92
21107003	BS-03	SOIL	03/05/92	03/10/92	03/27/92
21107004	BS-04	SOIL	03/05/92	03/10/92	03/27/92
21107005	BS-05	SOIL	03/05/92	03/10/92	03/27/92
21107M02	BS-02MS	SOIL	03/05/92	03/10/92	03/27/92
21107D02	BS-02MSD	SOIL	03/05/92	03/10/92	03/27/92
S03102B1	SBLKS	SOIL	NA	03/10/92	03/27/92

C. Documentation
Exceptions : No exceptions were encountered.

CH2M HILL Quality Analytical Laboratories 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205 271 [illegible]

II. EXTRACTION

A. Holding Times: All holding times were met.

B. Extraction Exceptions : No exceptions were encountered.

III. ANALYSIS

A. Holding times: All holding times were met.

B. Analytical Exceptions : No exceptions were encountered.

IV. QUALITY CONTROL

A. Method Blank : All associated method blanks met acceptable QC criteria.

B. Surrogate Recoveries : All samples met acceptable QC limits.

C. Matrix Spike Results : Please note that the percent recovery for 2,4-Dinitrotoluene in samples 21107M02 and 21107D02 was above QC limits. Since the relative percent difference for 2,4-Dinitrotoluene was within QC limits, the laboratory took no further action.

All other spike recoveries were within CLP advisory limits.

Please note that Forms II, IV, V, and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to CH2M HILL identification numbers.

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 floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Herb Kelly 4/3/92

Herb Kelly Date
Manager, Organic Division

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CASE NARRATIVE FOR PESTICIDE/PCB GAS CHROMATOGRAPHY SAMPLES

LABORATORY: CH2M HILL LABORATORIES CLIENT: BARR

CASE NO. : N/A CONTRACT NO.: N/A

LAB NO. : 21107 SDG NO.: N/A

I. RECEIPT

A. DATE: March 6, 1992

B. SAMPLE INFORMATION

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
21107001	BS-01	SOIL	03/05/92	03/10/92	03/27/92
21107002	BS-02	SOIL	03/05/92	03/10/92	03/27/92
21107003	BS-03	SOIL	03/05/92	03/10/92	03/27/92
21107003DL	BS-03DL	SOIL	03/05/92	03/10/92	03/27/92
21107004	BS-04	SOIL	03/05/92	03/10/92	03/27/92
21107004DL	BS-04DL	SOIL	03/05/92	03/10/92	03/27/92
21107005	BS-05	SOIL	03/05/92	03/10/92	03/28/92
21107M02	BS-02MS	SOIL	03/05/92	03/10/92	03/27/92
21107D02	BS-02MSD	SOIL	03/05/92	03/10/92	03/27/92
S03102B1	PBLK10	SOIL	NA	03/10/92	03/27/92

C. Documentation
Exceptions : The names of both GC instruments were changed during this sequence. VAR6000A was changed to V6000A and VAR6000B was changed to V6000B.

II. EXTRACTION

A. Holding times: All holding times were met.

B. Extraction
Exceptions : No exceptions were encountered.

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III. ANALYSIS

A. Holding times: All holding times were met.

B. Analytical Exceptions : Internal standards were added to the pesticide/PCB samples before injection for internal QC purposes only. According to CLP protocol, only external standard calculations were performed for this report.

As shown on Form 8D, the retention time of DCB was excessively late for several injections onto the SPB608 GC column. Because of this problem, chromatographic data were interpreted using identification windows slightly wider than usual.

No additional exceptions were encountered.

IV. QUALITY CONTROL

A. Method Blank : All associated method blanks met acceptable QC criteria.

B. Surrogate Recoveries : All samples met acceptable QC limits.

C. Matrix Spike Results : All compounds met acceptable QC limits.

D. Special Conditions : Primary and confirmation data was acquired by a single injection into a dual column/ECD system.

Please note that Forms II, IV, V, and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to CH2M HILL identification numbers.

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 floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Herb Kelly 4/3/92

Herb Kelly Date
Manager, Organic Division

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BS-01

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107001

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020948

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: not dec. 6 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	32	B
67-64-1	Acetone	14	B
75-15-0	Carbon Disulfide	2	J
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	2	BJ
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	11	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BS-01

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107001

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020948

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: not dec. 6 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BS-02

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107002

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020949

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: not dec. 9 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BS-02

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107002

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020949

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: not dec. 9 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BS-03

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107003

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020952

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: not dec. 21 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	51	B
67-64-1	Acetone	39	B
75-15-0	Carbon Disulfide	4	J
75-35-4	1,1-Dichloroethene	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	13	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	13	U
56-23-5	Carbon Tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	2	J
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
591-78-6	2-Hexanone	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
127-18-4	Tetrachloroethene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	2	J
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U
1330-20-7	Xylene (total)	7	J

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BS-03

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107003

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020952

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: not dec. 21 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BS-04

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107004

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020953

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: not dec. 6 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BS-04

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107004

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020953

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: not dec. 6 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BS-05

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107005

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020954

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: not dec. 17 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BS-05

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107005

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020954

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: not dec. 17 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BS-01

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013472

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	350	U
111-44-4	bis(2-Chloroethyl)Ether	350	U
95-57-8	2-Chlorophenol	350	U
541-73-1	1,3-Dichlorobenzene	350	U
106-46-7	1,4-Dichlorobenzene	350	U
95-50-1	1,2-Dichlorobenzene	350	U
95-48-7	2-Methylphenol	350	U
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U
106-44-5	4-Methylphenol	350	U
621-64-7	N-Nitroso-Di-n-Propylamine	350	U
67-72-1	Hexachloroethane	350	U
98-95-3	Nitrobenzene	350	U
78-59-1	Isophorone	350	U
88-75-5	2-Nitrophenol	350	U
105-67-9	2,4-Dimethylphenol	350	U
111-91-1	bis(2-Chloroethoxy)Methane	350	U
120-83-2	2,4-Dichlorophenol	350	U
120-82-1	1,2,4-Trichlorobenzene	350	U
91-20-3	Naphthalene	350	U
106-47-8	4-Chloroaniline	350	U
87-68-3	Hexachlorobutadiene	350	U
59-50-7	4-Chloro-3-Methylphenol	350	U
91-57-6	2-Methylnaphthalene	350	U
77-47-4	Hexachlorocyclopentadiene	350	U
88-06-2	2,4,6-Trichlorophenol	350	U
95-95-4	2,4,5-Trichlorophenol	840	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	840	U
131-11-3	Dimethylphthalate	350	U
208-96-8	Acenaphthylene	350	U
606-20-2	2,6-Dinitrotoluene	350	U
99-09-2	3-Nitroaniline	840	U
83-32-9	Acenaphthene	350	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BS-01

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013472

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	840	U
100-02-7	4-Nitrophenol	840	U
132-64-9	Dibenzofuran	350	U
121-14-2	2,4-Dinitrotoluene	350	U
84-66-2	Diethylphthalate	350	U
7005-72-3	4-Chlorophenyl-phenylether	350	U
86-73-7	Fluorene	350	U
100-10-6	4-Nitroaniline	840	U
534-52-1	4,6-Dinitro-2-methylphenol	840	U
86-30-6	N-Nitrosodiphenylamine (1)	350	U
101-55-3	4-Bromophenyl-phenylether	350	U
118-74-1	Hexachlorobenzene	350	U
87-86-5	Pentachlorophenol	840	U
85-01-8	Phenanthrene	350	U
120-12-7	Anthracene	350	U
86-74-8	Carbazole	350	U
84-74-2	Di-n-Butylphthalate	79	BJ
206-44-0	Fluoranthene	47	J
129-00-0	Pyrene	35	J
85-68-7	Butylbenzylphthalate	350	U
91-94-1	3,3'-Dichlorobenzidine	350	U
56-55-3	Benzo(a)Anthracene	350	U
218-01-9	Chrysene	40	J
117-81-7	bis(2-Ethylhexyl)Phthalate	420	B
117-84-0	Di-n-Octyl Phthalate	350	U
205-99-2	Benzo(b)Fluoranthene	350	U
207-08-9	Benzo(k)Fluoranthene	350	U
50-32-8	Benzo(a)Pyrene	350	U
193-39-5	Indeno(1,2,3-cd)Pyrene	350	U
53-70-3	Dibenz(a,h)Anthracene	350	U
191-24-2	Benzo(g,h,i)Perylene	350	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BS-01

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013472

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 8

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	NOT IDENTIFIED	7.15	360	J
2. 17257-81-7	ETHANONE, 1-(3-ETHYLOXIRANYL	7.53	230	J
3. 20019-64-1	2(5H)-FURANONE, 5,5-DIMETHYL	8.10	380	J
4.	NOT IDENTIFIED	10.19	280	J
5. 17851-53-5	1,2-BENZENEDICARBOXYLIC ACID	22.75	270	BJ
6. 57-10-3	HEXADECANOIC ACID	23.79	260	BJ
7.	NOT IDENTIFIED	4.37	800	J
8.	NOT IDENTIFIED	5.32	14000	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BS-02

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013473

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	350	U
111-44-4	bis(2-Chloroethyl)Ether	350	U
95-57-8	2-Chlorophenol	350	U
541-73-1	1,3-Dichlorobenzene	350	U
106-46-7	1,4-Dichlorobenzene	350	U
95-50-1	1,2-Dichlorobenzene	350	U
95-48-7	2-Methylphenol	350	U
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U
106-44-5	4-Methylphenol	350	U
621-64-7	N-Nitroso-Di-n-Propylamine	350	U
67-72-1	Hexachloroethane	350	U
98-95-3	Nitrobenzene	350	U
78-59-1	Isophorone	350	U
88-75-5	2-Nitrophenol	350	U
105-67-9	2,4-Dimethylphenol	350	U
111-91-1	bis(2-Chloroethoxy)Methane	350	U
120-83-2	2,4-Dichlorophenol	350	U
120-82-1	1,2,4-Trichlorobenzene	350	U
91-20-3	Naphthalene	350	U
106-47-8	4-Chloroaniline	350	U
87-68-3	Hexachlorobutadiene	350	U
59-50-7	4-Chloro-3-Methylphenol	350	U
91-57-6	2-Methylnaphthalene	350	U
77-47-4	Hexachlorocyclopentadiene	350	U
88-06-2	2,4,6-Trichlorophenol	350	U
95-95-4	2,4,5-Trichlorophenol	850	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	850	U
131-11-3	Dimethylphthalate	350	U
208-96-8	Acenaphthylene	350	U
606-20-2	2,6-Dinitrotoluene	350	U
99-09-2	3-Nitroaniline	850	U
83-32-9	Acenaphthene	350	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BS-02

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013473

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	850	U
100-02-7	4-Nitrophenol	850	U
132-64-9	Dibenzofuran	350	U
121-14-2	2,4-Dinitrotoluene	350	U
84-66-2	Diethylphthalate	350	U
7005-72-3	4-Chlorophenyl-phenylether	350	U
86-73-7	Fluorene	350	U
100-10-6	4-Nitroaniline	850	U
534-52-1	4,6-Dinitro-2-methylphenol	850	U
86-30-6	N-Nitrosodiphenylamine (1)	350	U
101-55-3	4-Bromophenyl-phenylether	350	U
118-74-1	Hexachlorobenzene	350	U
87-86-5	Pentachlorophenol	850	U
85-01-8	Phenanthrene	68	J
120-12-7	Anthracene	350	U
86-74-8	Carbazole	350	U
84-74-2	Di-n-Butylphthalate	94	BJ
206-44-0	Fluoranthene	90	J
129-00-0	Pyrene	77	J
85-68-7	Butylbenzylphthalate	350	U
91-94-1	3,3'-Dichlorobenzidine	350	U
56-55-3	Benzo(a)Anthracene	40	J
218-01-9	Chrysene	54	J
117-81-7	bis(2-Ethylhexyl)Phthalate	76	BJ
117-84-0	Di-n-Octyl Phthalate	350	U
205-99-2	Benzo(b)Fluoranthene	42	J
207-08-9	Benzo(k)Fluoranthene	46	J
50-32-8	Benzo(a)Pyrene	350	U
193-39-5	Indeno(1,2,3-cd)Pyrene	350	U
53-70-3	Dibenz(a,h)Anthracene	350	U
191-24-2	Benzo(g,h,i)Perylene	350	U

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BS-02

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013473

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: 6 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 14

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 4305-26-4	2-HEXANONE, 6-(ACETYLOXY)-	7.17	500	BJ
2. 3240-09-3	5-HEXEN-2-ONE, 5-METHYL-	8.12	540	BJ
3. 18641-71-9	3-HEPTANONE, 2,4-DIMETHYL-	9.10	370	J
4. 2809-65-6	BENZENE, 1-CHLORO-4-(1-PROPY	9.24	710	J
5. 112-36-7	ETHANE, 1,1'-OXYBIS[2-ETHOXY	9.27	250	J
6.	NOT IDENTIFIED	10.20	350	J
7. 1120-21-4	UNDECANE	14.57	160	J
8. 62016-37-9	OCTANE, 2,4,6-TRIMETHYL-	16.17	250	J
9. 17301-30-3	UNDECANE, 3,8-DIMETHYL-	17.67	280	J
10.	NOT IDENTIFIED	19.09	190	J
11. 17851-53-5	1,2-BENZENEDICARBOXYLIC ACID	22.74	250	BJ
12.	NOT IDENTIFIED	23.79	170	J
13.	NOT IDENTIFIED	4.47	1000	J
14.	NOT IDENTIFIED	5.42	19000	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BS-03

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107003

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013474

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: 27 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	450	U
111-44-4	bis(2-Chloroethyl)Ether	450	U
95-57-8	2-Chlorophenol	450	U
541-73-1	1,3-Dichlorobenzene	450	U
106-46-7	1,4-Dichlorobenzene	450	U
95-50-1	1,2-Dichlorobenzene	450	U
95-48-7	2-Methylphenol	450	U
108-60-1	2,2'-oxybis(1-Chloropropane)	450	U
106-44-5	4-Methylphenol	450	U
621-64-7	N-Nitroso-Di-n-Propylamine	450	U
67-72-1	Hexachloroethane	450	U
98-95-3	Nitrobenzene	450	U
78-59-1	Isophorone	450	U
88-75-5	2-Nitrophenol	450	U
105-67-9	2,4-Dimethylphenol	450	U
111-91-1	bis(2-Chloroethoxy)Methane	450	U
120-83-2	2,4-Dichlorophenol	450	U
120-82-1	1,2,4-Trichlorobenzene	450	U
91-20-3	Naphthalene	120	J
106-47-8	4-Chloroaniline	450	U
87-68-3	Hexachlorobutadiene	450	U
59-50-7	4-Chloro-3-Methylphenol	450	U
91-57-6	2-Methylnaphthalene	87	J
77-47-4	Hexachlorocyclopentadiene	450	U
88-06-2	2,4,6-Trichlorophenol	450	U
95-95-4	2,4,5-Trichlorophenol	1100	U
91-58-7	2-Chloronaphthalene	450	U
88-74-4	2-Nitroaniline	1100	U
131-11-3	Dimethylphthalate	450	U
208-96-8	Acenaphthylene	590	
606-20-2	2,6-Dinitrotoluene	450	U
99-09-2	3-Nitroaniline	1100	U
83-32-9	Acenaphthene	160	J

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BS-03

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107003

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013474

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: 27 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1100	U
100-02-7	4-Nitrophenol	1100	U
132-64-9	Dibenzofuran	89	J
121-14-2	2,4-Dinitrotoluene	450	U
84-66-2	Diethylphthalate	450	U
7005-72-3	4-Chlorophenyl-phenylether	450	U
86-73-7	Fluorene	260	J
100-10-6	4-Nitroaniline	1100	U
534-52-1	4,6-Dinitro-2-methylphenol	1100	U
86-30-6	N-Nitrosodiphenylamine (1)	450	U
101-55-3	4-Bromophenyl-phenylether	450	U
118-74-1	Hexachlorobenzene	450	U
87-86-5	Pentachlorophenol	1100	U
85-01-8	Phenanthrene	1300	
120-12-7	Anthracene	560	
86-74-8	Carbazole	240	J
84-74-2	Di-n-Butylphthalate	450	U
206-44-0	Fluoranthene	2400	
129-00-0	Pyrene	2600	
85-68-7	Butylbenzylphthalate	450	U
91-94-1	3,3'-Dichlorobenzidine	450	U
56-55-3	Benzo(a)Anthracene	1600	
218-01-9	Chrysene	1700	
117-81-7	bis(2-Ethylhexyl)Phthalate	330	BJ
117-84-0	Di-n-Octyl Phthalate	450	U
205-99-2	Benzo(b)Fluoranthene	2000	
207-08-9	Benzo(k)Fluoranthene	1100	
50-32-8	Benzo(a)Pyrene	1400	
193-39-5	Indeno(1,2,3-cd)Pyrene	1100	
53-70-3	Dibenz(a,h)Anthracene	440	J
191-24-2	Benzo(g,h,i)Perylene	810	

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BS-03

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107003

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013474

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: 27 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 20

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	BIPHENYL, TRICHLORO- ISOMER	22.97	2800	J
2.	BIPHENYL, TETRACHLORO- ISOME	23.82	1500	J
3.	BIPHENYL, TETRACHLORO- ISOME	23.94	2200	J
4. 57-10-3	HEXADECANOIC ACID	24.00	3000	BJ
5.	BIPHENYL, TETRACHLORO- ISOME	24.32	1700	J
6. 12672-29-6	AROCLOR 1248	24.40	1000	J
7.	BIPHENYL, TETRACHLORO- ISOME	24.60	2100	J
8.	BIPHENYL, TETRACHLORO- ISOME	25.36	1800	J
9.	NOT IDENTIFIED	26.26	1600	J
10.	NOT IDENTIFIED	26.92	520	J
11.	NOT IDENTIFIED	27.51	680	J
12.	NOT IDENTIFIED	30.26	1000	J
13.	NOT IDENTIFIED	31.32	970	J
14.	NOT IDENTIFIED	32.11	3500	J
15.	NOT IDENTIFIED	33.04	1400	J
16.	NOT IDENTIFIED	33.12	2400	J
17.	NOT IDENTIFIED	34.64	2200	J
18.	NOT IDENTIFIED	36.02	2600	J
19.	NOT IDENTIFIED	36.99	3600	J
20.	NOT IDENTIFIED	5.37	19000	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BS-04

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107004

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013475

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	350	U
111-44-4	bis(2-Chloroethyl)Ether	350	U
95-57-8	2-Chlorophenol	350	U
541-73-1	1,3-Dichlorobenzene	350	U
106-46-7	1,4-Dichlorobenzene	350	U
95-50-1	1,2-Dichlorobenzene	350	U
95-48-7	2-Methylphenol	350	U
108-60-1	2,2'-oxybis(1-Chloropropane)	350	U
106-44-5	4-Methylphenol	350	U
621-64-7	N-Nitroso-Di-n-Propylamine	350	U
67-72-1	Hexachloroethane	350	U
98-95-3	Nitrobenzene	350	U
78-59-1	Isophorone	350	U
88-75-5	2-Nitrophenol	350	U
105-67-9	2,4-Dimethylphenol	350	U
111-91-1	bis(2-Chloroethoxy)Methane	350	U
120-83-2	2,4-Dichlorophenol	350	U
120-82-1	1,2,4-Trichlorobenzene	350	U
91-20-3	Naphthalene	350	U
106-47-8	4-Chloroaniline	350	U
87-68-3	Hexachlorobutadiene	350	U
59-50-7	4-Chloro-3-Methylphenol	350	U
91-57-6	2-Methylnaphthalene	350	U
77-47-4	Hexachlorocyclopentadiene	350	U
88-06-2	2,4,6-Trichlorophenol	350	U
95-95-4	2,4,5-Trichlorophenol	840	U
91-58-7	2-Chloronaphthalene	350	U
88-74-4	2-Nitroaniline	840	U
131-11-3	Dimethylphthalate	350	U
208-96-8	Acenaphthylene	350	U
606-20-2	2,6-Dinitrotoluene	350	U
99-09-2	3-Nitroaniline	840	U
83-32-9	Acenaphthene	350	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BS-04

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107004

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013475

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	840	U
100-02-7	4-Nitrophenol	840	U
132-64-9	Dibenzofuran	350	U
121-14-2	2,4-Dinitrotoluene	350	U
84-66-2	Diethylphthalate	350	U
7005-72-3	4-Chlorophenyl-phenylether	350	U
86-73-7	Fluorene	350	U
100-10-6	4-Nitroaniline	840	U
534-52-1	4,6-Dinitro-2-methylphenol	840	U
86-30-6	N-Nitrosodiphenylamine (1)	350	U
101-55-3	4-Bromophenyl-phenylether	350	U
118-74-1	Hexachlorobenzene	350	U
87-86-5	Pentachlorophenol	840	U
85-01-8	Phenanthrene	350	U
120-12-7	Anthracene	350	U
86-74-8	Carbazole	350	U
84-74-2	Di-n-Butylphthalate	67	BJ
206-44-0	Fluoranthene	350	U
129-00-0	Pyrene	350	U
85-68-7	Butylbenzylphthalate	350	U
91-94-1	3,3'-Dichlorobenzidine	350	U
56-55-3	Benzo(a)Anthracene	350	U
218-01-9	Chrysene	350	U
117-81-7	bis(2-Ethylhexyl)Phthalate	98	BJ
117-84-0	Di-n-Octyl Phthalate	350	U
205-99-2	Benzo(b)Fluoranthene	350	U
207-08-9	Benzo(k)Fluoranthene	350	U
50-32-8	Benzo(a)Pyrene	350	U
193-39-5	Indeno(1,2,3-cd)Pyrene	350	U
53-70-3	Dibenz(a,h)Anthracene	350	U
191-24-2	Benzo(g,h,i)Perylene	350	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BS-04

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107004

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013475

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 9

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 108-21-4	ACETIC ACID, 1-METHYLETHYL E	4.38	340	J
2.	NOT IDENTIFIED	7.08	100	J
3.	NOT IDENTIFIED	7.17	300	J
4. 3240-09-3	5-HEXEN-2-ONE, 5-METHYL-	8.10	390	BJ
5. 18641-71-9	3-HEPTANONE, 2,4-DIMETHYL-	9.10	250	J
6.	NOT IDENTIFIED	10.20	290	J
7.	NOT IDENTIFIED	23.80	250	J
8.	NOT IDENTIFIED	35.84	1000	J
9.	NOT IDENTIFIED	5.30	11000	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BS-05

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107005

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013476

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: 16 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)Ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
95-50-1	1,2-Dichlorobenzene	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-oxybis(1-Chloropropane)	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-Di-n-Propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)Methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	390	U
106-47-8	4-Chloroaniline	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-Methylphenol	390	U
91-57-6	2-Methylnaphthalene	390	U
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	950	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	950	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	390	U
606-20-2	2,6-Dinitrotoluene	390	U
99-09-2	3-Nitroaniline	950	U
83-32-9	Acenaphthene	390	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BS-05

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107005

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013476

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: 16 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	950	U
100-02-7	4-Nitrophenol	950	U
132-64-9	Dibenzofuran	390	U
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U
86-73-7	Fluorene	390	U
100-10-6	4-Nitroaniline	950	U
534-52-1	4,6-Dinitro-2-methylphenol	950	U
86-30-6	N-Nitrosodiphenylamine (1)	390	U
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol	950	U
85-01-8	Phenanthrene	170	J
120-12-7	Anthracene	390	U
86-74-8	Carbazole	390	U
84-74-2	Di-n-Butylphthalate	82	BJ
206-44-0	Fluoranthene	180	J
129-00-0	Pyrene	100	J
85-68-7	Butylbenzylphthalate	390	U
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo(a)Anthracene	63	J
218-01-9	Chrysene	63	J
117-81-7	bis(2-Ethylhexyl)Phthalate	82	BJ
117-84-0	Di-n-Octyl Phthalate	390	U
205-99-2	Benzo(b)Fluoranthene	63	J
207-08-9	Benzo(k)Fluoranthene	90	J
50-32-8	Benzo(a)Pyrene	46	J
193-39-5	Indeno(1,2,3-cd)Pyrene	40	J
53-70-3	Dibenz(a,h)Anthracene	390	U
191-24-2	Benzo(g,h,i)Perylene	390	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BS-05

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107005

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013476

Level: (low/med) LOW Date Received: 03/06/92

% Moisture: 16 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 12

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	NOT IDENTIFIED	7.05	140	J
2.	NOT IDENTIFIED	7.13	330	J
3. 17257-81-7	ETHANONE, 1-(3-ETHYLOXIRANYL	7.55	420	J
4. 3240-09-3	5-HEXEN-2-ONE, 5-METHYL-	8.08	350	BJ
5. 18641-71-9	3-HEPTANONE, 2,4-DIMETHYL-	9.09	220	J
6.	NOT IDENTIFIED	10.20	380	J
7.	NOT IDENTIFIED	20.54	170	J
8. 17851-53-5	1,2-BENZENEDICARBOXYLIC ACID	22.77	170	BJ
9. 57-10-3	HEXADECANOIC ACID	23.82	210	BJ
10. 205-82-3	BENZO[J]FLUORANTHENE	33.26	300	J
11.	NOT IDENTIFIED	4.33	680	J
12.	NOT IDENTIFIED	5.25	13000	J

Hsu

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BS-01

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 5 decanted: (Y/N) N Date Received: 03/06/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.8 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.8	U
319-85-7	beta-BHC	1.8	U
319-86-8	delta-BHC	1.8	U
58-89-9	gamma-BHC (Lindane)	1.8	U
76-44-8	Heptachlor	1.8	U
309-00-2	Aldrin	1.8	U
1024-57-3	Heptachlor epoxide	1.8	U
959-98-8	Endosulfan I	1.8	U
60-57-1	Dieldrin	3.5	U
72-55-9	4,4'-DDE	3.5	U
72-20-8	Endrin	3.5	U
33213-65-9	Endosulfan II	3.5	U
72-54-8	4,4'-DDD	3.5	U
1031-07-8	Endosulfan sulfate	3.5	U
50-29-3	4,4'-DDT	3.5	U
72-43-5	Methoxychlor	18	U
53494-70-5	Endrin ketone	3.5	U
7421-36-3	Endrin aldehyde	3.5	U
5103-71-9	alpha-Chlordane	1.8	U
5103-74-2	gamma-Chlordane	1.8	U
8001-35-2	Toxaphene	180	U
12674-11-2	Aroclor-1016	35	U
11104-28-2	Aroclor-1221	71	U
11141-16-5	Aroclor-1232	35	U
53469-21-9	Aroclor-1242	35	U
12672-29-6	Aroclor-1248	35	U
11097-69-1	Aroclor-1254	35	U
11096-82-5	Aroclor-1260	35	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BS-02

Lab Name: CH2M HILL/MGM Contract: _____

Code: CH2M Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 6 decanted: (Y/N) N Date Received: 03/06/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.8 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.8	U
319-85-7	beta-BHC	1.8	U
319-86-8	delta-BHC	1.8	U
58-89-9	gamma-BHC (Lindane)	1.8	U
76-44-8	Heptachlor	1.8	U
309-00-2	Aldrin	1.8	U
1024-57-3	Heptachlor epoxide	1.8	U
959-98-8	Endosulfan I	1.8	U
60-57-1	Dieldrin	3.5	U
72-55-9	4,4'-DDE	3.5	U
72-20-8	Endrin	3.5	U
33213-65-9	Endosulfan II	3.5	U
72-54-8	4,4'-DDD	3.5	U
1031-07-8	Endosulfan sulfate	3.5	U
50-29-3	4,4'-DDT	3.5	U
72-43-5	Methoxychlor	18	U
53494-70-5	Endrin ketone	3.5	U
7421-36-3	Endrin aldehyde	3.5	U
5103-71-9	alpha-Chlordane	1.4	J
5103-74-2	gamma-Chlordane	1.2	J
8001-35-2	Toxaphene	180	U
12674-11-2	Aroclor-1016	35	U
11104-28-2	Aroclor-1221	71	U
11141-16-5	Aroclor-1232	35	U
53469-21-9	Aroclor-1242	35	U
12672-29-6	Aroclor-1248	35	U
11097-69-1	Aroclor-1254	35	U
11096-82-5	Aroclor-1260	35	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BS-03

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107003

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1PC013505

% Moisture: 27 decanted: (Y/N) N Date Received: 03/06/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.00 (uL) Dilution Factor: 50.0

GPC Cleanup: (Y/N) Y pH: 9.8 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	120	U
319-85-7	beta-BHC	120	U
319-86-8	delta-BHC	120	U
58-89-9	gamma-BHC (Lindane)	120	U
76-44-8	Heptachlor	120	U
309-00-2	Aldrin	120	U
1024-57-3	Heptachlor epoxide	120	U
959-98-8	Endosulfan I	120	U
60-57-1	Dieldrin	230	U
72-55-9	4,4'-DDE	230	U
72-20-8	Endrin	230	U
33213-65-9	Endosulfan II	230	U
72-54-8	4,4'-DDD	230	U
1031-07-8	Endosulfan sulfate	230	U
50-29-3	4,4'-DDT	230	U
72-43-5	Methoxychlor	1200	U
53494-70-5	Endrin ketone	230	U
7421-36-3	Endrin aldehyde	230	U
5103-71-9	alpha-Chlordane	120	U
5103-74-2	gamma-Chlordane	120	U
8001-35-2	Toxaphene	12000	U
12674-11-2	Aroclor-1016	2300	U
11104-28-2	Aroclor-1221	4600	U
11141-16-5	Aroclor-1232	2300	U
53469-21-9	Aroclor-1242	2300	U
12672-29-6	Aroclor-1248	23000	C
11097-69-1	Aroclor-1254	2300	U
11096-82-5	Aroclor-1260	850	J

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BS-03DL

Lab Name: CH2M HILL/MGM Contract: _____

Code: CH2M Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107003DL

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1PC013505

% Moisture: 27 decanted: (Y/N) N Date Received: 03/06/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.00 (uL) Dilution Factor: 500

GPC Cleanup: (Y/N) Y pH: 9.8 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1200	U
319-85-7	beta-BHC	1200	U
319-86-8	delta-BHC	1200	U
58-89-9	gamma-BHC (Lindane)	1200	U
76-44-8	Heptachlor	1200	U
309-00-2	Aldrin	1200	U
1024-57-3	Heptachlor epoxide	1200	U
959-98-8	Endosulfan I	1200	U
60-57-1	Dieldrin	2300	U
72-55-9	4,4'-DDE	2300	U
72-20-8	Endrin	2300	U
33213-65-9	Endosulfan II	2300	U
72-54-8	4,4'-DDD	2300	U
1031-07-8	Endosulfan sulfate	2300	U
50-29-3	4,4'-DDT	2300	U
72-43-5	Methoxychlor	12000	U
53494-70-5	Endrin ketone	2300	U
7421-36-3	Endrin aldehyde	2300	U
5103-71-9	alpha-Chlordane	1200	U
5103-74-2	gamma-Chlordane	1200	U
8001-35-2	Toxaphene	120000	U
12674-11-2	Aroclor-1016	23000	U
11104-28-2	Aroclor-1221	46000	U
11141-16-5	Aroclor-1232	23000	U
53469-21-9	Aroclor-1242	23000	U
12672-29-6	Aroclor-1248	24000	CD
11097-69-1	Aroclor-1254	23000	U
11096-82-5	Aroclor-1260	23000	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BS-04

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107004

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 5 decanted: (Y/N) N Date Received: 03/06/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.00 (uL) Dilution Factor: 4.00

GPC Cleanup: (Y/N) Y pH: 8.4 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	7.2	U
319-85-7	beta-BHC	7.2	U
319-86-8	delta-BHC	7.2	U
58-89-9	gamma-BHC (Lindane)	7.2	U
76-44-8	Heptachlor	7.2	U
309-00-2	Aldrin	7.2	U
1024-57-3	Heptachlor epoxide	7.2	U
959-98-8	Endosulfan I	7.2	U
60-57-1	Dieldrin	14	U
72-55-9	4,4'-DDE	14	U
72-20-8	Endrin	14	U
33213-65-9	Endosulfan II	14	U
72-54-8	4,4'-DDD	14	U
1031-07-8	Endosulfan sulfate	14	U
50-29-3	4,4'-DDT	14	U
72-43-5	Methoxychlor	72	U
53494-70-5	Endrin ketone	14	U
7421-36-3	Endrin aldehyde	14	U
5103-71-9	alpha-Chlordane	7.2	U
5103-74-2	gamma-Chlordane	7.2	U
8001-35-2	Toxaphene	720	U
12674-11-2	Aroclor-1016	140	U
11104-28-2	Aroclor-1221	280	U
11141-16-5	Aroclor-1232	140	U
53469-21-9	Aroclor-1242	140	U
12672-29-6	Aroclor-1248	1500	
11097-69-1	Aroclor-1254	140	U
11096-82-5	Aroclor-1260	69	J

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BS-04DL

Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107004DL

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 5 decanted: (Y/N) N Date Received: 03/06/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.00 (uL) Dilution Factor: 40.0

GPC Cleanup: (Y/N) Y pH: 8.4 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	72	U
319-85-7	beta-BHC	72	U
319-86-8	delta-BHC	72	U
58-89-9	gamma-BHC (Lindane)	72	U
76-44-8	Heptachlor	72	U
309-00-2	Aldrin	72	U
1024-57-3	Heptachlor epoxide	72	U
959-98-8	Endosulfan I	72	U
60-57-1	Dieldrin	140	U
72-55-9	4,4'-DDE	140	U
72-20-8	Endrin	140	U
33213-65-9	Endosulfan II	140	U
72-54-8	4,4'-DDD	140	U
1031-07-8	Endosulfan sulfate	140	U
50-29-3	4,4'-DDT	140	U
72-43-5	Methoxychlor	720	U
53494-70-5	Endrin ketone	140	U
7421-36-3	Endrin aldehyde	140	U
5103-71-9	alpha-Chlordane	72	U
5103-74-2	gamma-Chlordane	72	U
8001-35-2	Toxaphene	7200	U
12674-11-2	Aroclor-1016	1400	U
11104-28-2	Aroclor-1221	2800	U
11141-16-5	Aroclor-1232	1400	U
53469-21-9	Aroclor-1242	1400	U
12672-29-6	Aroclor-1248	1500	D
11097-69-1	Aroclor-1254	1400	U
11096-82-5	Aroclor-1260	1400	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BS-05

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21107005

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 16 decanted: (Y/N) N Date Received: 03/06/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/28/92

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.3 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.0	U
319-85-7	beta-BHC	2.0	U
319-86-8	delta-BHC	2.0	U
58-89-9	gamma-BHC (Lindane)	2.0	U
76-44-8	Heptachlor	2.0	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	3.9	U
72-55-9	4,4'-DDE	3.9	U
72-20-8	Endrin	3.9	U
33213-65-9	Endosulfan II	3.9	U
72-54-8	4,4'-DDD	3.9	U
1031-07-8	Endosulfan sulfate	3.9	U
50-29-3	4,4'-DDT	3.9	U
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	3.9	U
7421-36-3	Endrin aldehyde	3.9	U
5103-71-9	alpha-Chlordane	2.0	U
5103-74-2	gamma-Chlordane	2.0	U
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	39	U
11104-28-2	Aroclor-1221	80	U
11141-16-5	Aroclor-1232	39	U
53469-21-9	Aroclor-1242	39	U
12672-29-6	Aroclor-1248	39	U
11097-69-1	Aroclor-1254	39	U
11096-82-5	Aroclor-1260	39	U

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Level:(low/med) LOW

	EPA SAMPLE NO.	SMC1 (TOL)#	SMC2 (BFB)#	SMC3 (DCE)#	OTHER	TOT OUT
01	BS-01	104	96	100	0	0
02	BS-02	114	80	117	0	0
03	BS-03	111	84	103	0	0
04	BS-04	95	91	99	0	0
05	BS-05	98	92	98	0	0
06	BS-02MS	104	99	106	0	0
07	BS-02MSD	99	91	97	0	0
08	VBLKS	98	90	94	0	0

		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(84-138)
SMC2 (BFB)	= Bromofluorobenzene	(59-113)
SMC3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2D
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	S7 (2CP)#	S8 (DCB)#	TOT OUT
01	BS-01	94	91	87	49	52	55	49	87	0
02	BS-02	103	101	98	51	53	56	50	93	0
03	BS-03	103	105	106	53	52	60	52	90	0
04	BS-04	91	87	87	45	46	52	45	78	0
05	BS-05	94	89	85	50	50	53	48	85	0
06	BS-02MS	84	75	78	43	40	43	42	73	0
07	BS-02MSD	82	76	75	42	44	45	42	71	0
08	SBLKS	90	85	88	44	45	47	44	82	0

		QC LIMITS	
S1 (NBZ)	= Nitrobenzene-d5	(23-120)	
S2 (FBP)	= 2-Fluorobiphenyl	(30-115)	
S3 (TPH)	= Terphenyl-d14	(18-137)	
S4 (PHL)	= Phenol-d5	(24-113)	
S5 (2FP)	= 2-Fluorophenol	(25-121)	
S6 (TBP)	= 2,4,6-Tribromophenol	(19-122)	
S7 (2CP)	= 2-Chlorophenol-d4	(20-130)	(advisory)
S8 (DCB)	= 1,2-Dichlorobenzene-d4	(20-130)	(advisory)

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

2F
SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Code: CH2M Case No.: 21107 SAS No.: _____ SDG No.: _____

GC Column(1): SPB-5 ID: 0.53(mm) GC Column(2): SPB-608 ID: 0.53(mm)

	EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
01	PBLK10	90	85	81	85			0
02	BS-01	95	86	87	91			0
03	BS-02	94	88	89	93			0
04	BS-03	0D	0D	0D	0D			0
05	BS-03DL	0D	0D	0D	0D			0
06	BS-04	93	92	82	81			0
07	BS-04DL	0D	0D	0D	0D			0
08	BS-05	97	84	84	93			0
09	BS-02MS	94	98	86	88			0
10	BS-02MSD	97	94	98	104			0

	ADVISORY QC LIMITS
TCX = Tetrachloro-m-xylene	(60-150)
DCB = Decachlorobiphenyl	(60-150)

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

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix Spike - EPA Sample No.: BS-02 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	54.90	0	60.88	111	59-172
Trichloroethene	54.90	0	46.81	85	62-137
Benzene	54.90	0	55.27	101	66-142
Toluene	54.90	0	54.40	99	59-139
Chlorobenzene	54.90	0	54.94	100	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	54.90	51.87	94	17	22	59-172
Trichloroethene	54.90	45.27	82	4	24	62-137
Benzene	54.90	55.05	100	1	21	66-142
Toluene	54.90	52.64	96	3	21	59-139
Chlorobenzene	54.90	54.94	100	0	21	60-133

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

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS: CLP,21107,,BS-02,L,S,21107002,V,E,
10DG TO 160DG @4DG/MIN IH=7MIN

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix Spike - EPA Sample No.: BS-02 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
Phenol	5310	0	3454	65	26- 90
2-Chlorophenol	5310	0	3295	62	25-102
1,4-Dichlorobenzene	2660	0	2242	84	28-104
N-Nitroso-di-n-prop.(1)	2660	0	2572	97	41-126
1,2,4-Trichlorobenzene	2660	0	2469	93	38-107
4-Chloro-3-methylphenol	5310	0	3543	67	26-103
Acenaphthene	2660	0	2232	84	31-137
4-Nitrophenol	5310	0	4180	79	11-114
2,4-Dinitrotoluene	2660	0	2480	93 *	28- 89
Pentachlorophenol	5310	0	3433	65	17-109
Pyrene	2660	152.7	2416	85	35-142

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	5310	3649	69	6	35	26- 90
2-Chlorophenol	5310	3429	65	5	50	25-102
1,4-Dichlorobenzene	2660	2374	89	6	27	28-104
N-Nitroso-di-n-prop.(1)	2660	2657	100	3	38	41-126
1,2,4-Trichlorobenzene	2660	2519	95	2	23	38-107
4-Chloro-3-methylphenol	5310	3684	69	3	33	26-103
Acenaphthene	2660	2324	87	4	19	31-137
4-Nitrophenol	5310	4535	85	7	50	11-114
2,4-Dinitrotoluene	2660	2657	100 *	7	47	28- 89
Pentachlorophenol	5310	3578	67	3	47	17-109
Pyrene	2660	2483	88	3	36	35-142

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 11 outside limits
Spike Recovery: 2 out of 22 outside limits

COMMENTS: CLP,21107,,BS02,L,S,21107002,BNA,EPA,
20DG TO 310DG @4DG/MIN IH=10MIN

3F

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix Spike - EPA Sample No.: BS-02

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
gamma-BHC (Lindane)	17.700	0	16.6	94	46-127
Heptachlor	17.700	0	17.9	101	35-130
Aldrin	17.700	0	16.5	93	34-132
Dieldrin	35.400	0	32.5	92	31-134
Endrin	35.400	0	35.7	101	42-139
4,4'-DDT	35.400	0	36.1	102	23-134

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
gamma-BHC (Lindane)	17.700	18.3	103	-9	50	46-127
Heptachlor	17.700	18.1	102	-1	31	35-130
Aldrin	17.700	18.1	102	-9	43	34-132
Dieldrin	35.400	34.1	96	-4	38	31-134
Endrin	35.400	39.0	110	-9	45	42-139
4,4'-DDT	35.400	38.7	109	-7	50	23-134

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

* Values outside of QC limits

RPD: 0 out of 6 outside limits
Spike Recovery: 0 out of 12 outside limits

COMMENTS:

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKS

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Lab File ID: CBV0020947 Lab Sample ID: Y03122B1

Date Analyzed: 03/12/92 Time Analyzed: 0927

GC Column: CAP ID: 0.530(mm) Heated Purge: (Y/N) Y

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	BS-01	21107001	C1V0020948	1045
02	BS-02	21107002	C1V0020949	1118
03	BS-03	21107003	C1V0020952	1301
04	BS-04	21107004	C1V0020953	1335
05	BS-05	21107005	C1V0020954	1409
06	BS-02MS	21107M02	C1V0020950	1152
07	BS-02MSD	21107D02	C1V0020951	1226

COMMENTS: CLP,21128,,VBLKS,L,S,Y03122B1,V,B,
10DG TO 160DG @4DG/MIN IH=7MIN

FORM IV VOA 3/90

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKS

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: Y03122B1

Sample wt/vol: 5.0 (g/mL) G Lab File ID: CBV0020947

Level: (low/med) LOW Date Received: 03/12/92

% Moisture: not dec. 0 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKS

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: Y03122B1

Sample wt/vol: 5.0 (g/mL) G Lab File ID: CBVO020947

Level: (low/med) LOW Date Received: 03/12/92

% Moisture: not dec. 0 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLKS

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Lab File ID: ABBA013471 Lab Sample ID: S03102B1

Instrument ID: 4000 Date Extracted: 03/10/92

Matrix: (soil/water) SOIL Date Analyzed: 03/27/92

Level:(low/med) LOW Time Analyzed: 1737

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	BS-02	21107002	A1BA013473	03/27/92
02	BS-03	21107003	A1BA013474	03/27/92
03	BS-04	21107004	A1BA013475	03/27/92
04	BS-05	21107005	A1BA013476	03/27/92
05	BS01	21107001	A1BA013472	03/27/92
06	BS-02MS	21107M02	AMBA013477	03/27/92
07	BS-02MSD	21107D02	AMBA013478	03/27/92

COMMENTS: CLP,21107,,SBLKS,L,S,S03102B1,BNA,BLANK,
20DG TO 310DG @4DG/MIN IH=10MIN

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKS

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: S03102B1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ABBA013471

Level: (low/med) LOW Date Received: 03/10/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-Di-n-Propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
111-91-1	bis(2-Chloroethoxy)Methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-Methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	800	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	800	U
131-11-3	Dimethylphthalate	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	330	U
99-09-2	3-Nitroaniline	800	U
83-32-9	Acenaphthene	330	U

MSL

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKS

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: S03102B1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ABBA013471

Level: (low/med) LOW Date Received: 03/10/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	800	U
100-02-7	4-Nitrophenol	800	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-10-6	4-Nitroaniline	800	U
534-52-1	4,6-Dinitro-2-methylphenol	800	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	800	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
86-74-8	Carbazole	330	U
84-74-2	Di-n-Butylphthalate	190	J
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	330	U
56-55-3	Benzo(a)Anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)Phthalate	96	J
117-84-0	Di-n-Octyl Phthalate	330	U
205-99-2	Benzo(b)Fluoranthene	330	U
207-08-9	Benzo(k)Fluoranthene	330	U
50-32-8	Benzo(a)Pyrene	330	U
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U
53-70-3	Dibenz(a,h)Anthracene	330	U
191-24-2	Benzo(g,h,i)Perylene	330	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SBLKS

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: S03102B1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ABBA013471

Level: (low/med) LOW Date Received: 03/10/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 9

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	NOT IDENTIFIED	4.18	130	J
2. 4305-26-4	2-HEXANONE, 6-(ACETYLOXY)-	7.13	330	J
3. 3240-09-3	5-HEXEN-2-ONE, 5-METHYL-	8.07	200	J
4. 17851-53-5	1,2-BENZENEDICARBOXYLIC ACID	22.75	220	J
5. 57-10-3	HEXADECANOIC ACID	23.79	150	J
6. 10544-50-0	SULFUR, MOL. (S8)	24.95	1800	J
7. 4337-65-9	HEXANEDIOIC ACID, MONO(2-ETH	28.49	1500	J
8.	NOT IDENTIFIED	5.28	13000	J
9.	NOT IDENTIFIED	4.37	390	J

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PBLK10

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: 21107 SAS No.: _____ SDG No.: _____

Lab Sample ID: S03102B1 Lab File ID: ABPC013504

Matrix:(soil/water) SOIL Extraction:(SepF/Cont/Sonc) SONC

Sulfur Cleanup: (Y/N) Y Date Extracted: 03/10/92

Date Analyzed (1): 03/27/92 Date Analyzed (2): 03/27/92

Time Analyzed (1): 1431 Time Analyzed (2): 1431

Instrument ID (1): V6000A Instrument ID (2): V6000B

GC Column (1): SPB-5 ID: 0.53 (mm) GC Column (2): SPB-608 ID: 0.53 (mm)

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

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	BS-01	21107001	03/27/92	03/27/92
02	BS-02	21107002	03/27/92	03/27/92
03	BS-03	21107003	03/27/92	03/27/92
04	BS-03DL	21107003DL	03/27/92	03/27/92
05	BS-04	21107004	03/27/92	03/27/92
06	BS-04DL	21107004DL	03/27/92	03/27/92
07	BS-05	21107005	03/28/92	03/28/92
08	BS-02MS	21107M02	03/27/92	03/27/92
09	BS-02MSD	21107D02	03/27/92	03/27/92

COMMENTS:

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLK10

Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: 21107 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: S03102B1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ABPC013504

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

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.0 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.7	U
319-85-7	beta-BHC	1.7	U
319-86-8	delta-BHC	1.7	U
58-89-9	gamma-BHC (Lindane)	1.7	U
76-44-8	Heptachlor	1.7	U
309-00-2	Aldrin	1.7	U
1024-57-3	Heptachlor epoxide	1.7	U
959-98-8	Endosulfan I	1.7	U
60-57-1	Dieldrin	3.3	U
72-55-9	4,4'-DDE	3.3	U
72-20-8	Endrin	3.3	U
33213-65-9	Endosulfan II	3.3	U
72-54-8	4,4'-DDD	3.3	U
1031-07-8	Endosulfan sulfate	3.3	U
50-29-3	4,4'-DDT	3.3	U
72-43-5	Methoxychlor	17	U
53494-70-5	Endrin ketone	3.3	U
7421-36-3	Endrin aldehyde	3.3	U
5103-71-9	alpha-Chlordane	1.7	U
5103-74-2	gamma-Chlordane	1.7	U
8001-35-2	Toxaphene	170	U
12674-11-2	Aroclor-1016	33	U
11104-28-2	Aroclor-1221	67	U
11141-16-5	Aroclor-1232	33	U
53469-21-9	Aroclor-1242	33	U
12672-29-6	Aroclor-1248	33	U
11097-69-1	Aroclor-1254	33	U
11096-82-5	Aroclor-1260	33	U

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): CSVO020945 Date Analyzed: 03/12/92

Instrument ID: 4500 Time Analyzed: 0810

GC Column: CAP ID: 0.530(mm) Heated Purge: (Y/N) Y

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	56481	10.95	208995	12.47	197910	17.37
	UPPER LIMIT	112962	11.45	417990	12.97	395820	17.87
	LOWER LIMIT	28240	10.45	104498	11.97	98955	16.87
	EPA SAMPLE NO.						
01	BS-01	35073	10.97	129218	12.49	107841	17.37
02	BS-02	45481	10.95	226951	12.45	164169	17.34
03	BS-03	45711	10.85	167220	12.40	122164	17.34
04	BS-04	51028	10.97	191910	12.47	155447	17.35
05	BS-05	57745	10.95	216973	12.47	182049	17.35
06	BS-02MS	52541	10.95	200974	12.47	161858	17.35
07	BS-02MSD	51116	10.90	180453	12.44	150085	17.34
08	VBLKS	48166	10.95	173093	12.47	139041	17.35

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): ASBA013470 Date Analyzed: 03/27/92

Instrument ID: 4000 Time Analyzed: 1657

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	12 HOUR STD	15230	9.17	63301	12.55	32517	17.47
	UPPER LIMIT	30460	9.67	126602	13.05	65034	17.97
	LOWER LIMIT	7615	8.67	31650	12.05	16258	16.97
	EPA SAMPLE NO.						
01	BS-01	14078	9.20	58566	12.59	30082	17.50
02	BS-02	13814	9.24	57031	12.59	28852	17.50
03	BS-03	14872	9.24	63080	12.62	31386	17.55
04	BS-04	16115	9.22	67601	12.60	36015	17.52
05	BS-05	14194	9.22	61609	12.60	33716	17.54
06	BS-02MS	14485	9.17	61232	12.60	33639	17.57
07	BS-02MSD	15140	9.25	65334	12.64	34269	17.55
08	SBLKS	15191	9.20	61902	12.59	32306	17.50

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21107 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): ASBA013470 Date Analyzed: 03/27/92

Instrument ID: 4000 Time Analyzed: 1657

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	12 HOUR STD	45103	21.60	36385	29.24	35036	33.07
	UPPER LIMIT	90206	22.10	72770	29.74	70072	33.57
	LOWER LIMIT	22552	21.10	18192	28.74	17518	32.57
	EPA SAMPLE NO.						
01	BS-01	42332	21.64	37138	29.29	35041	33.14
02	BS-02	40009	21.64	34802	29.29	33701	33.14
03	BS-03	42792	21.70	33952	29.44	36987	33.37
04	BS-04	50292	21.65	41697	29.32	36468	33.17
05	BS-05	45949	21.67	41360	29.34	36072	33.19
06	BS-02MS	45498	21.70	41450	29.36	36997	33.21
07	BS-02MSD	48676	21.70	42707	29.37	38233	33.22
08	SBLKS	44136	21.64	36247	29.29	35881	33.12

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

SAMPLE DATA PACKAGE

SAMPLE DATA PACKAGE

CASE NARRATIVE

Engineers
Planners
CH2M HILL Economists
Scientists

CASE NARRATIVE FOR VOLATILE MASS SPECTROMETRY SAMPLES

LABORATORY: CH2M HILL LABORATORIES CLIENT: BARR ENGINEERING

CASE NO. : N/A CONTRACT NO.: N/A

LAB NO. : 21107 SDG NO.: N/A

I. RECEIPT

A. DATE: March 6, 1992

B. SAMPLE INFORMATION

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
21107001	BS-01	SOIL	03/05/92	NA	03/12/92
21107002	BS-02	SOIL	03/05/92	NA	03/12/92
21107003	BS-03	SOIL	03/05/92	NA	03/12/92
21107004	BS-04	SOIL	03/05/92	NA	03/12/92
21107005	BS-05	SOIL	03/05/92	NA	03/12/92
21107M02	BS-02MS	SOIL	03/05/92	NA	03/12/92
21107D02	BS-02MSD	SOIL	03/05/92	NA	03/12/92
Y03122B1	VBLKS	SOIL	NA	NA	03/12/92

C. Documentation
Exceptions : No exceptions were encountered.

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II. EXTRACTION

A. Holding Times: Medium level protocol was not performed; therefore, extraction time is not applicable.

B. Extraction Exceptions : Not applicable.

III. ANALYSIS

A. Holding times: All holding times were met.

B. Analytical Exceptions : Unless otherwise indicated, all water volatile samples were analyzed using the HCl-preserved vial.

No exceptions were encountered.

IV. QUALITY CONTROL

A. Method Blank : All associated method blanks met acceptable QC criteria.

B. Surrogate Recoveries : All samples met acceptable QC limits.

C. Matrix Spike Results : All spike recoveries were within CLP advisory limits.

Please note that Forms II, IV, V, and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to CH2M HILL identification numbers.

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 floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Herb Kelly 4/3/92

Herb Kelly Date
Manager, Organic Division

CH2M HILL Quality Analytical Laboratories 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116

Engineers
Planners
CH2M HILL Economists
Scientists

CASE NARRATIVE FOR SEMIVOLATILE MASS SPECTROMETRY SAMPLES

LABORATORY: CH2M HILL LABORATORIES CLIENT: BARR ENGINEERING

CASE NO. : N/A CONTRACT NO.: N/A

LAB NO. : 21107 SDG NO.: N/A

I. RECEIPT

A. DATE: March 6, 1992

B. SAMPLE INFORMATION

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
21107001	BS-01	SOIL	03/05/92	03/10/92	03/27/92
21107002	BS-02	SOIL	03/05/92	03/10/92	03/27/92
21107003	BS-03	SOIL	03/05/92	03/10/92	03/27/92
21107004	BS-04	SOIL	03/05/92	03/10/92	03/27/92
21107005	BS-05	SOIL	03/05/92	03/10/92	03/27/92
21107M02	BS-02MS	SOIL	03/05/92	03/10/92	03/27/92
21107D02	BS-02MSD	SOIL	03/05/92	03/10/92	03/27/92
S03102B1	SBLKS	SOIL	NA	03/10/92	03/27/92

C. Documentation
Exceptions : No exceptions were encountered.

CH2M HILL Quality Analytical Laboratories 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205 [illegible]

II. EXTRACTION

A. Holding Times: All holding times were met.

B. Extraction Exceptions : No exceptions were encountered.

III. ANALYSIS

A. Holding times: All holding times were met.

B. Analytical Exceptions : No exceptions were encountered.

IV. QUALITY CONTROL

A. Method Blank : All associated method blanks met acceptable QC criteria.

B. Surrogate Recoveries : All samples met acceptable QC limits.

C. Matrix Spike Results : Please note that the percent recovery for 2,4-Dinitrotoluene in samples 21107M02 and 21107D02 was above QC limits. Since the relative percent difference for 2,4-Dinitrotoluene was within QC limits, the laboratory took no further action.

All other spike recoveries were within CLP advisory limits.

Please note that Forms II, IV, V, and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to CH2M HILL identification numbers.

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Herb Kelly 4/3/92

Herb Kelly Date
Manager, Organic Division

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CH2M HILL Economists
Scientists

CASE NARRATIVE FOR PESTICIDE/PCB GAS CHROMATOGRAPHY SAMPLES

LABORATORY: CH2M HILL LABORATORIES CLIENT: BARR

CASE NO. : N/A CONTRACT NO.: N/A

LAB NO. : 21107 SDG NO.: N/A

I. RECEIPT

A. DATE: March 6, 1992

B. SAMPLE INFORMATION

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
21107001	BS-01	SOIL	03/05/92	03/10/92	03/27/92
21107002	BS-02	SOIL	03/05/92	03/10/92	03/27/92
21107003	BS-03	SOIL	03/05/92	03/10/92	03/27/92
21107003DL	BS-03DL	SOIL	03/05/92	03/10/92	03/27/92
21107004	BS-04	SOIL	03/05/92	03/10/92	03/27/92
21107004DL	BS-04DL	SOIL	03/05/92	03/10/92	03/27/92
21107005	BS-05	SOIL	03/05/92	03/10/92	03/28/92
21107M02	BS-02MS	SOIL	03/05/92	03/10/92	03/27/92
21107D02	BS-02MSD	SOIL	03/05/92	03/10/92	03/27/92
S03102B1	PBLK10	SOIL	NA	03/10/92	03/27/92

C. Documentation
Exceptions : The names of both GC instruments were changed during this sequence. VAR6000A was changed to V6000A and VAR6000B was changed to V6000B.

II. EXTRACTION

A. Holding times: All holding times were met.

B. Extraction
Exceptions : No exceptions were encountered.

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III. ANALYSIS

A. Holding times: All holding times were met.

B. Analytical Exceptions : Internal standards were added to the pesticide/PCB samples before injection for internal QC purposes only. According to CLP protocol, only external standard calculations were performed for this report.

As shown on Form 8D, the retention time of DCB was excessively late for several injections onto the SPB608 GC column. Because of this problem, chromatographic data were interpreted using identification windows slightly wider than usual.

No additional exceptions were encountered.

IV. QUALITY CONTROL

A. Method Blank : All associated method blanks met acceptable QC criteria.

B. Surrogate Recoveries : All samples met acceptable QC limits.

C. Matrix Spike Results : All compounds met acceptable QC limits.

D. Special Conditions : Primary and confirmation data was acquired by a single injection into a dual column/ECD system.

Please note that Forms II, IV, V, and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to CH2M HILL identification numbers.

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 floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Herb Kelly 4/3/92

Herb Kelly Date
Manager, Organic Division

CH2M HILL Quality Analytical Laboratories 2567 Fairlane Drive, P.O. Box 230548 Montgomery, Alabama 36116 205 271 1444

SAMPLE DATA PACKAGE

SHIPPING RECEIPTS

BARR ENGINEERING CO.
7803 GLENROY ROAD
MINNEAPOLIS, MN 55439

PROJECT NUMBER № 01906
1 3 1 / 4 9 1 - 0 0 3 J S L 3 1
NO: WCP RI/FS

JSL
PROJECT CONTACT: TWW / MMR
LABORATORY: CH2MHILL
REMARKS/ ANALYSIS REQUIRED:

SAMPLE IDENTIFICATION	COLLECTION DATE	COLLECTION TIME	GRAB	COMP.	BLANK	VOLATILE ORGANIC - CLP	SEMIVOLATILE ORGANIC	METALS - CLP	UNFILTERED METALS	GENERAL	CYANIDE	NUTRIENTS	OIL AND GREASE	TOC	SULFIDE	DIOXIN	EXTRACTABLES - CLP	PESTICIDES/PCBs - CLP	PAHs	Phenols							TOTAL NO. OF CONTAINERS	
SB-20 BS-01	3-5-92	a.m.		X		X		X			X						X	X									4	
SB-27 BS-02	3-5-92	a.m.		X		X		X			X						X	X									4	
SB-21 BS-02 MS MSD	3-5-92	a.m.		X		X		X			X						X	X									5	
SB-22 BS-03	3-5-92	a.m.		X		X		X			X						X	X									5	
SB-23 BS-04	3-5-92	p.m.		X		X		X			X						X	X									4	
SB-24 BS-05	3-5-92	p.m.		X		X		X			X						X	X									4	

Sample descriptions checked per chain required. See attached memo. JMF 3/7/92

Run 96 S.W. JMF

MC2	Field Ex. 7 subtle brown sands (wet w/ [illegible]) →
DC2	special lab pkg 3/6/92
PC2	

SAMPLED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY LAB:	DATE	TIME
JMF	JMF	3/5/92	6:45 PM	[illegible]	3/6/92	[illegible]
RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY LAB:	DATE	TIME
RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY LAB:	DATE	TIME
REMARKS:	SAMPLES SHIPPED VIA ☐ AIR FREIGHT ☒ FED. EXP. ☐ SAMPLER ☐ OTHER			AIR BILL NUMBER:		

DISTRIBUTION: WHITE-ORIGINAL ACCOMPANIES SHIPMENT TO LAB, RETURNS TO BARR WITH RESULTS; YELLOW-LAB COPY; PINK-LAB COORDINATOR; GOLD-FILE COPY

000067

SAMPLE DATA PACKAGE

VOLATILE DATA

Engineers
Planners
CH2M HILL Economists
Scientists

RECEIVED
APR 09 92

April 3, 1992

LMG33486.XY

Ms. Marti Harding-Smith
Barr Engineering Company
8300 Norman Center Drive
Suite 300
Minneapolis, Minnesota 55437-1026

RE: Analytical Data for LMG Laboratory No. 21107

Dear Ms. Harding-Smith:

On March 6, 1992, the CH2M HILL Montgomery Laboratory received five samples with a request for analysis of selected inorganic parameters.

The analytical results and associated quality control data are enclosed. Any unusual difficulties encountered during the analyses of these samples are discussed in the case narratives.

If you should have any questions concerning the data, please inquire.

The CH2M HILL policy is to store samples for up to 30 days after reporting. If you desire, our laboratory will maintain your samples for a longer period at a cost of $5.00 per sample per month. Samples determined to be hazardous can either be returned to you or disposed of at a cost of $25.00 per sample.

Sincerely,

Wanda L. Hall

Wanda L. Hall
Data Package Supervisor

Enclosures

cc: Mr. Jim Langseth

Engineers
Planners
CH2M HILL Economists
Scientists

TABLE OF CONTENTS

CH2M HILL Laboratory No. 21107

	Page No.
List of Inorganic EPA-defined Qualifiers	i
Sample Cross-Reference	ii
CATIONS DATA PACKAGE	1
Case Narrative	2-2A
Cover Page	3
Analytical Results of Field Samples	
BS-01 (LMG #21107001)	4
BS-02 (LMG #21107002)	5
BS-03 (LMG #21107003)	6
BS-04 (LMG #21107004)	7
BS-05 (LMG #21107005)	8
Quality Control Data	
Initial & Continuing Calibration Verification	9-15
Blank Data	16-19
ICP Interference Check Sample	20
Spike Sample Recovery	21
Post Digest Spike Sample Data	22-29
Duplicate Sample Data	30
Laboratory Control Sample	31-32
ICP Serial Dilution	33
Instrument Detection Limits	34-36
ICP Interelement Correction Factors	37-40
ICP Linear Ranges	41
Preparation Log	42-45
Analysis Run Log	46-67
Raw Data	
ICP Data	68-143
Arsenic Data (GFAA)	144-185
Lead Data (GFAA)	186-231
Selenium Data (GFAA)	232-284
Thallium Data (GFAA)	285-314
Mercury Data	315-317
Cyanide Data	318-329
Digestion/Distillation Logs	330-334
Percent Solids	335-336
Copy of Chain-of-custody	337-338

EPA QUALIFIERS

INORGANIC ANALYSES

- C (Concentration) Qualifier -- Enter "B" if the reported value obtained was less than the CRDL but greater than or equal to the IDL. Enter "U" if the value was less than the IDL or was not detected.

- Q Qualifier -- Entries and their meanings are:

  E - The reported value is estimated because of interference. An explanatory comment must be included under "Comments" on the Cover Page if the problem applies to all samples in this data package or on the individual FORM I if it is an isolated problem.

  M - Duplicate injection precision was not met (two analyses of the same sample did not agree).

  N - Spiked sample recovery not within control limits.

  S - The reported value was determined by the Method of Standard Additions (MSA).

  W - Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

  * - Duplicate analysis not within control limits.

  + - Correlation coefficient for the MSA is less than 0.995.

  Entering "S", "W", or "+" is mutually exclusive. No combination of these qualifiers can appear in the same field.

- M (Method) Qualifier -- Enter one of the following:

  P - ICP
  A - Flame AA
  F - Furnace AA
  CV - Manual Cold Vapor AA
  AV - Automated Cold Vapor AA
  AS - Semi-Automated Spectrophotometric
  C - Manual Spectrophotometric
  T - Titrimetric
  NR - Analyte was not required by your lab

CH2M HILL Quality Analytical Laboratories 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205.271 1444

Engineers
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CH2M HILL Economists
Scientists

TABLE 1

SAMPLE CROSS-REFERENCE SUMMARY

CH2M HILL Laboratory No. 21107

CH2M HILL Sample No.	Sample Description				
21107001	BS-01	03/05/91	COMP	13/49-003JSL31	PO#01906
21107002	BS-02	03/05/91	COMP	13/49-003JSL31	PO#01906
21107003	BS-03	03/05/91	COMP	13/49-003JSL31	PO#01906
21107004	BS-04	03/05/91	COMP	13/49-003JSL31	PO#01906
21107005	BS-05	03/05/91	COMP	13/49-003JSL31	PO#01906

CH2M HILL Quality Analytical Laboratories 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205.271 1444

CATIONS DATA PACKAGE

Engineers
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CH2M HILL Economists
Scientists

CASE NARRATIVE
Cations

Batch Number: 21107

Client/Project: BARR ENGINEERING COMPANY

I. Holding Time:
All holding times were met.

II. Analysis:

A. Blanks:
All acceptance criteria were met.

B. Calibration:
All acceptance criteria were met.

C. ICP Interference Check Sample:
All acceptance criteria were met.

D. Spike Sample Analysis:
Prespike and postspike recoveries outside criteria are flagged accordingly.

E. Duplicate Sample Analysis:
All acceptance criteria were met.

F. Laboratory Control Sample Analysis:
All acceptance criteria were met.

G. ICP Serial Dilution:
ICP serial dilutions outside criteria are flagged accordingly.

H. Other:
None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

SIGNED: Kaye Walker for DATE: 4/3/92
Kevin A. Sanders
Inorganic Division Manager

CH2M HILL Quality Analytical Laboratories 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205 271 1444

Engineers
Planners
CH2M HILL Economists
Scientists

CASE NARRATIVE
General Chemistry

Batch Number: 21107

Client/Project: BARR ENGINEERING COMPANY

I. Holding Time: All criteria were met.

II. Analysis:

A.	Calibration:	Acceptance criteria met.
B.	Blanks:	Acceptance criteria met.
C.	Matrix Spike:	Acceptance criteria met.
D.	Duplicate Analysis:	Acceptance criteria met.
E.	Lab Control Sample:	Acceptance criteria met.
F.	Other:	None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

SIGNED: Kay Walker for DATE: 4/3/92
Kevin A. Sanders
Inorganic Division Manager

000002A

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: CH2M_HILL_MGM_____ Contract: 21107_____

Lab Code: NA____ Case No.: 21107 SAS No.: 21107_ SDG No.:21107_

SOW No.: 3/90_

EPA Sample No.	Lab Sample ID
_BS-01_____	__S21107001___
_BS-02_____	__S21107002___
_BS-02D_____	__S21107002D__
_BS-02S_____	__S21107002S__
_BS-03_____	__S21107003___
_BS-04_____	__S21107004___
_BS-05_____	__S21107005___

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:
____NO_UNUSUAL_DIFFICULTIES_WERE_ENCOUNTERED_DURING_THE_ANALYSIS_OF_THESE____
____SAMPLES._____

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 floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Kay Walker for Name: Kevin A. Sanders_____

Date: 4/3/92 Title: Inorganic Division Mgr__

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BS-01

Lab Name: CH2M_HILL_MGM Contract: 21107

Lab Code: NA Case No.: 21107 SAS No.: 21107 SDG No.: 21107

Matrix (soil/water): SOIL Lab Sample ID: S21107001

Level (low/med): LOW Date Received: 03/06/92

% Solids: 94.9

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1520		E	P
7440-36-0	Antimony	2.3	U	N	P
7440-38-2	Arsenic	1.7	B		F
7440-39-3	Barium	6.4	B	E	P
7440-41-7	Beryllium	0.12	B		P
7440-43-9	Cadmium	0.62	U		P
7440-70-2	Calcium	28500			P
7440-47-3	Chromium	5.3			P
7440-48-4	Cobalt	2.4	B		P
7440-50-8	Copper	5.2	B		P
7439-89-6	Iron	3710			P
7439-92-1	Lead	3.6		N	F
7439-95-4	Magnesium	13800			P
7439-96-5	Manganese	123			P
7439-97-6	Mercury	0.08	U		CV
7440-02-0	Nickel	3.2	B		P
7440-09-7	Potassium	311	B		P
7782-49-2	Selenium	0.27	U		F
7440-22-4	Silver	0.71	B		P
7440-23-5	Sodium	285	B		P
7440-28-0	Thallium	0.23	U		F
7440-62-2	Vanadium	6.9	B		P
7440-66-6	Zinc	19.2			P
	Cyanide	0.19	U		CA

Color Before: BROWN Clarity Before: N/A Texture: SANDY

Color After: CLEAR Clarity After: CLEAR Artifacts:

Comments:
THE "N" QUALIFIER INDICATES POOR PRESPIKE RECOVERY. THE "E" DENOTES A GREATER THAN 10% DIFFERENCE BETWEEN THE NATIVE CONCENTRATION AND THE SERIAL DILUTION RESULT.

FORM I - IN

3/90

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BS-02

Lab Name: CH2M_HILL_MGM Contract: 21107

Lab Code: NA Case No.: 21107 SAS No.: 21107 SDG No.: 21107

Matrix (soil/water): SOIL Lab Sample ID: S21107002

Level (low/med): LOW Date Received: 03/06/92

% Solids: 94.7

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1930		E	P
7440-36-0	Antimony	2.3	U	N	P
7440-38-2	Arsenic	2.0	B		F
7440-39-3	Barium	11.2	B	E	P
7440-41-7	Beryllium	0.14	B		P
7440-43-9	Cadmium	0.62	U		P
7440-70-2	Calcium	31900			P
7440-47-3	Chromium	5.9			P
7440-48-4	Cobalt	2.3	B		P
7440-50-8	Copper	7.1			P
7439-89-6	Iron	4330			P
7439-92-1	Lead	9.2		N	F
7439-95-4	Magnesium	16200			P
7439-96-5	Manganese	163			P
7439-97-6	Mercury	0.08	U	N	CV
7440-02-0	Nickel	4.8	B		P
7440-09-7	Potassium	403	B		P
7782-49-2	Selenium	0.27	U		F
7440-22-4	Silver	0.36	U		P
7440-23-5	Sodium	312	B		P
7440-28-0	Thallium	0.23	U	W	F
7440-62-2	Vanadium	8.0	B		P
7440-66-6	Zinc	27.6			P
	Cyanide	0.19	U		CA

Color Before: BROWN Clarity Before: N/A Texture: SANDY

Color After: CLEAR Clarity After: CLEAR Artifacts:

Comments:
THE "W" REFLECTS POOR RECOVERY OF THE ANALYTICAL POSTSPIKE.

FORM I - IN

3/90

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BS-03

Lab Name: CH2M_HILL_MGM_____ Contract: 21107_____

Lab Code: NA____ Case No.: 21107 SAS No.: 21107_ SDG No.: 21107_

Matrix (soil/water): SOIL_ Lab Sample ID: S21107003_

Level (low/med): LOW__ Date Received: 03/06/92

% Solids: _71.3

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	4560		E	P
7440-36-0	Antimony_	5.8	B	N	P
7440-38-2	Arsenic__	235			P
7440-39-3	Barium___	232		E	P
7440-41-7	Beryllium	0.40	B		P
7440-43-9	Cadmium__	7.3			P
7440-70-2	Calcium__	36100			P
7440-47-3	Chromium_	231			P
7440-48-4	Cobalt___	7.3	B		P
7440-50-8	Copper___	160			P
7439-89-6	Iron_____	39700			P
7439-92-1	Lead_____	434			P
7439-95-4	Magnesium	17300			P
7439-96-5	Manganese	357			P
7439-97-6	Mercury__	1.7		N	CV
7440-02-0	Nickel___	33.3			P
7440-09-7	Potassium	680	B		P
7782-49-2	Selenium_	0.93	B	W	F
7440-22-4	Silver___	5.4			P
7440-23-5	Sodium___	447	B		P
7440-28-0	Thallium_	0.31	U		F
7440-62-2	Vanadium_	14.3			P
7440-66-6	Zinc_____	764			P
	Cyanide__	0.25	U		CA

Color Before: BLACK____ Clarity Before: N/A___ Texture: LOAM__

Color After: CLEAR____ Clarity After: CLEAR_ Artifacts: YES___

Comments:

FORM I - IN

3/90

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BS-04

Lab Name: CH2M_HILL_MGM Contract: 21107

Lab Code: NA Case No.: 21107 SAS No.: 21107 SDG No.: 21107

Matrix (soil/water): SOIL Lab Sample ID: S21107004

Level (low/med): LOW Date Received: 03/06/92

% Solids: 95.4

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1840		E	P
7440-36-0	Antimony	2.3	U	N	P
7440-38-2	Arsenic	1.9	B		F
7440-39-3	Barium	22.2	B	E	P
7440-41-7	Beryllium	0.17	B		P
7440-43-9	Cadmium	0.61	U		P
7440-70-2	Calcium	16200			P
7440-47-3	Chromium	18.1			P
7440-48-4	Cobalt	1.8	B		P
7440-50-8	Copper	4.3	B		P
7439-89-6	Iron	4110			P
7439-92-1	Lead	5.0		N	F
7439-95-4	Magnesium	7670			P
7439-96-5	Manganese	78.6			P
7439-97-6	Mercury	0.08	U		CV
7440-02-0	Nickel	3.7	B		P
7440-09-7	Potassium	278	B		P
7782-49-2	Selenium	0.27	U		F
7440-22-4	Silver	0.36	U		P
7440-23-5	Sodium	339	B		P
7440-28-0	Thallium	0.23	U		F
7440-62-2	Vanadium	5.6	B		P
7440-66-6	Zinc	20.4			P
	Cyanide	0.19	U		CA

Color Before: BROWN Clarity Before: N/A Texture: SAND

Color After: CLEAR Clarity After: CLEAR Artifacts:

Comments:

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3/90

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BS-05

Lab Name: CH2M_HILL_MGM Contract: 21107

Lab Code: NA Case No.: 21107 SAS No.: 21107 SDG No.: 21107

Matrix (soil/water): SOIL Lab Sample ID: S21107005

Level (low/med): LOW Date Received: 03/06/92

% Solids: 81.5

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1180		E	P
7440-36-0	Antimony	2.7	U	N	P
7440-38-2	Arsenic	0.76	B	W	F
7440-39-3	Barium	5.1	B	E	P
7440-41-7	Beryllium	0.14	B		P
7440-43-9	Cadmium	0.72	U		P
7440-70-2	Calcium	21800			P
7440-47-3	Chromium	5.1			P
7440-48-4	Cobalt	2.4	B		P
7440-50-8	Copper	3.9	B		P
7439-89-6	Iron	3910			P
7439-92-1	Lead	3.4		N	F
7439-95-4	Magnesium	12700			P
7439-96-5	Manganese	121			P
7439-97-6	Mercury	0.09	U		CV
7440-02-0	Nickel	3.6	B		P
7440-09-7	Potassium	296	B		P
7782-49-2	Selenium	0.32	U		F
7440-22-4	Silver	0.74	B		P
7440-23-5	Sodium	314	B		P
7440-28-0	Thallium	0.34	B		F
7440-62-2	Vanadium	10.7	B		P
7440-66-6	Zinc	17.6			P
	Cyanide	0.22	U		CA

Color Before: BROWN Clarity Before: N/A Texture: SAND

Color After: CLEAR Clarity After: CLEAR Artifacts: YES

Comments:

FORM I - IN

3/90

7803 GLENROY ROAD
MINNEAPOLIS, MN 55439

PROJECT NUMBER N° 01906
13/491-003JSL31
NO: WCP RI/FS

JSL
PROJECT CONTACT: TWW / MMR
LABORATORY: CH2MHILL
REMARKS/ ANALYSIS REQUIRED:

SAMPLE IDENTIFICATION	COLLECTION DATE	COLLECTION TIME	GRAB	COMP.	BLANK	VOLATILE ORGANIC - CLP	SEMIVOLATILE ORGANIC	METALS - CLP	UNFILTERED METALS	GENERAL	CYANIDE	NUTRIENTS	OIL AND GREASE	TOC	SULFIDE	DIOXIN	EXTRACTABLES - CLP	PESTICIDES/PCBS - CLP	PAHs	Phenols						TOTAL NO. OF CONTAINERS	
SB-20 BS-01	3-5-92	a.m.		X		X		X			X						X	X								4	
SB-21 BS-02	3-5-92	a.m.		X		X		X			X						X	X								4	
SB-21 MSD BS-02 MS	3-5-92	a.m.		X		X		X			X						X	X								5	
SB-22 BS-03	3-5-92	a.m.		X		X		X			X						X	X								5	
SB-23 BS-04	3-5-92	p.m.		X		X		X			X						X	X								4	
SB-24 BS-05	3-5-92	p.m.		X		X		X			X						X	X								4	

Sample descriptions changed per client request. See attached memo. AMC 3/7/92

Run 90 SW. AMC

CO1	Field Ext. & Mobile Lab
MO2	Jars rec'd w/ Broken lids →
DO2	replaced by Lab JJ 3/6/92
PO2	

SAMPLED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY LAB:	DATE	TIME
JMF	JMF	3/5/92	6:45 PM		3/6/92	
RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY LAB:	DATE	TIME
RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY LAB:	DATE	TIME

REMARKS:

SAMPLES SHIPPED VIA
☐ AIR FREIGHT ☒ FED. EXP. ☐ SAMPLER
☐ OTHER

AIR BILL NUMBER:

DISTRIBUTION: WHITE-ORIGINAL ACCOMPANIES SHIPMENT TO LAB, RETURNS TO BARR WITH RESULTS; YELLOW-LAB COPY; PINK-LAB COORDINATOR; GOLD-FIELD COPY

0193 — 21107 @ 1956 55 3/7/92

BARR ENGINEERING CO.

000338

Laboratory No. 21128

-- Volatiles

-- Semivolatiles (includes PAH/Phenolic Compounds)

-- Pesticides/PCBS

-- Metals

Eleven investigative soil samples (TT0102, TT0102 duplicate, TT0204, TT0206, TT0209, TT0403, SS02, SS02 duplicate, SS03, SS04, and SS05) were collected March 5 and 6, 1992. Seven samples were analyzed for volatiles; and five samples were analyzed for semivolatiles, pesticides/PCBS and metals. The results of these analyses were reported in this case and qualified as described in the following sections.

Holding Times

Holding times were met on all samples and analyses using the EPA holding time criteria for water samples.

Instrument Tuning

Volatiles

GC/MS Tuning met the established method performance criteria for compounds, concentrations, frequencies and relative ion abundances for the volatiles analyses.

Semivolatiles

GC/MS Tuning met the established method performance criteria for compounds, concentrations, frequencies and relative ion abundances for the semivolatiles analyses.

Pesticides

Decachlorobiphenyl was excessively late for several injections on one column. As a result, the chromatographic data were interpreted using identification windows slightly wider than usual. Since adequate separation of components was achieved no further action was taken. Instrument performance was acceptable for retention times, retention time windows, and DDT and Endrin degradation for all other compounds.

Metals

Instrument tuning does not apply to the metals analyses.

Instrument Calibration

Volatiles

Initial calibration percent relative standard deviation (%RSD) and continuing calibration percent difference (%D) values for several volatile parameters were outside of the appropriate control limits. Control limits for %RSD and %D were ≤30 percent and ≤25 percent, respectively.

The volatile analyses initial calibration parameters and associated %RSD values beyond control limits were chloroethane (32.4 percent), acetone (31.2 percent) and 2-butanone (57.0 percent). Continuing calibration compounds with %D outlier values were bromomethane (-38.7 percent), chloroethane (-33.8 percent), chloromethane (25.5 percent), 1,1-dichloroethane (38.6 percent) and 2-butanone (-97.7 percent). These compounds were not detected in any of the associated samples, so no data were qualified.

Semivolatiles

Initial calibrations had acceptable average response factors and %RSD values for all semivolatile compounds. Continuing calibration percent difference (%D) values for three semivolatile compounds were outside the established control limits. Control limits for %D were ≤25 percent.

Semivolatiles analyses continuing calibration compounds with %D values beyond control limits were the surrogate standard 1,2-dichlorobenzene-d4 (-31.5, -25.2 and -32.5) and the target compounds 1,2-dichlorobenzene (-27.1) and hexachlorocyclopentadiene (-25.4 percent). These compounds were not detected in the associated samples, so no data were qualified.

Pesticides

Pesticide/PCB analyses instrument calibration %RSD and %D values were within the appropriate quality control limits. The resolution check mixture and performance evaluation mixture samples were analyzed at the proper frequency. All retention time and RPD values were within the appropriate quality control limits.

Metals

Instrument calibration was completed the proper number of times using the appropriate number and type of standards and blanks. Initial and continuing calibration percent recovery values were acceptable for all metals analyses.

Blanks

Volatiles

Methylene chloride (5 J, 10 and 170 µg/kg), acetone (11 and 9 J µg/kg), and chloroform (2 J and 350 J µg/kg) were detected in the volatiles blanks. Sample results less than five times the associated blank concentration of chloroform or less than ten times the associated blank concentration of either remaining compound were qualified as nondetects and flagged "U."

Semivolatiles

The semivolatiles method blanks had concentrations of di-n-butylphthalate (190 J and 100 J µg/kg), and bis(2-ethylhexyl)phthalate (96 µg/kg). Sample results less than ten times the associated blank concentration of either compound were qualified as nondetects and flagged "U."

Pesticides

No compounds were detected in the pesticide/PCB method blank.

Metals

Total metals analyses calibration and preparation blanks had concentrations of aluminum, arsenic, barium, beryllium, calcium, chromium, copper, iron, magnesium, manganese, nickel, potassium, silver, sodium, and zinc. These concentrations were greater than the instrument detection limit (IDL) but less than the contract required detection limit (CRDL). Sample results for these compounds less than five times the associated blank concentration were qualified as nondetects and flagged "U."

Surrogate Recovery

Volatiles

Volatiles system monitoring compounds had recoveries beyond the appropriate quality control limits for several samples. Toluene-d8 (84-138 percent) recoveries in samples SS03 (197 percent), SS03R (160 percent), SS04 (173 percent), SS04R (174 percent), TT0204 (177 percent), and TT0204R (172 percent); bromofluorobenzene (59-113 percent) recoveries in samples SS03R (43 percent), SS04 (51 percent), SS04R (51 percent), TT0102 (127 percent) and TT0102R (135 percent); and 1,2-dichloroethane-d4 (70-121 percent) in sample TT0102R (48 percent) were outside the control limits. Positive sample results related to the system monitoring compounds were qualified as estimated and flagged "J."

Semivolatiles

Surrogate recoveries could not be determined for the PAH/phenol analyses on samples TT0102 and TT0102 duplicate due to the large dilutions required for analysis. No data were qualified.

Pesticides

Pesticide/PCB surrogate recoveries were within control limits for all samples.

Metals

Total metals analyses ICP interference check sample recoveries and laboratory control sample results were within the established quality control limits.

Matrix Spike/Matrix Spike Duplicate

Volatiles

Matrix spike/matrix spike duplicate samples recovery values for benzene (32 percent and -245 percent) and toluene (-14 percent and -522 percent) were beyond control limits. The RPD values for benzene (260 percent) and toluene (190 percent) were outside control limits. Since the sample result for toluene was previously qualified as estimated, no further action was taken. Benzene was not detected in the associated sample. Since benzene recoveries were low and it was detected in other samples in this project, benzene results in sample TT0102 were qualified as estimated and flagged "UJ."

Volatiles analyses matrix spike/matrix spike duplicate samples related to the remaining samples in this case had acceptable percent recovery and RPD values for all spike compounds.

Semivolatiles

Recoveries for the semivolatiles analyses matrix spike/matrix spike duplicate samples for 2,4-dinitrotoluene were (93 percent and 100 percent) beyond quality control limits. Since the recoveries for this compound were high, and it was not detected in any of the semivolatiles samples, no data were qualified.

PAH/phenol analyses matrix spike/matrix spike duplicate samples had several compounds with recoveries and RPD values outside the control limits. These results may be due to the high level of spike compounds in the native sample so no data were qualified.

Pesticides

Pesticide/PCB matrix spike/matrix spike duplicate samples had acceptable recovery and RPD values for all compounds.

Metals

Metals analyses quality control samples included a duplicate sample, a spike sample, post digestion spike samples and an ICP serial dilution sample.

Duplicate samples RPD values for beryllium (11.3 percent) and lead (9.3 percent) were beyond the appropriate control limits. Results in the investigative samples for these two compounds were qualified as estimated and flagged as "J."

The spike sample had recoveries beyond control limits (75-125 percent) for antimony (67.3 percent) and lead (47.9 percent). Results for these compounds in the investigative samples were qualified as estimated and flagged "J."

All recoveries on post digestion spike samples were within the control limits.

ICP serial dilution results for barium (20.9 percent), potassium (100 percent) and sodium (205.3 percent) were outside the 10 percent difference control limit. These compounds were qualified as estimated and flagged "J" in the associated samples.

Field Duplicates

Field duplicate samples are summarized in Tables 2.3-6 through 2.3-11.

Overall Assessment

The data are considered acceptable with the recommended qualifiers.

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Economists
Scientists

RECEIVED
APR 0 9 92

April 3, 1992

LMG33486.XY

Ms. Marti Harding-Smith
Barr Engineering Company
8300 Norman Center Drive
Suite 300
Minneapolis, Minnesota 55437-1026

RE: Analytical Data for LMG Laboratory No. 21128

Dear Ms. Harding-Smith:

On March 7, 1992, the CH2M HILL Montgomery Laboratory received eleven samples with a request for analysis of selected organic parameters.

The analytical results and associated quality control data are enclosed. Any unusual difficulties encountered during the analyses of these samples are discussed in the case narratives.

If you should have any questions concerning the data, please inquire.

The CH2M HILL policy is to store samples for up to 30 days after reporting. If you desire, our laboratory will maintain your samples for a longer period at a cost of $5.00 per sample per month. Samples determined to be hazardous can either be returned to you or disposed of at a cost of $25.00 per sample.

Sincerely,

Wanda L. Hall

Wanda L. Hall
Data Package Supervisor

Enclosures

cc: Mr. Jim Langseth

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TABLE OF CONTENTS

CH2M HILL Laboratory No. 21128

	Page No.
List of Organic EPA-defined Qualifiers	i
List of Sample ID Qualifiers	ii
Sample Cross-Reference	iii
List of Internal Standards and Surrogates (Volatiles)	iv
List of Internal Standards and Surrogates (Semivolatiles)	v
SAMPLE DATA SUMMARY PACKAGE	1-112
SAMPLE DATA PACKAGE	113
Case Narratives	114-124
Shipping Receipts	125-127
Volatile Data	128
QC Summary	129-140
Sample Data (Analytical Results of Field Samples)	141
TT-01-02 (LMG #21128001)	
Form I	142
Form I - TIC	143
Raw Data	144-168
TT-01-02_R (LMG #21128001R)	
Form I	169
Form I - TIC	170
Raw Data	171-193
TT-02-04 (LMG #21128003)	
Form I	194
Form I - TIC	195
Raw Data	196-207
TT-02-04_R (LMG #21128003R)	
Form I	208
Form I - TIC	209
Raw Data	210-221
SS-02 (LMG #21128007)	
Form I	222
Form I - TIC	223
Raw Data	224-237
M-2 (LMG #21128008)	
Form I	238
Form I - TIC	239
Raw Data	240-253

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TABLE OF CONTENTS (cont.)

CH2M HILL Laboratory No. 21128

Page No.

Volatile Data (cont.)
- SS-03 (LMG #21128009)
  - Form I 254
  - Form I - TIC 255
  - Raw Data 256-269
- SS-03_R (LMG #21128009R)
  - Form I 270
  - Form I - TIC 271
  - Raw Data ..... [illegible]-283
- SS-04 (LMG #21128010)
  - Form I 284
  - Form I - TIC 285
  - Raw Data 286-299
- SS-04_R (LMG #21128010R)
  - Form I 300
  - Form I - TIC 301
  - Raw Data 302-322
- SS-05 (LMG #21128011)
  - Form I 323
  - Form I - TIC 324
  - Raw Data 325-334
- Standards Data 335
  - Initial Calibration Data 336-388
  - Continuing Calibration Data 389-407
- Raw QC Data 408
  - BFB Data 409-425
  - Blank Data 426-458

Semivolatile Data 459
- QC Summary 460-473
- Sample Data (Analytical Results of Field Samples)..... 474
  - SS-02 (LMG #21128007)
    - Form I 475-476
    - Form I - TIC 477
    - Raw Data 478-543
  - M-2 (LMG #21128008)
    - Form I 544-545
    - Form I - TIC 546
    - Raw Data 547-607
  - SS-03 (LMG #21128009)
    - Form I 608-609
    - Form I - TIC 610
    - Raw Data 611-679

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TABLE OF CONTENTS (cont.)

CH2M HILL Laboratory No. 21128

	Page No.
Semivolatile Data (cont.)	
SS-04 (LMG #21128010)	
Form I	680-681
Form I - TIC	682
Raw Data	683-770
SS-05 (LMG #21128011)	
Form I	771-772
Form I - TIC	773
Raw Data	774-855
Standards Data	856
Initial Calibration Data	857-899
Continuing Calibration Data	900-929
GPC Calibration	930-931
Raw QC Data	932
DFTPP Data	933-949
Blank Data	950-1012
PNA/Phenol Data	1013
QC Summary	1014-1022
Sample Data (Analytical Results of Field Samples)	1023
TT-01-02 (LMG #21128001)	
Form I	1024-1025
Raw Data	1026-1083
TT-01-02_DL (LMG #21128001DL)	
Form I	1084-1085
Raw Data	1086-1119
M-1 (LMG #21128002)	
Form I	1120-1121
Raw Data	1122-1181
M-1_DL (LMG #21128002DL)	
Form I	1182-1183
Raw Data	1184-1225
TT-02-06 (LMG #21128004)	
Form I	1226-1227
Raw Data	1228-1303
TT-02-06_DL (LMG #21128004DL)	
Form I	1304-1305
Raw Data	1306-1363
TT-02-09 (LMG #21128005)	
Form I	1364-1365
Raw Data	1366-1406

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TABLE OF CONTENTS (cont.)

CH2M HILL Laboratory No. 21128

	Page No.
PNA/Phenol Data (cont.)	
TT-04-03 (LMG #21128006)	
Form I	1407
Raw Data	1408-1459
Standards Data	1460
Initial Calibration Data	1461-1493
Continuing Calibration Data	1494-1502
Raw QC Data	1503-1511
Blank Data	1512-1518
MS/MSD Data	1519-1531
Pesticide/PCB Data	1532
QC Summary	1533-1535
Sample Data (Analytical Results of Field Samples)	1536
SS-02 (LMG #21128007)	
Form I	1537
Raw Data	1538-1543
M-2 (LMG #21128008)	
Form I	1544
Raw Data	1545-1550
SS-03 (LMG #21128009)	
Form I	1551
Raw Data	1552-1559
SS-03DL (LMG #21128009DL)	
Form I	1560
Raw Data	1561-1566
SS-04 (LMG #21128010)	
Form I	1567
Raw Data	1568-1575
SS-05 (LMG #21128011)	
Form I	1576
Raw Data	1577-1584
SS-05DL (LMG #21128011DL)	
Form I	1585
Raw Data	1586-1591
Standards Data	1592
Summary Forms	1593-1623
Raw Data (Primary Column)	1624-1683
Raw Data (Confirmation Column)	1684-1745
GPC Calibration	1746-1747
Raw QC Data	1748
Blank Data	1749-1775

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EPA - DEFINED QUALIFIERS

ORGANICS

Definitions for the EPA-defined qualifiers:

U -- Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the quantitation limit for that compound. The detection limit can vary from sample to sample depending on dilution factors or percent moisture adjustment when indicated.

J -- Indicates an estimated value. This flag is used when the data indicates the presence of a compound below the stated quantitation limit.

C -- This flag applies to pesticide results only. The "C" flag indicates the presence of this compound has been confirmed by GC/MS analysis.

B -- This flag is used when the analyte is found in the associated blank as well as the sample. This notation indicates possible blank contamination and suggests the data user evaluate these compounds and their amounts carefully.

E -- This flag applies to GC/MS only. The "E" qualifier indicates a compound may be above or below the linear range of the instrument. If the particular compound level is deemed above the linear calibration range, then the sample should be reanalyzed at an appropriate dilution. Therefore, the "E" qualified amount is an estimated concentration. The results for the dilution will be reported on a separate Form I and will be flagged with a "D" if the dilution brings the concentration within proper calibration.

D -- This flag identifies compounds which have been run at a dilution to bring the concentration of that compound within the linear range of the instrument. "D" qualifiers are only used for samples that have been run initially with results above acceptable ranges. For secondary dilutions the "DL" suffix is appended to the sample number on the Form I.

A -- Indicates the Tentatively Identified Compound (TIC) is a suspected aldol-condensation product.

X -- Indicates the compound concentration has been manually modified or the EPA qualifier has been manually modified or added.

P -- This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC cloumns (see Form X). The lower of the two values is reported on the Form I and flagged with a "P".

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CLIENT SAMPLE ID QUALIFIERS

LEVEL 3

The qualifiers that GC/MS and GC use with the client sample ID are defined below:

DL -- Dilution Run

R -- Rerun (may be followed by a digit to indicate multiple reruns)

RD -- Diluted Rerun

RX -- Re-extraction Analysis

MS -- Matrix Spike (may be followed by a digit to indicate multiple matrix spikes within a sample set)

MSD -- Matrix Spike Duplicate (may be followed by a digit to indicate multiple matrix spike duplicates within a sample set)

VBLK -- Volatile Blank (will be followed by a "W" for waters, "S" for soils run at a low level, or "SM" for soils run at a medium level -- these letters may be followed by a digit to indicate multiple blanks of that type).

SBLK -- Semivolatile Blank (will be followed by a "W" for waters, "S" for soils run at a low level, or "SM" for soils run at a medium level -- these letters may be followed by a digit to indicate multiple blanks of that type).

PBLK -- Pesticide/PCB Blank (may be followed by digits to indicate multiple blanks)

These qualifiers allow GC/MS and GC to have unique client sample ID's so that the client can get more accurate information from the data reported.

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TABLE 1

SAMPLE CROSS-REFERENCE SUMMARY

CH2M HILL Laboratory No. 21128

CH2M HILL Sample No.	Sample Description				
21128001	TT-01-02	03/06/91	GRAB	13/49-003JSL31	PO#01908
21128002	M-1	03/06/91	GRAB	13/49-003JSL31	PO#01908
21128003	TT-02-04	03/05/91	GRAB	13/49-003JSL31	PO#01908
21128004	TT-02-06	03/05/91	GRAB	13/49-003JSL31	PO#01908
21128005	TT-02-09	03/05/91	GRAB	13/49-003JSL31	PO#01908
21128006	TT-04-03	03/05/91	GRAB	13/49-003JSL31	PO#01908
21128007	SS-02	03/06/91	COMP	13/49-003JSL31	PO#01908
21128008	M-2	03/06/91	COMP	13/49-003JSL31	PO#01908
21128009	SS-03	03/06/91	COMP	13/49-003JSL31	PO#01908
21128010	SS-04	03/06/91	COMP	13/49-003JSL31	PO#01908
21128011	SS-05	03/06/91	COMP	13/49-003JSL31	PO#01909

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INTERNAL STANDARD AND SURROGATE COMPOUNDS

VOLATILE ANALYSIS

The internal standards on the GC/MS volatile chromatograms are designated as IS1, IS2, and IS3. The surrogate standards are labelled as SS1, SS2, and SS3. The compounds corresponding to these labels are listed below.

LABEL	INTERNAL STANDARD COMPOUND
IS1	BROMOCHLOROMETHANE
IS2	1,4-DIFLUOROBENZENE
IS3	D5-CHLOROBENZENE

LABEL	SURROGATE STANDARD COMPOUND
SS1	D4-1,2-DICHLOROETHANE
SS2	D8-TOLUENE
SS3	1,4-BROMOFLUOROBENZENE

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INTERNAL STANDARD AND SURROGATE COMPOUNDS

SEMIVOLATILE ANALYSIS

The internal standards on the GC/MS semivolatile chromatograms are designated as IS1, IS2, IS3, IS4, IS5, and IS6. The surrogate standards are labelled as SS1, SS2, SS3, SS4, SS5, and SS6. The compounds corresponding to these labels are listed below.

LABEL	INTERNAL STANDARD COMPOUND
IS1	D4-1,4-DICHLOROBENZENE
IS2	D8-NAPHTHALENE
IS3	D10-ACENAPHTHENE
IS4	D10-PHENANTHRENE
IS5	D12-CHRYSENE
IS6	D12-PERYLENE

LABEL	SURROGATE STANDARD COMPOUND
SS1	2-FLUOROPHENOL
SS2	D5-PHENOL
SS3	D5-NITROBENZENE
SS4	2-FLUOROBIPHENYL
SS5	2,4,6-TRIBROMOPHENOL
SS6	D14-TERPHENYL

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SAMPLE DATA SUMMARY PACKAGE

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CASE NARRATIVE FOR VOLATILE MASS SPECTROMETRY SAMPLES

LABORATORY: CH2M HILL LABORATORIES CLIENT: BARR ENGINEERING

CASE NO. : N/A CONTRACT NO.: N/A

LAB NO. : 21128 SDG NO.: N/A

I. RECEIPT

A. DATE: March 7, 1992

B. SAMPLE INFORMATION

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
21128001	TT-01-02	SOIL	03/06/92	03/11/92	03/19/92
21128001R	TT-01-02_R	SOIL	03/06/92	03/11/92	03/20/92
21128003	TT-02-04	SOIL	03/05/92	NA	03/12/92
21128003R	TT-02-04_R	SOIL	03/05/92	NA	03/12/92
21128007	SS-02	SOIL	03/06/92	NA	03/12/92
21128008	M-2	SOIL	03/06/92	NA	03/12/92
21128009	SS-03	SOIL	03/06/92	NA	03/12/92
21128009R	SS-03_R	SOIL	03/06/92	NA	03/12/92
21128010	SS-04	SOIL	03/06/92	NA	03/12/92
21128010R	SS-04_R	SOIL	03/06/92	NA	03/17/92
21128011	SS-05	SOIL	03/06/92	NA	03/12/92
Y03122B1	VBLKS	SOIL	NA	NA	03/12/92
Y03162B1	VBLKS_2	SOIL	NA	NA	03/16/92
L03192B1	VBLKSM	SOIL	NA	NA	03/19/92

C. Documentation
Exceptions : No exceptions were encountered.

II. EXTRACTION

A. Holding Times: All holding times were met. Samples 21128001 (TT-01-02) and 21128001R (TT-01-02 R) were analyzed using medium level protocols.

B. Extraction
Exceptions : No exceptions were encountered.

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III. ANALYSIS

A. Holding times: All holding times were met.

B. Analytical Exceptions : The original analysis of samples 21128003 (TT-02-04), 21128009 (SS-03), and 21128010 (SS-04) showed the absolute response of the internal standards outside QC limits. The samples were reanalyzed with similar results. Therefore, these problems may possibly be due to a matrix effect. The results of both analyses have been reported.

No other exceptions were encountered.

IV. QUALITY CONTROL

A. Method Blank : All associated method blanks met acceptable QC criteria.

B. Surrogate Recoveries : The original analysis of samples 21128001 (TT-01-02), 21128003 (TT-02-)4), 21128009 (SS-03), and 21128010 (SS-04) showed surrogate recoveries outside QC limits. The samples were reanalyzed with similar results. Therefore, these problems may possibly be due to a matrix effect. The results of both analyses have been reported.

All other samples met acceptable QC limits.

C. Matrix Spike Results : The native sample, matrix spike, and matrix spike duplicate results are contained within other batches of samples. The results for samples 21128003 and 21128007 through 21128011 will be reported with the results of our laboratory contract number 21107. The results for sample 21128001 will be reported with the results of our laboratory contract number 21200.

Please note that Forms II, IV, V, and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to CH2M HILL identification numbers.

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 floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Herb Kelly 4/3/92
Herb Kelly Date
Manager, Organic Division

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METHYLENE CHLORIDE/ACETONE SUMMARY

Due to the level of target compounds, the following samples required large dilutions for analysis. As required by the Statement of Work, these dilution factors have been applied, without background subtraction, to all detected compounds, particularly methylene chloride and acetone. As methylene chloride and acetone are common laboratory contaminants, the following table is being provided to present a more accurate perspective of these compounds. Included in the table is 1) the amount of methylene chloride and acetone, detected at the instrument, prior to multiplication by the dilution factor; and 2) the amount of methylene chloride and acetone for that particular sample's laboratory method blank.

SAMPLE	METHYLENE CHLORIDE	ACETONE	METHOD BLANK	METHYLENE CHLORIDE	ACETONE
21128001	5 ug/Kg	10 U	L03192B2	1 ug/Kg	10 U
21128001R	9 ug/Kg	10 U	L03192B2	1 ug/Kg	10 U

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CASE NARRATIVE FOR SEMIVOLATILE MASS SPECTROMETRY SAMPLES

LABORATORY: CH2M HILL LABORATORIES CLIENT: BARR ENGINEERING

CASE NO. : N/A CONTRACT NO.: N/A

LAB NO. : 21128 SDG NO.: N/A

I. RECEIPT

A. DATE: March 7, 1992

B. SAMPLE INFORMATION

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
21128007	SS-02	SOIL	03/06/92	03/10/92	03/31/92
21128008	M-2	SOIL	03/06/92	03/10/92	03/31/92
21128009	SS-03	SOIL	03/06/92	03/11/92	03/30/92
21128010	SS-04	SOIL	03/06/92	03/10/92	03/31/92
21128011	SS-05	SOIL	03/06/92	03/10/92	03/30/92
S03102B1	SBLKS	SOIL	03/06/92	03/10/92	03/27/92
S03112B1	SBLKS_2	SOIL	NA	03/11/92	03/30/92

C. Documentation

Exceptions : No exceptions were encountered.

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II. EXTRACTION

A. Holding Times: All holding times were met.

B. Extraction Exceptions : No exceptions were encountered.

III. ANALYSIS

A. Holding times: All holding times were met.

B. Analytical Exceptions : No exceptions were encountered.

IV. QUALITY CONTROL

A. Method Blank : All associated method blanks met acceptable QC criteria.

B. Surrogate Recoveries : All samples met acceptable QC limits.

C. Matrix Spike Results : The native sample, matrix spike, and matrix spike duplicate results are contained within another batch of samples. The results will be reported with the results of our laboratory contract number 21107.

Please note that Forms II, IV, V, and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to CH2M HILL identification numbers.

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 floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Herb Kelly 4/3/92
Herb Kelly Date
Manager, Organic Division

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CASE NARRATIVE FOR PNA/PHENOL MASS SPECTROMETRY SAMPLES

LABORATORY: CH2M HILL LABORATORIES CLIENT: BARR ENGINEERING

CASE NO. : N/A CONTRACT NO.: N/A

LAB NO. : 21128 SDG NO.: N/A

I. RECEIPT

A. DATE: March 7, 1992

B. SAMPLE INFORMATION

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
21128001	TT-01-02	SOIL	03/06/92	03/11/92	04/01/92
21128001DL	TT-01-02_DL	SOIL	03/06/92	03/11/92	04/01/92
21128002	M-1	SOIL	03/06/92	03/11/92	04/01/92
21128002DL	M-1_DL	SOIL	03/06/92	03/11/92	04/01/92
21128004	TT-02-06	SOIL	03/05/92	03/11/92	04/01/92
21128004DL	TT-02-06_DL	SOIL	03/05/92	03/11/92	04/01/92
21128005	TT-02-09	SOIL	03/05/92	03/11/92	04/01/92
21128006	TT-04-03	SOIL	03/05/92	03/11/92	04/01/92
21128M04	TT-020DLMS	SOIL	03/05/92	03/11/92	04/01/92
21128D04	TT-020DLMSD	SOIL	03/05/92	03/11/92	04/01/92
S03112B1	SBLKS	SOIL	NA	03/11/92	04/01/92

C. Documentation

Exceptions : Tentatively Identified Compounds were not requested as part of the analysis. Therefore, these forms will not be included.

As you have requested, Benzo(b)fluoranthene and Benzo(k)fluoranthene will be reported separately. Due to the low concentrations analyzed for, there may be instances where the native matrix offers chromatographic interferences in this region of the chromatogram, making it difficult to correctly quantitate these isomers as separate compounds. In that case, Benzo(b)fluoranthene and Benzo(k)fluoranthene will be reported as total Benzo(b&k)fluoranthene. An "NR" (not reported) qualifier will then be used for the compounds for which are not reported.

No exceptions were encountered.

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II. EXTRACTION

A. Holding Times: All holding times were met.

B. Extraction Exceptions : No exceptions were encountered.

III. ANALYSIS

A. Holding times: All holding times were met.

B. Analytical Exceptions : The original analysis of samples 21128001 (TT-01-02) and 21128002 (M-1) showed naphthalene present above the calibration range. The analyses also showed the quantitation ion (mz 128) for naphthalene saturated. The quantitated amount of naphthalene present in these samples was determined by using a secondary ion (mz 102) quantitation. A chromatogram demonstrating the saturation has been included with each sample as well as the calculation used to determine the amount of naphthalene present in each sample. Both samples were diluted and reanalyzed. The results of both analyses have been reported.

The original analysis of sample 21128004 (TT-02-06) showed poor resolution between Benzo(b)fluoranthene and Benzo(k)fluoranthene. The sample was diluted and reanalyzed with acceptable resolution between Benzo(b)flouoranthene and Benzo(k)fluoranthene. The results of both analysis have been reported.

No other exceptions were encountered.

IV. QUALITY CONTROL

A. Method Blank : All associated method blanks met acceptable QC criteria.

B. Surrogate Recoveries : Samples 21128001 (TT-01-02), 21128001DL (TT-01-02 DL), 21128002 (M-1), and 21128002DL (M-1 DL) required a large dilution for analysis. Therefore, surrogate recoveries could not be determined for these samples.

All other samples met acceptable QC limits.

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C. Matrix Spike
Results : Please note that several spike compounds failed to meet acceptable percent recovery and relative percent difference QC limits in samples 21128M04 (TT-0206DLMS) and 21128D04 (TT-0206 DLMSD). This may possibly be due to the high level of spike compounds present in the native sample. Since these limits are advisory only, the laboratory took no further action.

Please note that Forms II, IV, V, and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to CH2M HILL identification numbers.

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 floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Herb Kelly 4/3/92
Herb Kelly Date
Manager, Organic Division

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CASE NARRATIVE FOR PESTICIDE/PCB GAS CHROMATOGRAPHY SAMPLES

LABORATORY: CH2M HILL LABORATORIES CLIENT: BARR ENGINEERING

CASE NO. : N/A CONTRACT NO.: N/A

LAB NO. : 21128 SDG NO.: N/A

I. RECEIPT

A. DATE: March 7, 1992

B. SAMPLE INFORMATION

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
21128007	SS-02	SOIL	03/06/92	03/10/92	03/28/92
21128008	M-2	SOIL	03/06/92	03/10/92	03/28/92
21128009	SS-03	SOIL	03/06/92	03/10/92	03/28/92
21128009DL	SS-03DL	SOIL	03/06/92	03/10/92	03/28/92
21128010	SS-04	SOIL	03/06/92	03/10/92	03/28/92
21128011	SS-05	SOIL	03/06/92	03/10/92	03/28/92
21128011DL	SS-05DL	SOIL	03/06/92	03/10/92	03/28/92
S03102B1	PBLK10	SOIL	NA	03/10/92	03/27/92

C. Documentation
Exceptions : The names of both GC instruments were changed during this sequence. VAR6000A was changed to V6000A and VAR6000B was changed to V6000B.

II. EXTRACTION

A. Holding times: All holding times were met.

B. Extraction
Exceptions : No exceptions were encountered.

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III. ANALYSIS

A. Holding times: All holding times were met.

B. Analytical Exceptions : Internal standards were added to the pesticide/PCB samples before injection for internal QC purposes only. According to CLP protocol, only external standard calculations were performed for this report.

As shown on Form 8D, the retention time of DCB was excessively late for several injections onto the SAB608 GC column. Because of this problem, chromatographic data were interpreted using identification windows slightly wider than usual.

Sample 21128010 (SS-04) was diluted for analysis and not reanalyzed more concentrated because of the high level of interference offered by the extract.

No additional exceptions were encountered.

IV. QUALITY CONTROL

A. Method Blank : All associated method blanks met acceptable QC criteria.

B. Surrogate Recoveries : All samples met acceptable QC limits.

C. Matrix Spike Results : The native sample, matrix spike, and matrix spike duplicate associated with these samples will be reported with laboratory batch number 21107.

D. Special Conditions : Primary and confirmation data was acquired by a single injection into a dual column/ECD system.

Please note that Forms II, IV, V, and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to CH2M HILL identification numbers.

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 floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Herb Kelly 4/3/92

Herb Kelly Date
Manager, Organic Division

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8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): CSVO020945 Date Analyzed: 03/12/92

Instrument ID: 4500 Time Analyzed: 0810

GC Column: CAP ID: 0.530(mm) Heated Purge: (Y/N) Y

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	56481	10.95	208995	12.47	197910	17.37
	UPPER LIMIT	112962	11.45	417990	12.97	395820	17.87
	LOWER LIMIT	28240	10.45	104498	11.97	98955	16.87
	EPA SAMPLE NO.						
01	M-2	55284	10.94	207899	12.45	143509	17.35
02	SS-02	60526	10.84	243597	12.39	190312	17.34
03	SS-03	27120 *	10.94	39088 *	12.45	12125 *	17.34
04	SS-03_R	31984	10.87	77721 *	12.42	35068 *	17.35
05	SS-04	35603	10.95	108209	12.47	40365 *	17.34
06	SS-05	45671	10.94	181527	12.45	102214	17.35
07	TT-02-04	12241 *	10.97	54620 *	12.47	21986 *	17.35
08	TT-02-04_R	19274 *	10.90	85371 *	12.44	31222 *	17.35
09	VBLKS	48166	10.95	173093	12.47	139041	17.35

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TT-01-02

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128001

Sample wt/vol: 4.0 (g/mL) G Lab File ID: B1VM014621

Level: (low/med) MED Date Received: 03/07/92

% Moisture: not dec. 19 Date Analyzed: 03/19/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1500	U
74-83-9	Bromomethane	1500	U
75-01-4	Vinyl Chloride	1500	U
75-00-3	Chloroethane	1500	U
75-09-2	Methylene Chloride	780	BJ
67-64-1	Acetone	1500	U
75-15-0	Carbon Disulfide	1500	U
75-35-4	1,1-Dichloroethene	1500	U
75-34-3	1,1-Dichloroethane	1500	U
540-59-0	1,2-Dichloroethene (total)	1500	U
67-66-3	Chloroform	1500	U
107-06-2	1,2-Dichloroethane	1500	U
78-93-3	2-Butanone	1500	U
71-55-6	1,1,1-Trichloroethane	1500	U
56-23-5	Carbon Tetrachloride	1500	U
75-27-4	Bromodichloromethane	1500	U
78-87-5	1,2-Dichloropropane	1500	U
10061-01-5	cis-1,3-Dichloropropene	1500	U
79-01-6	Trichloroethene	1500	U
124-48-1	Dibromochloromethane	1500	U
79-00-5	1,1,2-Trichloroethane	1500	U
71-43-2	Benzene	1500	U
10061-02-6	trans-1,3-Dichloropropene	1500	U
75-25-2	Bromoform	1500	U
591-78-6	2-Hexanone	1500	U
108-10-1	4-Methyl-2-Pentanone	1500	U
127-18-4	Tetrachloroethene	1500	U
79-34-5	1,1,2,2-Tetrachloroethane	1500	U
108-88-3	Toluene	330	J
108-90-7	Chlorobenzene	1500	U
100-41-4	Ethylbenzene	310	J
100-42-5	Styrene	1500	U
1330-20-7	Xylene (total)	9500	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TT-01-02

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128001

Sample wt/vol: 4.0 (g/mL) G Lab File ID: B1VM014621

Level: (low/med) MED Date Received: 03/07/92

% Moisture: not dec. 19 Date Analyzed: 03/19/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

Number TICs found: 6

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	BENZENE, TRIMETHYL- ISOMER	19.09	9000	J
2.	BENZENE, TRIMETHYL- ISOMER	19.79	9700	J
3.	BENZENE, TRIMETHYL- ISOMER	20.65	3000	J
4. 933-98-2	BENZENE, 1-ETHYL-2,3-DIMETHY	21.10	1700	J
5.	BENZENE, ETHENYL-, METHYL- I	21.20	2200	J
6.	BENZENE, ETHYNYL-, METHYL- I	21.57	17000	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TT-01-02_R

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128001R

Sample wt/vol: 4.0 (g/mL) G Lab File ID: B2VM014625

Level: (low/med) MED Date Received: 03/07/92

% Moisture: not dec. 19 Date Analyzed: 03/20/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1500	U
74-83-9	Bromomethane	1500	U
75-01-4	Vinyl Chloride	1500	U
75-00-3	Chloroethane	1500	U
75-09-2	Methylene Chloride	1300	BJ
67-64-1	Acetone	1500	U
75-15-0	Carbon Disulfide	1500	U
75-35-4	1,1-Dichloroethene	1500	U
75-34-3	1,1-Dichloroethane	1500	U
540-59-0	1,2-Dichloroethene (total)	1500	U
67-66-3	Chloroform	1500	U
107-06-2	1,2-Dichloroethane	1500	U
78-93-3	2-Butanone	1500	U
71-55-6	1,1,1-Trichloroethane	1500	U
56-23-5	Carbon Tetrachloride	1500	U
75-27-4	Bromodichloromethane	1500	U
78-87-5	1,2-Dichloropropane	1500	U
10061-01-5	cis-1,3-Dichloropropene	1500	U
79-01-6	Trichloroethene	1500	U
124-48-1	Dibromochloromethane	1500	U
79-00-5	1,1,2-Trichloroethane	1500	U
71-43-2	Benzene	1500	U
10061-02-6	trans-1,3-Dichloropropene	1500	U
75-25-2	Bromoform	1500	U
591-78-6	2-Hexanone	1500	U
108-10-1	4-Methyl-2-Pentanone	1500	U
127-18-4	Tetrachloroethene	1500	U
79-34-5	1,1,2,2-Tetrachloroethane	1500	U
108-88-3	Toluene	380	J
108-90-7	Chlorobenzene	1500	U
100-41-4	Ethylbenzene	370	J
100-42-5	Styrene	1500	U
1330-20-7	Xylene (total)	9500	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TT-01-02_R

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128001R

Sample wt/vol: 4.0 (g/mL) G Lab File ID: B2VM014625

Level: (low/med) MED Date Received: 03/07/92

% Moisture: not dec. 19 Date Analyzed: 03/20/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	BENZENE, TRIMETHYL- ISOMER	19.09	9700	J
2.	BENZENE, TRIMETHYL- ISOMER	19.79	10000	J
3.	BENZENE, TRIMETHYL- ISOMER	20.65	3100	J
4. 496-11-7	1H-INDENE, 2,3-DIHYDRO-	21.20	4200	J
5. 766-97-2	BENZENE, 1-ETHYNYL-4-METHYL-	21.57	14000	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TT-02-04

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128003

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020955

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: not dec. 24 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	85	B
67-64-1	Acetone	56	B
75-15-0	Carbon Disulfide	9	J
75-35-4	1,1-Dichloroethene	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	13	U
67-66-3	Chloroform	5	BJ
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	13	U
56-23-5	Carbon Tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	13	U
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
591-78-6	2-Hexanone	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
127-18-4	Tetrachloroethene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	13	U
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U
1330-20-7	Xylene (total)	13	U

Use

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TT-02-04

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128003

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020955

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: not dec. 24 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TT-02-04_R

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128003R

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C2VO020961

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: not dec. 24 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TT-02-04_R

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128003R

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C2VO020961

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: not dec. 24 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

115

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-02

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128007

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020956

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: not dec. 18 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	33	B
67-64-1	Acetone	36	B
75-15-0	Carbon Disulfide	3	J
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	4	J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS-02

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128007

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020956

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: not dec. 18 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

M-2

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128008

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020957

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: not dec. 19 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	49	B
67-64-1	Acetone	37	B
75-15-0	Carbon Disulfide	4	J
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	5	J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

M-2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128008

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020957

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: not dec. 19 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

15

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-03

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128009

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020958

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: not dec. 14 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	72	B
67-64-1	Acetone	16	B
75-15-0	Carbon Disulfide	6	J
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	1	J
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	12	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS-03

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128009

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020958

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: not dec. 14 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-03_R

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128009R

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020962

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: not dec. 14 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

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

NS2

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS-03_R

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128009R

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020962

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: not dec. 14 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-04

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128010

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020959

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: not dec. 21 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	120	B
67-64-1	Acetone	29	B
75-15-0	Carbon Disulfide	7	J
75-35-4	1,1-Dichloroethene	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	13	U
67-66-3	Chloroform	3	BJ
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	13	U
56-23-5	Carbon Tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	13	U
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
591-78-6	2-Hexanone	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
127-18-4	Tetrachloroethene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	13	U
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U
1330-20-7	Xylene (total)	5	J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS-04

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128010

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020959

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: not dec. 21 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-04_R

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128010R

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C3VO021005

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: not dec. 21 Date Analyzed: 03/17/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	210	B
67-64-1	Acetone	32	B
75-15-0	Carbon Disulfide	16	
75-35-4	1,1-Dichloroethene	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	13	U
67-66-3	Chloroform	13	U
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	13	U
56-23-5	Carbon Tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	13	U
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	2	J
10061-02-6	trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
591-78-6	2-Hexanone	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
127-18-4	Tetrachloroethene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	5	J
108-88-3	Toluene	9	J
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U
1330-20-7	Xylene (total)	17	

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS-04_R

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128010R

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C3VO021005

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: not dec. 21 Date Analyzed: 03/17/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 1066-40-6	SILANOL, TRIMETHYL-	8.44	8	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-05

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128011

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020960

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: not dec. 14 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS-05

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128011

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020960

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: not dec. 14 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1/2

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-02

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128007

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A2BA013508

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: 16 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/31/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)Ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
95-50-1	1,2-Dichlorobenzene	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-oxybis(1-Chloropropane)	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-Di-n-Propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)Methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	390	U
106-47-8	4-Chloroaniline	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-Methylphenol	390	U
91-57-6	2-Methylnaphthalene	390	U
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	950	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	950	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	390	U
606-20-2	2,6-Dinitrotoluene	390	U
99-09-2	3-Nitroaniline	950	U
83-32-9	Acenaphthene	390	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-02

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128007

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A2BA013508

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: 16 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/31/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	950	U
100-02-7	4-Nitrophenol	950	U
132-64-9	Dibenzofuran	390	U
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U
86-73-7	Fluorene	390	U
100-10-6	4-Nitroaniline	950	U
534-52-1	4,6-Dinitro-2-methylphenol	950	U
86-30-6	N-Nitrosodiphenylamine (1)	390	U
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol	950	U
85-01-8	Phenanthrene	170	J
120-12-7	Anthracene	220	J
86-74-8	Carbazole	110	J
84-74-2	Di-n-Butylphthalate	100	BJ
206-44-0	Fluoranthene	320	J
129-00-0	Pyrene	240	J
85-68-7	Butylbenzylphthalate	390	U
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo(a)Anthracene	96	J
218-01-9	Chrysene	180	J
117-81-7	bis(2-Ethylhexyl)Phthalate	46	BJ
117-84-0	Di-n-Octyl Phthalate	390	U
205-99-2	Benzo(b)Fluoranthene	100	J
207-08-9	Benzo(k)Fluoranthene	150	J
50-32-8	Benzo(a)Pyrene	82	J
193-39-5	Indeno(1,2,3-cd)Pyrene	83	J
53-70-3	Dibenz(a,h)Anthracene	390	U
191-24-2	Benzo(g,h,i)Perylene	62	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS-02

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128007

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A2BA013508

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: 16 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/31/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 15

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 4305-26-4	2-HEXANONE, 6-(ACETYLOXY)-	6.90	750	BJ
2.	NOT IDENTIFIED	7.32	570	J
3. 3240-09-3	5-HEXEN-2-ONE, 5-METHYL-	7.87	1400	BJ
4. 18641-71-9	3-HEPTANONE, 2,4-DIMETHYL-	8.89	330	J
5. 112-50-5	ETHANOL, 2-[2-(2-ETHOXYETHOX	9.07	480	J
6. 628-68-2	ETHANOL, 2,2'-OXYBIS-, DIACE	9.19	300	J
7. 542-59-6	1,2-ETHANEDIOL, MONOACETATE	9.99	550	J
8. 17851-53-5	1,2-BENZENEDICARBOXYLIC ACID	22.55	340	BJ
9. 57-10-3	HEXADECANOIC ACID	23.60	350	BJ
10. 629-62-9	PENTADECANE	27.21	200	J
11. 31081-18-2	NONANE, 3-METHYL-5-PROPYL-	28.21	240	J
12. 544-76-3	HEXADECANE	29.17	330	J
13.	NOT IDENTIFIED	30.11	190	J
14.	NOT IDENTIFIED	30.99	190	J
15.	NOT IDENTIFIED	5.02	32000	J

MSc

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

M-2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128008

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A2BA013509

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: 15 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/31/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)Ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
95-50-1	1,2-Dichlorobenzene	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-oxybis(1-Chloropropane)	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-Di-n-Propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)Methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	390	U
106-47-8	4-Chloroaniline	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-Methylphenol	390	U
91-57-6	2-Methylnaphthalene	390	U
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	940	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	940	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	390	U
606-20-2	2,6-Dinitrotoluene	390	U
99-09-2	3-Nitroaniline	940	U
83-32-9	Acenaphthene	390	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

M-2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128008

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A2BA013509

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: 15 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/31/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	940	U
100-02-7	4-Nitrophenol	940	U
132-64-9	Dibenzofuran	390	U
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U
86-73-7	Fluorene	390	U
100-10-6	4-Nitroaniline	940	U
534-52-1	4,6-Dinitro-2-methylphenol	940	U
86-30-6	N-Nitrosodiphenylamine (1)	390	U
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol	940	U
85-01-8	Phenanthrene	59	J
120-12-7	Anthracene	390	U
86-74-8	Carbazole	390	U
84-74-2	Di-n-Butylphthalate	140	BJ
206-44-0	Fluoranthene	150	J
129-00-0	Pyrene	120	J
85-68-7	Butylbenzylphthalate	210	J
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo(a)Anthracene	69	J
218-01-9	Chrysene	99	J
117-81-7	bis(2-Ethylhexyl)Phthalate	47	BJ
117-84-0	Di-n-Octyl Phthalate	390	U
205-99-2	Benzo(b)Fluoranthene	74	J
207-08-9	Benzo(k)Fluoranthene	90	J
50-32-8	Benzo(a)Pyrene	49	J
193-39-5	Indeno(1,2,3-cd)Pyrene	56	J
53-70-3	Dibenz(a,h)Anthracene	390	U
191-24-2	Benzo(g,h,i)Perylene	41	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

M-2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128008

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A2BA013509

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: 15 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/31/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 14

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	NOT IDENTIFIED	7.02	810	J
2.	NOT IDENTIFIED	7.42	530	J
3. 3240-09-3	5-HEXEN-2-ONE, 5-METHYL-	8.00	1300	BJ
4. 18641-71-9	3-HEPTANONE, 2,4-DIMETHYL-	8.95	380	J
5. 112-50-5	ETHANOL, 2-[2-(2-ETHOXYETHOX	9.12	580	J
6. 628-68-2	ETHANOL, 2,2'-OXYBIS-, DIACE	9.24	300	J
7. 542-59-6	1,2-ETHANEDIOL, MONOACETATE	10.02	490	J
8. 17851-53-5	1,2-BENZENEDICARBOXYLIC ACID	22.54	410	BJ
9. 57-10-3	HEXADECANOIC ACID	23.59	420	BJ
10.	NOT IDENTIFIED	27.19	170	J
11. 17301-30-3	UNDECANE, 3,8-DIMETHYL-	28.19	180	J
12.	NOT IDENTIFIED	29.14	410	J
13. 544-76-3	HEXADECANE	30.97	220	J
14.	NOT IDENTIFIED	5.18	31000	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-03

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128009

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013487

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: 23 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	430	U
111-44-4	bis(2-Chloroethyl)Ether	430	U
95-57-8	2-Chlorophenol	430	U
541-73-1	1,3-Dichlorobenzene	430	U
106-46-7	1,4-Dichlorobenzene	430	U
95-50-1	1,2-Dichlorobenzene	430	U
95-48-7	2-Methylphenol	430	U
108-60-1	2,2'-oxybis(1-Chloropropane)	430	U
106-44-5	4-Methylphenol	430	U
621-64-7	N-Nitroso-Di-n-Propylamine	430	U
67-72-1	Hexachloroethane	430	U
98-95-3	Nitrobenzene	430	U
78-59-1	Isophorone	430	U
88-75-5	2-Nitrophenol	430	U
105-67-9	2,4-Dimethylphenol	430	U
111-91-1	bis(2-Chloroethoxy)Methane	430	U
120-83-2	2,4-Dichlorophenol	430	U
120-82-1	1,2,4-Trichlorobenzene	430	U
91-20-3	Naphthalene	300	J
106-47-8	4-Chloroaniline	430	U
87-68-3	Hexachlorobutadiene	430	U
59-50-7	4-Chloro-3-Methylphenol	430	U
91-57-6	2-Methylnaphthalene	430	
77-47-4	Hexachlorocyclopentadiene	430	U
88-06-2	2,4,6-Trichlorophenol	430	U
95-95-4	2,4,5-Trichlorophenol	1000	U
91-58-7	2-Chloronaphthalene	430	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	430	U
208-96-8	Acenaphthylene	430	U
606-20-2	2,6-Dinitrotoluene	430	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	430	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-03

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128009

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013487

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: 23 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	260	J
121-14-2	2,4-Dinitrotoluene	430	U
84-66-2	Diethylphthalate	430	U
7005-72-3	4-Chlorophenyl-phenylether	430	U
86-73-7	Fluorene	430	U
100-10-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-Nitrosodiphenylamine (1)	430	U
101-55-3	4-Bromophenyl-phenylether	430	U
118-74-1	Hexachlorobenzene	430	U
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	1800	
120-12-7	Anthracene	120	J
86-74-8	Carbazole	71	J
84-74-2	Di-n-Butylphthalate	150	BJ
206-44-0	Fluoranthene	550	
129-00-0	Pyrene	410	J
85-68-7	Butylbenzylphthalate	430	U
91-94-1	3,3'-Dichlorobenzidine	430	U
56-55-3	Benzo(a)Anthracene	200	J
218-01-9	Chrysene	300	J
117-81-7	bis(2-Ethylhexyl)Phthalate	110	BJ
117-84-0	Di-n-Octyl Phthalate	430	U
205-99-2	Benzo(b)Fluoranthene	150	J
207-08-9	Benzo(k)Fluoranthene	150	J
50-32-8	Benzo(a)Pyrene	130	J
193-39-5	Indeno(1,2,3-cd)Pyrene	72	J
53-70-3	Dibenz(a,h)Anthracene	430	U
191-24-2	Benzo(g,h,i)Perylene	87	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS-03

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128009

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013487

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: 23 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

mber TICs found: 14

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	NOT IDENTIFIED	7.20	1200	J
2.	NOT IDENTIFIED	7.58	1300	J
3.	NOT IDENTIFIED	8.12	1200	J
4. 18641-71-9	3-HEPTANONE, 2,4-DIMETHYL-	9.09	830	J
5.	NOT IDENTIFIED	10.15	880	J
6. 90-12-0	NAPHTHALENE, 1-METHYL-	14.79	510	J
7.	NAPHTHALENE, DIMETHYL- ISOME	16.52	1400	J
8.	NAPHTHALENE, DIMETHYL- ISOME	16.82	1300	J
9.	NOT IDENTIFIED	17.05	920	J
10. 74645-98-0	DODECANE, 2,7,10-TRIMETHYL-	20.45	3400	J
11.	NOT IDENTIFIED	21.00	760	J
12.	NOT IDENTIFIED	36.69	2600	J
13.	NOT IDENTIFIED	36.81	950	J
14.	NOT IDENTIFIED	5.22	39000	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-04

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128010

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A2BA013510

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: 16 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/31/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)Ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
95-50-1	1,2-Dichlorobenzene	390	U
95-48-7	2-Methylphenol	390	U
108-60-1	2,2'-oxybis(1-Chloropropane)	390	U
106-44-5	4-Methylphenol	390	U
621-64-7	N-Nitroso-Di-n-Propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)Methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	140	J
106-47-8	4-Chloroaniline	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-Methylphenol	390	U
91-57-6	2-Methylnaphthalene	150	J
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
95-95-4	2,4,5-Trichlorophenol	950	U
91-58-7	2-Chloronaphthalene	390	U
88-74-4	2-Nitroaniline	950	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	390	U
606-20-2	2,6-Dinitrotoluene	390	U
99-09-2	3-Nitroaniline	950	U
83-32-9	Acenaphthene	390	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-04

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128010

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A2BA013510

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: 16 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/31/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	950	U
100-02-7	4-Nitrophenol	950	U
132-64-9	Dibenzofuran	96	J
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U
86-73-7	Fluorene	42	J
100-10-6	4-Nitroaniline	950	U
534-52-1	4,6-Dinitro-2-methylphenol	950	U
86-30-6	N-Nitrosodiphenylamine (1)	390	U
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol	950	U
85-01-8	Phenanthrene	770	
120-12-7	Anthracene	79	J
86-74-8	Carbazole	46	J
84-74-2	Di-n-Butylphthalate	160	BJ
206-44-0	Fluoranthene	330	J
129-00-0	Pyrene	300	J
85-68-7	Butylbenzylphthalate	390	U
91-94-1	3,3'-Dichlorobenzidine	390	U
56-55-3	Benzo(a)Anthracene	190	J
218-01-9	Chrysene	340	J
117-81-7	bis(2-Ethylhexyl)Phthalate	170	BJ
117-84-0	Di-n-Octyl Phthalate	390	U
205-99-2	Benzo(b)Fluoranthene	180	J
207-08-9	Benzo(k)Fluoranthene	170	J
50-32-8	Benzo(a)Pyrene	130	J
193-39-5	Indeno(1,2,3-cd)Pyrene	110	J
53-70-3	Dibenz(a,h)Anthracene	44	J
191-24-2	Benzo(g,h,i)Perylene	98	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS-04

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128010

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A2BA013510

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: 16 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/31/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 21

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 108-21-4	ACETIC ACID, 1-METHYLETHYL E	3.93	550	J
2.	NOT IDENTIFIED	6.93	1100	J
3. 17257-81-7	ETHANONE, 1-(3-ETHYLOXIRANYL	7.33	1400	J
4. 3240-09-3	5-HEXEN-2-ONE, 5-METHYL-	7.90	1200	BJ
5. 18641-71-9	3-HEPTANONE, 2,4-DIMETHYL-	8.92	1000	J
6. 26446-35-5	1,2,3-PROPANETRIOL, MONOACET	10.02	810	J
7. 575-37-1	NAPHTHALENE, 1,7-DIMETHYL-	16.35	590	J
8. 1560-93-6	PENTADECANE, 2-METHYL-	20.32	1200	J
9. 17851-53-5	1,2-BENZENEDICARBOXYLIC ACID	22.55	460	BJ
10. 2531-84-2	PHENANTHRENE, 2-METHYL-	22.97	370	J
11. 4505-48-0	1H-INDENE, 2-PHENYL-	23.20	450	J
12. 57-10-3	HEXADECANOIC ACID	23.62	780	BJ
13. 3674-65-5	PHENANTHRENE, 2,3-DIMETHYL-	24.54	310	J
14.	NOT IDENTIFIED	25.07	360	J
15.	NOT IDENTIFIED	26.16	390	J
16.	NOT IDENTIFIED	27.21	470	J
17.	NOT IDENTIFIED	28.21	580	J
18.	NOT IDENTIFIED	30.07	560	J
19.	NOT IDENTIFIED	30.99	1000	J
20.	NOT IDENTIFIED	31.84	430	J
21.	NOT IDENTIFIED	5.08	34000	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-05

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128011

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A2BA013488

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: 17 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	400	U
111-44-4	bis(2-Chloroethyl)Ether	400	U
95-57-8	2-Chlorophenol	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
95-50-1	1,2-Dichlorobenzene	400	U
95-48-7	2-Methylphenol	400	U
108-60-1	2,2'-oxybis(1-Chloropropane)	400	U
106-44-5	4-Methylphenol	400	U
621-64-7	N-Nitroso-Di-n-Propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
111-91-1	bis(2-Chloroethoxy)Methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
120-82-1	1,2,4-Trichlorobenzene	400	U
91-20-3	Naphthalene	2000	
106-47-8	4-Chloroaniline	400	U
87-68-3	Hexachlorobutadiene	400	U
59-50-7	4-Chloro-3-Methylphenol	400	U
91-57-6	2-Methylnaphthalene	230	J
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
95-95-4	2,4,5-Trichlorophenol	960	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	960	U
131-11-3	Dimethylphthalate	400	U
208-96-8	Acenaphthylene	210	J
606-20-2	2,6-Dinitrotoluene	400	U
99-09-2	3-Nitroaniline	960	U
83-32-9	Acenaphthene	220	J

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-05

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S21128 SAS No.: _____ SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 21128011

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A2BA013488

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: 17 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	960	U
100-02-7	4-Nitrophenol	960	U
132-64-9	Dibenzofuran	260	J
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U
86-73-7	Fluorene	330	J
100-10-6	4-Nitroaniline	960	U
534-52-1	4,6-Dinitro-2-methylphenol	960	U
86-30-6	N-Nitrosodiphenylamine (1)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
87-86-5	Pentachlorophenol	960	U
85-01-8	Phenanthrene	2300	
120-12-7	Anthracene	1700	
86-74-8	Carbazole	380	J
84-74-2	Di-n-Butylphthalate	210	BJ
206-44-0	Fluoranthene	4700	
129-00-0	Pyrene	3400	
85-68-7	Butylbenzylphthalate	400	U
91-94-1	3,3'-Dichlorobenzidine	400	U
56-55-3	Benzo(a)Anthracene	2100	
218-01-9	Chrysene	2300	
117-81-7	bis(2-Ethylhexyl)Phthalate	320	BJ
117-84-0	Di-n-Octyl Phthalate	400	U
205-99-2	Benzo(b)Fluoranthene	1200	
207-08-9	Benzo(k)Fluoranthene	1300	
50-32-8	Benzo(a)Pyrene	1000	
193-39-5	Indeno(1,2,3-cd)Pyrene	700	
53-70-3	Dibenz(a,h)Anthracene	340	J
191-24-2	Benzo(g,h,i)Perylene	510	

MGn

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS-05

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128011

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A2BA013488

Level: (low/med) LOW Date Received: 03/07/92

% Moisture: 17 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 16

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	NOT IDENTIFIED	7.40	1400	J
2. 3240-09-3	5-HEXEN-2-ONE, 5-METHYL-	8.03	2300	BJ
3. 18641-71-9	3-HEPTANONE, 2,4-DIMETHYL-	9.00	1100	J
. 17301-30-3	UNDECANE, 3,8-DIMETHYL-	20.37	540	J
5.	ANTHRACENE, METHYL- ISOMER	22.97	410	J
6. 4505-48-0	1H-INDENE, 2-PHENYL-	23.05	400	J
7.	ANTHRACENE, METHYL- ISOMER	23.27	530	J
8.	NOT IDENTIFIED	23.59	550	J
9.	NOT IDENTIFIED	23.70	1000	J
10.	NOT IDENTIFIED	25.71	420	J
11. 2381-21-7	PYRENE, 1-METHYL-	26.64	620	J
12.	NOT IDENTIFIED	28.14	480	J
13. 205-43-6	BENZO[B]NAPHTHO[1,2-D]THIOPH	28.39	540	J
14. 205-82-3	BENZO[J]FLUORANTHENE	32.74	830	J
15.	NOT IDENTIFIED	36.52	940	J
16.	NOT IDENTIFIED	5.18	39000	J

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/11/92
Lab Sample ID:	21128001	Sample Matrix:	SOIL	Date Analyzed:	04/01/92
Client Sample ID:	TT-01-02	Percent Moisture:	17.0	Dilution Factor:	200

POLYNUCLEAR AROMATIC COMPOUNDS

CAS Number		ug/Kg		CAS Number		ug/Kg	
271-89-6	2,3-Benzofuran	80000	U	260-94-6	Acridine	80000	U
496-11-7	2,3-Dihydro-1h-Indene	80000	U	229-87-8	Phenanthridine	80000	U
95-13-6	1H-Indene	48000	J	86-74-8	Carbazole	15000	J
91-20-3	Naphthalene	1500000	E	206-44-0	Fluoranthene	57000	J
95-15-8	Benzo(b)thiophene	28000	J	129-00-0	Pyrene	39000	J
91-22-5	Quinoline	80000	U	56-55-3	Benzo(a)anthracene	26000	J
119-65-3	Isoquinoline	80000	U	218-01-9	Chrysene/Triphenylene	29000	J
91-57-6	2-Methylnaphthalene	300000		NA	Benzo(b&k)fluoranthene	NR	
120-72-9	Indole	80000	U	57-97-6	7,12-Dimethylbenz(a)anthrac	80000	U
90-12-0	1-Methylnaphthalene	130000		192-97-2	Benzo(e)pyrene	13000	J
92-52-4	Biphenyl	37000	J	50-32-8	Benzo(a)pyrene	18000	J
208-96-8	Acenaphthylene	47000	J	198-55-0	Perylene	80000	U
83-32-9	Acenaphthene	11000	J	56-49-5	3-Methylcholanthrene	80000	U
132-64-9	Dibenzofuran	58000	J	193-39-5	Indeno(1,2,3-cd)pyrene	9500	J
86-73-7	Fluorene	96000		53-70-3	Dibenz(a,h)anthracene	80000	U
132-65-0	Dibenzothiophene	10000	J	191-24-2	Benzo(g,h,i,)perylene	80000	U
85-01-8	Phenanthrene	120000		205-99-2	Benzo(b)fluoranthene	18000	J
120-12-7	Anthracene	32000	J	207-08-9	Benzo(k)fluoranthene	19000	J

E - Compound concentration exceeded calibration range.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.

Form I

MSx

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/11/92
Lab Sample ID:	21128001	Sample Matrix:	SOIL	Date Analyzed:	04/01/92
Client Sample ID:	TT-01-02	Percent Moisture:	17.0	Dilution Factor:	200

PHENOL COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
108-95-2	Phenol	80000	U		
95-57-8	2-Chlorophenol	80000	U		
95-48-7	2-Methylphenol	80000	U		
106-44-5	4-Methylphenol	80000	U		
88-75-5	2-Nitrophenol	80000	U		
105-67-9	2,4-Dimethylphenol	80000	U		
120-83-2	2,4-Dichlorophenol	80000	U		
65-85-0	Benzoic acid	190000	U		
59-50-7	4-Chloro-3-Methylphenol .	80000	U		
88-06-2	2,4,6-Trichlorophenol . .	80000	U		
[illegible]-95-4	2,4,5-Trichlorophenol . .	190000	U		
51-28-5	2,4-Dinitrophenol	190000	U		
100-02-7	4-Nitrophenol	190000	U		
534-52-1	4,6-Dinitro-2-Methylphenol	190000	U		
87-86-5	Pentachlorophenol	190000	U		

U - Compound analyzed for but not detected.
 - Compound was detected in QC blank.
J - Reported value less than quantitation limit.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/11/92
Lab Sample ID:	21128001DL	Sample Matrix:	SOIL	Date Analyzed:	04/01/92
Client Sample ID:	TT-01-02 DL	Percent Moisture:	17.0	Dilution Factor:	1000

POLYNUCLEAR AROMATIC COMPOUNDS

CAS Number		ug/Kg	CAS Number		ug/Kg
271-89-6	2,3-Benzofuran	400000 U	260-94-6	Acridine	400000 U
496-11-7	2,3-Dihydro-1h-Indene	400000 U	229-87-8	Phenanthridine	400000 U
95-13-6	1H-Indene	44000 J	86-74-8	Carbazole	400000 U
91-20-3	Naphthalene	1900000	206-44-0	Fluoranthene	55000 J
95-15-8	Benzo(b)thiophene	400000 U	129-00-0	Pyrene	400000 U
91-22-5	Quinoline	400000 U	56-55-3	Benzo(a)anthracene	400000 U
119-65-3	Isoquinoline	400000 U	218-01-9	Chrysene/Triphenylene	400000 U
91-57-6	2-Methylnaphthalene	250000 J	NA	Benzo(b&k)fluoranthene	NR
120-72-9	Indole	400000 U	57-97-6	7,12-Dimethylbenz(a)anthrac	400000 U
90-12-0	1-Methylnaphthalene	120000 J	192-97-2	Benzo(e)pyrene	400000 U
92-52-4	Biphenyl	400000 U	50-32-8	Benzo(a)pyrene	400000 U
208-96-8	Acenaphthylene	56000 J	198-55-0	Perylene	400000 U
83-32-9	Acenaphthene	400000 U	56-49-5	3-Methylcholanthrene	400000 U
132-64-9	Dibenzofuran	55000 J	193-39-5	Indeno(1,2,3-cd)pyrene	400000 U
86-73-7	Fluorene	88000 J	53-70-3	Dibenz(a,h)anthracene	400000 U
132-65-0	Dibenzothiophene	400000 U	191-24-2	Benzo(g,h,i,)perylene	400000 U
85-01-8	Phenanthrene	110000 J	205-99-2	Benzo(b)fluoranthene	400000 U
120-12-7	Anthracene	400000 U	207-08-9	Benzo(k)fluoranthene	400000 U

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.

Form I

ORGANICS ANALYSIS DATA SHEET

ratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/11/92
Lab Sample ID:	21128001DL	Sample Matrix:	SOIL	Date Analyzed:	04/01/92
Client Sample ID:	TT-01-02 DL	Percent Moisture:	17.0	Dilution Factor:	1000

PHENOL COMPOUNDS

CAS Number		ug/Kg	CAS Number	ug/Kg
108-95-2	Phenol	400000 U		
95-57-8	2-Chlorophenol	400000 U		
95-48-7	2-Methylphenol	400000 U		
106-44-5	4-Methylphenol	400000 U		
88-75-5	2-Nitrophenol	400000 U		
105-67-9	2,4-Dimethylphenol	400000 U		
120-83-2	2,4-Dichlorophenol	400000 U		
65-85-0	Benzoic acid	960000 U		
59-50-7	4-Chloro-3-Methylphenol .	400000 U		
88-06-2	2,4,6-Trichlorophenol . .	400000 U		
95-4	2,4,5-Trichlorophenol . .	960000 U		
51-28-5	2,4-Dinitrophenol	960000 U		
100-02-7	4-Nitrophenol	960000 U		
534-52-1	4,6-Dinitro-2-Methylphenol	960000 U		
87-86-5	Pentachlorophenol	960000 U		

U - Compound analyzed for but not detected.
- Compound was detected in QC blank.
- Reported value less than quantitation limit.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/11/92
Lab Sample ID:	21128002	Sample Matrix:	SOIL	Date Analyzed:	04/01/92
Client Sample ID:	M-1	Percent Moisture:	15.0	Dilution Factor:	80

POLYNUCLEAR AROMATIC COMPOUNDS

CAS Number		ug/Kg		CAS Number		ug/Kg	
271-89-6	2,3-Benzofuran	31000	U	260-94-6	Acridine	31000	U
496-11-7	2,3-Dihydro-1h-Indene	31000	U	229-87-8	Phenanthridine	31000	U
95-13-6	1H-Indene	20000	J	86-74-8	Carbazole	8300	J
91-20-3	Naphthalene	470000	E	206-44-0	Fluoranthene	32000	
95-15-8	Benzo(b)thiophene	12000	J	129-00-0	Pyrene	22000	J
91-22-5	Quinoline	31000	U	56-55-3	Benzo(a)anthracene	12000	J
119-65-3	Isoquinoline	31000	U	218-01-9	Chrysene/Triphenylene	15000	J
91-57-6	2-Methylnaphthalene	120000		NA	Benzo(b&k)fluoranthene	NR	
120-72-9	Indole	31000	U	57-97-6	7,12-Dimethylbenz(a)anthrac	31000	U
90-12-0	1-Methylnaphthalene	57000		192-97-2	Benzo(e)pyrene	7400	J
92-52-4	Biphenyl	17000	J	50-32-8	Benzo(a)pyrene	10000	J
208-96-8	Acenaphthylene	25000	J	198-55-0	Perylene	31000	U
83-32-9	Acenaphthene	4700	J	56-49-5	3-Methylcholanthrene	31000	U
132-64-9	Dibenzofuran	27000	J	193-39-5	Indeno(1,2,3-cd)pyrene	5600	J
86-73-7	Fluorene	42000		53-70-3	Dibenz(a,h)anthracene	31000	U
132-65-0	Dibenzothiophene	5500	J	191-24-2	Benzo(g,h,i,)perylene	4000	J
85-01-8	Phenanthrene	60000		205-99-2	Benzo(b)fluoranthene	9900	J
120-12-7	Anthracene	16000	J	207-08-9	Benzo(k)fluoranthene	11000	J

E - Compound concentration exceeded calibration range.
U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.

Form I

ORGANICS ANALYSIS DATA SHEET

ratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/11/92
Lab Sample ID:	21128002	Sample Matrix:	SOIL	Date Analyzed:	04/01/92
Client Sample ID:	M-1	Percent Moisture:	15.0	Dilution Factor:	80

PHENOL COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
108-95-2	Phenol	31000	U		
95-57-8	2-Chlorophenol	31000	U		
95-48-7	2-Methylphenol	31000	U		
106-44-5	4-Methylphenol	31000	U		
88-75-5	2-Nitrophenol	31000	U		
105-67-9	2,4-Dimethylphenol	31000	U		
120-83-2	2,4-Dichlorophenol	31000	U		
65-85-0	Benzoic acid	75000	U		
59-50-7	4-Chloro-3-Methylphenol .	31000	U		
88-06-2	2,4,6-Trichlorophenol . .	31000	U		
95-4	2,4,5-Trichlorophenol . .	75000	U		
51-28-5	2,4-Dinitrophenol	75000	U		
100-02-7	4-Nitrophenol	75000	U		
534-52-1	4,6-Dinitro-2-Methylphenol	75000	U		
87-86-5	Pentachlorophenol	75000	U		

U - Compound analyzed for but not detected.
- Compound was detected in QC blank.
- Reported value less than quantitation limit.

Form I

MSC

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/11/92
Lab Sample ID:	21128002DL	Sample Matrix:	SOIL	Date Analyzed:	04/01/92
Client Sample ID:	M-1 DL	Percent Moisture:	15.0	Dilution Factor:	320

POLYNUCLEAR AROMATIC COMPOUNDS

CAS Number		ug/Kg		CAS Number		ug/Kg	
271-89-6	2,3-Benzofuran	120000	U	260-94-6	Acridine	120000	U
496-11-7	2,3-Dihydro-1h-Indene	120000	U	229-87-8	Phenanthridine	120000	U
95-13-6	1H-Indene	18000	J	86-74-8	Carbazole	120000	U
91-20-3	Naphthalene	660000		206-44-0	Fluoranthene	28000	J
95-15-8	Benzo(b)thiophene	120000	U	129-00-0	Pyrene	19000	J
91-22-5	Quinoline	120000	U	56-55-3	Benzo(a)anthracene	120000	U
119-65-3	Isoquinoline	120000	U	218-01-9	Chrysene/Triphenylene	120000	U
91-57-6	2-Methylnaphthalene	110000	J	NA	Benzo(b&k)fluoranthene	NR	
120-72-9	Indole	120000	U	57-97-6	7,12-Dimethylbenz(a)anthrac	120000	U
90-12-0	1-Methylnaphthalene	51000	J	192-97-2	Benzo(e)pyrene	120000	U
92-52-4	Biphenyl	16000	J	50-32-8	Benzo(a)pyrene	120000	U
208-96-8	Acenaphthylene	24000	J	198-55-0	Perylene	120000	U
83-32-9	Acenaphthene	120000	U	56-49-5	3-Methylcholanthrene	120000	U
132-64-9	Dibenzofuran	25000	J	193-39-5	Indeno(1,2,3-cd)pyrene	120000	U
86-73-7	Fluorene	41000	J	53-70-3	Dibenz(a,h)anthracene	120000	U
132-65-0	Dibenzothiophene	120000	U	191-24-2	Benzo(g,h,i,)perylene	120000	U
85-01-8	Phenanthrene	57000	J	205-99-2	Benzo(b)fluoranthene	120000	U
120-12-7	Anthracene	14000	J	207-08-9	Benzo(k)fluoranthene	120000	U

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.

Form I

MS

ORGANICS ANALYSIS DATA SHEET

...oratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/11/92
Lab Sample ID:	21128002DL	Sample Matrix:	SOIL	Date Analyzed:	04/01/92
Client Sample ID:	M-1 DL	Percent Moisture:	15.0	Dilution Factor:	320

PHENOL COMPOUNDS

CAS Number		ug/Kg	CAS Number	ug/Kg
108-95-2	Phenol	120000 U		
95-57-8	2-Chlorophenol	120000 U		
95-48-7	2-Methylphenol	120000 U		
106-44-5	4-Methylphenol	120000 U		
88-75-5	2-Nitrophenol	120000 U		
105-67-9	2,4-Dimethylphenol	120000 U		
120-83-2	2,4-Dichlorophenol	120000 U		
65-85-0	Benzoic acid	300000 U		
59-50-7	4-Chloro-3-Methylphenol .	120000 U		
88-06-2	2,4,6-Trichlorophenol . .	120000 U		
-95-4	2,4,5-Trichlorophenol . .	300000 U		
51-28-5	2,4-Dinitrophenol	300000 U		
100-02-7	4-Nitrophenol	300000 U		
534-52-1	4,6-Dinitro-2-Methylphenol	300000 U		
87-86-5	Pentachlorophenol	300000 U		

U - Compound analyzed for but not detected.
' - Compound was detected in QC blank.
J - Reported value less than quantitation limit.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/11/92
Lab Sample ID:	21128004	Sample Matrix:	SOIL	Date Analyzed:	04/01/92
Client Sample ID:	TT-02-06	Percent Moisture:	25.0	Dilution Factor:	3.0

POLYNUCLEAR AROMATIC COMPOUNDS

CAS Number		ug/Kg		CAS Number		ug/Kg	
271-89-6	2,3-Benzofuran	1300	U	260-94-6	Acridine	350	J
496-11-7	2,3-Dihydro-1h-Indene	1300	U	229-87-8	Phenanthridine	560	J
95-13-6	1H-Indene	590	J	86-74-8	Carbazole	2000	
91-20-3	Naphthalene	5100		206-44-0	Fluoranthene	10000	
95-15-8	Benzo(b)thiophene	140	J	129-00-0	Pyrene	8800	
91-22-5	Quinoline	1300	U	56-55-3	Benzo(a)anthracene	9000	
119-65-3	Isoquinoline	1300	U	218-01-9	Chrysene/Triphenylene	10000	
91-57-6	2-Methylnaphthalene	1300	J	NA	Benzo(b&k)fluoranthene	NR	
120-72-9	Indole	270	J	57-97-6	7,12-Dimethylbenz(a)anthrac	1300	U
90-12-0	1-Methylnaphthalene	800	J	192-97-2	Benzo(e)pyrene	8200	
92-52-4	Biphenyl	410	J	50-32-8	Benzo(a)pyrene	8200	
208-96-8	Acenaphthylene	1900		198-55-0	Perylene	1900	
83-32-9	Acenaphthene	290	J	56-49-5	3-Methylcholanthrene	1300	U
132-64-9	Dibenzofuran	1200	J	193-39-5	Indeno(1,2,3-cd)pyrene	6900	
86-73-7	Fluorene	1700		53-70-3	Dibenz(a,h)anthracene	4800	
132-65-0	Dibenzothiophene	760	J	191-24-2	Benzo(g,h,i,)perylene	4200	
85-01-8	Phenanthrene	9500		205-99-2	Benzo(b)fluoranthene	13000	
120-12-7	Anthracene	2900		207-08-9	Benzo(k)fluoranthene	5100	

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.

Form I

μsc

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/11/92
Lab Sample ID:	21128004	Sample Matrix:	SOIL	Date Analyzed:	04/01/92
Client Sample ID:	TT-02-06	Percent Moisture:	25.0	Dilution Factor:	3.0

PHENOL COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
108-95-2	Phenol	290	J		
95-57-8	2-Chlorophenol	1300	U		
95-48-7	2-Methylphenol	160	J		
106-44-5	4-Methylphenol	370	J		
88-75-5	2-Nitrophenol	1300	U		
105-67-9	2,4-Dimethylphenol	180	J		
120-83-2	2,4-Dichlorophenol	1300	U		
65-85-0	Benzoic acid	550	J		
59-50-7	4-Chloro-3-Methylphenol	1300	U		
88-06-2	2,4,6-Trichlorophenol	1300	U		
[illegible]95-4	2,4,5-Trichlorophenol	3200	U		
51-28-5	2,4-Dinitrophenol	3200	U		
100-02-7	4-Nitrophenol	310	J		
534-52-1	4,6-Dinitro-2-Methylphenol	3200	U		
87-86-5	Pentachlorophenol	3200	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/11/92
Lab Sample ID:	21128004DL	Sample Matrix:	SOIL	Date Analyzed:	04/01/92
Client Sample ID:	TT-02-06 DL	Percent Moisture:	25.0	Dilution Factor:	10

POLYNUCLEAR AROMATIC COMPOUNDS

CAS Number		ug/Kg		CAS Number		ug/Kg	
271-89-6	2,3-Benzofuran	4400	U	260-94-6	Acridine	4400	U
496-11-7	2,3-Dihydro-1h-Indene	4400	U	229-87-8	Phenanthridine	590	J
95-13-6	1H-Indene	480	J	86-74-8	Carbazole	1800	J
91-20-3	Naphthalene	5200		206-44-0	Fluoranthene	13000	
95-15-8	Benzo(b)thiophene	4400	U	129-00-0	Pyrene	9900	
91-22-5	Quinoline	4400	U	56-55-3	Benzo(a)anthracene	12000	
119-65-3	Isoquinoline	4400	U	218-01-9	Chrysene/Triphenylene	15000	
91-57-6	2-Methylnaphthalene	1200	J	NA	Benzo(b&k)fluoranthene	NR	
120-72-9	Indole	4400	U	57-97-6	7,12-Dimethylbenz(a)anthrac	4400	U
90-12-0	1-Methylnaphthalene	740	J	192-97-2	Benzo(e)pyrene	9100	
92-52-4	Biphenyl	4400	U	50-32-8	Benzo(a)pyrene	10000	
208-96-8	Acenaphthylene	1700	J	198-55-0	Perylene	1800	J
83-32-9	Acenaphthene	4400	U	56-49-5	3-Methylcholanthrene	4400	U
132-64-9	Dibenzofuran	1100	J	193-39-5	Indeno(1,2,3-cd)pyrene	6300	
86-73-7	Fluorene	1500	J	53-70-3	Dibenz(a,h)anthracene	4300	J
132-65-0	Dibenzothiophene	720	J	191-24-2	Benzo(g,h,i,)perylene	3700	J
85-01-8	Phenanthrene	10000		205-99-2	Benzo(b)fluoranthene	15000	
120-12-7	Anthracene	2900	J	207-08-9	Benzo(k)fluoranthene	6300	

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantation limit.

Form I

ORGANICS ANALYSIS DATA SHEET

ratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/11/92
Lab Sample ID:	21128004DL	Sample Matrix:	SOIL	Date Analyzed:	04/01/92
Client Sample ID:	TT-02-06 DL	Percent Moisture:	25.0	Dilution Factor:	10

PHENOL COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
108-95-2	Phenol	4400	U		
95-57-8	2-Chlorophenol	4400	U		
95-48-7	2-Methylphenol	4400	U		
106-44-5	4-Methylphenol	4400	U		
88-75-5	2-Nitrophenol	4400	U		
105-67-9	2,4-Dimethylphenol	4400	U		
120-83-2	2,4-Dichlorophenol	4400	U		
65-85-0	Benzoic acid	11000	U		
59-50-7	4-Chloro-3-Methylphenol .	4400	U		
88-06-2	2,4,6-Trichlorophenol . .	4400	U		
-95-4	2,4,5-Trichlorophenol . .	11000	U		
51-28-5	2,4-Dinitrophenol	11000	U		
100-02-7	4-Nitrophenol	11000	U		
534-52-1	4,6-Dinitro-2-Methylphenol	11000	U		
87-86-5	Pentachlorophenol	11000	U		

U - Compound analyzed for but not detected.
- Compound was detected in QC blank.
J - Reported value less than quantitation limit.

Form I

Kg

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/11/92
Lab Sample ID:	21128005	Sample Matrix:	SOIL	Date Analyzed:	04/01/92
Client Sample ID:	TT-02-09	Percent Moisture:	9.0	Dilution Factor:	1.0

POLYNUCLEAR AROMATIC COMPOUNDS

CAS Number		ug/Kg		CAS Number		ug/Kg	
271-89-6	2,3-Benzofuran	360	U	260-94-6	Acridine	360	U
496-11-7	2,3-Dihydro-1h-Indene	360	U	229-87-8	Phenanthridine	360	U
95-13-6	1H-Indene	360	U	86-74-8	Carbazole	360	U
91-20-3	Naphthalene	360	U	206-44-0	Fluoranthene	1600	
95-15-8	Benzo(b)thiophene	360	U	129-00-0	Pyrene	1400	
91-22-5	Quinoline	360	U	56-55-3	Benzo(a)anthracene	1400	
119-65-3	Isoquinoline	360	U	218-01-9	Chrysene/Triphenylene	1300	
91-57-6	2-Methylnaphthalene	360	U	NA	Benzo(b&k)fluoranthene	NR	
120-72-9	Indole	360	U	57-97-6	7,12-Dimethylbenz(a)anthrac	360	U
90-12-0	1-Methylnaphthalene	360	U	192-97-2	Benzo(e)pyrene	830	
92-52-4	Biphenyl	360	U	50-32-8	Benzo(a)pyrene	1200	
208-96-8	Acenaphthylene	240	J	198-55-0	Perylene	270	J
83-32-9	Acenaphthene	360	U	56-49-5	3-Methylcholanthrene	360	U
132-64-9	Dibenzofuran	360	U	193-39-5	Indeno(1,2,3-cd)pyrene	740	
86-73-7	Fluorene	360	U	53-70-3	Dibenz(a,h)anthracene	340	J
132-65-0	Dibenzothiophene	360	U	191-24-2	Benzo(g,h,i,)perylene	450	
85-01-8	Phenanthrene	270	J	205-99-2	Benzo(b)fluoranthene	1500	
120-12-7	Anthracene	150	J	207-08-9	Benzo(k)fluoranthene	830	

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.

Form I

ORGANICS ANALYSIS DATA SHEET

ratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/11/92
Lab Sample ID:	21128005	Sample Matrix:	SOIL	Date Analyzed:	04/01/92
Client Sample ID:	TT-02-09	Percent Moisture:	9.0	Dilution Factor:	1.0

PHENOL COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
108-95-2	Phenol	360	U		
95-57-8	2-Chlorophenol	360	U		
95-48-7	2-Methylphenol	360	U		
106-44-5	4-Methylphenol	360	U		
88-75-5	2-Nitrophenol	360	U		
105-67-9	2,4-Dimethylphenol	360	U		
120-83-2	2,4-Dichlorophenol	360	U		
65-85-0	Benzoic acid	880	U		
59-50-7	4-Chloro-3-Methylphenol .	360	U		
88-06-2	2,4,6-Trichlorophenol . .	360	U		
-95-4	2,4,5-Trichlorophenol . .	880	U		
51-28-5	2,4-Dinitrophenol	880	U		
100-02-7	4-Nitrophenol	880	U		
534-52-1	4,6-Dinitro-2-Methylphenol	880	U		
87-86-5	Pentachlorophenol	880	U		

U - Compound analyzed for but not detected.
- Compound was detected in QC blank.
J - Reported value less than quantitation limit.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/11/92
Lab Sample ID:	21128006	Sample Matrix:	SOIL	Date Analyzed:	04/01/92
Client Sample ID:	TT-04-03	Percent Moisture:	20.0	Dilution Factor:	1.0

POLYNUCLEAR AROMATIC COMPOUNDS

CAS Number		ug/Kg		CAS Number		ug/Kg	
271-89-6	2,3-Benzofuran	410	U	260-94-6	Acridine	410	U
496-11-7	2,3-Dihydro-1h-Indene	410	U	229-87-8	Phenanthridine	99	J
95-13-6	1H-Indene	410	U	86-74-8	Carbazole	88	J
91-20-3	Naphthalene	410	U	206-44-0	Fluoranthene	1100	
95-15-8	Benzo(b)thiophene	410	U	129-00-0	Pyrene	920	
91-22-5	Quinoline	410	U	56-55-3	Benzo(a)anthracene	750	
119-65-3	Isoquinoline	410	U	218-01-9	Chrysene/Triphenylene	1200	
91-57-6	2-Methylnaphthalene	220	J	NA	Benzo(b&k)fluoranthene	NR	
120-72-9	Indole	410	U	57-97-6	7,12-Dimethylbenz(a)anthrac	410	U
90-12-0	1-Methylnaphthalene	120	J	192-97-2	Benzo(e)pyrene	830	
92-52-4	Biphenyl	48	J	50-32-8	Benzo(a)pyrene	560	
208-96-8	Acenaphthylene	160	J	198-55-0	Perylene	110	J
83-32-9	Acenaphthene	410	U	56-49-5	3-Methylcholanthrene	410	U
132-64-9	Dibenzofuran	74	J	193-39-5	Indeno(1,2,3-cd)pyrene	380	J
86-73-7	Fluorene	100	J	53-70-3	Dibenz(a,h)anthracene	250	J
132-65-0	Dibenzothiophene	70	J	191-24-2	Benzo(g,h,i,)perylene	310	J
85-01-8	Phenanthrene	1000		205-99-2	Benzo(b)fluoranthene	830	
120-12-7	Anthracene	270	J	207-08-9	Benzo(k)fluoranthene	660	

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/11/92
Lab Sample ID:	21128006	Sample Matrix:	SOIL	Date Analyzed:	04/01/92
Client Sample ID:	TT-04-03	Percent Moisture:	20.0	Dilution Factor:	1.0

PHENOL COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
108-95-2	Phenol	410	U		
95-57-8	2-Chlorophenol	410	U		
95-48-7	2-Methylphenol	120	J		
106-44-5	4-Methylphenol	280	J		
88-75-5	2-Nitrophenol	410	U		
105-67-9	2,4-Dimethylphenol	100	J		
120-83-2	2,4-Dichlorophenol	410	U		
65-85-0	Benzoic acid	340	J		
59-50-7	4-Chloro-3-Methylphenol .	410	U		
88-06-2	2,4,6-Trichlorophenol . .	410	U		
[illegible]-95-4	2,4,5-Trichlorophenol . .	1000	U		
51-28-5	2,4-Dinitrophenol	1000	U		
100-02-7	4-Nitrophenol	1000	U		
534-52-1	4,6-Dinitro-2-Methylphenol	1000	U		
87-86-5	Pentachlorophenol	1000	U		

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.

Form I

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-02

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128007

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 16 decanted: (Y/N) N Date Received: 03/07/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/28/92

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.1 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.0	U
319-85-7	beta-BHC	2.0	U
319-86-8	delta-BHC	2.0	U
58-89-9	gamma-BHC (Lindane)	2.0	U
76-44-8	Heptachlor	2.0	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	3.9	U
72-55-9	4,4'-DDE	3.9	U
72-20-8	Endrin	3.9	U
33213-65-9	Endosulfan II	3.9	U
72-54-8	4,4'-DDD	3.9	U
1031-07-8	Endosulfan sulfate	3.9	U
50-29-3	4,4'-DDT	3.9	U
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	3.9	U
7421-36-3	Endrin aldehyde	3.9	U
5103-71-9	alpha-Chlordane	2.0	U
5103-74-2	gamma-Chlordane	2.0	U
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	39	U
11104-28-2	Aroclor-1221	80	U
11141-16-5	Aroclor-1232	39	U
53469-21-9	Aroclor-1242	39	U
12672-29-6	Aroclor-1248	39	U
11097-69-1	Aroclor-1254	39	U
11096-82-5	Aroclor-1260	39	U

JMS

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

M-2

Lab Name: CH2M HILL/MGM Contract: _____

Code: CH2M Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128008

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 15 decanted: (Y/N) N Date Received: 03/07/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/28/92

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.1 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.0	U
319-85-7	beta-BHC	2.0	U
319-86-8	delta-BHC	2.0	U
58-89-9	gamma-BHC (Lindane)	2.0	U
76-44-8	Heptachlor	2.0	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	3.9	U
72-55-9	4,4'-DDE	3.9	U
72-20-8	Endrin	3.9	U
33213-65-9	Endosulfan II	3.9	U
72-54-8	4,4'-DDD	3.9	U
1031-07-8	Endosulfan sulfate	3.9	U
50-29-3	4,4'-DDT	3.9	U
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	3.9	U
7421-36-3	Endrin aldehyde	3.9	U
5103-71-9	alpha-Chlordane	2.0	U
5103-74-2	gamma-Chlordane	2.0	U
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	39	U
11104-28-2	Aroclor-1221	79	U
11141-16-5	Aroclor-1232	39	U
53469-21-9	Aroclor-1242	39	U
12672-29-6	Aroclor-1248	39	U
11097-69-1	Aroclor-1254	39	U
11096-82-5	Aroclor-1260	39	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-03

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128009

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 23 decanted: (Y/N) N Date Received: 03/07/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/28/92

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.5 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.2	U
319-85-7	beta-BHC	2.2	U
319-86-8	delta-BHC	2.2	U
58-89-9	gamma-BHC (Lindane)	2.2	U
76-44-8	Heptachlor	2.2	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
959-98-8	Endosulfan I	2.2	U
60-57-1	Dieldrin	4.3	U
72-55-9	4,4'-DDE	4.3	U
72-20-8	Endrin	4.3	U
33213-65-9	Endosulfan II	4.3	U
72-54-8	4,4'-DDD	4.3	U
1031-07-8	Endosulfan sulfate	4.3	U
50-29-3	4,4'-DDT	4.3	U
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.3	U
7421-36-3	Endrin aldehyde	4.3	U
5103-71-9	alpha-Chlordane	2.2	U
5103-74-2	gamma-Chlordane	2.2	U
8001-35-2	Toxaphene	220	U
12674-11-2	Aroclor-1016	43	U
11104-28-2	Aroclor-1221	87	U
11141-16-5	Aroclor-1232	43	U
53469-21-9	Aroclor-1242	43	U
12672-29-6	Aroclor-1248	490	
11097-69-1	Aroclor-1254	43	U
11096-82-5	Aroclor-1260	43	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-03DL

Lab Name: CH2M HILL/MGM Contract: _____

Code: CH2M Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128009DL

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 23 decanted: (Y/N) N Date Received: 03/07/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/28/92

Injection Volume: 2.00 (uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 8.5 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	22	U
319-85-7	beta-BHC	22	U
319-86-8	delta-BHC	22	U
58-89-9	gamma-BHC (Lindane)	22	U
76-44-8	Heptachlor	22	U
309-00-2	Aldrin	22	U
1024-57-3	Heptachlor epoxide	22	U
959-98-8	Endosulfan I	22	U
60-57-1	Dieldrin	43	U
72-55-9	4,4'-DDE	43	U
72-20-8	Endrin	43	U
33213-65-9	Endosulfan II	43	U
72-54-8	4,4'-DDD	43	U
1031-07-8	Endosulfan sulfate	43	U
50-29-3	4,4'-DDT	43	U
72-43-5	Methoxychlor	220	U
53494-70-5	Endrin ketone	43	U
7421-36-3	Endrin aldehyde	43	U
5103-71-9	alpha-Chlordane	22	U
5103-74-2	gamma-Chlordane	22	U
8001-35-2	Toxaphene	2200	U
12674-11-2	Aroclor-1016	430	U
11104-28-2	Aroclor-1221	870	U
11141-16-5	Aroclor-1232	430	U
53469-21-9	Aroclor-1242	430	U
12672-29-6	Aroclor-1248	540	D
11097-69-1	Aroclor-1254	430	U
11096-82-5	Aroclor-1260	430	U

FORM I PEST 3/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-04

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128010

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 16 decanted: (Y/N) N Date Received: 03/07/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/28/92

Injection Volume: 2.00 (uL) Dilution Factor: 2.00

GPC Cleanup: (Y/N) Y pH: 7.7 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	4.0	U
319-85-7	beta-BHC	4.0	U
319-86-8	delta-BHC	4.0	U
58-89-9	gamma-BHC (Lindane)	4.0	U
76-44-8	Heptachlor	4.0	U
309-00-2	Aldrin	4.0	U
1024-57-3	Heptachlor epoxide	4.0	U
959-98-8	Endosulfan I	4.0	U
60-57-1	Dieldrin	7.9	U
72-55-9	4,4'-DDE	7.9	U
72-20-8	Endrin	7.9	U
33213-65-9	Endosulfan II	7.9	U
72-54-8	4,4'-DDD	7.9	U
1031-07-8	Endosulfan sulfate	7.9	U
50-29-3	4,4'-DDT	7.9	U
72-43-5	Methoxychlor	40	U
53494-70-5	Endrin ketone	7.9	U
7421-36-3	Endrin aldehyde	7.9	U
5103-71-9	alpha-Chlordane	4.0	U
5103-74-2	gamma-Chlordane	4.0	U
8001-35-2	Toxaphene	400	U
12674-11-2	Aroclor-1016	79	U
11104-28-2	Aroclor-1221	160	U
11141-16-5	Aroclor-1232	79	U
53469-21-9	Aroclor-1242	79	U
12672-29-6	Aroclor-1248	79	U
11097-69-1	Aroclor-1254	79	U
11096-82-5	Aroclor-1260	79	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-05

Lab Name: CH2M HILL/MGM Contract: _____

Code: CH2M Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128011

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 17 decanted: (Y/N) N Date Received: 03/07/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/28/92

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 9.2 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.0	U
319-85-7	beta-BHC	2.0	U
319-86-8	delta-BHC	2.0	U
58-89-9	gamma-BHC (Lindane)	2.0	U
76-44-8	Heptachlor	2.0	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	2.0	U
959-98-8	Endosulfan I	2.0	U
60-57-1	Dieldrin	4.0	U
72-55-9	4,4'-DDE	4.0	U
72-20-8	Endrin	4.0	U
33213-65-9	Endosulfan II	4.0	U
72-54-8	4,4'-DDD	4.0	U
1031-07-8	Endosulfan sulfate	4.0	U
50-29-3	4,4'-DDT	4.0	U
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	4.0	U
7421-36-3	Endrin aldehyde	4.0	U
5103-71-9	alpha-Chlordane	2.0	U
5103-74-2	gamma-Chlordane	2.0	U
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	40	U
11104-28-2	Aroclor-1221	81	U
11141-16-5	Aroclor-1232	40	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	790	P
11097-69-1	Aroclor-1254	40	U
11096-82-5	Aroclor-1260	40	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-05DL

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21128011DL

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 17 decanted: (Y/N) N Date Received: 03/07/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/28/92

Injection Volume: 2.00 (uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 9.2 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	20	U
319-85-7	beta-BHC	20	U
319-86-8	delta-BHC	20	U
58-89-9	gamma-BHC (Lindane)	20	U
76-44-8	Heptachlor	20	U
309-00-2	Aldrin	20	U
1024-57-3	Heptachlor epoxide	20	U
959-98-8	Endosulfan I	20	U
60-57-1	Dieldrin	40	U
72-55-9	4,4'-DDE	40	U
72-20-8	Endrin	40	U
33213-65-9	Endosulfan II	40	U
72-54-8	4,4'-DDD	40	U
1031-07-8	Endosulfan sulfate	40	U
50-29-3	4,4'-DDT	40	U
72-43-5	Methoxychlor	200	U
53494-70-5	Endrin ketone	40	U
7421-36-3	Endrin aldehyde	40	U
5103-71-9	alpha-Chlordane	20	U
5103-74-2	gamma-Chlordane	20	U
8001-35-2	Toxaphene	2000	U
12674-11-2	Aroclor-1016	400	U
11104-28-2	Aroclor-1221	810	U
11141-16-5	Aroclor-1232	400	U
53469-21-9	Aroclor-1242	400	U
12672-29-6	Aroclor-1248	820	D
11097-69-1	Aroclor-1254	400	U
11096-82-5	Aroclor-1260	400	U

JMS

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Level:(low/med) LOW

	EPA SAMPLE NO.	SMC1 (TOL)#	SMC2 (BFB)#	SMC3 (DCE)#	OTHER	TOT OUT
01	M-2	110	86	105	0	0
02	SS-02	101	94	102	0	0
03	SS-03	197 *	63	95	0	1
04	SS-03_R	160 *	43 *	104	0	2
05	SS-04	173 *	51 *	105	0	2
06	SS-04_R	174 *	51 *	105	0	2
07	SS-05	126	79	101	0	0
08	TT-02-04	177 *	68	121	0	1
09	TT-02-04_R	172 *	69	118	0	1
10	VBLKS	98	90	94	0	0
11	VBLKS_2	100	87	101	0	0

		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(84-138)
SMC2 (BFB)	= Bromofluorobenzene	(59-113)
SMC3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

MS

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Level:(low/med) MED

	EPA SAMPLE NO.	SMC1 (TOL)#	SMC2 (BFB)#	SMC3 (DCE)#	OTHER	TOT OUT
01	TT-01-02	92	127 *	71	0	1
02	TT-01-02_R	92	135 *	48 *	0	2
03	VBLKSM	105	108	84	0	0

		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(84-138)
SMC2 (BFB)	= Bromofluorobenzene	(59-113)
SMC3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2D
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	S7 (2CP)#	S8 (DCB)#	TOT OUT
01	M-2	78	73	79	44	43	43	42	77	0
02	SS-02	72	69	72	41	38	37	38	71	0
03	SS-03	88	90	88	50	47	49	45	85	0
04	SS-04	76	70	74	42	40	40	40	72	0
05	SS-05	88	86	89	49	44	50	46	87	0
06	SBLKS	90	85	88	44	45	47	44	82	0
07	SBLKS_2	93	87	95	52	49	45	48	90	0

		QC LIMITS	
S1 (NBZ)	= Nitrobenzene-d5	(23-120)	
S2 (FBP)	= 2-Fluorobiphenyl	(30-115)	
S3 (TPH)	= Terphenyl-d14	(18-137)	
S4 (PHL)	= Phenol-d5	(24-113)	
S5 (2FP)	= 2-Fluorophenol	(25-121)	
S6 (TBP)	= 2,4,6-Tribromophenol	(19-122)	
S7 (2CP)	= 2-Chlorophenol-d4	(20-130)	(advisory)
S8 (DCB)	= 1,2-Dichlorobenzene-d4	(20-130)	(advisory)

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

SOIL SURROGATE PERCENT RECOVERY SUMMARY
(Page 1)

Case No. 21128 Contract Laboratory CH2M HILL/MGM
Low XXX Medium

SMO TRAFFIC NO.	SEMI-VOLATILE 1-Fluoronaphthalene - SS 0-81	2-Fluorophenol - SS 25-121	Phenol-d5 - SS 24-113	2,4,6-Tribromophenol -SS 19-122	Nitrobenzene-d5 - SS 9-197	2-Fluorobiphenyl - SS 9-109	Terphenyl-d14 - SS 0-143	2-Chlorophenol-d4 - SS 20-130	1,2-Dichlorobenzene - d4 SS 20-130
TT-01-02	**	**	**	**	**	**	**	**	**
M-1	**	**	**	**	**	**	**	**	**
TT-02-06	50	86	90	85	75	87	92	89	70
TT-02-09	40	77	81	65	64	67	62	77	62
TT-04-03	46	87	91	65	76	81	69	88	70
TT-01-02_DL	**	**	**	**	**	**	**	**	**
M-1_DL	**	**	**	**	**	**	**	**	**
TT-02-06_DL	53	86	83	90	72	82	72	84	64
SBLKS	50	88	92	76	77	77	65	93	77
TT-0206DLMS	39	65	65	68	51	57	54	63	49
TT-0206DLMSD	40	67	66	72	55	58	57	65	51

Semi-Volatiles: 0 out of 99; outside of QC limits

Comments:

** - Surrogate Standard not determined due to required dilutions.

FORM II

2F
SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: 21128 SAS No.: _____ SDG No.: _____

GC Column(1): SPB-5 ID: 0.53(mm) GC Column(2): SPB-608 ID: 0.53(mm)

	EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
01	PBLK10	90	85	81	85			0
02	M-2	90	88	78	87			0
03	SS-02	93	82	79	84			0
04	SS-03	71	72	80	72			0
05	SS-03DL	71	67	64	67			0
06	SS-04	81	75	78	79			0
07	SS-05	88	80	92	94			0
08	SS-05DL	86	72	67	85			0

	ADVISORY QC LIMITS
TCX = Tetrachloro-m-xylene	(60-150)
DCB = Decachlorobiphenyl	(60-150)

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

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL

Matrix Spike - EPA Sample No.: MS/MSD

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1H-Indene	3330	713	3285	77	10-130
Napththalene	3330	7695	9514	55	10-130
Quinoline	3330	0	1860	56	10-130
2-Methylnaphthalene	3330	1790	4501	81	10-130
Acenaphthylene	3330	2553	5294	82	10-130
Acenaphthene	3330	418	3612	96	10-130
Fluorene	3330	2305	5294	90	10-130
Phenanthrene	3330	15592	13013	0*	10-130
Anthracene	3330	4298	5939	49	10-130
Carbazole	3330	2709	5017	69	10-130
Pyrene	3330	14755	12397	0*	10-130
Fluoranthene	3330	19240	15353	0*	10-130
Benzo(a)Anthracene	3330	18465	14488	0*	10-130
Chrysene/Triphenylene	6660	23035	17797	0*	10-130
Benzo(b)Fluoranthene	3330	21742	20039	0*	10-130
Benzo(e)pyrene	3330	13579	12346	0*	10-130
Benzo(a)pyrene	3330	15101	14124	0*	10-130
Indeno(1,2,3-cd)pyrene	3330	9547	12702	95	10-130
Dibenzo(a,h)anthracene	3330	6381	8846	74	10-130
Benzo(g,h,i)perylene	3330	5597	5457	0*	10-130
Benzo(k)Fluoranthene	3330	9475	10938	44	10-130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1H-Indene	3330	3504	84	9	25	10-130
Napththalene	3330	8367	20	93*	25	10-130
Quinoline	3330	1865	56	0	25	10-130
2-Methylnaphtahlene	3330	4273	75	8	25	10-130
Acenaphthylene	3330	5246	81	1	25	10-130
Acenapthene	3330	3676	98	2	25	10-130
Fluorene	3330	4979	80	12	25	10-130
Phenanthrene	3330	11676	0*	0	25	10-130
Anthracene	3330	5545	37	28*	25	10-130
Carbazole	3330	5063	71	3	25	10-130
Pyrene	3330	10511	0*	0	25	10-130
Fluoranthene	3330	13115	0*	0	25	10-130
Benzo(a)Anthacene	3330	11168	0*	0	25	10-130
Chyrsene/Triphenylene	6660	13502	0*	0	25	10-130
Benzo(b)Fluoranthene	3330	12657	0*	0	25	10-130
Benzo(e)pyrene	3330	8750	0*	0	25	10-130
Benzo(a)pyrene	3330	9660	0*	0	25	10-130
Indeno(1,2,3-cd)pyrene	3330	6716	0*	200*	25	10-130
Dibenzo(a,h)anthracene	3330	5599	0*	200*	25	10-130
Benzo(g,h,i)perylene	3330	3972	0*	0	25	10-130
Benzo(k)Fluoranthene	3330	8182	0*	200*	25	10-130

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

* Values outside of QC limits

RPD: 5 out of 21 outside limits

Spike Recovery: 21 out of 42 outside limits

FORM III SV-1

MLx

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/MGM Contract:

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix Spike - EPA Sample No.: TT-02-06 DL Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
Phenol	6660	0	7499	113 *	26- 90
2-Chlorophenol	6660	0	7317	110 *	25-102
4-Chloro-3-methylphenol	6660	0	6566	99	26-103
4-Nitrophenol	6660	0	5894	89	11-114
Pentachlorophenol	6660	0	5981	90	17-109

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	6660	8108	122*	8	35	26- 90
2-Chlorophenol	6660	7645	115*	4	50	25-102
4-Chloro-3-methylphenol	6660	6728	101	3	33	26-103
4-Nitrophenol	6660	6721	101	13	50	11-114
Pentachlorophenol	6660	6311	95	6	47	17-109

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 10 outside limits
Spike Recovery: 4 out of 10 outside limits

COMMENTS: CLP,21128,,TT-02-06,L,S,21128004,B,EPA,
30DG TO 310DG @10DG/MIN IH=4MINS

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKS

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Lab File ID: CBVO020947 Lab Sample ID: Y03122B1

Date Analyzed: 03/12/92 Time Analyzed: 0927

GC Column: CAP ID: 0.530(mm) Heated Purge: (Y/N) Y

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	M-2	21128008	C1VO020957	1552
02	SS-02	21128007	C1VO020956	1518
03	SS-03	21128009	C1VO020958	1626
04	SS-03_R	21128009R	C1VO020962	1902
05	SS-04	21128010	C1VO020959	1700
06	SS-05	21128011	C1VO020960	1733
07	TT-02-04	21128003	C1VO020955	1443
08	TT-02-04_R	21128003R	C2VO020961	1812

COMMENTS: CLP,21128,,VBLKS,L,S,Y03122B1,V,B,
10DG TO 160DG @4DG/MIN IH=7MIN

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKS

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: Y03122B1

Sample wt/vol: 5.0 (g/mL) G Lab File ID: CBVO020947

Level: (low/med) LOW Date Received: 03/12/92

% Moisture: not dec. 0 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKS

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: Y03122B1

Sample wt/vol: 5.0 (g/mL) G Lab File ID: CBV0020947

Level: (low/med) LOW Date Received: 03/12/92

% Moisture: not dec. 0 Date Analyzed: 03/12/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKS_2

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Lab File ID: CBV0020988 Lab Sample ID: Y03162B1

Date Analyzed: 03/16/92 Time Analyzed: 1622

GC Column: CAP ID: 0.530(mm) Heated Purge: (Y/N) Y

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	SS-04_R	21128010R	C3V0021005	0212

COMMENTS: CLP,21136,,VBLKS,L,S,Y03162B1,V,BLANK,
10DG TO 200 DG @8DG/MIN IH=3MIN

MSC

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKS_2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: Y03162B1

Sample wt/vol: 5.0 (g/mL) G Lab File ID: CBVO020988

Level: (low/med) LOW Date Received: 03/16/92

% Moisture: not dec. 0 Date Analyzed: 03/16/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKS_2

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: Y03162B1

Sample wt/vol: 5.0 (g/mL) G Lab File ID: CBV0020988

Level: (low/med) LOW Date Received: 03/16/92

% Moisture: not dec. 0 Date Analyzed: 03/16/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKSM

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Lab File ID: BBVM014617 Lab Sample ID: L03192B1

Date Analyzed: 03/19/92 Time Analyzed: 2004

GC Column: CAP ID: 0.530(mm) Heated Purge: (Y/N) N

Instrument ID: 5100B

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	TT-01-02	21128001	B1VM014621	2227
02	TT-01-02_R	21128001R	B2VM014625	0043

COMMENTS: CLP,21200,,VBLKS,M,S,L03192B1,V,BLANK,
10DG TO 200DG @8DG/MIN IH=3MIN

FORM IV VOA

3/90

µ5

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKSM

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: L03192B1

Sample wt/vol: 4.0 (g/mL) G Lab File ID: BBVM014617

Level: (low/med) MED Date Received: 03/19/92

% Moisture: not dec. 0 Date Analyzed: 03/19/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1200	U
74-83-9	Bromomethane	1200	U
75-01-4	Vinyl Chloride	1200	U
75-00-3	Chloroethane	1200	U
75-09-2	Methylene Chloride	170	J
67-64-1	Acetone	1200	U
75-15-0	Carbon Disulfide	1200	U
75-35-4	1,1-Dichloroethene	1200	U
75-34-3	1,1-Dichloroethane	1200	U
540-59-0	1,2-Dichloroethene (total)	1200	U
67-66-3	Chloroform	350	J
107-06-2	1,2-Dichloroethane	1200	U
78-93-3	2-Butanone	1200	U
71-55-6	1,1,1-Trichloroethane	1200	U
56-23-5	Carbon Tetrachloride	1200	U
75-27-4	Bromodichloromethane	1200	U
78-87-5	1,2-Dichloropropane	1200	U
10061-01-5	cis-1,3-Dichloropropene	1200	U
79-01-6	Trichloroethene	1200	U
124-48-1	Dibromochloromethane	1200	U
79-00-5	1,1,2-Trichloroethane	1200	U
71-43-2	Benzene	1200	U
10061-02-6	trans-1,3-Dichloropropene	1200	U
75-25-2	Bromoform	1200	U
591-78-6	2-Hexanone	1200	U
108-10-1	4-Methyl-2-Pentanone	1200	U
127-18-4	Tetrachloroethene	1200	U
79-34-5	1,1,2,2-Tetrachloroethane	1200	U
108-88-3	Toluene	1200	U
108-90-7	Chlorobenzene	1200	U
100-41-4	Ethylbenzene	1200	U
100-42-5	Styrene	1200	U
1330-20-7	Xylene (total)	1200	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKSM

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: L03192B1

Sample wt/vol: 4.0 (g/mL) G Lab File ID: BBVM014617

Level: (low/med) MED Date Received: 03/19/92

% Moisture: not dec. 0 Date Analyzed: 03/19/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: 10000 (uL) Soil Aliquot Volume: 100 (uL)

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLKS

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Lab File ID: ABBA013471 Lab Sample ID: S03102B1

Instrument ID: 4000 Date Extracted: 03/10/92

Matrix: (soil/water) SOIL Date Analyzed: 03/27/92

Level:(low/med) LOW Time Analyzed: 1737

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	M-2	21128008	A2BA013509	03/31/92
02	SS-02	21128007	A2BA013508	03/31/92
03	SS-04	21128010	A2BA013510	03/31/92
04	SS-05	21128011	A2BA013488	03/30/92

COMMENTS: CLP,21107,,SBLKS,L,S,S03102B1,BNA,BLANK,
20DG TO 310DG @4DG/MIN IH=10MIN

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKS

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: S03102B1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ABBA013471

Level: (low/med) LOW Date Received: 03/10/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-Di-n-Propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
111-91-1	bis(2-Chloroethoxy)Methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-Methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	800	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	800	U
131-11-3	Dimethylphthalate	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	330	U
99-09-2	3-Nitroaniline	800	U
83-32-9	Acenaphthene	330	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKS

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: S03102B1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ABBA013471

Level: (low/med) LOW Date Received: 03/10/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	800	U
100-02-7	4-Nitrophenol	800	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-10-6	4-Nitroaniline	800	U
534-52-1	4,6-Dinitro-2-methylphenol	800	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	800	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
86-74-8	Carbazole	330	U
84-74-2	Di-n-Butylphthalate	190	J
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	330	U
56-55-3	Benzo(a)Anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)Phthalate	96	J
117-84-0	Di-n-Octyl Phthalate	330	U
205-99-2	Benzo(b)Fluoranthene	330	U
207-08-9	Benzo(k)Fluoranthene	330	U
50-32-8	Benzo(a)Pyrene	330	U
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U
53-70-3	Dibenz(a,h)Anthracene	330	U
191-24-2	Benzo(g,h,i)Perylene	330	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SBLKS

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: S03102B1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ABBA013471

Level: (low/med) LOW Date Received: 03/10/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 03/10/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 9

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	NOT IDENTIFIED	4.18	130	J
2. 4305-26-4	2-HEXANONE, 6-(ACETYLOXY)-	7.13	330	J
3. 3240-09-3	5-HEXEN-2-ONE, 5-METHYL-	8.07	200	J
4. 17851-53-5	1,2-BENZENEDICARBOXYLIC ACID	22.75	220	J
5. 57-10-3	HEXADECANOIC ACID	23.79	150	J
6. 10544-50-0	SULFUR, MOL. (S8)	24.95	1800	J
7. 4337-65-9	HEXANEDIOIC ACID, MONO(2-ETH	28.49	1500	J
8.	NOT IDENTIFIED	5.28	13000	J
9.	NOT IDENTIFIED	4.37	390	J

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLKS_2

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Lab File ID: ABBA013485 Lab Sample ID: S03112B1

Instrument ID: 4000 Date Extracted: 03/11/92

Matrix: (soil/water) SOIL Date Analyzed: 03/30/92

Level:(low/med) LOW Time Analyzed: 1419

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	SS-03	21128009	A1BA013487	03/30/92

COMMENTS: CLP,21136,,SBLKS,L,S,S03112B1,B,BLANK,
20DG TO 310DG @4DG/MIN IH=10MIN

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKS_2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: S03112B1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ABBA013485

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-Di-n-Propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
111-91-1	bis(2-Chloroethoxy)Methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-Methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	800	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	800	U
131-11-3	Dimethylphthalate	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	330	U
99-09-2	3-Nitroaniline	800	U
83-32-9	Acenaphthene	330	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKS_2

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: S03112B1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ABBA013485

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	800	U
100-02-7	4-Nitrophenol	800	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-10-6	4-Nitroaniline	800	U
534-52-1	4,6-Dinitro-2-methylphenol	800	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	800	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
86-74-8	Carbazole	330	U
84-74-2	Di-n-Butylphthalate	100	J
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	330	U
56-55-3	Benzo(a)Anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)Phthalate	330	U
117-84-0	Di-n-Octyl Phthalate	330	U
205-99-2	Benzo(b)Fluoranthene	330	U
207-08-9	Benzo(k)Fluoranthene	330	U
50-32-8	Benzo(a)Pyrene	330	U
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U
53-70-3	Dibenz(a,h)Anthracene	330	U
191-24-2	Benzo(g,h,i)Perylene	330	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SBLKS_2

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: S03112B1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ABBA013485

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 8

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	NOT IDENTIFIED	7.07	480	J
2. 112-36-7	ETHANE, 1,1'-OXYBIS[2-ETHOXY	9.17	260	J
3. 541-02-6	CYCLOPENTASILOXANE, DECAMETH	12.00	360	J
4. 17851-53-5	1,2-BENZENEDICARBOXYLIC ACID	22.69	250	J
5. 57-10-3	HEXADECANOIC ACID	23.72	93	J
6.	NOT IDENTIFIED	4.08	740	J
7.	NOT IDENTIFIED	5.17	17000	J
8. 20019-64-1	2(5H)-FURANONE, 5,5-DIMETHYL	7.98	420	J

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLKS

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Lab File ID: DBPA010343 Lab Sample ID: S03112B1

Instrument ID: 5100D Date Extracted: 03/11/92

Matrix: (soil/water) SOIL Date Analyzed: 04/01/92

Level:(low/med) LOW Time Analyzed: 0832

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	M-1	21128002	D1PA010345	04/01/92
02	M-1_DL	21128002DL	D2PA010350	04/01/92
03	TT-01-02	21128001	D1PA010344	04/01/92
04	TT-01-02_DL	21128001DL	D2PA010349	04/01/92
05	TT-02-06	21128004	D1PA010346	04/01/92
06	TT-02-06_DL	21128004DL	D2PA010351	04/01/92
07	TT-02-09	21128005	D1PA010347	04/01/92
08	TT-04-03	21128006	D1PA010348	04/01/92
09	TT-0206DLMS	21128M04	DMPA010355	04/01/92
10	TT-0206DLMSD	21128D04	DMPA010356	04/01/92

COMMENTS: CLP,21128,,SBLKS,L,S,S03112B1,B,BLANK,
30DG TO 310DG @10DG/MIN IH=4MINS

FORM IV SV

3/90

ORGANICS ANALYSIS DATA SHEET

Laboratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/11/92
Lab Sample ID:	S03112B1	Sample Matrix:	SOIL	Date Analyzed:	04/01/92
Client Sample ID:	SBLKS	Percent Moisture:	0.0	Dilution Factor:	1.0

POLYNUCLEAR AROMATIC COMPOUNDS

CAS Number		ug/Kg		CAS Number		ug/Kg	
271-89-6	2,3-Benzofuran	330	U	260-94-6	Acridine	330	U
496-11-7	2,3-Dihydro-1h-Indene	330	U	229-87-8	Phenanthridine	330	U
95-13-6	1H-Indene	330	U	86-74-8	Carbazole	330	U
91-20-3	Naphthalene	330	U	206-44-0	Fluoranthene	330	U
95-15-8	Benzo(b)thiophene	330	U	129-00-0	Pyrene	330	U
91-22-5	Quinoline	330	U	56-55-3	Benzo(a)anthracene	330	U
119-65-3	Isoquinoline	330	U	218-01-9	Chrysene/Triphenylene	330	U
91-57-6	2-Methylnaphthalene	330	U	NA	Benzo(b&k)fluoranthene	NR	
120-72-9	Indole	330	U	57-97-6	7,12-Dimethylbenz(a)anthrac	330	U
90-12-0	1-Methylnaphthalene	330	U	192-97-2	Benzo(e)pyrene	330	U
92-52-4	Biphenyl	330	U	50-32-8	Benzo(a)pyrene	330	U
208-96-8	Acenaphthylene	330	U	198-55-0	Perylene	330	U
83-32-9	Acenaphthene	330	U	56-49-5	3-Methylcholanthrene	330	U
132-64-9	Dibenzofuran	330	U	193-39-5	Indeno(1,2,3-cd)pyrene	330	U
86-73-7	Fluorene	330	U	53-70-3	Dibenz(a,h)anthracene	330	U
132-65-0	Dibenzothiophene	330	U	191-24-2	Benzo(g,h,i,)perylene	330	U
85-01-8	Phenanthrene	330	U	205-99-2	Benzo(b)fluoranthene	330	U
120-12-7	Anthracene	330	U	207-08-9	Benzo(k)fluoranthene	330	U

U - Compound analyzed for but not detected.
B - Compound was detected in QC blank.
J - Reported value less than quantitation limit.

Form I

μgx

ORGANICS ANALYSIS DATA SHEET

›ratory Name:	CH2M HILL/MGM	Concentration:	LOW	Date Extracted:	03/11/92
Lab Sample ID:	S03112B1	Sample Matrix:	SOIL	Date Analyzed:	04/01/92
Client Sample ID:	SBLKS	Percent Moisture:	0.0	Dilution Factor:	1.0

PHENOL COMPOUNDS

CAS Number		ug/Kg		CAS Number	ug/Kg
108-95-2	Phenol	330	U		
95-57-8	2-Chlorophenol	330	U		
95-48-7	2-Methylphenol	330	U		
106-44-5	4-Methylphenol	330	U		
88-75-5	2-Nitrophenol	330	U		
105-67-9	2,4-Dimethylphenol	330	U		
120-83-2	2,4-Dichlorophenol	330	U		
65-85-0	Benzoic acid	800	U		
59-50-7	4-Chloro-3-Methylphenol .	330	U		
[illegible]-06-2	2,4,6-Trichlorophenol . .	330	U		
[illegible]-95-4	2,4,5-Trichlorophenol . .	800	U		
51-28-5	2,4-Dinitrophenol	800	U		
100-02-7	4-Nitrophenol	800	U		
534-52-1	4,6-Dinitro-2-Methylphenol	800	U		
87-86-5	Pentachlorophenol	800	U		

U - Compound analyzed for but not detected.
[illegible] - Compound was detected in QC blank.
[illegible]J - Reported value less than quantitation limit.

Form I

Mer

4C
PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PBLK10

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: 21128 SAS No.: _____ SDG No.: _____

Lab Sample ID: S03102B1 Lab File ID: _____

Matrix:(soil/water) SOIL Extraction:(SepF/Cont/Sonc) SONC

Sulfur Cleanup: (Y/N) Y Date Extracted: 03/10/92

Date Analyzed (1): 03/27/92 Date Analyzed (2): 03/27/92

Time Analyzed (1): 1431 Time Analyzed (2): 1431

Instrument ID (1): V6000A Instrument ID (2): V6000B

GC Column (1): SPB-5 ID: 0.53 (mm) GC Column (2): SPB-608 ID: 0.53 (mm)

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

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	M-2	21128008	03/28/92	03/28/92
02	SS-02	21128007	03/28/92	03/28/92
03	SS-03	21128009	03/28/92	03/28/92
04	SS-03DL	21128009DL	03/28/92	03/28/92
05	SS-04	21128010	03/28/92	03/28/92
06	SS-05	21128011	03/28/92	03/28/92
07	SS-05DL	21128011DL	03/28/92	03/28/92

COMMENTS:

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLK10

Lab Name: CH2M HILL/MGM Contract: _____

Code: CH2M Case No.: 21128 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: S03102B1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

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

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/10/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/27/92

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.0 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.7	U
319-85-7	beta-BHC	1.7	U
319-86-8	delta-BHC	1.7	U
58-89-9	gamma-BHC (Lindane)	1.7	U
76-44-8	Heptachlor	1.7	U
309-00-2	Aldrin	1.7	U
1024-57-3	Heptachlor epoxide	1.7	U
959-98-8	Endosulfan I	1.7	U
60-57-1	Dieldrin	3.3	U
72-55-9	4,4'-DDE	3.3	U
72-20-8	Endrin	3.3	U
33213-65-9	Endosulfan II	3.3	U
72-54-8	4,4'-DDD	3.3	U
1031-07-8	Endosulfan sulfate	3.3	U
50-29-3	4,4'-DDT	3.3	U
72-43-5	Methoxychlor	17	U
53494-70-5	Endrin ketone	3.3	U
7421-36-3	Endrin aldehyde	3.3	U
5103-71-9	alpha-Chlordane	1.7	U
5103-74-2	gamma-Chlordane	1.7	U
8001-35-2	Toxaphene	170	U
12674-11-2	Aroclor-1016	33	U
11104-28-2	Aroclor-1221	67	U
11141-16-5	Aroclor-1232	33	U
53469-21-9	Aroclor-1242	33	U
12672-29-6	Aroclor-1248	33	U
11097-69-1	Aroclor-1254	33	U
11096-82-5	Aroclor-1260	33	U

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): CSV0020945 Date Analyzed: 03/12/92

Instrument ID: 4500 Time Analyzed: 0810

GC Column: CAP ID: 0.530(mm) Heated Purge: (Y/N) Y

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	56481	10.95	208995	12.47	197910	17.37
	UPPER LIMIT	112962	11.45	417990	12.97	395820	17.87
	LOWER LIMIT	28240	10.45	104498	11.97	98955	16.87
	EPA SAMPLE NO.						
01	M-2	55284	10.94	207899	12.45	143509	17.35
02	SS-02	60526	10.84	243597	12.39	190312	17.34
03	SS-03	27120 *	10.94	39088 *	12.45	12125 *	17.34
04	SS-03_R	31984	10.87	77721 *	12.42	35068 *	17.35
05	SS-04	35603	10.95	108209	12.47	40365 *	17.34
06	SS-05	45671	10.94	181527	12.45	102214	17.35
07	TT-02-04	12241 *	10.97	54620 *	12.47	21986 *	17.35
08	TT-02-04_R	19274 *	10.90	85371 *	12.44	31222 *	17.35
09	VBLKS	48166	10.95	173093	12.47	139041	17.35

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

MSL

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

J-- Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): CSV0020987 Date Analyzed: 03/16/92

Instrument ID: 4500 Time Analyzed: 1519

GC Column: CAP ID: 0.530(mm) Heated Purge: (Y/N) Y

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	52743	10.94	225241	12.45	179698	17.35
	UPPER LIMIT	105486	11.44	450482	12.95	359396	17.85
	LOWER LIMIT	26372	10.44	112620	11.95	89849	16.85
	EPA SAMPLE NO.						
01	SS-04_R	22219 *	10.92	68370 *	12.45	25280 *	17.35
02	VBLKS_2	45285	10.87	168339	12.40	139639	17.32

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

MSe

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): BSVM014609 Date Analyzed: 03/19/92

Instrument ID: 5100B Time Analyzed: 1521

GC Column: CAP ID: 0.530(mm) Heated Purge: (Y/N) N

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	32169	10.00	141800	11.52	121331	16.39
	UPPER LIMIT	64338	10.50	283600	12.02	242662	16.89
	LOWER LIMIT	16084	9.50	70900	11.02	60666	15.89
	EPA SAMPLE NO.						
01	TT-01-02	21973	10.02	92615	11.54	81970	16.40
02	TT-01-02_R	18613	10.05	81624	11.54	66900	16.40
03	VBLKSM	32209	10.02	135685	11.54	115126	16.39

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): ASBA013470 Date Analyzed: 03/27/92

Instrument ID: 4000 Time Analyzed: 1657

	IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
12 HOUR STD	15230	9.17	63301	12.55	32517	17.47
UPPER LIMIT	30460	9.67	126602	13.05	65034	17.97
LOWER LIMIT	7615	8.67	31650	12.05	16258	16.97
EPA SAMPLE NO.						
01 SBLKS	15191	9.20	61902	12.59	32306	17.50

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): ASBA013470 Date Analyzed: 03/27/92

Instrument ID: 4000 Time Analyzed: 1657

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	12 HOUR STD	45103	21.60	36385	29.24	35036	33.07
	UPPER LIMIT	90206	22.10	72770	29.74	70072	33.57
	LOWER LIMIT	22552	21.10	18192	28.74	17518	32.57
	EPA SAMPLE NO.						
01	SBLKS	44136	21.64	36247	29.29	35881	33.12

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): ASBA013484 Date Analyzed: 03/30/92

Instrument ID: 4000 Time Analyzed: 1329

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	12 HOUR STD	18066	9.09	69081	12.45	32510	17.34
	UPPER LIMIT	36132	9.59	138162	12.95	65020	17.84
	LOWER LIMIT	9033	8.59	34540	11.95	16255	16.84
	EPA SAMPLE NO.						
01	SS-03	13813	9.20	58449	12.54	28659	17.45
02	SS-05	14809	9.09	65034	12.45	32715	17.35
03	SBLKS_2	13987	9.10	57773	12.50	30655	17.44

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): ASBA013484 Date Analyzed: 03/30/92

Instrument ID: 4000 Time Analyzed: 1329

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	12 HOUR STD	45087	21.47	39029	29.09	37910	32.94
	UPPER LIMIT	90174	21.97	78058	29.59	75820	33.44
	LOWER LIMIT	22544	20.97	19514	28.59	18955	32.44
	EPA SAMPLE NO.						
01	SS-03	38986	21.59	36857	29.24	35422	33.12
02	SS-05	45201	21.49	38741	29.16	38064	33.01
03	SBLKS_2	42038	21.57	35934	29.19	35199	33.04

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): ASBA013507 Date Analyzed: 03/31/92

Instrument ID: 4000 Time Analyzed: 1117

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	12 HOUR STD	16327	9.04	64508	12.40	30937	17.30
	UPPER LIMIT	32654	9.54	129016	12.90	61874	17.80
	LOWER LIMIT	8164	8.54	32254	11.90	15468	16.80
	EPA SAMPLE NO.						
01	M-2	15192	9.05	68700	12.40	36887	17.29
02	SS-02	17415	8.99	77285	12.39	39881	17.30
03	SS-04	17016	9.02	75801	12.39	40737	17.29

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: S21128 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): ASBA013507 Date Analyzed: 03/31/92

Instrument ID: 4000 Time Analyzed: 1117

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	12 HOUR STD	45685	21.42	41870	29.06	40938	32.91
	UPPER LIMIT	91370	21.92	83740	29.56	81876	33.41
	LOWER LIMIT	22842	20.92	20935	28.56	20469	32.41
	EPA SAMPLE NO.						
01	M-2	52782	21.40	47723	29.06	47183	32.89
02	SS-02	55673	21.44	51371	29.07	51567	32.92
03	SS-04	55100	21.42	50577	29.07	48810	32.92

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): DSPA010342 Date Analyzed: 04/01/92

Instrument ID: 5100D Time Analyzed: 0749

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	12 HOUR STD	11687	10.02	44656	12.90	29501	17.20
	UPPER LIMIT	23374	10.52	89312	13.40	59002	17.70
	LOWER LIMIT	5844	9.52	22328	12.40	14750	16.70
	EPA SAMPLE NO.						
01	M-1	15520	9.99	60237	12.92	38260	17.20
02	M-1_DL	16418	10.07	57118	12.92	33084	17.19
03	TT-01-02	13549	10.04	53911	12.95	37091	17.24
04	TT-01-02_DL	19783	10.00	65710	12.90	37608	17.17
05	TT-02-06	16209	10.07	65681	12.94	40274	17.19
06	TT-02-06_DL	17086	9.99	62277	12.89	38018	17.17
07	TT-02-09	14069	10.04	57758	12.92	35789	17.19
08	TT-04-03	14670	9.97	58330	12.84	34126	17.12
09	TT-0206DLMS	15241	10.09	59269	12.94	38961	17.19
10	TT-0206DLMSD	16197	10.09	61880	12.92	39842	17.19
11	SBLKS	11556	10.00	48732	12.90	33436	17.22

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21128 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): DSPA010342 Date Analyzed: 04/01/92

Instrument ID: 5100D Time Analyzed: 0749

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	12 HOUR STD	47290	20.85	48066	27.64	53801	31.04
	UPPER LIMIT	94580	21.35	96132	28.14	107602	31.54
	LOWER LIMIT	23645	20.35	24033	27.14	26900	30.54
	EPA SAMPLE NO.						
01	M-1	62884	20.85	71259	27.62	75670	31.04
02	M-1_DL	55506	20.82	63523	27.59	61487	31.01
03	TT-01-02	62287	20.89	65332	27.64	75960	31.04
04	TT-01-02_DL	63531	20.82	64482	27.57	62402	31.01
05	TT-02-06	65248	20.87	53141	27.72	59308	31.19
06	TT-02-06_DL	61898	20.84	62248	27.62	68276	31.07
07	TT-02-09	58845	20.84	54895	27.62	61253	31.06
08	TT-04-03	51563	20.77	55502	27.59	60490	31.06
09	TT-0206DLMS	63643	20.84	67838	27.62	57974	30.96
10	TT-0206DLMSD	63007	20.84	64684	27.62	68625	31.06
11	SBLKS	58977	20.87	64459	27.62	67701	31.02

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

SAMPLE DATA PACKAGE

SAMPLE DATA PACKAGE

CASE NARRATIVE

Engineers
Planners
CH2M HILL Economists
Scientists

CASE NARRATIVE FOR VOLATILE MASS SPECTROMETRY SAMPLES

LABORATORY: CH2M HILL LABORATORIES CLIENT: BARR ENGINEERING

CASE NO. : N/A CONTRACT NO.: N/A

LAB NO. : 21128 SDG NO.: N/A

I. RECEIPT

A. DATE: March 7, 1992

B. SAMPLE INFORMATION

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
21128001	TT-01-02	SOIL	03/06/92	03/11/92	03/19/92
21128001R	TT-01-02_R	SOIL	03/06/92	03/11/92	03/20/92
21128003	TT-02-04	SOIL	03/05/92	NA	03/12/92
21128003R	TT-02-04_R	SOIL	03/05/92	NA	03/12/92
21128007	SS-02	SOIL	03/06/92	NA	03/12/92
21128008	M-2	SOIL	03/06/92	NA	03/12/92
21128009	SS-03	SOIL	03/06/92	NA	03/12/92
21128009R	SS-03_R	SOIL	03/06/92	NA	03/12/92
21128010	SS-04	SOIL	03/06/92	NA	03/12/92
21128010R	SS-04_R	SOIL	03/06/92	NA	03/17/92
21128011	SS-05	SOIL	03/06/92	NA	03/12/92
Y03122B1	VBLKS	SOIL	NA	NA	03/12/92
Y03162B1	VBLKS_2	SOIL	NA	NA	03/16/92
L03192B1	VBLKSM	SOIL	NA	NA	03/19/92

C. Documentation
Exceptions : No exceptions were encountered.

II. EXTRACTION

A. Holding Times: All holding times were met. Samples 21128001 (TT-01-02) and 21128001R (TT-01-02 R) were analyzed using medium level protocols.

B. Extraction
Exceptions : No exceptions were encountered.

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III. ANALYSIS

A. Holding times: All holding times were met.

B. Analytical Exceptions : The original analysis of samples 21128003 (TT-02-04), 21128009 (SS-03), and 21128010 (SS-04) showed the absolute response of the internal standards outside QC limits. The samples were reanalyzed with similar results. Therefore, these problems may possibly be due to a matrix effect. The results of both analyses have been reported.

No other exceptions were encountered.

IV. QUALITY CONTROL

A. Method Blank : All associated method blanks met acceptable QC criteria.

B. Surrogate Recoveries : The original analysis of samples 21128001 (TT-01-02), 21128003 (TT-02-)4), 21128009 (SS-03), and 21128010 (SS-04) showed surrogate recoveries outside QC limits. The samples were reanalyzed with similar results. Therefore, these problems may possibly be due to a matrix effect. The results of both analyses have been reported.

All other samples met acceptable QC limits.

C. Matrix Spike Results : The native sample, matrix spike, and matrix spike duplicate results are contained within other batches of samples. The results for samples 21128003 and 21128007 through 21128011 will be reported with the results of our laboratory contract number 21107. The results for sample 21128001 will be reported with the results of our laboratory contract number 21200.

Please note that Forms II, IV, V, and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to CH2M HILL identification numbers.

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 floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Herb Kelly 4/3/92

Herb Kelly Date
Manager, Organic Division

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Engineers
Planners
CH2M HILL Economists
Scientists

METHYLENE CHLORIDE/ACETONE SUMMARY

Due to the level of target compounds, the following samples required large dilutions for analysis. As required by the Statement of Work, these dilution factors have been applied, without background subtraction, to all detected compounds, particularly methylene chloride and acetone. As methylene chloride and acetone are common laboratory contaminants, the following table is being provided to present a more accurate perspective of these compounds. Included in the table is 1) the amount of methylene chloride and acetone, detected at the instrument, prior to multiplication by the dilution factor; and 2) the amount of methylene chloride and acetone for that particular sample's laboratory method blank.

SAMPLE	METHYLENE CHLORIDE	ACETONE	METHOD BLANK	METHYLENE CHLORIDE	ACETONE
21128001	5 ug/Kg	10 U	L03192B2	1 ug/Kg	10 U
21128001R	9 ug/Kg	10 U	L03192B2	1 ug/Kg	10 U

000117

Engineers
Planners
Economists
Scientists

CASE NARRATIVE FOR SEMIVOLATILE MASS SPECTROMETRY SAMPLES

LABORATORY: CH2M HILL LABORATORIES CLIENT: BARR ENGINEERING

CASE NO. : N/A CONTRACT NO.: N/A

LAB NO. : 21128 SDG NO.: N/A

I. RECEIPT

A. DATE: March 7, 1992

B. SAMPLE INFORMATION

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
21128007	SS-02	SOIL	03/06/92	03/10/92	03/31/92
21128008	M-2	SOIL	03/06/92	03/10/92	03/31/92
21128009	SS-03	SOIL	03/06/92	03/11/92	03/30/92
21128010	SS-04	SOIL	03/06/92	03/10/92	03/31/92
21128011	SS-05	SOIL	03/06/92	03/10/92	03/30/92
S03102B1	SBLKS	SOIL	03/06/92	03/10/92	03/27/92
S03112B1	SBLKS_2	SOIL	NA	03/11/92	03/30/92

C. Documentation

Exceptions : No exceptions were encountered.

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II. EXTRACTION

A. Holding Times: All holding times were met.

B. Extraction Exceptions : No exceptions were encountered.

III. ANALYSIS

A. Holding times: All holding times were met.

B. Analytical Exceptions : No exceptions were encountered.

IV. QUALITY CONTROL

A. Method Blank : All associated method blanks met acceptable QC criteria.

B. Surrogate Recoveries : All samples met acceptable QC limits.

C. Matrix Spike Results : The native sample, matrix spike, and matrix spike duplicate results are contained within another batch of samples. The results will be reported with the results of our laboratory contract number 21107.

Please note that Forms II, IV, V, and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to CH2M HILL identification numbers.

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 floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Herb Kelly 4/3/92

Herb Kelly Date
Manager, Organic Division

CH2M HILL Quality Analytical Laboratories 2567 Fairlane Drive, P O Box 230548, Montgomery, Alabama 36116 205 271 1444

Engineers
Planners
CH2M HILL Economists
Scientists

CASE NARRATIVE FOR PNA/PHENOL MASS SPECTROMETRY SAMPLES

LABORATORY: CH2M HILL LABORATORIES CLIENT: BARR ENGINEERING

CASE NO. : N/A CONTRACT NO.: N/A

LAB NO. : 21128 SDG NO.: N/A

I. RECEIPT

A. DATE: March 7, 1992

B. SAMPLE INFORMATION

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
21128001	TT-01-02	SOIL	03/06/92	03/11/92	04/01/92
21128001DL	TT-01-02_DL	SOIL	03/06/92	03/11/92	04/01/92
21128002	M-1	SOIL	03/06/92	03/11/92	04/01/92
21128002DL	M-1_DL	SOIL	03/06/92	03/11/92	04/01/92
21128004	TT-02-06	SOIL	03/05/92	03/11/92	04/01/92
21128004DL	TT-02-06_DL	SOIL	03/05/92	03/11/92	04/01/92
21128005	TT-02-09	SOIL	03/05/92	03/11/92	04/01/92
21128006	TT-04-03	SOIL	03/05/92	03/11/92	04/01/92
21128M04	TT-020DLMS	SOIL	03/05/92	03/11/92	04/01/92
21128D04	TT-020DLMSD	SOIL	03/05/92	03/11/92	04/01/92
S03112B1	SBLKS	SOIL	NA	03/11/92	04/01/92

C. Documentation

Exceptions : Tentatively Identified Compounds were not requested as part of the analysis. Therefore, these forms will not be included.

As you have requested, Benzo(b)fluoranthene and Benzo(k)fluoranthene will be reported separately. Due to the low concentrations analyzed for, there may be instances where the native matrix offers chromatographic interferences in this region of the chromatogram, making it difficult to correctly quantitate these isomers as separate compounds. In that case, Benzo(b)fluoranthene and Benzo(k)fluoranthene will be reported as total Benzo(b&k)fluoranthene. An "NR" (not reported) qualifier will then be used for the compounds for which are not reported.

No exceptions were encountered.

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II. EXTRACTION

A. Holding Times: All holding times were met.

B. Extraction Exceptions : No exceptions were encountered.

III. ANALYSIS

A. Holding times: All holding times were met.

B. Analytical Exceptions : The original analysis of samples 21128001 (TT-01-02) and 21128002 (M-1) showed naphthalene present above the calibration range. The analyses also showed the quantitation ion (mz 128) for naphthalene saturated. The quantitated amount of naphthalene present in these samples was determined by using a secondary ion (mz 102) quantitation. A chromatogram demonstrating the saturation has been included with each sample as well as the calculation used to determine the amount of naphthalene present in each sample. Both samples were diluted and reanalyzed. The results of both analyses have been reported.

The original analysis of sample 21128004 (TT-02-06) showed poor resolution between Benzo(b)fluoranthene and Benzo(k)fluoranthene. The sample was diluted and reanalyzed with acceptable resolution between Benzo(b)flouoranthene and Benzo(k)fluoranthene. The results of both analysis have been reported.

No other exceptions were encountered.

IV. QUALITY CONTROL

A. Method Blank : All associated method blanks met acceptable QC criteria.

B. Surrogate Recoveries : Samples 21128001 (TT-01-02), 21128001DL (TT-01-02 DL), 21128002 (M-1), and 21128002DL (M-1 DL) required a large dilution for analysis. Therefore, surrogate recoveries could not be determined for these samples.

All other samples met acceptable QC limits.

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C. Matrix Spike
Results : Please note that several spike compounds failed to meet acceptable percent recovery and relative percent difference QC limits in samples 21128M04 (TT-0206DLMS) and 21128D04 (TT-0206 DLMSD). This may possibly be due to the high level of spike compounds present in the native sample. Since these limits are advisory only, the laboratory took no further action.

Please note that Forms II, IV, V, and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to CH2M HILL identification numbers.

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 floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Herb Kelly 4/3/92
Herb Kelly Date
Manager, Organic Division

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CASE NARRATIVE FOR PESTICIDE/PCB GAS CHROMATOGRAPHY SAMPLES

LABORATORY: CH2M HILL LABORATORIES CLIENT: BARR ENGINEERING

CASE NO. : N/A CONTRACT NO.: N/A

LAB NO. : 21128 SDG NO.: N/A

I. RECEIPT

A. DATE: March 7, 1992

B. SAMPLE INFORMATION

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
21128007	SS-02	SOIL	03/06/92	03/10/92	03/28/92
21128008	M-2	SOIL	03/06/92	03/10/92	03/28/92
21128009	SS-03	SOIL	03/06/92	03/10/92	03/28/92
21128009DL	SS-03DL	SOIL	03/06/92	03/10/92	03/28/92
21128010	SS-04	SOIL	03/06/92	03/10/92	03/28/92
21128011	SS-05	SOIL	03/06/92	03/10/92	03/28/92
21128011DL	SS-05DL	SOIL	03/06/92	03/10/92	03/28/92
S03102B1	PBLK10	SOIL	NA	03/10/92	03/27/92

C. Documentation
Exceptions : The names of both GC instruments were changed during this sequence. VAR6000A was changed to V6000A and VAR6000B was changed to V6000B.

II. EXTRACTION

A. Holding times: All holding times were met.

B. Extraction
Exceptions : No exceptions were encountered.

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III. ANALYSIS

A. Holding times: All holding times were met.

B. Analytical Exceptions : Internal standards were added to the pesticide/PCB samples before injection for internal QC purposes only. According to CLP protocol, only external standard calculations were performed for this report.

As shown on Form 8D, the retention time of DCB was excessively late for several injections onto the SAB608 GC column. Because of this problem, chromatographic data were interpreted using identification windows slightly wider than usual.

Sample 21128010 (SS-04) was diluted for analysis and not reanalyzed more concentrated because of the high level of interference offered by the extract.

No additional exceptions were encountered.

IV. QUALITY CONTROL

A. Method Blank : All associated method blanks met acceptable QC criteria.

B. Surrogate Recoveries : All samples met acceptable QC limits.

C. Matrix Spike Results : The native sample, matrix spike, and matrix spike duplicate associated with these samples will be reported with laboratory batch number 21107.

D. Special Conditions : Primary and confirmation data was acquired by a single injection into a dual column/ECD system.

Please note that Forms II, IV, V, and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to CH2M HILL identification numbers.

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 floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Herb Kelly 4/3/92
Herb Kelly Date
Manager, Organic Division

CH2M HILL Quality Analytical Laboratories 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205 271 1333

SAMPLE DATA PACKAGE

SHIPPING RECEIPTS

BARR ENGINEERING CO.
7803 GLENROY ROAD
MINNEAPOLIS, MN 55439

PROJECT NUMBER № 01908
13/49-003JSL31
NO: Waukegan Coke Plant RI

Jim Langseth
PROJECT CONTACT: MARY MACKEY
LABORATORY: CH2M HILL
REMARKS/ ANALYSIS REQUIRED: Run 92 SCL AHB 3/7/92

SAMPLE IDENTIFICATION	COLLECTION DATE	COLLECTION TIME	GRAB	COMP.	BLANK	VOLATILE ORGANIC - CLP TL	SEMIVOLATILE ORGANIC	METALS - CLP TA	UNFILTERED METALS	GENERAL	CYANIDE	NUTRIENTS	OIL AND GREASE	TOC	SULFIDE	DIOXIN	EXTRACTABLES - CLP	PESTICIDES/PCB - CLP	PAH	PAH/Phenols	TOTAL NO. OF CONTAINERS	
TT-01-02	3/6/92	AM	X			X														X	3	CC1
M-1	3/6/92	AM	X																	X	1	CC2
TT-02-04	3/5/92	AM	X			X															1	CC3
TT-02-06	3/5/92	PM	X																	X	1	CC4
TT-02-06 MS	3/5/92	PM	X																	X	1	CC4
TT-02-06 MSD	3/5/92	PM	X																	X	1	CC4
TT-02-09	3/5/92	PM	X																	X	1	CC5
TT-04-03	3/5/92	PM	X																X		1	CC6
SS-02	3/6/92	PM	X	X		X		X									X	X			5	CC7
M-2	3/6/92	PM	X	X		X		X									X	X			5	CC8
SS-03	3/6/92	PM	X	X		X		X									X	X			4	CC9
SS-04	3/6/92	AM	X	X		X		X									X	X			5	CC10

No cyanide requested on this batch - confirmed by H. Kelly AHB 3/9/92.

SAMPLED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY LAB:	DATE	TIME
(JMF) [signature] GEM [signature]	[signature] (SEM)	3/6/92	PM			
RECEIVED BY: (JMF) [signature]	RELINQUISHED BY: (JMF) [signature]	DATE	TIME	RECEIVED BY LAB:	DATE	TIME
RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY LAB: [signature]	DATE 3/7/92	TIME 1100

REMARKS:

SAMPLES SHIPPED VIA
☐ AIR FREIGHT ☒ FED. EXP. ☐ SAMPLER
☐ OTHER

AIR BILL NUMBER: 3586501660 [signature] 3/9/92

DISTRIBUTION: WHITE-ORIGINAL ACCOMPANIES SHIPMENT TO LAB, RETURNS TO BARR WITH RESULTS; YELLOW-LAB COPY; PINK-LAB COORDINATOR; GOLD-FIELD COPY

Lmis AHB - 3/9/92 - 375-2251

000126

7803 ENROY ROAD
MINNEAPOLIS, MN 55439

PROJECT NUMBER No: 01909
13/49-0P3JSL31
NO: WAUKEGAN COKE PLANT RI

PROJECT CONTACT: JIM LANGE / MARY MARKEY
LABORATORY: CH2M HILL

SAMPLE IDENTIFICATION	COLLECTION DATE	COLLECTION TIME	GRAB	COMP.	BLANK	VOLATILE ORGANIC-CLP	SEMIVOLATILE ORGANIC	METALS-CLP	UNFILTERED METALS	GENERAL	CYANIDE	NUTRIENTS	OIL AND GREASE	TOC	SULFIDE	DIOXIN	EXTRACTABLES-C	PESTICIDES/PCB-CLP	TOTAL NO. OF CONTAINER	REMARKS/ ANALYSIS REQUIRED:
SS-05	3/6/92	AM	X	X		X		X									X	X	4	OIL
																				MO4 use sample #004
																				DO4 ↓ ↓ ↓
																				PO4 ↓ ↓ ↓
																				ZS1

PAGE 2 of 2

FOR LAB USE ONLY
LAB # 2128
PROJ # MG 334816.XX
ACK - YES VERIFIED
HAZARDOUS - Y (N)
QC LEVEL 1 2 (3)
ODO Yes ICE Yes
ANA REQ Yes TEMP 4°C
CUST SEAL Yes PH N/A
SAMPLE COND Good

SAMPLED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY LAB:	DATE	TIME
(JMF)	(JMF)	3/6/92	PM			
RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY LAB:	DATE	TIME
RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY LAB:	DATE 3/7/92	TIME 1100

REMARKS:

SAMPLES SHIPPED VIA
☐ AIR FREIGHT ☒ FED. EXP. ☐ SAMPLER
☐ OTHER

AIR BILL NUMBER: 3586501660

DISTRIBUTION: WHITE-ORIGINAL ACCOMPANIES SHIPMENT TO LAB, RETURNS TO BARR WITH RESULTS; YELLOW-LAB COPY; PINK-LAB COORDINATOR; GOLD-FIELD COPY

000127

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Scientists

APR 0 9. 92

April 3, 1992

LMG33486.XY

Ms. Marti Harding-Smith
Barr Engineering Company
8300 Norman Center Drive
Suite 300
Minneapolis, Minnesota 55437-1026

RE: Analytical Data for LMG Laboratory No. 21128

Dear Ms. Harding-Smith:

On March 7, 1992, the CH2M HILL Montgomery Laboratory received five samples with a request for analysis of selected inorganic parameters.

The analytical results and associated quality control data are enclosed. Any unusual difficulties encountered during the analyses of these samples are discussed in the case narrative.

If you should have any questions concerning the data, please inquire.

The CH2M HILL policy is to store samples for up to 30 days after reporting. If you desire, our laboratory will maintain your samples for a longer period at a cost of $5.00 per sample per month. Samples determined to be hazardous can either be returned to you or disposed of at a cost of $25.00 per sample.

Sincerely,

Wanda L. Hall

Wanda L. Hall
Data Package Supervisor

Enclosures

cc: Mr. Jim Langseth

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Scientists

TABLE OF CONTENTS

CH2M HILL Laboratory No. 21128

	Page No.
List of Inorganic EPA-defined Qualifiers	i
Sample Cross-Reference	ii
CATIONS DATA PACKAGE	1
Case Narrative	2
Cover Page	3
Analytical Results of Field Samples	
SS-02 (LMG #21128007)	4
M-2 (LMG #21128008)	5
SS-03 (LMG #21128009)	6
SS-04 (LMG #21128010)	7
SS-05 (LMG #21128011)	8
Quality Control Data	
Initial & Continuing Calibration Verification	9-13
Blank Data	14-16
ICP Interference Check Sample	17
Post Digest Spike Sample Data	18-24
Laboratory Control Sample	25
ICP Serial Dilution	26
Instrument Detection Limits	27-29
ICP Interelement Correction Factors	30-33
ICP Linear Ranges	34
Preparation Log	35-37
Analysis Run Log	38-61
Raw Data	
ICP Data	62-216
Arsenic Data (GFAA)	217-258
Lead Data (GFAA)	259-304
Selenium Data (GFAA)	305-357
Thallium Data (GFAA)	358-387
Mercury Data	388-390
Digestion/Distillation Logs	391-394
Copy of Chain-of-custody	395-399

EPA QUALIFIERS

INORGANIC ANALYSES

- C (Concentration) Qualifier -- Enter "B" if the reported value obtained was less than the CRDL but greater than or equal to the IDL. Enter "U" if the value was less than the IDL or was not detected.

- Q Qualifier -- Entries and their meanings are:

  E - The reported value is estimated because of interference. An explanatory comment must be included under "Comments" on the Cover Page if the problem applies to all samples in this data package or on the individual FORM I if it is an isolated problem.

  M - Duplicate injection precision was not met (two analyses of the same sample did not agree).

  N - Spiked sample recovery not within control limits.

  S - The reported value was determined by the Method of Standard Additions (MSA).

  W - Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

  * - Duplicate analysis not within control limits.

  + - Correlation coefficient for the MSA is less than 0.995.

  Entering "S", "W", or "+" is mutually exclusive. No combination of these qualifiers can appear in the same field.

- M (Method) Qualifier -- Enter one of the following:

  P - ICP
  A - Flame AA
  F - Furnace AA
  CV - Manual Cold Vapor AA
  AV - Automated Cold Vapor AA
  AS - Semi-Automated Spectrophotometric
  C - Manual Spectrophotometric
  T - Titrimetric
  NR - Analyte was not required by your lab

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TABLE 1

SAMPLE CROSS-REFERENCE SUMMARY

CH2M HILL Laboratory No. 21128

CH2M HILL Sample No.	Sample Description				
21128007	SS-02	03/06/91	COMP	13/49-003JSL31	PO#01908
21128008	M-2	03/06/91	COMP	13/49-003JSL31	PO#01908
21128009	SS-03	03/06/91	COMP	13/49-003JSL31	PO#01908
21128010	SS-04	03/06/91	COMP	13/49-003JSL31	PO#01908
21128011	SS-05	03/06/91	COMP	13/49-003JSL31	PO#01909

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CATIONS DATA PACKAGE

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CASE NARRATIVE
Cations

Batch Number: 21128

Client/Project: BARR ENGINEERING COMPANY

I. Holding Time:
All holding times were met.

II. Analysis:

A. Blanks:
All acceptance criteria were met.

B. Calibration:
All acceptance criteria were met.

C. ICP Interference Check Sample:
All acceptance criteria were met.

D. Spike Sample Analysis:
Prespike recoveries outside criteria are flagged accordingly.

E. Duplicate Sample Analysis:
All acceptance criteria were met.

F. Laboratory Control Sample Analysis:
All acceptance criteria were met.

G. ICP Serial Dilution:
ICP serial dilutions outside criteria are flagged accordingly.

H. Other:
QC for 21128 is included in the 21107 data package.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

SIGNED: Kay Walker for DATE: 4/3/92
Kevin A. Sanders
Inorganic Division Manager

CH2M HILL Quality Analytical Laboratories 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205 271 1444

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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Name: CH2M_HILL_MGM_____ Contract: 21128_____

Lab Code: NA____ Case No.: 21128 SAS No.: 21128_ SDG No.:21128_

SOW No.: 3/90_

EPA Sample No.	Lab Sample ID
_M-2_____	__S21128008___
_SS-02_____	__S21128007___
_SS-03_____	__S21128009___
_SS-04_____	__S21128010___
_SS-05_____	__S21128011___

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:
QC_FOR_21128_IS_INCLUDED_IN_THE_21107_DATA_PACKAGE.

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 floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Kay Walker for Name: Kevin A. Sanders

Date: 4/3/92 Title: Inorganic Division Mgr

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SS-02

Lab Name: CH2M_HILL_MGM_____ Contract: 21128_____

Lab Code: NA____ Case No.: 21128 SAS No.: 21128_ SDG No.: 21128_

Matrix (soil/water): SOIL_ Lab Sample ID: S21128007_

Level (low/med): LOW__ Date Received: 03/07/92

% Solids: _80.4

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	1550			P_
7440-36-0	Antimony_	2.7	U	N	P_
7440-38-2	Arsenic__	1.1	B		F_
7440-39-3	Barium___	8.3	B	E	P_
7440-41-7	Beryllium	0.23	B		P_
7440-43-9	Cadmium__	0.73	U		P_
7440-70-2	Calcium__	18600			P_
7440-47-3	Chromium_	4.3			P_
7440-48-4	Cobalt___	1.7	B		P_
7440-50-8	Copper___	5.4	B		P_
7439-89-6	Iron_____	2590			P_
7439-92-1	Lead_____	2.5		N	F_
7439-95-4	Magnesium	8990			P_
7439-96-5	Manganese	85.5			P_
7439-97-6	Mercury__	0.08	U		CV
7440-02-0	Nickel___	4.1	B		P_
7440-09-7	Potassium	263	B		P_
7782-49-2	Selenium_	0.32	U		F_
7440-22-4	Silver___	0.52	B		P_
7440-23-5	Sodium___	377	B	E	P_
7440-28-0	Thallium_	0.41	U		F_
7440-62-2	Vanadium_	5.7	B		P_
7440-66-6	Zinc_____	20.3			P_
	Cyanide__				NR

Color Before: BROWN____ Clarity Before: N/A___ Texture: SANDY_

Color After: CLEAR____ Clarity After: CLEAR_ Artifacts: _____

Comments:
THE_"N"_QUALIFIER_INDICATES_POOR_PRESPIKE_RECOVERY._THE_"E"_DENOTES_A_GREATER_THAN_10%_DIFFERENCE_BETWEEN_THE_NATIVE_CONCENTRATION_AND_THE__SERIAL_DILUTION_RESULT.

FORM I - IN

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

M-2

Lab Name: CH2M_HILL_MGM Contract: 21128

Lab Code: NA Case No.: 21128 SAS No.: 21128 SDG No.: 21128

Matrix (soil/water): SOIL Lab Sample ID: S21128008

Level (low/med): LOW Date Received: 03/07/92

% Solids: 81.1

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	892			P
7440-36-0	Antimony	2.7	U	N	P
7440-38-2	Arsenic	0.91	B		F
7440-39-3	Barium	5.5	B	E	P
7440-41-7	Beryllium	0.11	B		P
7440-43-9	Cadmium	0.72	U		P
7440-70-2	Calcium	21300			P
7440-47-3	Chromium	4.0			P
7440-48-4	Cobalt	1.8	B		P
7440-50-8	Copper	4.6	B		P
7439-89-6	Iron	2350			P
7439-92-1	Lead	3.0		N	F
7439-95-4	Magnesium	10900			P
7439-96-5	Manganese	88.8			P
7439-97-6	Mercury	0.08	U		CV
7440-02-0	Nickel	3.6	B		P
7440-09-7	Potassium	210	B		P
7782-49-2	Selenium	0.32	U		F
7440-22-4	Silver	0.42	U		P
7440-23-5	Sodium	321	B	E	P
7440-28-0	Thallium	0.41	U		F
7440-62-2	Vanadium	4.4	B		P
7440-66-6	Zinc	17.7			P
	Cyanide				NR

Color Before: BROWN Clarity Before: N/A Texture: SANDY

Color After: CLEAR Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

3/90

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SS-03

Lab Name: CH2M_HILL_MGM Contract: 21128

Lab Code: NA Case No.: 21128 SAS No.: 21128 SDG No.: 21128

Matrix (soil/water): SOIL Lab Sample ID: S21128009

Level (low/med): LOW Date Received: 03/07/92

% Solids: 73.8

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3520			P
7440-36-0	Antimony	2.9	U	N	P
7440-38-2	Arsenic	5.6			F
7440-39-3	Barium	52.7	B	E	P
7440-41-7	Beryllium	0.95	B		P
7440-43-9	Cadmium	0.79	U		P
7440-70-2	Calcium	23300			P
7440-47-3	Chromium	7.6			P
7440-48-4	Cobalt	4.7	B		P
7440-50-8	Copper	17.2			P
7439-89-6	Iron	10000			P
7439-92-1	Lead	13.6		N	F
7439-95-4	Magnesium	10200			P
7439-96-5	Manganese	152			P
7439-97-6	Mercury	0.09	U		CV
7440-02-0	Nickel	13.3			P
7440-09-7	Potassium	411	B		P
7782-49-2	Selenium	0.54	B		F
7440-22-4	Silver	0.47	U		P
7440-23-5	Sodium	484	B	E	P
7440-28-0	Thallium	0.45	U		F
7440-62-2	Vanadium	13.3	B		P
7440-66-6	Zinc	138			P
	Cyanide				NR

Color Before: BLACK Clarity Before: N/A Texture: LOAM

Color After: CLEAR Clarity After: CLEAR Artifacts: YES

Comments:
THE ARTIFACTS CONSISTED OF GRAVEL.

FORM I - IN

3/90

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SS-04

Lab Name: CH2M_HILL_MGM Contract: 21128

Lab Code: NA Case No.: 21128 SAS No.: 21128 SDG No.: 21128

Matrix (soil/water): SOIL Lab Sample ID: S21128010

Level (low/med): LOW Date Received: 03/07/92

% Solids: 84.2

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1530			P
7440-36-0	Antimony	2.6	U	N	P
7440-38-2	Arsenic	2.6			F
7440-39-3	Barium	15.0	B	E	P
7440-41-7	Beryllium	0.39	B		P
7440-43-9	Cadmium	0.70	U		P
7440-70-2	Calcium	13000			P
7440-47-3	Chromium	4.6			P
7440-48-4	Cobalt	3.4	B		P
7440-50-8	Copper	13.0			P
7439-89-6	Iron	6440			P
7439-92-1	Lead	8.0		N	F
7439-95-4	Magnesium	7240			P
7439-96-5	Manganese	115			P
7439-97-6	Mercury	0.09	U		CV
7440-02-0	Nickel	9.9			P
7440-09-7	Potassium	252	B		P
7782-49-2	Selenium	0.31	U		F
7440-22-4	Silver	0.41	U		P
7440-23-5	Sodium	321	B	E	P
7440-28-0	Thallium	0.39	U		F
7440-62-2	Vanadium	8.6	B		P
7440-66-6	Zinc	45.0			P
	Cyanide				NR

Color Before: BLACK Clarity Before: N/A Texture: LOAM

Color After: CLEAR Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

3/90

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1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SS-05

Lab Name: CH2M_HILL_MGM Contract: 21128

Lab Code: NA Case No.: 21128 SAS No.: 21128 SDG No.: 21128

Matrix (soil/water): SOIL Lab Sample ID: S21128011

Level (low/med): LOW Date Received: 03/07/92

% Solids: 83.5

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1830			P
7440-36-0	Antimony	2.6	U	N	P
7440-38-2	Arsenic	3.7			F
7440-39-3	Barium	19.4	B	E	P
7440-41-7	Beryllium	0.26	B		P
7440-43-9	Cadmium	0.70	U		P
7440-70-2	Calcium	26700			P
7440-47-3	Chromium	5.4			P
7440-48-4	Cobalt	3.2	B		P
7440-50-8	Copper	16.7			P
7439-89-6	Iron	5350			P
7439-92-1	Lead	9.7		N	F
7439-95-4	Magnesium	13300			P
7439-96-5	Manganese	146			P
7439-97-6	Mercury	0.09	U		CV
7440-02-0	Nickel	8.0	B		P
7440-09-7	Potassium	313	B		P
7782-49-2	Selenium	0.31	U		F
7440-22-4	Silver	0.46	B		P
7440-23-5	Sodium	396	B	E	P
7440-28-0	Thallium	0.40	U		F
7440-62-2	Vanadium	8.5	B		P
7440-66-6	Zinc	47.8			P
	Cyanide				NR

Color Before: BLACK Clarity Before: N/A Texture: LOAM

Color After: CLEAR Clarity After: CLEAR Artifacts: YES

Comments:
THE_ARTIFACTS_CONSISTED_OF_ROCKS.

BARR ENGINEERING CO.
7803 CEDAR ROAD
MINNEAPOLIS, MN 55439

PROJECT NUMBER: 01905 1131/4191-10103JS1L31

NO: Waukegan Coke Plant RI

Jim Land JH

PROJECT CONTACT: MARY MACLEY

LABORATORY: CH2M HILL

SAMPLE IDENTIFICATION	COLLECTION DATE	COLLECTION TIME	GRAB	COMP.	BLANK	VOLATILE ORGANIC-CLP	SEMIVOLATILE ORGANIC	METALS-CLP TA	UNFILTERED METALS	GENERAL	CYANIDE	NUTRIENTS	OIL AND GREASE	TOC	SULFIDE	DIOXIN	EXTRACTABLES-CLP	PESTICIDES/PCB-CLP	PAH	PAH/Phenols	TOTAL NO. OF CONTAINERS	REMARKS/ ANALYSIS REQUIRED: Run 92 SOW
TT-01-02	3/6/92	AM	X			X														X	3	CC1
M-1	3/6/92	AM	X																	X	1	CC2
TT-02-04	3/5/92	AM	X			X															1	CC3
TT-02-06	3/5/92	PM	X																	X	1	CC4
TT-02-06 MS	3/5/92	PM	X																	X	1	
TT-02-06 MSD	3/5/92	PM	X																	X	1	
TT-02-09	3/5/92	PM	X																	X	1	CC5
TT-04-03	3/5/92	PM	X																X		1	CC6
SS-02	3/6/92	PM	X	X		X		X									X	X			5	CC7
M-2	3/6/92	PM	X	X		X		X									X	X			5	CC8
SS-03	3/6/92	PM	X	X		X		X									X	X			4	CC9
SS-04	3/6/92	AM	X	X		X		X									X	X			5	CC10

REMARKS/ ANALYSIS REQUIRED: No cyanide requested on this basis: confirmed by J. Kelly 3/9/92

SAMPLED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY LAB:	DATE	TIME
(JMF) (SEM)	(SEM)	3/6/92	PM			
RECEIVED BY: (JMF)	RELINQUISHED BY: (JMF)	DATE	TIME	RECEIVED BY LAB:	DATE	TIME
RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY LAB:	DATE 3/9/92	TIME 1100

REMARKS:

SAMPLES SHIPPED VIA ☐ AIR FREIGHT ☒ FED. EXP. ☐ SAMPLER ☐ OTHER

AIR BILL NUMBER: 3586501660

DISTRIBUTION: WHITE-ORIGINAL ACCOMPANIES SHIPMENT TO LAB, RETURNS TO BARR WITH RESULTS; YELLOW-LAB COPY; PINK-LAB COORDINATOR; GOLD-FIELD COPY

000398

7803 GLENROY ROAD
MINNEAPOLIS, MN 55439

PROJECT NUMBER Nº 01909
13/49-003JSL31
NO: WAUKEGAN COKE PLANT RI

JIM LANGSETH
PROJECT CONTACT: MARY MACKEY
LABORATORY: CH2M HILL

SAMPLE IDENTIFICATION	COLLECTION DATE	COLLECTION TIME	GRAB	COMP.	BLANK	VOLATILE ORGANIC-CLP	SEMIVOLATILE ORGANIC	~~FILTERED~~ METALS-CLPT	UNFILTERED METALS	GENERAL	CYANIDE	NUTRIENTS	OIL AND GREASE	TOC	SULFIDE	DIOXIN	EXTRACTABLES-CLP	PESTICIDES/PCB-CLP	TOTAL NO. OF CONTAINER	REMARKS/ ANALYSIS REQUIRED:
SS-05	3/6/92	AM	X	X		X		X									X	X	4	011
																				M04 use sample #004
																				D04 ↓ ↓ ↓
																				P04 ↓ ↓ ↓
																				ZS1

PAGE 2 of 2

FOR LAB USE ONLY
LAB # 21128
PROJ # LMG 334876.XY
ACK [signature] VERIFIED [signature] 2/1/92
HAZWRAP/NEESA Y (N)
QC LEVEL 1 2 (3)
COC Yes ICE Yes
ANA REQ Yes TEMP 4°C
CUST SEAL Yes PH NA
SAMPLE COND. Sole

SAMPLED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY LAB:	DATE	TIME
(JMF) [signature]	(JMF) [signature]	3/6/92	PM			
RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY LAB:	DATE	TIME
RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY LAB: [signature]	DATE 3/7/92	TIME 1100

REMARKS:

SAMPLES SHIPPED VIA
☐ AIR FREIGHT ☒ FED. EXP. ☐ SAMPLER
☐ OTHER

AIR BILL NUMBER: 3586501660

DISTRIBUTION: WHITE-ORIGINAL ACCOMPANIES SHIPMENT TO LAB, RETURNS TO BARR WITH RESULTS: YELLOW-LAB COPY; PINK-LAB COORDINATOR; GOLD-FIELD COPY

LIMS - [signature] 3/3/92

000399

Laboratory No. 21136

-- Volatiles

-- Semivolatiles

-- Pesticides/PCBS

-- Metals

Five investigative soil samples (SS15, SS16, SS17, SC01, and SC02) were collected March 7, 1992 and analyzed for volatiles, semivolatiles, pesticides/PCBS and metals. The results of these analyses were reported in this case and qualified as described in the following sections.

Holding Times

Holding times were met on all samples and analyses using the EPA holding time criteria for water samples.

Instrument Tuning

Volatiles

GC/MS Tuning met the established method performance criteria for compounds, concentrations, frequencies and relative ion abundances for the volatiles analyses.

Semivolatiles

GC/MS Tuning met the established method performance criteria for compounds, concentrations, frequencies and relative ion abundances for the semivolatiles analyses.

Pesticides

Decachlorobiphenyl was excessively late for several injections on one column. As a result, the chromatographic data were interpreted using identification windows slightly wider than usual. Since adequate separation of components was achieved no further action was taken. Instrument performance was

acceptable for retention times, retention time windows, and DDT and Endrin degradation for all other compounds.

Metals

Instrument tuning does not apply to the metals analyses.

Instrument Calibration

Volatiles

Initial calibration percent relative standard deviation (%RSD) and continuing calibration percent difference (%) values for two volatile parameters were outside of the appropriate control limits. Control limits for %RSD and %D were ≤30 percent and ≤25 percent, respectively.

The volatile analyses initial calibration parameter and associated %RSD value beyond control limits was chloroethane (32.4 percent). Continuing calibration compound 1,1-dichloroethane (38.6 percent) was beyond the %D control limits. Positive results for 1,1-dichloroethane in sample SC01 were qualified as estimated and flagged "J."

Semivolatiles

The semivolatiles analyses initial calibration compound and associated %RSD value beyond control limits was the surrogate standard 1,2-dichlorobenzene-d4 (36.4 percent). Continuing calibrations had %D outlier values (-25.2 percent and -32.5 percent) for the same compound. Since this was a surrogate compound, no sample data were qualified.

Pesticides

Pesticide/PCB analyses instrument calibration %RSD and %D were within the appropriate quality control limits. The resolution check mixture and performance evaluation mixture samples were analyzed at the proper frequency. All Retention Time and RPD values were within the appropriate quality control limits.

Metals

Instrument calibrations were completed the proper number of times using the appropriate number and type of standards and blanks. Initial and continuing calibration percent recovery values were acceptable for all metals analyses.

Blanks

Volatiles

Methylene chloride (10 µg/kg) and acetone (9 J µg/kg) were detected in the volatiles blank. Sample results less than ten times the blank concentration of either compound were qualified as nondetects and flagged "U."

Semivolatiles

Di-n-butylphthalate (100 J µg/kg) was detected in the semivolatiles method blank. Sample results less than ten times the blank concentration of this compound were qualified as nondetects and flagged "U."

Pesticides

No compounds were detected in the pesticide/PCB method blank.

Metals

Total metals analyses calibration and preparation blanks had concentrations of aluminum, arsenic, barium, beryllium, calcium, chromium, copper, iron, magnesium, manganese, sodium, vanadium, and zinc. These concentrations were greater than the instrument detection limit (IDL) but less than the contract required detection limit (CRDL). Sample results for these compounds less than five times the blank concentration were qualified as nondetects and flagged "U."

Surrogate Recovery

Volatiles

Recoveries for all volatiles system monitoring compounds were within the control limits for all samples.

Semivolatiles

All semivolatile samples had acceptable surrogate recoveries.

Pesticides

The surrogate standard decachlorobiphenyl could not be determined for samples SC02 and SS17 due to interference. No data were qualified.

Metals

Total metals analyses ICP interference check sample recoveries and laboratory control sample results were within the appropriate quality control limits.

Matrix Spike/Matrix Spike Duplicate

Volatiles

Volatiles analyses matrix spike/matrix spike duplicate samples percent recovery and RPD values were within the appropriate control limits for all spike compounds.

Semivolatiles

Semivolatiles analyses matrix spike sample recovery for 2,4-dinitrotoluene (93 percent) was beyond quality control limits. The RPD value for acenaphthene (24 percent) was also outside control limits. Since 2,4-dinitrotoluene recoveries were high, it was not detected in any of the associated samples,

recoveries for acenaphthene were acceptable, and all other spike compounds met the established performance criteria, no data were qualified.

Pesticides

Pesticide/PCB matrix spike/matrix spike duplicate samples had acceptable recovery and RPD values for all compounds.

Metals

Metals analyses quality control samples included a duplicate sample, a spike sample, post digestion spike samples, and an ICP serial dilution sample.

The duplicate sample RPD value for selenium (200 percent) was beyond the quality control limits. Results for selenium in the associated investigative samples were qualified as estimated and flagged "J."

The spike sample had recoveries beyond control limits (75-125 percent) for antimony (56.3 percent) and arsenic (172.2 percent). Results for these compounds in the associated investigative samples were qualified as estimated and flagged "J."

The laboratory control sample post digestion spike recoveries for selenium (80.9 percent) and thallium (81.7 percent) were outside the 85-115 percent control limits. Since all recoveries for investigative samples were within the control limits, no data were qualified.

ICP serial dilution results for aluminum (100 percent) and barium (44 percent) were outside the 10 percent difference control limit. These compounds were qualified as estimated and flagged "J" in the associated samples.

Field Duplicates

Field duplicate samples are summarized in Tables 2.3-6 through 2.3-11.

Overall Assessment

The data are considered acceptable with the recommended qualifiers.

Engineers
Planners
CH2M HILL Economists
Scientists

April 6, 1992

LMG33486.XY

RECE
APR 0 9 92

Ms. Marti Harding-Smith
Barr Engineering Company
8300 Norman Center Drive
Suite 300
Minneapolis, Minnesota 55437-1026

RE: Analytical Data for LMG Laboratory No. 21136

Dear Ms. Harding-Smith:

On March 9, 1992, the CH2M HILL Montgomery Laboratory received five samples with a request for analysis of selected inorganic parameters.

The analytical results and associated quality control data are enclosed. Any unusual difficulties encountered during the analyses of these samples are discussed in the case narrative.

If you should have any questions concerning the data, please inquire.

The CH2M HILL policy is to store samples for up to 30 days after reporting. If you desire, our laboratory will maintain your samples for a longer period at a cost of $5.00 per sample per month. Samples determined to be hazardous can either be returned to you or disposed of at a cost of $25.00 per sample.

Sincerely,

Wanda L. Hall

Wanda L. Hall
Data Package Supervisor

Enclosures

cc: Mr. Jim Langseth

Engineers
Planners
CH2M HILL
Economists
Scientists

TABLE OF CONTENTS

CH2M HILL Laboratory No. 21136

	Page No.
List of Inorganic EPA-defined Qualifiers	i
Sample Cross-Reference	ii
CATIONS DATA PACKAGE	1
Case Narrative	2
Cover Page	3
Analytical Results of Field Samples	
SS-15 (LMG #21136001)	4
SS-16 (LMG #21136002)	5
SS-17 (LMG #21136003)	6
SC-01 (LMG #21136004)	7
SC-02 (LMG #21136005)	8
Quality Control Data	
Initial & Continuing Calibration Verification	9-14
CRDL Standard for AA	15
Blank Data	16-19
ICP Interference Check Sample	20
Spike Sample Recovery	21
Post Digest Spike Sample Data	22-29
Duplicate Sample Data	30
Laboratory Control Sample	31
Instrument Detection Limits	32-34
ICP Interelement Correction Factors	35-38
ICP Linear Ranges	39
Preparation Log	40-42
Analysis Run Log	43-63
Raw Data	
ICP Data	64-139
Arsenic Data (GFAA)	140-181
Lead Data (GFAA)	182-227
Selenium Data (GFAA)	228-280
Thallium Data (GFAA)	281-310
Mercury Data	311-313
Digestion/Distillation Logs	314-317
Percent Solids	318-319
Copy of Chain-of-custody	320-321

EPA QUALIFIERS

INORGANIC ANALYSES

- C (Concentration) Qualifier -- Enter "B" if the reported value obtained was less than the CRDL but greater than or equal to the IDL. Enter "U" if the value was less than the IDL or was not detected.

- Q Qualifier -- Entries and their meanings are:

  E - The reported value is estimated because of interference. An explanatory comment must be included under "Comments" on the Cover Page if the problem applies to all samples in this data package or on the individual FORM I if it is an isolated problem.

  M - Duplicate injection precision was not met (two analyses of the same sample did not agree).

  N - Spiked sample recovery not within control limits.

  S - The reported value was determined by the Method of Standard Additions (MSA).

  W - Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

  * - Duplicate analysis not within control limits.

  + - Correlation coefficient for the MSA is less than 0.995.

  Entering "S", "W", or "+" is mutually exclusive. No combination of these qualifiers can appear in the same field.

- M (Method) Qualifier -- Enter one of the following:

  P - ICP
  A - Flame AA
  F - Furnace AA
  CV - Manual Cold Vapor AA
  AV - Automated Cold Vapor AA
  AS - Semi-Automated Spectrophotometric
  C - Manual Spectrophotometric
  T - Titrimetric
  NR - Analyte was not required by your lab

CH2M HILL Quality Analytical Laboratories 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205 271 1444

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Planners
Economists
Scientists

TABLE 1

SAMPLE CROSS-REFERENCE SUMMARY

CH2M HILL Laboratory No. 21136

CH2M HILL Sample No.	Sample Description				
21136001	SS-15	03/07/92	COMP	13/49-003JSL31	PO#01910
21136002	SS-16	03/07/92	COMP	13/49-003JSL31	PO#01910
21136003	SS-17	03/07/92	GRAB	13/49-003JSL31	PO#01910
21136004	SC-01	03/07/92	COMP	13/49-003JSL31	PO#01910
21136005	SC-02	03/07/92	GRAB	13/49-003JSL31	PO#01910

CH2M HILL
Quality Analytical Laboratories
2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116
205 271 1444

CATIONS DATA PACKAGE

Engineers
Planners
CH2M HILL Economists
Scientists

CASE NARRATIVE
Cations

Batch Number: 21136

Client/Project: BARR ENGINEERING COMPANY

I. Holding Time:
All holding times were met.

II. Analysis:

A. Blanks:
All acceptance criteria were met.

B. Calibration:
All acceptance criteria were met.

C. ICP Interference Check Sample:
All acceptance criteria were met.

D. Spike Sample Analysis:
Prespike recoveries outside criteria are flagged accordingly.

E. Duplicate Sample Analysis:
Duplicate precision outside criteria are flagged accordingly.

F. Laboratory Control Sample Analysis:
All acceptance criteria were met.

G. ICP Serial Dilution:
All acceptance criteria were met.

H. Other:
QC information concerning the 21136 serial dilution can be found in the 21107 data package.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

SIGNED: Kaye Walker for DATE: 4/6/92
Kevin A. Sanders
Inorganic Division Manager

CH2M HILL Quality Analytical Laboratories 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205.271 1444

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Name: CH2M_HILL_MGM_____ Contract: 21136_____

Lab Code: NA____ Case No.: 21136 SAS No.: 21136_ SDG No.:21136_

SOW No.: 3/90_

EPA Sample No.	Lab Sample ID
_SC-01_____	__S21136004___
_SC-02_____	__S21136005___
_SC-02D_____	__S21136005D__
_SC-02S_____	__S21136005S__
_SS-15_____	__S21136001___
_SS-16_____	__S21136002___
_SS-17_____	__S21136003___

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

mments:
____QC_INFORMATION_CONCERNING_THE_21136_SERIAL_DILUTION_CAN_BE_FOUND_____
____IN_THE_21107_DATA_PACKAGE._____

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 floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Kaye Walker for Name: Kevin A. Sanders_____

Date: 4/6/92 Title: Inorganic Division Mgr._

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SS-15

Lab Name: CH2M_HILL_MGM Contract: 21136

Lab Code: NA Case No.: 21136 SAS No.: 21136 SDG No.: 21136

Matrix (soil/water): SOIL Lab Sample ID: S21136001

Level (low/med): LOW Date Received: 03/09/92

% Solids: 56.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1730			P
7440-36-0	Antimony	3.9	U	N	P
7440-38-2	Arsenic	1.9	B	*	F
7440-39-3	Barium	7.7	B		P
7440-41-7	Beryllium	0.18	B		P
7440-43-9	Cadmium	1.0	U		P
7440-70-2	Calcium	34300		*	P
7440-47-3	Chromium	25.5			P
7440-48-4	Cobalt	3.0	B		P
7440-50-8	Copper	13.1			P
7439-89-6	Iron	4340			P
7439-92-1	Lead	3.8			F
7439-95-4	Magnesium	17900		*	P
7439-96-5	Manganese	157			P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	4.7	B		P
7440-09-7	Potassium	370	B		P
7782-49-2	Selenium	0.46	U		F
7440-22-4	Silver	0.62	U		P
7440-23-5	Sodium	450	B		P
7440-28-0	Thallium	0.59	U		F
7440-62-2	Vanadium	9.8	B		P
7440-66-6	Zinc	29.4			P
	Cyanide				NR

Color Before: BROWN Clarity Before: N/A Texture: SAND

Color After: CLEAR Clarity After: CLEAR Artifacts:

Comments:
THE "N" QUALIFIER INDICATES POOR PRESPIKE RECOVERY. THE "*" QUALIFIER DENOTES POOR DUPLICATE PRECISION.

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SS-16

Lab Name: CH2M_HILL_MGM_____ Contract: 21136_____

Lab Code: NA____ Case No.: 21136 SAS No.: 21136_ SDG No.: 21136_

Matrix (soil/water): SOIL_ Lab Sample ID: S21136002_

Level (low/med): LOW__ Date Received: 03/09/92

% Solids: _79.2

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	3900			P_
7440-36-0	Antimony_	2.7	U	N	P_
7440-38-2	Arsenic__	10.8			F_
7440-39-3	Barium___	59.4			P_
7440-41-7	Beryllium	0.82	B		P_
7440-43-9	Cadmium__	1.1	B		P_
7440-70-2	Calcium__	35200		*	P_
7440-47-3	Chromium_	10.2			P_
7440-48-4	Cobalt___	5.3	B		P_
7440-50-8	Copper___	22.3			P_
7439-89-6	Iron____	4880			P_
7439-92-1	Lead____	10.5			F_
7439-95-4	Magnesium	13500		*	P_
7439-96-5	Manganese	49.8			P_
7439-97-6	Mercury__	0.18			CV
7440-02-0	Nickel___	12.2			P_
7440-09-7	Potassium	430	B		P_
7782-49-2	Selenium_	0.57	B		F_
7440-22-4	Silver___	0.61	B		P_
7440-23-5	Sodium___	466	B		P_
7440-28-0	Thallium_	0.42	U		F_
7440-62-2	Vanadium_	10.5	B		P_
7440-66-6	Zinc____	21.9			P_
	Cyanide__				NR

Color Before: BLACK____ Clarity Before: N/A___ Texture: LOAM__

Color After: CLEAR____ Clarity After: CLEAR_ Artifacts: YES___

Comments:
THE_ARTIFACTS_CONSIST_OF_GRAVEL.

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SS-17

Lab Name: CH2M_HILL_MGM Contract: 21136

Lab Code: NA Case No.: 21136 SAS No.: 21136 SDG No.: 21136

Matrix (soil/water): SOIL Lab Sample ID: S21136003

Level (low/med): LOW Date Received: 03/09/92

% Solids: 89.7

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1250			P
7440-36-0	Antimony	2.4	U	N	P
7440-38-2	Arsenic	1.1	B	*	F
7440-39-3	Barium	7.4	B		P
7440-41-7	Beryllium	0.15	B		P
7440-43-9	Cadmium	0.65	U		P
7440-70-2	Calcium	22900		*	P
7440-47-3	Chromium	4.4			P
7440-48-4	Cobalt	2.0	B		P
7440-50-8	Copper	5.9			P
7439-89-6	Iron	4210			P
7439-92-1	Lead	4.7			F
7439-95-4	Magnesium	12200		*	P
7439-96-5	Manganese	102			P
7439-97-6	Mercury	0.07	U		CV
7440-02-0	Nickel	4.9	B		P
7440-09-7	Potassium	210	B		P
7782-49-2	Selenium	0.29	U		F
7440-22-4	Silver	0.50	B		P
7440-23-5	Sodium	340	B		P
7440-28-0	Thallium	0.37	U		F
7440-62-2	Vanadium	7.1	B		P
7440-66-6	Zinc	163			P
	Cyanide				NR

Color Before: BROWN Clarity Before: N/A Texture: SAND

Color After: CLEAR Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SC-01

Lab Name: CH2M_HILL_MGM_____ Contract: 21136_____

Lab Code: NA____ Case No.: 21136 SAS No.: 21136_ SDG No.: 21136_

Matrix (soil/water): SOIL_ Lab Sample ID: S21136004_

Level (low/med): LOW__ Date Received: 03/09/92

% Solids: _80.4

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	1260			P_
7440-36-0	Antimony_	2.7	U	N	P_
7440-38-2	Arsenic__	0.60	B	*	F_
7440-39-3	Barium___	8.7	B		P_
7440-41-7	Beryllium	0.08	B		P_
7440-43-9	Cadmium__	0.73	U		P_
7440-70-2	Calcium__	32000		*	P_
7440-47-3	Chromium_	6.2			P_
7440-48-4	Cobalt___	1.8	B		P_
7440-50-8	Copper___	5.9	B		P_
7439-89-6	Iron____	3010			P_
7439-92-1	Lead____	3.0			F_
7439-95-4	Magnesium	15400		*	P_
7439-96-5	Manganese	147			P_
7439-97-6	Mercury__	0.07	U		CV
7440-02-0	Nickel___	3.0	B		P_
7440-09-7	Potassium	288	B		P_
7782-49-2	Selenium_	0.32	U		F_
7440-22-4	Silver___	0.43	U		P_
7440-23-5	Sodium___	390	B		P_
7440-28-0	Thallium_	0.41	U		F_
7440-62-2	Vanadium_	5.0	B		P_
7440-66-6	Zinc____	19.8			P_
	Cyanide__				NR

Color Before: BROWN____ Clarity Before: N/A___ Texture: SAND__

Color After: CLEAR____ Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN

3/90

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

SC-02

Lab Name: CH2M_HILL_MGM Contract: 21136

Lab Code: NA Case No.: 21136 SAS No.: 21136 SDG No.: 21136

Matrix (soil/water): SOIL Lab Sample ID: S21136005

Level (low/med): LOW Date Received: 03/09/92

% Solids: 70.7

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3540			P
7440-36-0	Antimony	3.1	U	N	P
7440-38-2	Arsenic	61.6		*	F
7440-39-3	Barium	58.1			P
7440-41-7	Beryllium	1.6			P
7440-43-9	Cadmium	0.83	U		P
7440-70-2	Calcium	35400		*	P
7440-47-3	Chromium	9.2			P
7440-48-4	Cobalt	4.4	B		P
7440-50-8	Copper	21.9			P
7439-89-6	Iron	5040			P
7439-92-1	Lead	8.1			F
7439-95-4	Magnesium	15400		*	P
7439-96-5	Manganese	74.9			P
7439-97-6	Mercury	0.09	U		CV
7440-02-0	Nickel	11.9			P
7440-09-7	Potassium	244	B		P
7782-49-2	Selenium	0.36	U		F
7440-22-4	Silver	0.49	U		P
7440-23-5	Sodium	464	B		P
7440-28-0	Thallium	0.47	U		F
7440-62-2	Vanadium	13.7	B		P
7440-66-6	Zinc	17.7			P
	Cyanide				NR

Color Before: BLACK Clarity Before: N/A Texture: SEDIME

Color After: CLEAR Clarity After: CLEAR Artifacts: YES

Comments:
ARTIFACTS_CONSIST_OF_ROCKS.

BAR NGINEERING CO.
780 ENROY ROAD
MINNEAPOLIS, MN 55439

PROJECT NUMBER Nº 01910
13/49-003JSL31
NO: WAUKEGAN Coke Plant RI

Jim Lar(seth
PROJECT CONTACT: Mary Mackey
LABORATORY: CH2M Hill
REMARKS/ ANALYSIS REQUIRED:

SAMPLE IDENTIFICATION	COLLECTION DATE	COLLECTION TIME	GRAB	COMP.	BLANK	VOLATILE ORGANIC - CLP	SEMIVOLATILE ORGANIC	FILTERED METALS	~~UNFILTERED~~ METALS - CLP	GENERAL	CYANIDE	NUTRIENTS	OIL AND GREASE	TOC	SULFIDE	DIOXIN	EXTRACTABLES - CLP-TC	PESTICIDES/PCB CLP-TCL	PAH/Phenols								TOTAL NO. OF CONTAINERS
SS-15	3/7/92	AM	X	X		X			X								X	X							001	4
SS-16	3/7/92	AM	X	X		X			X								X	X							002	4
SS-17	3/7/92	AM	X			X			X								X	X							003	5
SC-01	3/7/92	PM	X	X		X			X								X	X							004	4
SC-02	3/7/92	PM	X			X			X								X	X							005	5
SC-02 MS MSD	3/7/92	PM	X			X			X								X	X							006 005	5
Method Blank																									251	
																									M 05	
																									D 05	
																									P 05	

FOR LAB USE ONLY
LAB # 21136
PROJ # LMG33486.XL
ACK SH 3/10 VERIFIED 3/5/92
HAZWRAP/NLESA Y (N)
QC LEVEL 1 2 (3)
COC Y
ICE 3°C
ANA REQ Y
TEMP Y
CUST SEAL Y
PH N/A
SAMPLE COND Soil

SAMPLED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY LAB:	DATE	TIME
(JMF) [signature]	[signature]	3/7/92	PM			
RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY LAB:	DATE	TIME
RECEIVED BY: Brad Stearns 3/9/92 0915	RELINQUISHED BY:	DATE	TIME	RECEIVED BY LAB:	DATE	TIME

REMARKS:

SAMPLES SHIPPED VIA
☐ AIR FREIGHT ☒ FED. EXP. ☐ SAMPLER
☐ OTHER

AIR BILL NUMBER: 3586501656

DISTRIBUTION: WHITE-ORIGINAL ACCOMPANIES SHIPMENT TO LAB, RETURNS TO BARR WITH RESULTS; YELLOW-LAB COPY; PINK-LAB COORDINATOR; GOLD-FIELD COPY

LMG AHS - 3/9/92 - C3953273

C00321

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RECEIVED
APR 09 92

April 6, 1992

LMG33486.XY

Ms. Marti Harding-Smith
Barr Engineering Company
8300 Norman Center Drive
Suite 300
Minneapolis, Minnesota 55437-1026

RE: Analytical Data for LMG Laboratory No. 21136

Dear Ms. Harding-Smith:

On March 9, 1992, the CH2M HILL Montgomery Laboratory received five samples with a request for analysis of selected organic parameters.

The analytical results and associated quality control data are enclosed. Any unusual difficulties encountered during the analyses of these samples are discussed in the case narratives.

If you should have any questions concerning the data, please inquire.

The CH2M HILL policy is to store samples for up to 30 days after reporting. If you desire, our laboratory will maintain your samples for a longer period at a cost of $5.00 per sample per month. Samples determined to be hazardous can either be returned to you or disposed of at a cost of $25.00 per sample.

Sincerely,

Wanda L. Hall

Wanda L. Hall
Data Package Supervisor

Enclosures

cc: Mr. Jim Langseth

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TABLE OF CONTENTS

CH2M HILL Laboratory No. 21136

	Page No.
List of Organic EPA-defined Qualifiers	i
List of Sample ID Qualifiers	ii
Sample Cross-Reference	iii
List of Internal Standards and Surrogates (Volatiles)	iv
List of Internal Standards and Surrogates (Semivolatiles)	v
SAMPLE DATA SUMMARY PACKAGE	1-61
SAMPLE DATA PACKAGE	62
Case Narratives	63-70
Shipping Receipts	71-72
Volatile Data	73
QC Summary	74-80
Sample Data (Analytical Results of Field Samples)	81
SS-15 (LMG #21136001)	
Form I	82
Form I - TIC	83
Raw Data	84-93
SS-16 (LMG #21136002)	
Form I	94
Form I - TIC	95
Raw Data	96-109
SS-17 (LMG #21136003)	
Form I	110
Form I - TIC	111
Raw Data	112-123
SC-01 (LMG #21136004)	
Form I	124
Form I - TIC	125
Raw Data	126-139
SC-02 (LMG #21136005)	
Form I	140
Form I - TIC	141
Raw Data	142-157
Standards Data	158
Initial Calibration Data	159-185
Continuing Calibration Data	186-192

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TABLE OF CONTENTS (cont.)

CH2M HILL Laboratory No. 21136

	Page No.
Volatile Data (cont.)	
Raw QC Data	193
BFB Data	194-202
Blank Data	203-213
MS/MSD Data	214-225
Semivolatile Data	226
QC Summary	227-237
Sample Data (Analytical Results of Field Samples)	238
SS-15 (LMG #21136001)	
Form I	239-240
Form I - TIC	241
Raw Data	242-310
SS-16 (LMG #21136002)	
Form I	311-312
Form I - TIC	313
Raw Data	314-372
SS-17 (LMG #21136003)	
Form I	373-374
Form I - TIC	375
Raw Data	376-465
SS-17_DL (LMG #21136003DL)	
Form I	466-467
Form I - TIC	468
Raw Data	469-556
SC-01 (LMG #21136004)	
Form I	557-558
Form I - TIC	559
Raw Data	560-588
SC-02 (LMG #21136005)	
Form I	589-590
Form I - TIC	591
Raw Data	592-674
Standards Data	675
Initial Calibration Data	676-718
Continuing Calibration Data	719-739
GPC Chromatograms	740-741
Raw QC Data	742
DFTPP Data	743-755
Blank Data	756-786
MS/MSD Data	787-803

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TABLE OF CONTENTS (cont.)

CH2M HILL Laboratory No. 21136

	Page No.
Pesticide/PCB Data	804
QC Summary	805-808
Sample Data (Analytical Results of Field Samples)	809
SS-15 (LMG #21136001)	
Form I	810
Raw Data	811-818
SS-16 (LMG #21136002)	
Form I	819
Raw Data	820-826
SS-17 (LMG #21136003)	
Form I	827
Raw Data	828-835
SC-01 (LMG #21136004)	
Form I	836
Raw Data	837-842
SC-02 (LMG #21136005)	
Form I	843
Raw Data	844-851
Standards Data	852
Summary Forms	853-886
Raw Data (Primary Column)	887-954
Raw Data (Confirmation Column)	955-1020
GPC Chromatograms	1021-1022
Raw QC Data	1023
Blank Data	1024-1056
MS/MSD Data	1057-1075

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EPA - DEFINED QUALIFIERS

ORGANICS

Definitions for the EPA-defined qualifiers:

U -- Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the quantitation limit for that compound. The detection limit can vary from sample to sample depending on dilution factors or percent moisture adjustment when indicated.

J -- Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound below the stated quantitation limit. The "J" qualifier is not used with pesticide results.

C -- This flag applies to pesticide results only. The "C" flag indicates the presence of this compound has been confirmed by GC/MS analysis.

B -- This flag is used when the analyte is found in the associated blank as well as the sample. This notation indicates possible blank contamination and suggests the data user evaluate these compounds and their amounts carefully.

E -- This flag applies to GC/MS only. The "E" qualifier indicates a compound may be above or below the linear range of the instrument. If the particular compound level is deemed above the linear calibration range, then the sample should be reanalyzed at an appropriate dilution. Therefore, the "E" qualified amount is an estimated concentration. The results for the dilution will be reported on a separate Form I and will be flagged with a "D" if the dilution brings the concentration within proper calibration.

D -- This flag identifies compounds which have been run at a dilution to bring the concentration of that compound within the linear range of the instrument. "D" qualifiers are only used for samples that have been run initially with results above acceptable ranges. For secondary dilutions the "DL" suffix is appended to the sample number on the Form I.

A -- Indicates the Tentatively Identified Compound (TIC) is a suspected aldol-condensation product.

X -- Indicates the compound concentration has been manually modified or the EPA qualifier has been manually modified or added.

JX -- The compound was detected and quantitated below the Contract Required Quantitation Limit.

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CLIENT SAMPLE ID QUALIFIERS

LEVEL 3

The qualifiers that GC/MS and GC use with the client sample ID are defined below:

DL -- Dilution Run

R -- Rerun (may be followed by a digit to indicate multiple reruns)

RD -- Diluted Rerun

RX -- Re-extraction Analysis

MS -- Matrix Spike (may be followed by a digit to indicate multiple matrix spikes within a sample set)

MSD -- Matrix Spike Duplicate (may be followed by a digit to indicate multiple matrix spike duplicates within a sample set)

VBLK -- Volatile Blank (will be followed by a "W" for waters, "S" for soils run at a low level, or "SM" for soils run at a medium level -- these letters may be followed by a digit to indicate multiple blanks of that type).

SBLK -- Semivolatile Blank (will be followed by a "W" for waters, "S" for soils run at a low level, or "SM" for soils run at a medium level -- these letters may be followed by a digit to indicate multiple blanks of that type).

PBLK -- Pesticide/PCB Blank (may be followed by digits to indicate multiple blanks)

These qualifiers allow GC/MS and GC to have unique client sample ID's so that the client can get more accurate information from the data reported.

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TABLE 1

SAMPLE CROSS-REFERENCE SUMMARY

CH2M HILL Laboratory No. 21136

CH2M HILL Sample No.	Sample Description				
21136001	SS-15	03/07/92	GRAB	13/49-003JSL31	PO#01910
21136002	SS-16	03/07/92	GRAB	13/49-003JSL31	PO#01910
21136003	SS-17	03/07/92	GRAB	13/49-003JSL31	PO#01910
21136004	SC-01	03/07/92	GRAB	13/49-003JSL31	PO#01910
21136005	SC-02	03/07/92	GRAB	13/49-003JSL31	PO#01910

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INTERNAL STANDARD AND SURROGATE COMPOUNDS

VOLATILE ANALYSIS

The internal standards on the GC/MS volatile chromatograms are designated as IS1, IS2, and IS3. The surrogate standards are labelled as SS1, SS2, and SS3. The compounds corresponding to these labels are listed below.

LABEL	INTERNAL STANDARD COMPOUND
IS1	BROMOCHLOROMETHANE
IS2	1,4-DIFLUOROBENZENE
IS3	D5-CHLOROBENZENE

LABEL	SURROGATE STANDARD COMPOUND
SS1	D4-1,2-DICHLOROETHANE
SS2	D8-TOLUENE
SS3	1,4-BROMOFLUOROBENZENE

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INTERNAL STANDARD AND SURROGATE COMPOUNDS

SEMIVOLATILE ANALYSIS

The internal standards on the GC/MS semivolatile chromatograms are designated as IS1, IS2, IS3, IS4, IS5, and IS6. The surrogate standards are labelled as SS1, SS2, SS3, SS4, SS5, and SS6. The compounds corresponding to these labels are listed below.

LABEL	INTERNAL STANDARD COMPOUND
IS1	D4-1,4-DICHLOROBENZENE
IS2	D8-NAPHTHALENE
IS3	D10-ACENAPHTHENE
IS4	D10-PHENANTHRENE
IS5	D12-CHRYSENE
IS6	D12-PERYLENE

LABEL	SURROGATE STANDARD COMPOUND
SS1	2-FLUOROPHENOL
SS2	D5-PHENOL
SS3	D5-NITROBENZENE
SS4	2-FLUOROBIPHENYL
SS5	2,4,6-TRIBROMOPHENOL
SS6	D14-TERPHENYL

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SAMPLE DATA SUMMARY PACKAGE

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CASE NARRATIVE FOR VOLATILE MASS SPECTROMETRY SAMPLES

LABORATORY: CH2M HILL LABORATORIES CLIENT: BARR ENGINEERING

CASE NO. : N/A CONTRACT NO.: N/A

LAB NO. : 21136 SDG NO.: N/A

I. RECEIPT

A. DATE: March 9, 1992

B. SAMPLE INFORMATION

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
21136001	SS-15	SOIL	03/07/92	NA	03/16/92
21136002	SS-16	SOIL	03/07/92	NA	03/16/92
21136003	SS-17	SOIL	03/07/92	NA	03/16/92
21136004	SC-01	SOIL	03/07/92	NA	03/16/92
21136005	SC-02	SOIL	03/07/92	NA	03/16/92
21136M05	SC-02MS	SOIL	03/07/92	NA	03/16/92
21136D05	SC-02MSD	SOIL	03/07/92	NA	03/16/92
Y03162B1	VBLKS	SOIL	NA	NA	03/16/92

C. Documentation
Exceptions : No exceptions were encountered.

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II. EXTRACTION

A. Holding Times: Medium level protocol was not performed; therefore, extraction time is not applicable.

B. Extraction Exceptions : Not applicable.

III. ANALYSIS

A. Holding times: All holding times were met.

B. Analytical Exceptions : The original analysis of sample 21136005 (SC-02) showed the absolute response of one internal standard below QC limits. The matrix spike and matrix spike duplicate analysis performed on this sample showed similar results. Therefore, this low response may possibly be due to a matrix effect.

No other exceptions were encountered.

IV. QUALITY CONTROL

A. Method Blank : All associated method blanks met acceptable QC criteria.

B. Surrogate Recoveries : All samples met acceptable QC limits.

C. Matrix Spike Results : All spike recoveries were within CLP advisory limits.

Please note that Forms II, IV, V, and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to CH2M HILL identification numbers.

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 floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

for Jewell W. Sinley 4/6/92
Herb Kelly Date
Manager, Organic Division

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CASE NARRATIVE FOR SEMIVOLATILE MASS SPECTROMETRY SAMPLES

LABORATORY: CH2M HILL LABORATORIES CLIENT: BARR ENGINEERING

CASE NO. : N/A CONTRACT NO.: N/A

LAB NO. : 21136 SDG NO.: N/A

I. RECEIPT

A. DATE: March 9, 1992

B. SAMPLE INFORMATION

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
21136001	SS-15	SOIL	03/07/92	03/11/92	03/30/92
21136002	SS-16	SOIL	03/07/92	03/11/92	03/30/92
21136003	SS-17	SOIL	03/07/92	03/11/92	03/30/92
21136003DL	SS-17_DL	SOIL	03/07/92	03/11/92	03/31/92
21136004	SC-01	SOIL	03/07/92	03/11/92	03/30/92
21136005	SC-02	SOIL	03/07/92	03/11/92	03/30/92
21136M05	SC-02MS	SOIL	03/07/92	03/11/92	03/30/92
21136D05	SC-02MSD	SOIL	03/07/92	03/11/92	03/30/92
S03112B1	SBLKS	SOIL	NA	03/11/92	03/30/92

C. Documentation
Exceptions : No exceptions were encountered.

II. EXTRACTION

A. Holding Times: All holding times were met.

B. Extraction
Exceptions : No exceptions were encountered.

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III. ANALYSIS

A. Holding times: All holding times were met.

B. Analytical Exceptions : The original analysis of sample 21136003 (SS-17) showed target compounds above the calibration range. The sample was diluted and reanalyzed. The results of both analyses have been reported.

No other exceptions were encountered.

IV. QUALITY CONTROL

A. Method Blank : All associated method blanks met acceptable QC criteria.

B. Surrogate Recoveries : All samples met acceptable QC limits.

C. Matrix Spike Results : The recovery of 2,4-Dinitrotolene was above acceptable QC limits in the matrix spike; however, the relative percent difference was within QC limits. Since these limits are advisory only, the laboratory took no further action.

The relative percent difference for acenaphthene was below QC limits; however, the percent recovery for both the matrix spike and the matrix spike duplicate was within acceptable QC limits. Since these limits are advisory only, the laboratory took no further action.

All other spike recoveries were within CLP advisory limits.

Please note that Forms II, IV, V, and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to CH2M HILL identification numbers.

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 floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

for Jewell W. Smiley 4/6/92
Herb Kelly Date
Manager, Organic Division

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CASE NARRATIVE FOR PESTICIDE/PCB GAS CHROMATOGRAPHY SAMPLES

LABORATORY: CH2M HILL LABORATORIES CLIENT: BARR ENGINEERING

CASE NO. : N/A CONTRACT NO.: N/A

LAB NO. : 21136 SDG NO.: N/A

I. RECEIPT

A. DATE: March 9, 1992

B. SAMPLE INFORMATION

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
21136001	SS-15	SOIL	03/07/92	03/11/92	03/28/92
21136002	SS-16	SOIL	03/07/92	03/11/92	03/28/92
21136003	SS-17	SOIL	03/07/92	03/11/92	03/28/92
21136004	SC-01	SOIL	03/07/92	03/11/92	03/28/92
21136005	SC-02	SOIL	03/07/92	03/11/92	03/28/92
21136M05	SC-02MS	SOIL	03/07/92	03/11/92	03/28/92
21136D05	SC-02MSD	SOIL	03/07/92	03/11/92	03/28/92
S03112B1	PBLK11	SOIL	NA	03/11/92	03/28/92

C. Documentation
Exceptions : No exceptions were encountered.

CH2M HILL Quality Analytical Laboratories 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205 271 1444

II. EXTRACTION

A. Holding times: All holding times were met.

B. Extraction Exceptions : No exceptions were encountered.

III. ANALYSIS

A. Holding times: All holding times were met.

B. Analytical Exceptions : Internal standards were added to the pesticide/PCB samples before injection for internal QC purposes only. According to CLP protocol, only external standard calculations were performed for this report.

The CRQLs were not achieved for most samples because of chemical interferences not removed by our cleanup procedures. For all field samples except 21136004 (SC-01), the report limits were raised to reflect the chemical noise present in the chromatograms.

For sample 21136003 (SS-17), the decachlorobiphenyl surrogate was not determined due to interferences on both chromatographic columns. For sample 21136005 (SC-02) and the matrix spikes, decachlorobiphenyl was not determined on the SPB-608 column because of interference.

As summarized on Form 8D for the SPB-608 chromatographic column, decachlorobiphenyl exceeded the retention time window for several injections. As a corrective action, larger than normal retention time windows were used to interpret the chromatographic data for this column.

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IV. QUALITY CONTROL

A. Method Blank : All associated method blanks met acceptable QC criteria.

B. Surrogate Recoveries : All samples met acceptable QC limits.

C. Matrix Spike Results : All compounds met acceptable QC criteria.

D. Special Conditions : Primary and confirmation data was acquired by a single injection into a dual column/ECD system.

Please note that Forms II, IV, V, and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to CH2M HILL identification numbers.

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 floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

for Jewell W. Smiley 4/6/92
Herb Kelly Date
Manager, Organic Division

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-15

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136001

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020996

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: not dec. 19 Date Analyzed: 03/16/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl Chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene Chloride	36	B
67-64-1	Acetone	21	B
75-15-0	Carbon Disulfide	12	U
75-35-4	1,1-Dichloroethene	12	U
75-34-3	1,1-Dichloroethane	12	U
540-59-0	1,2-Dichloroethene (total)	12	U
67-66-3	Chloroform	12	U
107-06-2	1,2-Dichloroethane	12	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	12	U
56-23-5	Carbon Tetrachloride	12	U
75-27-4	Bromodichloromethane	12	U
78-87-5	1,2-Dichloropropane	12	U
10061-01-5	cis-1,3-Dichloropropene	12	U
79-01-6	Trichloroethene	12	U
124-48-1	Dibromochloromethane	12	U
79-00-5	1,1,2-Trichloroethane	12	U
71-43-2	Benzene	12	U
10061-02-6	trans-1,3-Dichloropropene	12	U
75-25-2	Bromoform	12	U
591-78-6	2-Hexanone	12	U
108-10-1	4-Methyl-2-Pentanone	12	U
127-18-4	Tetrachloroethene	12	U
79-34-5	1,1,2,2-Tetrachloroethane	12	U
108-88-3	Toluene	12	U
108-90-7	Chlorobenzene	12	U
100-41-4	Ethylbenzene	12	U
100-42-5	Styrene	12	U
1330-20-7	Xylene (total)	2	J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS-15

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136001

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020996

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: not dec. 19 Date Analyzed: 03/16/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-16

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136002

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020997

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: not dec. 18 Date Analyzed: 03/16/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS-16

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136002

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020997

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: not dec. 18 Date Analyzed: 03/16/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

MSC

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-17

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136003

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020991

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: not dec. 8 Date Analyzed: 03/16/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl Chloride	11	U
75-00-3	Chloroethane	11	U
75-09-2	Methylene Chloride	38	B
67-64-1	Acetone	16	B
75-15-0	Carbon Disulfide	3	J
75-35-4	1,1-Dichloroethene	11	U
75-34-3	1,1-Dichloroethane	11	U
540-59-0	1,2-Dichloroethene (total)	11	U
67-66-3	Chloroform	11	U
107-06-2	1,2-Dichloroethane	11	U
78-93-3	2-Butanone	11	U
71-55-6	1,1,1-Trichloroethane	11	U
56-23-5	Carbon Tetrachloride	11	U
75-27-4	Bromodichloromethane	11	U
78-87-5	1,2-Dichloropropane	11	U
10061-01-5	cis-1,3-Dichloropropene	11	U
79-01-6	Trichloroethene	11	U
124-48-1	Dibromochloromethane	11	U
79-00-5	1,1,2-Trichloroethane	11	U
71-43-2	Benzene	11	U
10061-02-6	trans-1,3-Dichloropropene	11	U
75-25-2	Bromoform	11	U
591-78-6	2-Hexanone	11	U
108-10-1	4-Methyl-2-Pentanone	11	U
127-18-4	Tetrachloroethene	11	U
79-34-5	1,1,2,2-Tetrachloroethane	11	U
108-88-3	Toluene	11	U
108-90-7	Chlorobenzene	11	U
100-41-4	Ethylbenzene	11	U
100-42-5	Styrene	11	U
1330-20-7	Xylene (total)	1	J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS-17

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136003

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020991

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: not dec. 8 Date Analyzed: 03/16/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SC-01

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136004

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020992

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: not dec. 17 Date Analyzed: 03/16/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

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

MSc

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SC-01

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136004

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020992

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: not dec. 17 Date Analyzed: 03/16/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SC-02

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136005

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020993

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: not dec. 33 Date Analyzed: 03/16/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	15	U
74-83-9	Bromomethane	15	U
75-01-4	Vinyl Chloride	15	U
75-00-3	Chloroethane	15	U
75-09-2	Methylene Chloride	76	B
67-64-1	Acetone	28	B
75-15-0	Carbon Disulfide	5	J
75-35-4	1,1-Dichloroethene	15	U
75-34-3	1,1-Dichloroethane	15	U
540-59-0	1,2-Dichloroethene (total)	15	U
67-66-3	Chloroform	5	J
107-06-2	1,2-Dichloroethane	15	U
78-93-3	2-Butanone	15	U
71-55-6	1,1,1-Trichloroethane	15	U
56-23-5	Carbon Tetrachloride	15	U
75-27-4	Bromodichloromethane	15	U
78-87-5	1,2-Dichloropropane	15	U
10061-01-5	cis-1,3-Dichloropropene	15	U
79-01-6	Trichloroethene	2	J
124-48-1	Dibromochloromethane	15	U
79-00-5	1,1,2-Trichloroethane	15	U
71-43-2	Benzene	15	U
10061-02-6	trans-1,3-Dichloropropene	15	U
75-25-2	Bromoform	15	U
591-78-6	2-Hexanone	15	U
108-10-1	4-Methyl-2-Pentanone	15	U
127-18-4	Tetrachloroethene	15	U
79-34-5	1,1,2,2-Tetrachloroethane	15	U
108-88-3	Toluene	15	U
108-90-7	Chlorobenzene	15	U
100-41-4	Ethylbenzene	15	U
100-42-5	Styrene	15	U
1330-20-7	Xylene (total)	2	J

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SC-02

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136005

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C1VO020993

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: not dec. 33 Date Analyzed: 03/16/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-15

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013491

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: 10 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	63	J
111-44-4	bis(2-Chloroethyl)Ether	370	U
95-57-8	2-Chlorophenol	370	U
541-73-1	1,3-Dichlorobenzene	370	U
106-46-7	1,4-Dichlorobenzene	370	U
95-50-1	1,2-Dichlorobenzene	370	U
95-48-7	2-Methylphenol	370	U
108-60-1	2,2'-oxybis(1-Chloropropane)	370	U
106-44-5	4-Methylphenol	370	U
621-64-7	N-Nitroso-Di-n-Propylamine	370	U
67-72-1	Hexachloroethane	370	U
98-95-3	Nitrobenzene	370	U
78-59-1	Isophorone	370	U
88-75-5	2-Nitrophenol	370	U
105-67-9	2,4-Dimethylphenol	370	U
111-91-1	bis(2-Chloroethoxy)Methane	370	U
120-83-2	2,4-Dichlorophenol	370	U
120-82-1	1,2,4-Trichlorobenzene	370	U
91-20-3	Naphthalene	370	U
106-47-8	4-Chloroaniline	370	U
87-68-3	Hexachlorobutadiene	370	U
59-50-7	4-Chloro-3-Methylphenol	370	U
91-57-6	2-Methylnaphthalene	370	U
77-47-4	Hexachlorocyclopentadiene	370	U
88-06-2	2,4,6-Trichlorophenol	370	U
95-95-4	2,4,5-Trichlorophenol	890	U
91-58-7	2-Chloronaphthalene	370	U
88-74-4	2-Nitroaniline	890	U
131-11-3	Dimethylphthalate	370	U
208-96-8	Acenaphthylene	170	J
606-20-2	2,6-Dinitrotoluene	370	U
99-09-2	3-Nitroaniline	890	U
83-32-9	Acenaphthene	370	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-15

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013491

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: 10 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	890	U
100-02-7	4-Nitrophenol	890	U
132-64-9	Dibenzofuran	370	U
121-14-2	2,4-Dinitrotoluene	370	U
84-66-2	Diethylphthalate	370	U
7005-72-3	4-Chlorophenyl-phenylether	370	U
86-73-7	Fluorene	370	U
100-10-6	4-Nitroaniline	890	U
534-52-1	4,6-Dinitro-2-methylphenol	890	U
86-30-6	N-Nitrosodiphenylamine (1)	370	U
101-55-3	4-Bromophenyl-phenylether	370	U
118-74-1	Hexachlorobenzene	370	U
87-86-5	Pentachlorophenol	890	U
85-01-8	Phenanthrene	160	J
120-12-7	Anthracene	160	J
86-74-8	Carbazole	45	J
84-74-2	Di-n-Butylphthalate	48	BJ
206-44-0	Fluoranthene	850	
129-00-0	Pyrene	640	
85-68-7	Butylbenzylphthalate	370	U
91-94-1	3,3'-Dichlorobenzidine	370	U
56-55-3	Benzo(a)Anthracene	400	
218-01-9	Chrysene	570	
117-81-7	bis(2-Ethylhexyl)Phthalate	48	J
117-84-0	Di-n-Octyl Phthalate	370	U
205-99-2	Benzo(b)Fluoranthene	650	
207-08-9	Benzo(k)Fluoranthene	630	
50-32-8	Benzo(a)Pyrene	490	
193-39-5	Indeno(1,2,3-cd)Pyrene	410	
53-70-3	Dibenz(a,h)Anthracene	120	J
191-24-2	Benzo(g,h,i)Perylene	270	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS-15

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013491

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: 10 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 14

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 108-21-4	ACETIC ACID, 1-METHYLETHYL E	4.13	260	J
2.	NOT IDENTIFIED	7.10	470	J
3.	NOT IDENTIFIED	7.48	450	J
4. 3240-09-3	5-HEXEN-2-ONE, 5-METHYL-	8.05	1000	J
5. 18641-71-9	3-HEPTANONE, 2,4-DIMETHYL-	9.00	310	J
6. 628-68-2	ETHANOL, 2,2'-OXYBIS-, DIACE	9.29	160	J
7.	NOT IDENTIFIED	10.10	320	J
8. 17851-53-5	1,2-BENZENEDICARBOXYLIC ACID	22.64	290	BJ
9. 57-10-3	HEXADECANOIC ACID	23.67	190	BJ
10. 2381-21-7	PYRENE, 1-METHYL-	26.66	300	J
11.	NOT IDENTIFIED	28.52	190	J
12. 886-38-4	2-CYCLOPROPEN-1-ONE, 2,3-DIP	32.66	180	J
13. 205-82-3	BENZO[J]FLUORANTHENE	32.72	420	J
14.	NOT IDENTIFIED	5.20	16000	J

MSC

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-16

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013492

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: 18 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	400	U
111-44-4	bis(2-Chloroethyl)Ether	400	U
95-57-8	2-Chlorophenol	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
95-50-1	1,2-Dichlorobenzene	400	U
95-48-7	2-Methylphenol	400	U
108-60-1	2,2'-oxybis(1-Chloropropane)	400	U
106-44-5	4-Methylphenol	400	U
621-64-7	N-Nitroso-Di-n-Propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
111-91-1	bis(2-Chloroethoxy)Methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
120-82-1	1,2,4-Trichlorobenzene	400	U
91-20-3	Naphthalene	130	J
106-47-8	4-Chloroaniline	400	U
87-68-3	Hexachlorobutadiene	400	U
59-50-7	4-Chloro-3-Methylphenol	400	U
91-57-6	2-Methylnaphthalene	93	J
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
95-95-4	2,4,5-Trichlorophenol	980	U
91-58-7	2-Chloronaphthalene	400	U
88-74-4	2-Nitroaniline	980	U
131-11-3	Dimethylphthalate	400	U
208-96-8	Acenaphthylene	400	U
606-20-2	2,6-Dinitrotoluene	400	U
99-09-2	3-Nitroaniline	980	U
83-32-9	Acenaphthene	400	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-16

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013492

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: 18 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	980	U
100-02-7	4-Nitrophenol	980	U
132-64-9	Dibenzofuran	400	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U
86-73-7	Fluorene	400	U
100-10-6	4-Nitroaniline	980	U
534-52-1	4,6-Dinitro-2-methylphenol	980	U
86-30-6	N-Nitrosodiphenylamine (1)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
87-86-5	Pentachlorophenol	980	U
85-01-8	Phenanthrene	160	J
120-12-7	Anthracene	400	U
86-74-8	Carbazole	400	U
84-74-2	Di-n-Butylphthalate	46	BJ
206-44-0	Fluoranthene	140	J
129-00-0	Pyrene	120	J
85-68-7	Butylbenzylphthalate	400	U
91-94-1	3,3'-Dichlorobenzidine	400	U
56-55-3	Benzo(a)Anthracene	45	J
218-01-9	Chrysene	110	J
117-81-7	bis(2-Ethylhexyl)Phthalate	62	J
117-84-0	Di-n-Octyl Phthalate	400	U
205-99-2	Benzo(b)Fluoranthene	64	J
207-08-9	Benzo(k)Fluoranthene	53	J
50-32-8	Benzo(a)Pyrene	400	U
193-39-5	Indeno(1,2,3-cd)Pyrene	400	U
53-70-3	Dibenz(a,h)Anthracene	400	U
191-24-2	Benzo(g,h,i)Perylene	46	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS-16

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013492

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: 18 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

nber TICs found: 9

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	NOT IDENTIFIED	7.05	450	J
2.	NOT IDENTIFIED	7.45	420	J
3. 3240-09-3	5-HEXEN-2-ONE, 5-METHYL-	8.02	540	J
4. 18641-71-9	3-HEPTANONE, 2,4-DIMETHYL-	9.00	260	J
5.	NOT IDENTIFIED	10.10	250	J
6. 17851-53-5	1,2-BENZENEDICARBOXYLIC ACID	22.62	250	BJ
7. 57-10-3	HEXADECANOIC ACID	23.65	230	BJ
8.	NOT IDENTIFIED	4.18	1100	J
9.	NOT IDENTIFIED	5.15	18000	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-17

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136003

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013493

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: 12 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	62	J
111-44-4	bis(2-Chloroethyl)Ether	370	U
95-57-8	2-Chlorophenol	370	U
541-73-1	1,3-Dichlorobenzene	370	U
106-46-7	1,4-Dichlorobenzene	370	U
95-50-1	1,2-Dichlorobenzene	370	U
95-48-7	2-Methylphenol	370	U
108-60-1	2,2'-oxybis(1-Chloropropane)	370	U
106-44-5	4-Methylphenol	370	U
621-64-7	N-Nitroso-Di-n-Propylamine	370	U
67-72-1	Hexachloroethane	370	U
98-95-3	Nitrobenzene	370	U
78-59-1	Isophorone	370	U
88-75-5	2-Nitrophenol	370	U
105-67-9	2,4-Dimethylphenol	370	U
111-91-1	bis(2-Chloroethoxy)Methane	370	U
120-83-2	2,4-Dichlorophenol	370	U
120-82-1	1,2,4-Trichlorobenzene	370	U
91-20-3	Naphthalene	290	J
106-47-8	4-Chloroaniline	370	U
87-68-3	Hexachlorobutadiene	370	U
59-50-7	4-Chloro-3-Methylphenol	370	U
91-57-6	2-Methylnaphthalene	380	
77-47-4	Hexachlorocyclopentadiene	370	U
88-06-2	2,4,6-Trichlorophenol	370	U
95-95-4	2,4,5-Trichlorophenol	910	U
91-58-7	2-Chloronaphthalene	370	U
88-74-4	2-Nitroaniline	910	U
131-11-3	Dimethylphthalate	370	U
208-96-8	Acenaphthylene	760	
606-20-2	2,6-Dinitrotoluene	370	U
99-09-2	3-Nitroaniline	910	U
83-32-9	Acenaphthene	610	

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-17

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136003

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013493

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: 12 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	910	U
100-02-7	4-Nitrophenol	910	U
132-64-9	Dibenzofuran	840	
121-14-2	2,4-Dinitrotoluene	370	U
84-66-2	Diethylphthalate	370	U
7005-72-3	4-Chlorophenyl-phenylether	370	U
86-73-7	Fluorene	1500	
100-10-6	4-Nitroaniline	910	U
534-52-1	4,6-Dinitro-2-methylphenol	910	U
86-30-6	N-Nitrosodiphenylamine (1)	370	U
101-55-3	4-Bromophenyl-phenylether	370	U
118-74-1	Hexachlorobenzene	370	U
87-86-5	Pentachlorophenol	910	U
85-01-8	Phenanthrene	1400	
120-12-7	Anthracene	3100	E
86-74-8	Carbazole	1800	
84-74-2	Di-n-Butylphthalate	66	BJ
206-44-0	Fluoranthene	6700	E
129-00-0	Pyrene	7000	E
85-68-7	Butylbenzylphthalate	370	U
91-94-1	3,3'-Dichlorobenzidine	370	U
56-55-3	Benzo(a)Anthracene	4700	E
218-01-9	Chrysene	4400	E
117-81-7	bis(2-Ethylhexyl)Phthalate	370	U
117-84-0	Di-n-Octyl Phthalate	370	U
205-99-2	Benzo(b)Fluoranthene	3000	
207-08-9	Benzo(k)Fluoranthene	1400	
50-32-8	Benzo(a)Pyrene	1900	
193-39-5	Indeno(1,2,3-cd)Pyrene	1400	
53-70-3	Dibenz(a,h)Anthracene	550	
191-24-2	Benzo(g,h,i)Perylene	920	

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS-17

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136003

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013493

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: 12 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 20

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 20019-64-1	2(5H)-FURANONE, 5,5-DIMETHYL	7.97	950	BJ
2. 132-65-0	DIBENZOTHIOPHENE	21.22	790	J
3. 832-71-3	PHENANTHRENE, 3-METHYL-	23.02	1100	J
4.	ANTHRACENE, METHYL- ISOMER	23.10	1300	J
5.	NOT IDENTIFIED	23.32	1900	J
6. 84-65-1	9,10-ANTHRACENEDIONE	24.02	830	J
7.	PYRENE, METHYL- ISOMER	26.69	1900	J
8.	PYRENE, METHYL- ISOMER	26.96	1000	J
9.	7H-BENZ[DE]ANTHRACEN-ONE ISO	28.19	1000	J
10. 205-43-6	BENZO[B]NAPHTHO[1,2-D]THIOPH	28.44	1200	J
11.	NOT IDENTIFIED	28.56	1700	J
12.	7H-BENZ[DE]ANTHRACEN-ONE ISO	28.86	1000	J
13.	NOT IDENTIFIED	29.79	1100	J
14. 1705-84-6	TRIPHENYLENE, 2-METHYL-	30.37	950	J
15.	BENZOPYRENE ISOMER	32.39	840	J
16.	NOT IDENTIFIED	32.69	1100	J
17.	BENZOPYRENE ISOMER	32.99	2700	J
18.	BENZOPYRENE ISOMER	33.16	780	J
19.	NOT IDENTIFIED	4.05	750	J
20.	NOT IDENTIFIED	5.07	15000	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-17_DL

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136003DL

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A2BA013511

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: 12 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/31/92

Injection Volume: 2.0(uL) Dilution Factor: 4.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	1500	U
111-44-4	bis(2-Chloroethyl)Ether	1500	U
95-57-8	2-Chlorophenol	1500	U
541-73-1	1,3-Dichlorobenzene	1500	U
106-46-7	1,4-Dichlorobenzene	1500	U
95-50-1	1,2-Dichlorobenzene	1500	U
95-48-7	2-Methylphenol	1500	U
108-60-1	2,2'-oxybis(1-Chloropropane)	1500	U
106-44-5	4-Methylphenol	1500	U
621-64-7	N-Nitroso-Di-n-Propylamine	1500	U
67-72-1	Hexachloroethane	1500	U
98-95-3	Nitrobenzene	1500	U
78-59-1	Isophorone	1500	U
88-75-5	2-Nitrophenol	1500	U
105-67-9	2,4-Dimethylphenol	1500	U
111-91-1	bis(2-Chloroethoxy)Methane	1500	U
120-83-2	2,4-Dichlorophenol	1500	U
120-82-1	1,2,4-Trichlorobenzene	1500	U
91-20-3	Naphthalene	270	DJ
106-47-8	4-Chloroaniline	1500	U
87-68-3	Hexachlorobutadiene	1500	U
59-50-7	4-Chloro-3-Methylphenol	1500	U
91-57-6	2-Methylnaphthalene	320	DJ
77-47-4	Hexachlorocyclopentadiene	1500	U
88-06-2	2,4,6-Trichlorophenol	1500	U
95-95-4	2,4,5-Trichlorophenol	3600	U
91-58-7	2-Chloronaphthalene	1500	U
88-74-4	2-Nitroaniline	3600	U
131-11-3	Dimethylphthalate	1500	U
208-96-8	Acenaphthylene	720	DJ
606-20-2	2,6-Dinitrotoluene	1500	U
99-09-2	3-Nitroaniline	3600	U
83-32-9	Acenaphthene	580	DJ

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-17_DL

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136003DL

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A2BA013511

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: 12 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/31/92

Injection Volume: 2.0(uL) Dilution Factor: 4.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	3600	U
100-02-7	4-Nitrophenol	3600	U
132-64-9	Dibenzofuran	760	DJ
121-14-2	2,4-Dinitrotoluene	1500	U
84-66-2	Diethylphthalate	1500	U
7005-72-3	4-Chlorophenyl-phenylether	1500	U
86-73-7	Fluorene	1400	DJ
100-10-6	4-Nitroaniline	3600	U
534-52-1	4,6-Dinitro-2-methylphenol	3600	U
86-30-6	N-Nitrosodiphenylamine (1)	1500	U
101-55-3	4-Bromophenyl-phenylether	1500	U
118-74-1	Hexachlorobenzene	1500	U
87-86-5	Pentachlorophenol	3600	U
85-01-8	Phenanthrene	7300	D
120-12-7	Anthracene	3800	D
86-74-8	Carbazole	1400	DJ
84-74-2	Di-n-Butylphthalate	1500	U
206-44-0	Fluoranthene	8000	D
129-00-0	Pyrene	7000	D
85-68-7	Butylbenzylphthalate	1500	U
91-94-1	3,3'-Dichlorobenzidine	1500	U
56-55-3	Benzo(a)Anthracene	3300	D
218-01-9	Chrysene	3800	D
117-81-7	bis(2-Ethylhexyl)Phthalate	1500	U
117-84-0	Di-n-Octyl Phthalate	1500	U
205-99-2	Benzo(b)Fluoranthene	2900	D
207-08-9	Benzo(k)Fluoranthene	2100	D
50-32-8	Benzo(a)Pyrene	2300	D
193-39-5	Indeno(1,2,3-cd)Pyrene	1500	D
53-70-3	Dibenz(a,h)Anthracene	500	DJ
191-24-2	Benzo(g,h,i)Perylene	1000	DJ

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SS-17_DL

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136003DL

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A2BA013511

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: 12 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/31/92

Injection Volume: 2.0(uL) Dilution Factor: 4.0

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

nber TICs found: 20

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	NOT IDENTIFIED	7.88	830	J
2. 2471-83-2	1H-INDENE, 1-ETHYLIDENE-	14.62	720	J
3. 569-41-5	NAPHTHALENE, 1,8-DIMETHYL-	16.35	630	J
4. 230-17-1	BENZO[C]CINNOLINE	20.92	590	J
5. 132-65-0	DIBENZOTHIOPHENE	21.10	760	J
6.	ANTHRACENE, METHYL- ISOMER	22.87	1100	J
7.	ANTHRACENE, METHYL- ISOMER	22.97	1200	J
8.	NOT IDENTIFIED	23.17	1700	J
9.	ANTHRACENE, METHYL- ISOMER	23.25	620	J
10. 612-94-2	NAPHTHALENE, 2-PHENYL-	23.80	640	J
11. 84-65-1	9,10-ANTHRACENEDIONE	23.85	800	J
12. 238-84-6	11H-BENZO[A]FLUORENE	26.52	1500	J
13. 3442-78-2	PYRENE, 2-METHYL-	26.79	620	J
14.	7H-BENZ[DE]ANTHRACEN-ONE ISO	28.02	710	J
15. 205-43-6	BENZO[B]NAPHTHO[1,2-D]THIOPH	28.29	820	J
16.	NOT IDENTIFIED	28.41	1100	J
17.	7H-BENZ[DE]ANTHRACEN-ONE ISO	28.66	600	J
18. 886-38-4	2-CYCLOPROPEN-1-ONE, 2,3-DIP	32.56	760	J
19. 205-82-3	BENZO[J]FLUORANTHENE	32.62	1400	J
20.	NOT IDENTIFIED	4.80	15000	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SC-01

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136004

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013494

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: 19 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	410	U
111-44-4	bis(2-Chloroethyl)Ether	410	U
95-57-8	2-Chlorophenol	410	U
541-73-1	1,3-Dichlorobenzene	410	U
106-46-7	1,4-Dichlorobenzene	410	U
95-50-1	1,2-Dichlorobenzene	410	U
95-48-7	2-Methylphenol	410	U
108-60-1	2,2'-oxybis(1-Chloropropane)	410	U
106-44-5	4-Methylphenol	410	U
621-64-7	N-Nitroso-Di-n-Propylamine	410	U
67-72-1	Hexachloroethane	410	U
98-95-3	Nitrobenzene	410	U
78-59-1	Isophorone	410	U
88-75-5	2-Nitrophenol	410	U
105-67-9	2,4-Dimethylphenol	410	U
111-91-1	bis(2-Chloroethoxy)Methane	410	U
120-83-2	2,4-Dichlorophenol	410	U
120-82-1	1,2,4-Trichlorobenzene	410	U
91-20-3	Naphthalene	410	U
106-47-8	4-Chloroaniline	410	U
87-68-3	Hexachlorobutadiene	410	U
59-50-7	4-Chloro-3-Methylphenol	410	U
91-57-6	2-Methylnaphthalene	410	U
77-47-4	Hexachlorocyclopentadiene	410	U
88-06-2	2,4,6-Trichlorophenol	410	U
95-95-4	2,4,5-Trichlorophenol	990	U
91-58-7	2-Chloronaphthalene	410	U
88-74-4	2-Nitroaniline	990	U
131-11-3	Dimethylphthalate	410	U
208-96-8	Acenaphthylene	410	U
606-20-2	2,6-Dinitrotoluene	410	U
99-09-2	3-Nitroaniline	990	U
83-32-9	Acenaphthene	410	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SC-01

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136004

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013494

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: 19 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	990	U
100-02-7	4-Nitrophenol	990	U
132-64-9	Dibenzofuran	410	U
121-14-2	2,4-Dinitrotoluene	410	U
84-66-2	Diethylphthalate	410	U
7005-72-3	4-Chlorophenyl-phenylether	410	U
86-73-7	Fluorene	410	U
100-10-6	4-Nitroaniline	990	U
534-52-1	4,6-Dinitro-2-methylphenol	990	U
86-30-6	N-Nitrosodiphenylamine (1)	410	U
101-55-3	4-Bromophenyl-phenylether	410	U
118-74-1	Hexachlorobenzene	410	U
87-86-5	Pentachlorophenol	990	U
85-01-8	Phenanthrene	410	U
120-12-7	Anthracene	410	U
86-74-8	Carbazole	410	U
84-74-2	Di-n-Butylphthalate	410	U
206-44-0	Fluoranthene	43	J
129-00-0	Pyrene	410	U
85-68-7	Butylbenzylphthalate	410	U
91-94-1	3,3'-Dichlorobenzidine	410	U
56-55-3	Benzo(a)Anthracene	410	U
218-01-9	Chrysene	410	U
117-81-7	bis(2-Ethylhexyl)Phthalate	51	J
117-84-0	Di-n-Octyl Phthalate	410	U
205-99-2	Benzo(b)Fluoranthene	410	U
207-08-9	Benzo(k)Fluoranthene	410	U
50-32-8	Benzo(a)Pyrene	410	U
193-39-5	Indeno(1,2,3-cd)Pyrene	410	U
53-70-3	Dibenz(a,h)Anthracene	410	U
191-24-2	Benzo(g,h,i)Perylene	410	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SC-01

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136004

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013494

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: 19 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 105-46-4	ACETIC ACID, 1-METHYLPROPYL	7.13	350	J
2. 3240-09-3	5-HEXEN-2-ONE, 5-METHYL-	8.08	800	J
3. 18641-71-9	3-HEPTANONE, 2,4-DIMETHYL-	9.07	430	J
4.	NOT IDENTIFIED	5.25	14000	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SC-02

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136005

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013495

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: 25 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	440	U
111-44-4	bis(2-Chloroethyl)Ether	440	U
95-57-8	2-Chlorophenol	440	U
541-73-1	1,3-Dichlorobenzene	440	U
106-46-7	1,4-Dichlorobenzene	440	U
95-50-1	1,2-Dichlorobenzene	440	U
95-48-7	2-Methylphenol	440	U
108-60-1	2,2'-oxybis(1-Chloropropane)	440	U
106-44-5	4-Methylphenol	440	U
621-64-7	N-Nitroso-Di-n-Propylamine	440	U
67-72-1	Hexachloroethane	440	U
98-95-3	Nitrobenzene	440	U
78-59-1	Isophorone	440	U
88-75-5	2-Nitrophenol	440	U
105-67-9	2,4-Dimethylphenol	440	U
111-91-1	bis(2-Chloroethoxy)Methane	440	U
120-83-2	2,4-Dichlorophenol	440	U
120-82-1	1,2,4-Trichlorobenzene	440	U
91-20-3	Naphthalene	400	J
106-47-8	4-Chloroaniline	440	U
87-68-3	Hexachlorobutadiene	440	U
59-50-7	4-Chloro-3-Methylphenol	440	U
91-57-6	2-Methylnaphthalene	150	J
77-47-4	Hexachlorocyclopentadiene	440	U
88-06-2	2,4,6-Trichlorophenol	440	U
95-95-4	2,4,5-Trichlorophenol	1100	U
91-58-7	2-Chloronaphthalene	440	U
88-74-4	2-Nitroaniline	1100	U
131-11-3	Dimethylphthalate	440	U
208-96-8	Acenaphthylene	210	J
606-20-2	2,6-Dinitrotoluene	440	U
99-09-2	3-Nitroaniline	1100	U
83-32-9	Acenaphthene	47	J

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SC-02

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136005

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013495

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: 25 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1100	U
100-02-7	4-Nitrophenol	1100	U
132-64-9	Dibenzofuran	240	J
121-14-2	2,4-Dinitrotoluene	440	U
84-66-2	Diethylphthalate	440	U
7005-72-3	4-Chlorophenyl-phenylether	440	U
86-73-7	Fluorene	550	
100-10-6	4-Nitroaniline	1100	U
534-52-1	4,6-Dinitro-2-methylphenol	1100	U
86-30-6	N-Nitrosodiphenylamine (1)	440	U
101-55-3	4-Bromophenyl-phenylether	440	U
118-74-1	Hexachlorobenzene	440	U
87-86-5	Pentachlorophenol	1100	U
85-01-8	Phenanthrene	1900	
120-12-7	Anthracene	420	J
86-74-8	Carbazole	270	J
84-74-2	Di-n-Butylphthalate	46	BJ
206-44-0	Fluoranthene	1900	
129-00-0	Pyrene	1300	
85-68-7	Butylbenzylphthalate	440	U
91-94-1	3,3'-Dichlorobenzidine	440	U
56-55-3	Benzo(a)Anthracene	930	
218-01-9	Chrysene	1200	
117-81-7	bis(2-Ethylhexyl)Phthalate	440	U
117-84-0	Di-n-Octyl Phthalate	440	U
205-99-2	Benzo(b)Fluoranthene	650	
207-08-9	Benzo(k)Fluoranthene	670	
50-32-8	Benzo(a)Pyrene	590	
193-39-5	Indeno(1,2,3-cd)Pyrene	330	J
53-70-3	Dibenz(a,h)Anthracene	110	J
191-24-2	Benzo(g,h,i)Perylene	220	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SC-02

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136005

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A1BA013495

Level: (low/med) LOW Date Received: 03/09/92

% Moisture: 25 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 17

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		NOT IDENTIFIED	4.47	370	J
2.		NOT IDENTIFIED	7.13	460	J
3.		NOT IDENTIFIED	7.47	820	J
4.	3240-09-3	5-HEXEN-2-ONE, 5-METHYL-	8.03	360	J
5.	18641-71-9	3-HEPTANONE, 2,4-DIMETHYL-	9.02	330	J
6.		NOT IDENTIFIED	10.12	460	J
7.	17851-53-5	1,2-BENZENEDICARBOXYLIC ACID	22.65	300	BJ
8.		ANTHRACENE, METHYL- ISOMER	23.00	320	J
9.		ANTHRACENE, METHYL- ISOMER	23.07	320	J
10.		NOT IDENTIFIED	23.30	450	J
11.	243-42-5	BENZO[B]NAPHTHO[2,3-D]FURAN	25.67	160	J
12.		PYRENE, METHYL- ISOMER	26.69	670	J
13.		PYRENE, METHYL- ISOMER	26.86	460	J
14.	205-43-6	BENZO[B]NAPHTHO[1,2-D]THIOPH	28.42	260	J
15.	2693-46-1	3-FLUORANTHENAMINE	29.79	370	J
16.	205-99-2	BENZ[E]ACEPHENANTHRYLENE	32.76	490	J
17.		NOT IDENTIFIED	5.13	19000	J

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-15

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 10 decanted: (Y/N) N Date Received: 03/09/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/11/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/28/92

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 9.0 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	3.8	U
319-85-7	beta-BHC	3.8	U
319-86-8	delta-BHC	3.8	U
58-89-9	gamma-BHC (Lindane)	3.8	U
76-44-8	Heptachlor	3.8	U
309-00-2	Aldrin	3.8	U
1024-57-3	Heptachlor epoxide	3.8	U
959-98-8	Endosulfan I	3.8	U
60-57-1	Dieldrin	3.8	U
72-55-9	4,4'-DDE	7.4	U
72-20-8	Endrin	7.4	U
33213-65-9	Endosulfan II	7.4	U
72-54-8	4,4'-DDD	7.4	U
1031-07-8	Endosulfan sulfate	7.4	U
50-29-3	4,4'-DDT	7.4	U
72-43-5	Methoxychlor	38	U
53494-70-5	Endrin ketone	7.4	U
7421-36-3	Endrin aldehyde	7.4	U
5103-71-9	alpha-Chlordane	3.8	U
5103-74-2	gamma-Chlordane	3.8	U
8001-35-2	Toxaphene	380	U
12674-11-2	Aroclor-1016	74	U
11104-28-2	Aroclor-1221	150	U
11141-16-5	Aroclor-1232	74	U
53469-21-9	Aroclor-1242	74	U
12672-29-6	Aroclor-1248	74	U
11097-69-1	Aroclor-1254	74	U
11096-82-5	Aroclor-1260	74	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-16

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 18 decanted: (Y/N) N Date Received: 03/09/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/11/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/28/92

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.3 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	4.2	U
319-85-7	beta-BHC	4.2	U
319-86-8	delta-BHC	4.2	U
58-89-9	gamma-BHC (Lindane)	4.2	U
76-44-8	Heptachlor	4.2	U
309-00-2	Aldrin	4.2	U
1024-57-3	Heptachlor epoxide	4.2	U
959-98-8	Endosulfan I	4.2	U
60-57-1	Dieldrin	8.0	U
72-55-9	4,4'-DDE	8.0	U
72-20-8	Endrin	8.0	U
33213-65-9	Endosulfan II	8.0	U
72-54-8	4,4'-DDD	8.0	U
1031-07-8	Endosulfan sulfate	8.0	U
50-29-3	4,4'-DDT	8.0	U
72-43-5	Methoxychlor	42	U
53494-70-5	Endrin ketone	8.0	U
7421-36-3	Endrin aldehyde	8.0	U
5103-71-9	alpha-Chlordane	4.2	U
5103-74-2	gamma-Chlordane	4.2	U
8001-35-2	Toxaphene	420	U
12674-11-2	Aroclor-1016	80	U
11104-28-2	Aroclor-1221	160	U
11141-16-5	Aroclor-1232	80	U
53469-21-9	Aroclor-1242	80	U
12672-29-6	Aroclor-1248	200	P
11097-69-1	Aroclor-1254	80	U
11096-82-5	Aroclor-1260	80	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SS-17

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136003

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 12 decanted: (Y/N) N Date Received: 03/09/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/11/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/28/92

Injection Volume: 2.00 (uL) Dilution Factor: 2.00

GPC Cleanup: (Y/N) Y pH: 8.4 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	39	U
319-85-7	beta-BHC	39	U
319-86-8	delta-BHC	39	U
58-89-9	gamma-BHC (Lindane)	39	U
76-44-8	Heptachlor	39	U
309-00-2	Aldrin	39	U
1024-57-3	Heptachlor epoxide	39	U
959-98-8	Endosulfan I	39	U
60-57-1	Dieldrin	75	U
72-55-9	4,4'-DDE	75	U
72-20-8	Endrin	75	U
33213-65-9	Endosulfan II	75	U
72-54-8	4,4'-DDD	75	U
1031-07-8	Endosulfan sulfate	75	U
50-29-3	4,4'-DDT	75	U
72-43-5	Methoxychlor	390	U
53494-70-5	Endrin ketone	75	U
7421-36-3	Endrin aldehyde	75	U
5103-71-9	alpha-Chlordane	39	U
5103-74-2	gamma-Chlordane	39	U
8001-35-2	Toxaphene	3900	U
12674-11-2	Aroclor-1016	750	U
11104-28-2	Aroclor-1221	1500	U
11141-16-5	Aroclor-1232	750	U
53469-21-9	Aroclor-1242	750	U
12672-29-6	Aroclor-1248	750	U
11097-69-1	Aroclor-1254	750	U
11096-82-5	Aroclor-1260	750	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SC-01

Lab Name: CH2M HILL/MGM Contract: _____

Code: CH2M Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136004

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 19 decanted: (Y/N) N Date Received: 03/09/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/11/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/28/92

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.5 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.1	U
319-85-7	beta-BHC	2.1	U
319-86-8	delta-BHC	2.1	U
58-89-9	gamma-BHC (Lindane)	2.1	U
76-44-8	Heptachlor	2.1	U
309-00-2	Aldrin	2.1	U
1024-57-3	Heptachlor epoxide	2.1	U
959-98-8	Endosulfan I	2.1	U
60-57-1	Dieldrin	4.1	U
72-55-9	4,4'-DDE	4.1	U
72-20-8	Endrin	4.1	U
33213-65-9	Endosulfan II	4.1	U
72-54-8	4,4'-DDD	4.1	U
1031-07-8	Endosulfan sulfate	4.1	U
50-29-3	4,4'-DDT	4.1	U
72-43-5	Methoxychlor	21	U
53494-70-5	Endrin ketone	4.1	U
7421-36-3	Endrin aldehyde	4.1	U
5103-71-9	alpha-Chlordane	2.1	U
5103-74-2	gamma-Chlordane	2.1	U
8001-35-2	Toxaphene	210	U
12674-11-2	Aroclor-1016	41	U
11104-28-2	Aroclor-1221	83	U
11141-16-5	Aroclor-1232	41	U
53469-21-9	Aroclor-1242	41	U
12672-29-6	Aroclor-1248	41	U
11097-69-1	Aroclor-1254	41	U
11096-82-5	Aroclor-1260	41	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SC-02

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 21136005

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 25 decanted: (Y/N) N Date Received: 03/09/92

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/11/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/28/92

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.2 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	12	U
319-85-7	beta-BHC	12	U
319-86-8	delta-BHC	12	U
58-89-9	gamma-BHC (Lindane)	12	U
76-44-8	Heptachlor	12	U
309-00-2	Aldrin	12	U
1024-57-3	Heptachlor epoxide	12	U
959-98-8	Endosulfan I	12	U
60-57-1	Dieldrin	22	U
72-55-9	4,4'-DDE	22	U
72-20-8	Endrin	22	U
33213-65-9	Endosulfan II	22	U
72-54-8	4,4'-DDD	22	U
1031-07-8	Endosulfan sulfate	22	U
50-29-3	4,4'-DDT	22	U
72-43-5	Methoxychlor	120	U
53494-70-5	Endrin ketone	22	U
7421-36-3	Endrin aldehyde	22	U
5103-71-9	alpha-Chlordane	12	U
5103-74-2	gamma-Chlordane	12	U
8001-35-2	Toxaphene	1200	U
12674-11-2	Aroclor-1016	220	U
11104-28-2	Aroclor-1221	440	U
11141-16-5	Aroclor-1232	220	U
53469-21-9	Aroclor-1242	220	U
12672-29-6	Aroclor-1248	220	U
11097-69-1	Aroclor-1254	220	U
11096-82-5	Aroclor-1260	220	U

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Level:(low/med) LOW

	EPA SAMPLE NO.	SMC1 (TOL)#	SMC2 (BFB)#	SMC3 (DCE)#	OTHER	TOT OUT
01	SC-01	96	90	102	0	0
02	SC-02	123	62	106	0	0
03	SS-15	94	87	96	0	0
04	SS-16	116	64	103	0	0
05	SS-17	113	75	101	0	0
06	SC-02MS	124	62	103	0	0
07	SC-02MSD	127	62	102	0	0
08	VBLKS	100	87	101	0	0

		QC LIMITS
SMC1 (TOL)	= Toluene-d8	(84-138)
SMC2 (BFB)	= Bromofluorobenzene	(59-113)
SMC3 (DCE)	= 1,2-Dichloroethane-d4	(70-121)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2D
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Level:(low/med) LOW

	EPA SAMPLE NO.	S1 (NBZ)#	S2 (FBP)#	S3 (TPH)#	S4 (PHL)#	S5 (2FP)#	S6 (TBP)#	S7 (2CP)#	S8 (DCB)#	TOT OUT
01	SC-01	67	64	65	72	66	54	70	68	0
02	SC-02	69	70	70	79	70	71	77	72	0
03	SS-15	83	78	78	93	88	83	91	84	0
04	SS-16	72	69	71	85	74	72	81	76	0
05	SS-17	73	75	84	82	76	81	80	72	0
06	SS-17_DL	68	72	78	80	69	74	78	71	0
07	SC-02MS	68	76	70	76	72	79	76	69	0
08	SC-02MSD	61	62	63	69	64	60	68	63	0
09	SBLKS	93	87	95	103	97	89	96	90	0

		QC LIMITS	
S1 (NBZ)	= Nitrobenzene-d5	(23-120)	
S2 (FBP)	= 2-Fluorobiphenyl	(30-115)	
S3 (TPH)	= Terphenyl-d14	(18-137)	
S4 (PHL)	= Phenol-d5	(24-113)	
S5 (2FP)	= 2-Fluorophenol	(25-121)	
S6 (TBP)	= 2,4,6-Tribromophenol	(19-122)	
S7 (2CP)	= 2-Chlorophenol-d4	(20-130)	(advisory)
S8 (DCB)	= 1,2-Dichlorobenzene-d4	(20-130)	(advisory)

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

2F

SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: 21136 SAS No.: _____ SDG No.: _____

GC Column(1): SPB-5 ID: 0.53(mm) GC Column(2): SPB-608 ID: 0.53(mm)

	EPA SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
01	PBLK11	103	90	91	97			0
02	SC-01	103	90	93	104			0
03	SC-02	81	90	89	0*			1
04	SC-02MS	77	88	94	0*			1
05	SC-02MSD	72	76	83	0*			1
06	SS-15	95	84	99	86			0
07	SS-16	98	91	100	109			0
08	SS-17	68	78	0*	0*			2

	ADVISORY QC LIMITS
TCX = Tetrachloro-m-xylene	(60-150)
DCB = Decachlorobiphenyl	(60-150)

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

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix Spike - EPA Sample No.: SC-02 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	74.60	0	68.80	92	59-172
Trichloroethene	74.60	1.761	59.85	78	62-137
Benzene	74.60	0	84.33	113	66-142
Toluene	74.60	0	80.74	108	59-139
Chlorobenzene	74.60	0	68.21	91	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethene	74.60	77.76	104	12	22	59-172
Trichloroethene	74.60	68.80	90	14	24	62-137
Benzene	74.60	94.03	126	11	21	66-142
Toluene	74.60	90.59	121	11	21	59-139
Chlorobenzene	74.60	77.46	104	13	21	60-133

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

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS: CLP,21136,,SC-02,L,S,21136005,V,EPA,
10DG TO 200 DG @8DG/MIN IH=3MIN

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix Spike - EPA Sample No.: SC-02 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
Phenol	6660	0	4160	62	26- 90
2-Chlorophenol	6660	0	3956	59	25-102
1,4-Dichlorobenzene	3330	0	2664	80	28-104
N-Nitroso-di-n-prop.(1)	3330	0	3246	97	41-126
1,2,4-Trichlorobenzene	3330	0	2722	82	38-107
4-Chloro-3-methylphenol	6660	0	4285	64	26-103
Acenaphthene	3330	92.80	3015	88	31-137
4-Nitrophenol	6660	0	4795	72	11-114
2,4-Dinitrotoluene	3330	0	3099	93 *	28- 89
Pentachlorophenol	6660	0	3086	46	17-109
Pyrene	3330	2602	4222	49	35-142

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Phenol	6660	3676	55	12	35	26- 90
2-Chlorophenol	6660	3472	52	13	50	25-102
1,4-Dichlorobenzene	3330	2415	73	9	27	28-104
N-Nitroso-di-n-prop.(1)	3330	2859	86	12	38	41-126
1,2,4-Trichlorobenzene	3330	2393	72	13	23	38-107
4-Chloro-3-methylphenol	6660	3667	55	15	33	26-103
Acenaphthene	3330	2393	69	24 *	19	31-137
4-Nitrophenol	6660	3796	57	23	50	11-114
2,4-Dinitrotoluene	3330	2406	72	25	47	28- 89
Pentachlorophenol	6660	2686	40	14	47	17-109
Pyrene	3330	4125	46	6	36	35-142

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 1 out of 11 outside limits
Spike Recovery: 1 out of 22 outside limits

COMMENTS: CLP,21136,,SC-02,L,S,21136005,B,E,
20DG TO 310DG @4DG/MIN IH=10MIN

3F

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix Spike - EPA Sample No.: SC-02

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
gamma-BHC (Lindane)	22.200	0	19.3	87	46-127
Heptachlor	22.200	0	20.8	94	35-130
Aldrin	22.200	0	21.8	98	34-132
Dieldrin	44.400	0	41.3	93	31-134
Endrin	44.400	0	46.4	104	42-139
4,4'-DDT	44.400	0	45.4	102	23-134

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
gamma-BHC (Lindane)	22.200	13.6	61	35	50	46-127
Heptachlor	22.200	19.8	89	5	31	35-130
Aldrin	22.200	19.2	86	13	43	34-132
Dieldrin	44.400	38.3	86	8	38	31-134
Endrin	44.400	42.8	96	8	45	42-139
4,4'-DDT	44.400	38.5	87	16	50	23-134

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

* Values outside of QC limits

RPD: 0 out of 6 outside limits
Spike Recovery: 0 out of 12 outside limits

COMMENTS:

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKS

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Lab File ID: CBVO020988 Lab Sample ID: Y03162B1

Date Analyzed: 03/16/92 Time Analyzed: 1622

GC Column: CAP ID: 0.530(mm) Heated Purge: (Y/N) Y

Instrument ID: 4500

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	SC-01	21136004	C1VO020992	1837
02	SC-02	21136005	C1VO020993	1911
03	SS-15	21136001	C1VO020996	2051
04	SS-16	21136002	C1VO020997	2138
05	SS-17	21136003	C1VO020991	1804
06	SC-02MS	21136M05	CMVO020994	1944
07	SC-02MSD	21136D05	CMVO020995	2017

COMMENTS: CLP,21136,,VBLKS,L,S,Y03162B1,V,BLANK,
10DG TO 200 DG @8DG/MIN IH=3MIN

NSL

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKS

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: Y03162B1

Sample wt/vol: 5.0 (g/mL) G Lab File ID: CBV0020988

Level: (low/med) LOW Date Received: 03/16/92

% Moisture: not dec. 0 Date Analyzed: 03/16/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKS

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: Y03162B1

Sample wt/vol: 5.0 (g/mL) G Lab File ID: CBVO020988

Level: (low/med) LOW Date Received: 03/16/92

% Moisture: not dec. 0 Date Analyzed: 03/16/92

GC Column: CAP ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

SBLKS

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Lab File ID: ABBA013485 Lab Sample ID: S03112B1

Instrument ID: 4000 Date Extracted: 03/11/92

Matrix: (soil/water) SOIL Date Analyzed: 03/30/92

Level:(low/med) LOW Time Analyzed: 1419

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	SC-01	21136004	A1BA013494	03/30/92
02	SC-02	21136005	A1BA013495	03/30/92
03	SS-15	21136001	A1BA013491	03/30/92
04	SS-16	21136002	A1BA013492	03/30/92
05	SS-17	21136003	A1BA013493	03/30/92
06	SS-17_DL	21136003DL	A2BA013511	03/31/92
07	SC-02MS	21136M05	AMBA013496	03/30/92
08	SC-02MSD	21136D05	AMBA013497	03/30/92

COMMENTS: CLP,21136,,SBLKS,L,S,S03112B1,B,BLANK,
20DG TO 310DG @4DG/MIN IH=10MIN

FORM IV SV

3/90 MTP

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKS

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: S03112B1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ABBA013485

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
95-50-1	1,2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
108-60-1	2,2'-oxybis(1-Chloropropane)	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-Di-n-Propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
111-91-1	bis(2-Chloroethoxy)Methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-Methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	800	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	800	U
131-11-3	Dimethylphthalate	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	330	U
99-09-2	3-Nitroaniline	800	U
83-32-9	Acenaphthene	330	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBLKS

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: S03112B1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ABBA013485

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	800	U
100-02-7	4-Nitrophenol	800	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-10-6	4-Nitroaniline	800	U
534-52-1	4,6-Dinitro-2-methylphenol	800	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	800	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
86-74-8	Carbazole	330	U
84-74-2	Di-n-Butylphthalate	100	J
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	330	U
56-55-3	Benzo(a)Anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)Phthalate	330	U
117-84-0	Di-n-Octyl Phthalate	330	U
205-99-2	Benzo(b)Fluoranthene	330	U
207-08-9	Benzo(k)Fluoranthene	330	U
50-32-8	Benzo(a)Pyrene	330	U
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U
53-70-3	Dibenz(a,h)Anthracene	330	U
191-24-2	Benzo(g,h,i)Perylene	330	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SBLKS

Lab Name: CH2M HILL/MGM Contract: _____

Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: S03112B1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: ABBA013485

Level: (low/med) LOW Date Received: 03/11/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 03/11/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 03/30/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 8

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	NOT IDENTIFIED	7.07	480	J
2. 112-36-7	ETHANE, 1,1'-OXYBIS[2-ETHOXY	9.17	260	J
3. 541-02-6	CYCLOPENTASILOXANE, DECAMETH	12.00	360	J
4. 17851-53-5	1,2-BENZENEDICARBOXYLIC ACID	22.69	250	J
5. 57-10-3	HEXADECANOIC ACID	23.72	93	J
6.	NOT IDENTIFIED	4.08	740	J
7.	NOT IDENTIFIED	5.17	17000	J
8. 20019-64-1	2(5H)-FURANONE, 5,5-DIMETHYL	7.98	420	J

4C

PESTICIDE METHOD BLANK SUMMARY

EPA SAMPLE NO.

PBLK11

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: CH2M Case No.: 21136 SAS No.: _____ SDG No.: _____

Lab Sample ID: S03112B1 Lab File ID: _____

Matrix:(soil/water) SOIL Extraction:(SepF/Cont/Sonc) SONC

Sulfur Cleanup: (Y/N) Y Date Extracted: 03/11/92

Date Analyzed (1): 03/28/92 Date Analyzed (2): 03/28/92

Time Analyzed (1): 0939 Time Analyzed (2): 0939

Instrument ID (1): V6000A Instrument ID (2): V6000B

GC Column (1): SPB-5 ID: 0.53 (mm) GC Column (2): SPB-608 ID: 0.53 (mm)

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

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	SC-01	21136004	03/28/92	03/28/92
02	SC-02	21136005	03/28/92	03/28/92
03	SS-15	21136001	03/28/92	03/28/92
04	SS-16	21136002	03/28/92	03/28/92
05	SS-17	21136003	03/28/92	03/28/92
06	SC-02MS	21136M05	03/28/92	03/28/92
07	SC-02MSD	21136D05	03/28/92	03/28/92

COMMENTS:

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLK11

Lab Name: CH2M HILL/MGM Contract: _____

Code: CH2M Case No.: 21136 SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: S03112B1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

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

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 03/11/92

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 03/28/92

Injection Volume: 2.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.0 Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.7	U
319-85-7	beta-BHC	1.7	U
319-86-8	delta-BHC	1.7	U
58-89-9	gamma-BHC (Lindane)	1.7	U
76-44-8	Heptachlor	1.7	U
309-00-2	Aldrin	1.7	U
1024-57-3	Heptachlor epoxide	1.7	U
959-98-8	Endosulfan I	1.7	U
60-57-1	Dieldrin	3.3	U
72-55-9	4,4'-DDE	3.3	U
72-20-8	Endrin	3.3	U
33213-65-9	Endosulfan II	3.3	U
72-54-8	4,4'-DDD	3.3	U
1031-07-8	Endosulfan sulfate	3.3	U
50-29-3	4,4'-DDT	3.3	U
72-43-5	Methoxychlor	17	U
53494-70-5	Endrin ketone	3.3	U
7421-36-3	Endrin aldehyde	3.3	U
5103-71-9	alpha-Chlordane	1.7	U
5103-74-2	gamma-Chlordane	1.7	U
8001-35-2	Toxaphene	170	U
12674-11-2	Aroclor-1016	33	U
11104-28-2	Aroclor-1221	67	U
11141-16-5	Aroclor-1232	33	U
53469-21-9	Aroclor-1242	33	U
12672-29-6	Aroclor-1248	33	U
11097-69-1	Aroclor-1254	33	U
11096-82-5	Aroclor-1260	33	U

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): CSVO020987 Date Analyzed: 03/16/92

Instrument ID: 4500 Time Analyzed: 1519

GC Column: CAP ID: 0.530(mm) Heated Purge: (Y/N) Y

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	52743	10.94	225241	12.45	179698	17.35
	UPPER LIMIT	105486	11.44	450482	12.95	359396	17.85
	LOWER LIMIT	26372	10.44	112620	11.95	89849	16.85
	EPA SAMPLE NO.						
01	SC-01	50138	10.97	173848	12.47	143594	17.35
02	SC-02	40418	10.99	147237	12.49	86786 *	17.37
03	SS-15	38038	10.94	146539	12.45	123619	17.34
04	SS-16	42932	10.94	139826	12.45	94566	17.34
05	SS-17	41220	10.94	146790	12.45	101324	17.35
06	SC-02MS	38719	10.97	131832	12.49	79713 *	17.37
07	SC-02MSD	44773	10.97	160367	12.47	94028	17.35
08	VBLKS	45285	10.87	168339	12.40	139639	17.32

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): ASBA013484 Date Analyzed: 03/30/92

Instrument ID: 4000 Time Analyzed: 1329

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	12 HOUR STD	18066	9.09	69081	12.45	32510	17.34
	UPPER LIMIT	36132	9.59	138162	12.95	65020	17.84
	LOWER LIMIT	9033	8.59	34540	11.95	16255	16.84
	EPA SAMPLE NO.						
01	SC-01	13768	9.17	61226	12.50	32919	17.40
02	SC-02	13516	9.10	61992	12.47	32040	17.40
03	SS-15	13394	9.12	61276	12.47	32989	17.39
04	SS-16	13294	9.12	62746	12.47	33343	17.37
05	SS-17	13782	9.09	61836	12.45	31219	17.39
06	SC-02MS	13462	9.09	60997	12.47	28377	17.40
07	SC-02MSD	13846	9.10	62750	12.47	32604	17.39
08	SBLKS	13987	9.10	57773	12.50	30655	17.44

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): ASBA013484 Date Analyzed: 03/30/92

Instrument ID: 4000 Time Analyzed: 1329

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	12 HOUR STD	45087	21.47	39029	29.09	37910	32.94
	UPPER LIMIT	90174	21.97	78058	29.59	75820	33.44
	LOWER LIMIT	22544	20.97	19514	28.59	18955	32.44
	EPA SAMPLE NO.						
01	SC-01	46642	21.52	39985	29.16	36941	33.01
02	SC-02	45235	21.52	39425	29.21	37029	33.04
03	SS-15	44750	21.50	38766	29.17	35650	33.01
04	SS-16	46204	21.49	39474	29.14	38001	32.99
05	SS-17	43628	21.52	32148	29.24	35151	33.07
06	SC-02MS	45024	21.54	39447	29.19	37947	33.04
07	SC-02MSD	44419	21.52	39179	29.11	37093	32.97
08	SBLKS	42038	21.57	35934	29.19	35199	33.04

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): ASBA013507 Date Analyzed: 03/31/92

Instrument ID: 4000 Time Analyzed: 1117

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	12 HOUR STD	16327	9.04	64508	12.40	30937	17.30
	UPPER LIMIT	32654	9.54	129016	12.90	61874	17.80
	LOWER LIMIT	8164	8.54	32254	11.90	15468	16.80
	EPA SAMPLE NO.						
01	SS-17_DL	15986	9.00	71929	12.37	38890	17.29

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: CH2M HILL/MGM Contract: _____

Lab Code: _____ Case No.: 21136 SAS No.: _____ SDG No.: _____

Lab File ID (Standard): ASBA013507 Date Analyzed: 03/31/92

Instrument ID: 4000 Time Analyzed: 1117

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	12 HOUR STD	45685	21.42	41870	29.06	40938	32.91
	UPPER LIMIT	91370	21.92	83740	29.56	81876	33.41
	LOWER LIMIT	22842	20.92	20935	28.56	20469	32.41
	EPA SAMPLE NO.						
01	SS-17_DL	55656	21.42	47557	29.07	46274	32.92

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = + 100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = +0.50 minutes of internal standard RT.
RT LOWER LIMIT = -0.50 minutes of internal standard RT.

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

SAMPLE DATA PACKAGE

SAMPLE DATA PACKAGE

CASE NARRATIVE

Engineers
Planners
CH2M HILL Economists
Scientists

CASE NARRATIVE FOR VOLATILE MASS SPECTROMETRY SAMPLES

LABORATORY: CH2M HILL LABORATORIES CLIENT: BARR ENGINEERING

CASE NO. : N/A CONTRACT NO.: N/A

LAB NO. : 21136 SDG NO.: N/A

I. RECEIPT

A. DATE: March 9, 1992

B. SAMPLE INFORMATION

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
21136001	SS-15	SOIL	03/07/92	NA	03/16/92
21136002	SS-16	SOIL	03/07/92	NA	03/16/92
21136003	SS-17	SOIL	03/07/92	NA	03/16/92
21136004	SC-01	SOIL	03/07/92	NA	03/16/92
21136005	SC-02	SOIL	03/07/92	NA	03/16/92
21136M05	SC-02MS	SOIL	03/07/92	NA	03/16/92
21136D05	SC-02MSD	SOIL	03/07/92	NA	03/16/92
Y03162B1	VBLKS	SOIL	NA	NA	03/16/92

C. Documentation
Exceptions : No exceptions were encountered.

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II. EXTRACTION

A. Holding Times: Medium level protocol was not performed; therefore, extraction time is not applicable.

B. Extraction Exceptions : Not applicable.

III. ANALYSIS

A. Holding times: All holding times were met.

B. Analytical Exceptions : The original analysis of sample 21136005 (SC-02) showed the absolute response of one internal standard below QC limits. The matrix spike and matrix spike duplicate analysis performed on this sample showed similar results. Therefore, this low response may possibly be due to a matrix effect.

No other exceptions were encountered.

IV. QUALITY CONTROL

A. Method Blank : All associated method blanks met acceptable QC criteria.

B. Surrogate Recoveries : All samples met acceptable QC limits.

C. Matrix Spike Results : All spike recoveries were within CLP advisory limits.

Please note that Forms II, IV, V, and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to CH2M HILL identification numbers.

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 floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

for Jewell W. Smiley 4/6/92
Herb Kelly Date
Manager, Organic Division

CH2M HILL Quality Analytical Laboratories 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205.271.1444

Engineers
Planners
CH2M HILL Economists
Scientists

CASE NARRATIVE FOR SEMIVOLATILE MASS SPECTROMETRY SAMPLES

LABORATORY: CH2M HILL LABORATORIES CLIENT: BARR ENGINEERING

CASE NO. : N/A CONTRACT NO.: N/A

LAB NO. : 21136 SDG NO.: N/A

I. RECEIPT

A. DATE: March 9, 1992

B. SAMPLE INFORMATION

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
21136001	SS-15	SOIL	03/07/92	03/11/92	03/30/92
21136002	SS-16	SOIL	03/07/92	03/11/92	03/30/92
21136003	SS-17	SOIL	03/07/92	03/11/92	03/30/92
21136003DL	SS-17_DL	SOIL	03/07/92	03/11/92	03/31/92
21136004	SC-01	SOIL	03/07/92	03/11/92	03/30/92
21136005	SC-02	SOIL	03/07/92	03/11/92	03/30/92
21136M05	SC-02MS	SOIL	03/07/92	03/11/92	03/30/92
21136D05	SC-02MSD	SOIL	03/07/92	03/11/92	03/30/92
S03112B1	SBLKS	SOIL	NA	03/11/92	03/30/92

C. Documentation
Exceptions : No exceptions were encountered.

II. EXTRACTION

A. Holding Times: All holding times were met.

B. Extraction
Exceptions : No exceptions were encountered.

CH2M HILL Quality Analytical Laboratories 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205 271 1444

Engineers
Planners
CH2M HILL Economists
Scientists

SEMIVOLATILE
LAB NO. 21136
PAGE 2

III. ANALYSIS

A. Holding times: All holding times were met.

B. Analytical Exceptions : The original analysis of sample 21136003 (SS-17) showed target compounds above the calibration range. The sample was diluted and reanalyzed. The results of both analyses have been reported.

No other exceptions were encountered.

IV. QUALITY CONTROL

A. Method Blank : All associated method blanks met acceptable QC criteria.

B. Surrogate Recoveries : All samples met acceptable QC limits.

C. Matrix Spike Results : The recovery of 2,4-Dinitrotolene was above acceptable QC limits in the matrix spike; however, the relative percent difference was within QC limits. Since these limits are advisory only, the laboratory took no further action.

The relative percent difference for acenaphthene was below QC limits; however, the percent recovery for both the matrix spike and the matrix spike duplicate was within acceptable QC limits. Since these limits are advisory only, the laboratory took no further action.

All other spike recoveries were within CLP advisory limits.

Please note that Forms II, IV, V, and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to CH2M HILL identification numbers.

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 floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

for Jewell W. Smiley 4/6/92
Herb Kelly Date
Manager, Organic Division

CH2M HILL Quality Analytical Laboratories 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205 271 1444

Engineers
Planners
Economists
Scientists

CASE NARRATIVE FOR PESTICIDE/PCB GAS CHROMATOGRAPHY SAMPLES

LABORATORY: CH2M HILL LABORATORIES CLIENT: BARR ENGINEERING

CASE NO. : N/A CONTRACT NO.: N/A

LAB NO. : 21136 SDG NO.: N/A

I. RECEIPT

A. DATE: March 9, 1992

B. SAMPLE INFORMATION

LAB ID	CLIENT ID	SAMPLE MATRIX	DATE SAMPLED	EXTRACTION DATE	ANALYSIS DATE
21136001	SS-15	SOIL	03/07/92	03/11/92	03/28/92
21136002	SS-16	SOIL	03/07/92	03/11/92	03/28/92
21136003	SS-17	SOIL	03/07/92	03/11/92	03/28/92
21136004	SC-01	SOIL	03/07/92	03/11/92	03/28/92
21136005	SC-02	SOIL	03/07/92	03/11/92	03/28/92
21136M05	SC-02MS	SOIL	03/07/92	03/11/92	03/28/92
21136D05	SC-02MSD	SOIL	03/07/92	03/11/92	03/28/92
S03112B1	PBLK11	SOIL	NA	03/11/92	03/28/92

C. Documentation
Exceptions : No exceptions were encountered.

CH2M HILL Quality Analytical Laboratories 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205.271 1444

II. EXTRACTION

A. Holding times: All holding times were met.

B. Extraction Exceptions : No exceptions were encountered.

III. ANALYSIS

A. Holding times: All holding times were met.

B. Analytical Exceptions : Internal standards were added to the pesticide/PCB samples before injection for internal QC purposes only. According to CLP protocol, only external standard calculations were performed for this report.

The CRQLs were not achieved for most samples because of chemical interferences not removed by our cleanup procedures. For all field samples except 21136004 (SC-01), the report limits were raised to reflect the chemical noise present in the chromatograms.

For sample 21136003 (SS-17), the decachlorobiphenyl surrogate was not determined due to interferences on both chromatographic columns. For sample 21136005 (SC-02) and the matrix spikes, decachlorobiphenyl was not determined on the SPB-608 column because of interference.

As summarized on Form 8D for the SPB-608 chromatographic column, decachlorobiphenyl exceeded the retention time window for several injections. As a corrective action, larger than normal retention time windows were used to interpret the chromatographic data for this column.

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IV. QUALITY CONTROL

A. Method Blank : All associated method blanks met acceptable QC criteria.

B. Surrogate Recoveries : All samples met acceptable QC limits.

C. Matrix Spike Results : All compounds met acceptable QC criteria.

D. Special Conditions : Primary and confirmation data was acquired by a single injection into a dual column/ECD system.

Please note that Forms II, IV, V, and VIII have numbers to the immediate left of each table. These numbers are sequential only and have no relation to CH2M HILL identification numbers.

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 floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

for Jewell W. Smiley 4/6/92
Herb Kelly Date
Manager, Organic Division

CH2M HILL Quality Analytical Laboratories 2567 Fairlane Drive, P.O. Box 230548, Montgomery, Alabama 36116 205 271 1444

SAMPLE DATA PACKAGE

SHIPPING RECEIPTS

BA[illegible] ENGINEERING CO.
780[illegible] GLENROY ROAD
MINNEAPOLIS, MN 55439

PROJECT NUMBER No: 01910
13/49-003JS/L31
NO: WAUKEGAN Coke Plant RI

PROJECT CONTACT: Jim Lal SCTH
Mary Mackin
LABORATORY: CH2M HILL

SAMPLE IDENTIFICATION	COLLECTION DATE	COLLECTION TIME	GRAB	COMP.	BLANK	VOLATILE ORGANIC - CLP	SEMIVOLATILE ORGANIC	FILTERED METALS	METALS - CLP	GENERAL	CYANIDE	NUTRIENTS	OIL AND GREASE	TOC	SULFIDE	DIOXIN	EXTRACTABLES - CLP-TCL	PESTICIDES/PCB CLP-TCL	PAH/Phenols									TOTAL NO. OF CONTAINERS	REMARKS/ ANALYSIS REQUIRED:
SS-15	3/7/92	AM	X	X		X			X								X	X									001	4	
SS-16	3/7/92	AM	X	X		X			X								X	X									002	4	
SS-17	3/7/92	AM	X			X			X								X	X									003	5	
SC-01	3/7/92	PM	X	X		X			X								X	X									004	4	
SC-02	3/7/92	PM	X			X			X								X	X									005	5	
SC-02 MS/MSD	3/7/92	PM	X			X			X								X	X									006 / 005	5	
Method Blank																											251		
																											m05		
																											0 05		
																											P 05		

FOR LAB USE ONLY
LAB# 21136
BOL# LMG33486.XL
ACK 3/10 VERIFIED 3/25/92
HAZWRAP/NEESA Y (N)
QC LEVEL 1 2 (3)
COC Y
ANA REQ Y
CUST SEAL Y
ICE 3°C
TEMP 6 Y
PH
SAMPLE COND. Soil

SAMPLED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY LAB:	DATE	TIME
(JMF) John Fo	John Fo	3/7/92	PM			
RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED BY LAB:	DATE	TIME
RECEIVED BY: Fred Stearns 3/9/92 0915	RELINQUISHED BY:	DATE	TIME	RECEIVED BY LAB:	DATE	TIME

REMARKS:

SAMPLES SHIPPED VIA
☐ AIR FREIGHT ☒ FED. EXP. ☐ SAMPLER
☐ OTHER

AIR BILL NUMBER: 3586501656

DISTRIBUTION: WHITE-ORIGINAL ACCOMPANIES SHIPMENT TO LAB, RETURNS TO BARR WITH RESULTS: YELLOW-LAB COPY; PINK-LAB COORDINATOR; GOLD-FIELD COI

LIMS AMS - 3/9/92 - C395377-3

000072

Laboratory No. 21147

-- Volatiles

-- Semivolatiles

-- Pesticides/PCBS

-- Metals

Two investigative soil samples (TT0602 and TT0604) were collected March 9, 1992 and analyzed for volatiles, semivolatiles, pesticides/PCBS and metals. The results of these analyses were reported in this case and qualified as described in the following sections.

Holding Times

Holding times were met on both samples and all analyses using the EPA holding time criteria for water samples.

Instrument Tuning

Volatiles

GC/MS Tuning met the established method performance criteria for compounds, concentrations, frequencies and relative ion abundances for the volatiles analyses.

Semivolatiles

GC/MS Tuning met the established method performance criteria for compounds, concentrations, frequencies and relative ion abundances for the semivolatiles analyses.

Pesticides

Instrument performance was acceptable for retention times, retention time windows, and DDT and Endrin degradation for all samples.

Metals

Instrument tuning does not apply to the metals analyses.

Instrument Calibration

Volatiles

Initial calibration percent relative standard deviation (%RSD) and continuing calibration percent difference (%D) values for two volatile parameters were outside the appropriate control limits. Control limits for %RSD and %D were ≤30 percent and ≤25 percent, respectively.

The volatile analyses initial calibration parameter and associated %RSD value beyond control limits was chloroethane (32.4 percent). Continuing calibration compounds with outlier %D values were bromomethane (-31.7 percent) and chloroethane (-37.0 percent). These compounds were not detected in the associated samples, so no data were qualified.

Semivolatiles

The semivolatiles analyses initial calibration surrogate standard 1,2-dichlorobenzene-d4 (36.4 percent) had a %RSD value beyond control limits. Continuing calibrations had acceptable relative response factors and %D values for all compounds. Since the initial calibration outlier was a surrogate compound, no sample data were qualified.

Pesticides

Pesticide/PCB analyses instrument calibrations %RSD and %D values were within the appropriate quality control limits. The resolution check mixture and performance evaluation mixture samples were analyzed at the proper frequency. All retention time and RPD values were within control limits.

Metals

Instrument calibrations were completed the proper number of times using the appropriate number and type of standards and blanks. Initial and continuing calibration percent recovery values were acceptable for all metals analyses.

Blanks

Volatiles

Methylene chloride (9 J µg/kg) and Acetone (5 J µg/kg) were detected in the volatiles blank. Sample results less than ten times the blank concentration of either compound were qualified as nondetects and flagged "U."

Semivolatiles

Di-n-butylphthalate (100 J µg/kg) was detected in the semivolatiles method blank. Sample results less than ten times the blank concentration of this compound were qualified as nondetects and flagged "U."

Pesticides

No compounds were detected in the pesticide/PCB method blank.

Metals

The total metals analyses preparation blank had concentrations of aluminum, arsenic, barium, calcium, chromium, copper, iron, magnesium, manganese, sodium, and zinc. These concentrations were greater than the Instrument detection limit (IDL) but less than the contract required detection limit (CRDL). Sample results for these compounds less than five times the blank concentration were qualified as nondetects and flagged "U."

Surrogate Recovery

Volatiles

The volatiles system monitoring compound toluene-d8 (174 percent) was beyond quality control limits for Sample TT0604. This sample was rerun with recoveries for toluene-d8 (173 percent) and bromofluorobenzene (50 percent) also beyond control limits. Since methylene chloride (260 µg/kg) results exceeded the linear range of the instrument during the first analysis of TT0604, the results from the rerun were reported.

Ethyl benzene (35 J µg/kg) results in Sample TT0602 were qualified as estimated due to the poor recoveries for toluene-d8 and bromofluorobenzene. No other data were qualified.

Semivolatiles

Surrogate recoveries could not be determined for sample TT0602 due to the large dilution required for analysis. Recoveries for sample TT0604 and the method blank were in control. No data were qualified.

Pesticides

Both investigative samples were diluted for analysis because of chemical noise. Reporting limits were raised beyond the values predicted by the dilution factor alone to reflect the chemical noise present in the chromatograms. Decachlorobiphenyl could not be determined for either sample on either column (primary or confirmation) due to interferences. No data were qualified.

Metals

Total metals analyses ICP interference check sample recoveries and laboratory control sample results were within the appropriate quality control limits.

Matrix Spike/Matrix Spike Duplicate

Volatiles

Volatiles analyses matrix spike/matrix spike duplicate samples percent recovery and RPD values were within the appropriate control limits for all spike compounds.

Semivolatiles

Semivolatile analyses matrix spike/matrix spike duplicate samples recoveries for 2,4-dinitrotoluene (93 percent and 100 percent) were beyond control limits. The percent recovery control limits for this compound were 28-89 percent. However, since the recoveries for 2,4-dinitrotoluene were high, it was not detected in any of the associated samples, and all other spike compounds met the established performance criteria, no action was taken.

Pesticides

Pesticide/PCB matrix spike/matrix spike duplicate samples had acceptable recovery and RPD values for all compounds.

Metals

Metals analyses quality control samples included a duplicate sample, a spike sample, post digestion spike samples, and an ICP serial dilution sample.

The duplicate samples RPD values for beryllium (11.3 percent) and lead (9.3 percent) were beyond the appropriate control limits. Results for these two compounds in the investigative samples were qualified as estimated and flagged "J."

The spike sample had recoveries beyond control limits (75-125 percent) for antimony (67.3 percent) and lead (47.9 percent). Results for these compounds in the investigative samples were qualified as estimated and flagged "J."

Post digestion spike recovery on sample TT0604 for selenium (84.6 percent) was outside of the 85-115 percent control limits. Since the recovery was out by less than a whole percent no data were qualified.

ICP serial dilution results for antimony (100 percent), cobalt (38 percent) and sodium (103.2 percent) were outside the 10 percent difference control limit. These compounds were qualified as estimated and flagged "J" in both investigative samples.

Field Duplicates

Field duplicate samples were not collected.

Overall Assessment

The data are considered acceptable with the recommended qualifiers.

Engineers
Planners
CH2M HILL
Economists
Scientists

April 7, 1992

LMG33486.XY

Ms. Marti Harding-Smith
Barr Engineering Company
8300 Norman Center Drive
Suite 300
Minneapolis, Minnesota 55437-1026

RE: Analytical Data for LMG Laboratory No. 21147

Dear Ms. Harding-Smith:

On March 10, 1992, the CH2M HILL Montgomery Laboratory received two samples with a request for analysis of selected inorganic parameters.

The analytical results and associated quality control data are enclosed. Any unusual difficulties encountered during the analyses of these samples are discussed in the case narrative.

If you should have any questions concerning the data, please inquire.

The CH2M HILL policy is to store samples for up to 30 days after reporting. If you desire, our laboratory will maintain your samples for a longer period at a cost of $5.00 per sample per month. Samples determined to be hazardous can either be returned to you or disposed of at a cost of $25.00 per sample.

Sincerely,

Wanda L. Hall

Wanda L. Hall
Data Package Supervisor

Enclosures

cc: Mr. Jim Langseth

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TABLE OF CONTENTS

CH2M HILL Laboratory No. 21147

	Page No.
List of Inorganic EPA-defined Qualifiers	i
Sample Cross-Reference	ii
CATIONS DATA PACKAGE	1
Case Narrative	2
Cover Page	3
Analytical Results of Field Samples	
TT-06-02 (LMG #21147001)	4
TT-06-04 (LMG #21147002)	5
Quality Control Data	
Initial & Continuing Calibration Verification	6-11
CRDL Standard for AA	12-14
Blank Data	15-18
ICP Interference Check Sample	19-20
Post Digest Spike Sample Data	21-24
Laboratory Control Sample	25
ICP Serial Dilution	26
Instrument Detection Limits	27-29
ICP Interelement Correction Factors	30-33
ICP Linear Ranges	34
Preparation Log	35-37
Analysis Run Log	38-68
Raw Data	
ICP Data	69-187
Arsenic Data (GFAA)	188-229
Lead Data (GFAA)	230-275
Selenium Data (GFAA)	276-381
Thallium Data (GFAA)	382-411
Mercury Data	412-414
Digestion/Distillation Logs	415-418
Percent Solids	419-420
Copy of Chain-of-custody	421-422

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EPA QUALIFIERS

INORGANIC ANALYSES

- C (Concentration) Qualifier -- Enter "B" if the reported value obtained was less than the CRDL but greater than or equal to the IDL. Enter "U" if the value was less than the IDL or was not detected.

- Q Qualifier -- Entries and their meanings are:

  E - The reported value is estimated because of interference. An explanatory comment must be included under "Comments" on the Cover Page if the problem applies to all samples in this data package or on the individual FORM I if it is an isolated problem.

  M - Duplicate injection precision was not met (two analyses of the same sample did not agree).

  N - Spiked sample recovery not within control limits.

  S - The reported value was determined by the Method of Standard Additions (MSA).

  W - Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

  * - Duplicate analysis not within control limits.

  + - Correlation coefficient for the MSA is less than 0.995.

  Entering "S", "W", or "+" is mutually exclusive. No combination of these qualifiers can appear in the same field.

- M (Method) Qualifier -- Enter one of the following:

  P - ICP
  A - Flame AA
  F - Furnace AA
  CV - Manual Cold Vapor AA
  AV - Automated Cold Vapor AA
  AS - Semi-Automated Spectrophotometric
  C - Manual Spectrophotometric
  T - Titrimetric
  NR - Analyte was not required by your lab

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TABLE 1

SAMPLE CROSS-REFERENCE SUMMARY

CH2M HILL Laboratory No. 21147

CH2M HILL Sample No.	Sample Description				
21147001	TT-06-02	03/09/92	GRAB	13/49-003JSL31	PO#01911
21147002	TT-06-04	03/09/92	GRAB	13/49-003JSL31	PO#01911

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