VOLATILE ORGANICS DATA VALIDATION SUMMARY FOR DATA PACKAGE:
B09DT4-TMA-690 (923-E418, Filename B09DT4.VOA)

9413225.2161

MEMORANDUM

APR 1994
RECEIVED
TOO

TO: 200-UP-2 Project QA Record

April 18, 1994

FR: Susan Winter, Golder Associates Inc.

RE: VOLATILE ORGANICS DATA VALIDATION SUMMARY FOR DATA PACKAGE: B09DT4-TMA-690 (923-E418, Filename B09DT4.VOA)

INTRODUCTION

This memo presents the results of data validation on data package B09DT4-TMA-690 prepared by the Thermo Analytical (TMA) laboratory. A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B09DT4	01/11/94	SOIL	SEE NOTE 1
B09DT5	01/11/94	SOIL	
B09DT6	01/11/94	SOIL	
B09DT7	01/11/94	SOIL	
B09DT9	01/13/94	SOIL	
B09WF3	01/13/94	SOIL	
B09WF5	01/13/94	SOIL	
B09WF6	01/13/94	SOIL	

Note 1. All samples were analyzed for CLP TCL volatile organics.

Data validation was conducted in accordance with the WHC statement of work (WHC 1993a) and validation procedures (WHC 1993b). Attachments 1 through 5 provide the following information as indicated below:

Attachment 1. Glossary of Data Reporting Qualifiers
Attachment 2. Summary of Data Qualifications
Attachment 3. Qualified Data Summary and Annotated Laboratory Reports
Attachment 4. Laboratory Narrative and Chain-of-Custody Documentation
Attachment 5. Data Validation Supporting Documentation

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DATA QUALITY OBJECTIVES

This section presents a summary of the data quality in terms of the referenced validation criteria.

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

Sample Result Verification. All sample results were supported in the raw data.

Detection Limits. Detection limit goals were met for all sample results as specified in the reference analytical method.

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Completeness. The data package was complete for all requested analyses. A total of eight samples were validated in this data package with a total of 264 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent, which meets normal work plan objectives of 90%.

MAJOR DEFICIENCIES

No major deficiencies were identified during data validation which required qualification of data as unusable.

MINOR DEFICIENCIES

The following minor deficiencies were identified during data validation which required qualification of data as estimated.

Laboratory Blanks

- Methylene chloride, acetone, toluene, and 4-methyl-2-pentanone were detected in the associated laboratory blanks. Attachments 2 and 5 provide a summary of the samples affected, data qualifications applied and supporting documentation.

TENTATIVELY IDENTIFIED COMPOUND EVALUATION

Tentatively identified compounds (TICs) reported by the laboratory were evaluated during validation and qualified as follows:

- TICs were detected in the sample(s) and determined to be valid, resulting in qualification of the results as presumptive and valid (JN).

REFERENCES

WHC 1993a, Validation of 200-UP-2 Data, Statement of Work, Analytical Laboratory Data Validation, Task Order S-94-18, December 14, 1993, Purchase Order M073750. Westinghouse Hanford Company, Richland, Washington.

WHC 1993b, Data Validation Procedures for Chemical Analyses, WHC-SD-EN-SPP-002, Rev. 2, 1993. Westinghouse Hanford Company, Richland, Washington.

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ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

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GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected in the associated laboratory blank. This qualifier is applied by the laboratory. During the process of data validation this qualifier may be replaced by other appropriate qualifiers as defined by the validation procedures. The associated data should be considered usable for decision making purposes.

U - Indicates the constituent was analyzed for and not detected. The concentration reported is the sample quantitation limit corrected for aliquot size, dilution and percent solids (in the case of solid matrices) by the laboratory. The associated data should be considered usable for decision making purposes.

UJ - Indicates the constituent was analyzed for and not detected. Due to a minor quality control deficiency identified during data validation the concentration reported may not accurately reflect the sample quantitation limit. The associated data should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. This qualifier may be applied by the laboratory to indicate a concentration which is less than the contract required quantitation limit (CRQL) but greater than the instrument detection limit (IDL). During data validation this qualifier may be applied to indicate a minor quality control deficiency. However in either case, the associated data should be considered usable for decision making purposes.

NJ - Indicates presumptive evidence of a constituent at an estimated value. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

N - Indicates presumptive evidence of a constituent. This qualifier is normally applied to GC analysis data (such as organochlorine pesticide and PCB data). The associated data should be considered usable for decision making purposes.

JN - Indicates a tentatively identified compound (TIC) whose concentration and identification have been determined to be valid as a result of data validation. The associated data should be considered usable for decision making purposes.

UJN - Indicates a tentatively identified compound (TIC) that has been determined to be presumptive and valid (JN) in terms of identification and quantitation and has been qualified as undetected (U) due to associated blank contamination.

UR - Indicates the constituent was analyzed for and not detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. The concentration reported has been qualified as unusable due to a major quality control deficiency identified during data validation. The associated data should be considered unusable for decision making purposes.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

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DATA QUALIFICATION SUMMARY

SDG: B09DQ6-TMA-681	VALIDATOR:	DATE: April 18, 1994	PAGE 1 OF 1
COMMENTS: VOLATILE ORGANICS			

COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
METHYLENE CHLORIDE	U	B09DT4 B09DT6 B09DT9 B09WF6	PRESENT IN BLANK
ACETONE	U	B09DT4 B09DT5 B09DT6 B09DT7 B09DT9 B09WF3 B09WF5 B09WF6	PRESENT IN BLANK
4-METHYL-2-PENTANONE	U	B09DT6 B09WF5	PRESENT IN BLANK
TOLUENE	U	B09DT6	PRESENT IN BLANK
~~4 METHYL 2 PENTANONE~~	~~BJ~~	~~B09DT5~~	~~PRESENT IN BLANK, BUT SAMPLE CONCENTRATION IS > 5 x BLANK CONCENTRATION~~
~~TOLUENE~~	~~BJ~~	~~B09WF6~~	~~PRESENT IN BLANK, BUT SAMPLE CONCENTRATION IS > 10 x BLANK CONCENTRATION~~

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4/22/94

Reviewed 4/28/94

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ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

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Validated Data Summary, Data Package: B09DT4-TMA-690

	Samp#	B09DT4		B09DT5		B09DT6		B09DT7		B09DT9		B09WF3	
	Date	1-11-94		1-11-94		1-11-94		1-11-94		1-13-94		1-13-94	
	Location	---		---		---		---		---		---	
	Depth	---		---		---		---		---		---	
	Type	---		---		---		---		---		---	
	Comments	---		---		---		---		---		---	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
CHLOROMETHANE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
BROMOMETHANE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
VINYL CHLORIDE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
CHLOROETHANE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
METHYLENE CHLORIDE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
ACETONE	UG/KG	18.000	U	13.000	U	12.000	U	10.000	U	11.000	U	11.000	U
CARBON DISULFIDE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
1,1-DICHLOROETHENE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
1,1-DICHLOROETHANE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
1,2-DICHLOROETHENE (TOTAL)	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
CHLOROFORM	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
1,2-DICHLOROETHANE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
2-BUTANONE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
1,1,1-TRICHLOROETHANE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
CARBON TETRACHLORIDE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
BROMODICHLOROMETHANE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
1,2-DICHLOROPROPANE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
CIS-1,3-DICHLOROPROPENE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
TRICHLOROETHENE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
DIBROMOCHLOROMETHANE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
1,1,2-TRICHLOROETHANE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
BENZENE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
TRANS-1,3-DICHLOROPROPENE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
BROMOFORM	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
4-METHYL-2-PENTANONE	UG/KG	10.000	U	2.000	BJ	12.000	U	10.000	U	11.000	U	11.000	U
2-HEXANONE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
TETRACHLOROETHENE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
1,1,2,2-TETRACHLOROETHANE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
TOLUENE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
CHLOROBENZENE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
ETHYLBENZENE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
STYRENE	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U
XYLENES (TOTAL)	UG/KG	10.000	U	10.000	U	12.000	U	10.000	U	11.000	U	11.000	U

Verified
4/18/94

Validated Data Summary, Data Package: B09DT4-TMA-690

	Samp#	B09WF5		B09WF6	
	Date	1-13-94		1-13-94	
	Location	---		---	
	Depth	---		---	
	Type	---		---	
	Comments	---		---	
Parameter	Units	Result	Q	Result	Q
CHLOROMETHANE	UG/KG	10.000	U	10.000	U
BROMOMETHANE	UG/KG	10.000	U	10.000	U
VINYL CHLORIDE	UG/KG	10.000	U	10.000	U
CHLOROETHANE	UG/KG	10.000	U	10.000	U
METHYLENE CHLORIDE	UG/KG	10.000	U	10.000	U
ACETONE	UG/KG	10.000	U	14.000	U
CARBON DISULFIDE	UG/KG	10.000	U	10.000	U
1,1-DICHLOROETHENE	UG/KG	10.000	U	10.000	U
1,1-DICHLOROETHANE	UG/KG	10.000	U	10.000	U
1,2-DICHLOROETHENE (TOTAL)	UG/KG	10.000	U	10.000	U
CHLOROFORM	UG/KG	10.000	U	10.000	U
1,2-DICHLOROETHANE	UG/KG	10.000	U	10.000	U
2-BUTANONE	UG/KG	10.000	U	10.000	U
1,1,1-TRICHLOROETHANE	UG/KG	10.000	U	10.000	U
CARBON TETRACHLORIDE	UG/KG	10.000	U	10.000	U
BROMODICHLOROMETHANE	UG/KG	10.000	U	10.000	U
1,2-DICHLOROPROPANE	UG/KG	10.000	U	10.000	U
CIS-1,3-DICHLOROPROPENE	UG/KG	10.000	U	10.000	U
TRICHLOROETHENE	UG/KG	10.000	U	10.000	U
DIBROMOCHLOROMETHANE	UG/KG	10.000	U	10.000	U
1,1,2-TRICHLOROETHANE	UG/KG	10.000	U	10.000	U
BENZENE	UG/KG	10.000	U	10.000	U
TRANS-1,3-DICHLOROPROPENE	UG/KG	10.000	U	10.000	U
BROMOFORM	UG/KG	10.000	U	10.000	U
4-METHYL-2-PENTANONE	UG/KG	10.000	U	10.000	U
2-HEXANONE	UG/KG	10.000	U	10.000	U
TETRACHLOROETHENE	UG/KG	10.000	U	10.000	U
1,1,2,2-TETRACHLOROETHANE	UG/KG	10.000	U	10.000	U
TOLUENE	UG/KG	10.000	U	4.000	BJ
CHLOROBENZENE	UG/KG	10.000	U	10.000	U
ETHYLBENZENE	UG/KG	10.000	U	10.000	U
STYRENE	UG/KG	10.000	U	10.000	U
XYLENES (TOTAL)	UG/KG	10.000	U	10.000	U

Verified
[illegible] 4/18/94

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09DT4

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 01025 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A401025-06A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 40124R11

Level: (low/med) LOW Date Received: 01/18/94

% Moisture: not dec. 0 Date Analyzed: 01/24/94

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10 ~~1~~	~~BJ~~ U
67-64-1	Acetone	18	~~B~~ U
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
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	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

Q

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FORM I VOA Verified 4/8/94 3/90

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EPA SAMPLE NO.

B09DT4

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 01025 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A401025-06A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 40124R11

Level: (low/med) LOW Date Received: 01/18/94

% Moisture: not dec. 0 Date Analyzed: 01/24/94

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.	UNKNOWN HYDROCARBON	18.45	8	~~J~~	JN
2.	UNKNOWN HYDROCARBON	27.70	13	~~J~~	JN

Verified 4/8/94

L011

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09DT5

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 01025 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A401025-07A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 40125R04

Level: (low/med) LOW Date Received: 01/18/94

% Moisture: not dec. 0 Date Analyzed: 01/25/94

GC Column: PACK ID: 2.00 (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	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	U	
67-64-1	Acetone	13	~~B~~	u
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	
108-10-1	4-Methyl-2-Pentanone	2	~~J~~	~~J~~
591-78-6	2-Hexanone	10	U	4/28/94
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	

~~012~~ Replaced 4/28/94

FORM I VOA Verified 4/8/94 3/90

012

~~000172~~

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09DT5

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 01025 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A401025-07A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 40125R04

Level: (low/med) LOW Date Received: 01/18/94

% Moisture: not dec. 0 Date Analyzed: 01/25/94

GC Column: PACK ID: 2.00 (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.	UNKNOWN HYDROCARBON	27.75	6	~~J~~

Verified 4/8/94

FORM I VOA-TIC 3/90

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EPA SAMPLE NO.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

B09DT6

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 01025 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A401025-05A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 40124R04

Level: (low/med) LOW Date Received: 01/18/94

% Moisture: not dec. 17 Date Analyzed: 01/24/94

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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

CAS NO.	COMPOUND		Q	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	12 ~~3~~	~~BJ~~	u
67-64-1	Acetone	12	~~B~~	u
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	
108-10-1	4-Methyl-2-Pentanone	12 ~~4~~	~~BJ~~	u
591-78-6	2-Hexanone	12	U	
127-18-4	Tetrachloroethene	12	U	
79-34-5	1,1,2,2-Tetrachloroethane	12	U	
108-88-3	Toluene	12 ~~2~~	~~J~~	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	

L014

FORM I VOA Verified [signature] 4/8/94 3/90

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09DT6

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 01025 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A401025-05A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 40124R04

Level: (low/med) LOW Date Received: 01/18/94

% Moisture: not dec. 17 Date Analyzed: 01/24/94

GC Column: PACK ID: 2.00 (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.	UNKNOWN HYDROCARBON	27.75	7	~~J~~

Verified 4/8/94

~~000201~~

EPA SAMPLE NO.

B09DT7

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 01025 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A401025-08A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 40124R13

Level: (low/med) LOW Date Received: 01/18/94

% Moisture: not dec. 4 Date Analyzed: 01/24/94

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

9413225.2177

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

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10 ~~8~~	~~BJ~~ U
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
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	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

Q

016

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Verified 4/8/94

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~~000202~~
EPA SAMPLE NO.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B09DT7

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 01025 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A401025-08A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 40124R13

Level: (low/med) LOW Date Received: 01/18/94

% Moisture: not dec. 4 Date Analyzed: 01/24/94

GC Column: PACK ID: 2.00 (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

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4/8/94

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EPA SAMPLE NO.

B09DT9

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 01025 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A401025-01A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 40124R07

Level: (low/med) LOW Date Received: 01/18/94

% Moisture: not dec. 9 Date Analyzed: 01/24/94

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

9413225.2179

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	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	11 ~~2~~	~~BJ~~	U
67-64-1	Acetone	11	~~B~~	U
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	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	
108-10-1	4-Methyl-2-Pentanone	11	U	
591-78-6	2-Hexanone	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	

018

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Verified [illegible] 4/8/94

~~000212~~
EPA SAMPLE NO.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B09DT9

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 01025 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A401025-01A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 40124R07

Level: (low/med) LOW Date Received: 01/18/94

% Moisture: not dec. 9 Date Analyzed: 01/24/94

GC Column: PACK ID: 2.00 (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.	UNKNOWN HYDROCARBON	27.75	14	~~J~~

Q

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WF3

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 01025 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A401025-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 40124R08

Level: (low/med) LOW Date Received: 01/18/94

% Moisture: not dec. 7 Date Analyzed: 01/24/94

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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

CAS NO.	COMPOUND		Q	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	11	U	
67-64-1	Acetone	11 ~~6~~	~~BJ~~	U
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	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	
108-10-1	4-Methyl-2-Pentanone	11	U	
591-78-6	2-Hexanone	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	

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WF3

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 01025 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A401025-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 40124R08

Level: (low/med) LOW Date Received: 01/18/94

% Moisture: not dec. 7 Date Analyzed: 01/24/94

GC Column: PACK ID: 2.00 (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

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4/8/94

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EPA SAMPLE NO.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

B09WF5

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 01025 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A401025-03A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 40124R09

Level: (low/med) LOW Date Received: 01/18/94

% Moisture: not dec. 0 Date Analyzed: 01/24/94

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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

CAS NO.	COMPOUND		Q	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	U	
67-64-1	Acetone	10 ~~2~~	~~BJ~~	U
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	
108-10-1	4-Methyl-2-Pentanone	10 ~~1~~	~~BJ~~	U
591-78-6	2-Hexanone	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	

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1022

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Verified 4/8/94

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B09WF5

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 01025 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A401025-03A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 40124R09

Level: (low/med) LOW Date Received: 01/18/94

% Moisture: not dec. 0 Date Analyzed: 01/24/94

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	27.75	10	~~J~~
2.	UNKNOWN HYDROCARBON	28.92	5	~~J~~

Q
JT
JS

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4/8/94

'023

~~000243~~

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09WF6

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 01025 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A401025-04A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 40124R10

Level: (low/med) LOW Date Received: 01/18/94

% Moisture: not dec. 0 Date Analyzed: 01/24/94

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

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

CAS NO.	COMPOUND		Q	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 ~~1~~	~~BJ~~	U
67-64-1	Acetone	14	~~B~~	U
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	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	10	U	
79-34-5	1,1,2,2-Tetrachloroethane	10	U	
108-88-3	Toluene	4	~~J~~	
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	

SAS 4/26/94

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Replaced 4/28/94

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000249

EPA SAMPLE NO.

B09WF6

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 01025 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A401025-04A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 40124R10

Level: (low/med) LOW Date Received: 01/18/94

% Moisture: not dec. 0 Date Analyzed: 01/24/94

GC Column: PACK ID: 2.00 (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

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[illegible] 4/8/94

025

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

9H3225.2187

000085

CASE NARRATIVE

LABORATORY : TMA/ARLI

CASE : 01-025

CONTRACT ID : WESTINGHOUSE HANFORD COMPANY

SDG RECEIPT DATE : January 18, 1994

1.0 DESCRIPTION OF CASE :

Eight soil samples were analyzed for TCL Organics- Volatiles and Semivolatiles according to the USEPA Contract Laboratory Program (CLP) Statement of Work for Organic Analysis, Revision OLM01.8. The Extractable Hydrocarbons for Kerosene (K) were analyzed according to the SW-846 Method 8015M.

9413225.2188

2.0 SAMPLE LIST :

WESTINGHOUSE ID	LAB ID	ANALYSIS REQUESTED	MATRIX
B09DT9	A4-01-025-01A	V	SOIL
B09DT9	A4-01-025-01B	SV	SOIL
B09DT9 MS	A4-01-025-01C	SV	SOIL
B09DT9 MSD	A4-01-025-01D	SV	SOIL
B09DT9	A4-01-025-01G	K	SOIL
B09WF3	A4-01-025-02A	V	SOIL
B09WF3	A4-01-025-02B	SV	SOIL
B09WF3	A4-01-025-02E	K	SOIL
B09WF3 MS	A4-01-025-02F	K	SOIL
B09WF3 MSD	A4-01-025-02G	K	SOIL
B09WF5	A4-01-025-03A	V	SOIL
B09WF5	A4-01-025-03B	SV	SOIL
B09WF5	A4-01-025-03D	K	SOIL
B09WF6	A4-01-025-04A	V	SOIL
B09WF6	A4-01-025-04B	SV	SOIL
B09WF6	A4-01-025-04D	K	SOIL
B09DT6	A4-01-025-05A	V	SOIL
B09DT6 MS	A4-01-025-05B	V	SOIL
B09DT6 MSD	A4-01-025-05C	V	SOIL
B09DT4	A4-01-025-06A	V	SOIL
B09DT4	A4-01-025-06B	SV	SOIL
B09DT4	A4-01-025-06D	K	SOIL
B09DT5	A4-01-025-07A	V	SOIL
B09DT5	A4-01-025-07B	SV	SOIL
B09DT5	A4-01-025-07D	K	SOIL
B09DT7	A4-01-025-08A	V	SOIL
B09DT7	A4-01-025-08B	SV	SOIL
B09DT7	A4-01-025-08D	K	SOIL

~~000086~~

3.0 COMMENTS :

3.1 SHIPPING AND DOCUMENTATION :

All of the samples were received intact and properly documented.

3.2 ANALYSIS

3.2.1 VOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were analyzed by heated purge within the CLP SOW holding times. The samples were analyzed during a period from 01/19/94 through 01/27/94, on the instrument "ROCKY". On 01/19/94, the operator inadvertently entered the wrong year during the instrument system boot-up, and therefore, all of the sample data incorrectly documented the year as "1993". Since it was not possible to change the date of analysis within the system the work order data was processed as is, and the appropriate manual corrections were made on the raw data by the laboratory. In addition, the report forms were changed to reflect the correct year of analysis (1994).

The analyte Acetone was detected at concentrations above the CRQL in samples B09DT4, B09DT5, B09DT6, B09WF6, B09DT6MS, and the blanks, VBLK0124R and VBLK0125R. In all of the other samples, Acetone was detected at concentrations either at or below the CRQL. Other TCL analytes detected in some of the samples included Methylene Chloride, 4-Methyl-2-pentanone, and Toluene, all at concentrations below the CRQL.

All of the QC results were within the limits specified by the EPA CLP SOW.

3.2.2 SEMIVOLATILE ANALYSIS COMMENTS :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the contract required holding times.

In all of the samples Di-n-butylphthalate was detected at concentrations less than the CRQL. In addition, sample B09WF5 had bis(2-Ethylhexyl)phthalate detected at a concentration below the CRQL.

Both the MS and the MSD sample had matrix spike recoveries above the QC limits for 2,4-Dinitrotoluene, while the MSD sample also had a high recovery for 4-Nitrophenol. In accordance with the protocol, no further action was required.

All of the other QC results were within the limits specified

000087

by the EPA CLP SOW.

3.2.3 EXTRACTABLE HYDROCARBONS "KEROSENE RANGE" COMMENTS :

SEQUENCE NOTES :

The sequence was started on 01/19/94 and was analyzed according to the SW-846 Method 8015M. The initial calibration consisted of 5 different levels of the Kerosene standard that ranged from approximately 200ppm to 2000ppm. The continuing calibration at approximately 1000ppm was injected amongst the samples, in order to verify the instrument stability. The %RSD in the initial calibration and the %D in the continuing calibration were below their 20% and 15% limits, respectively.

SAMPLE NOTES :

LOW LEVEL SOIL :

The samples were extracted and analyzed within the required holding times. Approximately 20 g of each sample was extracted and concentrated to 5 mL.

There was no Kerosene detected in any of the samples. Sample B09WF3 was spiked with Kerosene, and the matrix spike recoveries were 51% for the MS, and 54% for the MSD. The blank spike was prepared at the same time and had a 52% recovery, and the data was included in the "Additional Raw Data" portion of the package.

All of the QC results were within the limits specified by the SW-846 Method 8015M.

We 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 in this hardcopy data package and in the computer-readable data submitted on diskette is authorized by the Laboratory Manager or his designees, as verified by the following signatures.

Nicole Roth 3/3/94
Nicole Roth
Program Manager

Maureen Parrish 3/2/94
Maureen Parrish
Project Manager

~~CCCC02A~~

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.U. SETZER

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 1-11-94

Ice Chest No.: SML 342 — Field Logbook No.: ~~EFL-1091~~ EFL-115 FEB 1 1994

Bill of Lading/Airbill No.: 2519008360 — Offsite Property No.: W94-0-026-1

Method of Shipment: AIR

Shipped to: TMA

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL)

Sample Identification

1) B09BT4
- 1,250ml P:CLP;TAL Metals,Hg,Ti
- 1,250ml Gs:VOA CLP
- 1,250ml aG:Semi-VOA CLP
- 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
- 1,125ml G:Cyanide CLP
- 1,125ml Gw:Kerosene (8015M)
- 1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

2) B09BT5
- 1,250ml P:CLP;TAL Metals,Hg,Ti
- 1,250ml Gs:VOA CLP
- 1,250ml aG:Semi-VOA CLP
- 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
- 1,125ml G:Cyanide CLP
- 1,125ml Gw:Kerosene (8015M)
- 1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

3) B09BT7
- 1,250ml P:CLP;TAL Metals,Hg,Ti
- 1,250ml Gs:VOA CLP
- 1,250ml aG:Semi-VOA CLP
- 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
- 1,125ml G:Cyanide CLP
- 1,125ml Gw:Kerosene (8015M)
- 1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
W.U. Setzer	Kermit Blum K. Blum	1-18-94 1330
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

~~100026~~

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 1-13-94

Ice Chest No.: SML-311 — Field Logbook No.: EFL-1091

Bill of Lading/Airbill No.: — Offsite Property No.: OSR-17394

Method of Shipment: AIR

Shipped to: TMA

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) RADIOACTIVE

Sample Identification

1) B09D19

- 1,250ml P:CLP;TAL Metals,Hg,Ti
- 1,250ml Gs:VOA CLP
- 1,250ml aG:Semi-VOA CLP
- 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
- 1,125ml G:Cyanide CLP
- 1,125ml Gw:Kerosene (8015M)
- 1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

2) B09WF3

- 1,250ml P:CLP;TAL Metals,Hg,Ti
- 1,250ml Gs:VOA CLP
- 1,250ml aG:Semi-VOA CLP
- 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
- 1,125ml G:Cyanide CLP
- 1,125ml Gw:Kerosene (8015M)
- 1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

3)

- ~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
- 1,250ml Gs:VOA CLP
- 1,250ml aG:Semi-VOA CLP
- 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
- 1,125ml G:Cyanide CLP
- 1,125ml Gw:Kerosene (8015M)
- 1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

1-17-94

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
1-17-94 L E ROGERS 0930	W.U. SETZER	1-17-94 0930
W.U. Setzer	[illegible]	1-18-94 10:35

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

031

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 1-13-94

Ice Chest No.: SML-335 — Field Logbook No.: EFL-1091

Bill of Lading/Airbill No.: 2519008448 — Offsite Property No.: W94-0-0216-3

Method of Shipment: AIR

Shipped to: TMA

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL) NONE NOTED

Sample Identification

1) B09WF5

- 1,250ml P:CLP;TAL Metals,Hg,Ti
- 1,250ml Gs:VOA CLP
- 1,250ml aG:Semi-VOA CLP
- 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
- 1,125ml G:Cyanide CLP
- 1,125ml Gw:Kerosene (8015M)
- 1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

B09WF6

- 1,250ml P:CLP;TAL Metals,Hg,Ti
- 1,250ml Gs:VOA CLP
- 1,250ml aG:Semi-VOA CLP
- 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
- 1,125ml G:Cyanide CLP
- 1,125ml Gw:Kerosene (8015M)
- 1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

3)

- 1,250ml P:CLP;TAL Metals,Hg,Ti
- 1,250ml Gs:VOA CLP
- 1,250ml aG:Semi-VOA CLP
- 1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
- 1,125ml G:Cyanide CLP
- 1,125ml Gw:Kerosene (8015M)
- 1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

1-17-94

[] Field Transfer of Custody — Chain of Possession (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
0940 Leon E. Rogers 1-17-94	W.V. Seltzer	1-17-94 0940
Relinquished by: W.V. Seltzer	Received by: Kermit Blum K. Blum	Date/Time: 1-18-94 1330
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: 032

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

~~000026~~

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator: L E ROGERS / W.V. SETZER

Company Contact: L E ROGERS — Telephone: 376-7690

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 1-11-94

Ice Chest No.: SML 342 — Field Logbook No.: ~~EFL 1091~~ EFL-1115 SEP 1-13-94

Bill of Lading/Airbill No.: 2519008360 — Offsite Property No.: W94-0-0216-1

Method of Shipment: AIR

Shipped to: TMA

Possible Sample Hazards/Remarks: Keep samples at 4C (SOIL)

Sample Identification

1) B09D76 (0700)

~~1,250ml P:CLP;TAL Metals,Hg,Ti~~
1,250ml Gs:VOA CLP
~~1,250ml aG:Semi-VOA CLP~~
~~1,125ml G:Anions F,Cl,SO4 (EPA 300.0)~~
~~1,125ml P/G:Anions NO2,NO3 (EPA 353.2)~~
~~1,125ml G:Cyanide CLP~~
~~1,125ml Gw:Kerosene (8015M)~~
~~1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152,~~
~~Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79~~

WVS 1-11-94

1,250ml P:CLP;TAL Metals,Hg,Ti
1,250ml Gs:VOA CLP
1,250ml aG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
1,125ml G:Cyanide CLP
1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152,
Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

WVS 1-11-94

3)
1,250ml P:CLP;TAL Metals,Hg,Ti
1,250ml Gs:VOA CLP
1,250ml aG:Semi-VOA CLP
1,125ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.2)
1,125ml G:Cyanide CLP
1,125ml Gw:Kerosene (8015M)
1,1000ml P/G:Gross alpha/beta (EP-10), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152,
Eu-154,Eu-155,K-40,Ru-106,Na-22 (RC-30), Total Uranium (EA-01C) U-235,U-234,U-238 (EP-70, EP-71, EP-5) Np-237,(RC-101A, RC-622, EP-5) Pu-238,Pu-239/240 (EP-80, EP-81, EP-5) I-129 (RC-25, RC-605) Sr-90 (RC-306, RC-303, RC-309, RC-304) Tc-99 (RC-24, RC-604) Am-241,Cm-244 (EP-80, EP-90, EP-91, EP-92, EP-93, EP-5) Se-79

[] Field Transfer of Custody — Chain of Possession — (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
W.V. Setzer	Kermit Blum K. Blum	1-18-94 1330
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

L033

A-6000-407 (12/90) (EF) WEF061
Chain of Custody

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

9413227.2195

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 200-UP-2		DATA PACKAGE: B09DT4-TMA-690	
VALIDATOR: [illegible]	LAB: TMA		DATE: 4/08/94
CASE:		SDG: B09DT4-TMA-690	

ANALYSES PERFORMED

☒ CLP Volatiles	☐ SW-846 8240 (cap column)	☐ SW-846 8260 (packed column)	☐ CLP Semivolatiles	☐ SW-846 8270 (cap column)	☐ SW-846 (packed column)
☐	☐	☐	☐	☐	☐

SAMPLES/MATRIX Soils	
B09DT4	B09WF3
B09DT5	B09WF5
B09DT6	B09WF6
B09DT7	
B09DT9	

9413225.2196

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Is technical verification documentation present? . . . . . (Yes) No N/A

Is a case narrative present? . . . . . (Yes) No N/A

Comments:

2. HOLDING TIMES

Are sample holding times acceptable? . . . . . (Yes) No N/A

Comments:

035

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. INSTRUMENT TUNING AND CALIBRATION

Is the GC/MS tuning/performance check acceptable? . . . . . Yes No N/A

Are initial calibrations acceptable? . . . . . Yes No N/A

Are continuing calibrations acceptable? . . . . . Yes No N/A

Comments:

4. BLANKS

Were laboratory blanks analyzed? . . . . . Yes No N/A

Are laboratory blank results acceptable? . . . . . Yes No N/A

Were field/trip blanks analyzed? . . . . . Yes No N/A

Are field/trip blank results acceptable? . . . . . Yes No N/A

Comments: See following blank summary form for blank adjustments and see last page of checklist for comments.

5. ACCURACY

Were surrogates/System Monitoring Compounds analyzed? . . . . Yes No N/A

Are surrogate/System Monitoring Compound recoveries acceptable? Yes No N/A

Were MS/MSD samples analyzed? . . . . . Yes No N/A

Are MS/MSD results acceptable? . . . . . Yes No N/A

Comments:

9413225.2197

GC/MS ORGANIC DATA VALIDATION CHECKLIST

6. PRECISION

Are MS/MSD RPD values acceptable? . . . . . Yes No N/A

Are field duplicate RPD values acceptable? . . . . . Yes No N/A

Are field split RPD values acceptable? . . . . . Yes No N/A

Comments:

7. SYSTEM PERFORMANCE

Were internal standards analyzed? . . . . . Yes No N/A

Are internal standard areas acceptable? . . . . . Yes No N/A

Are internal standard retention times acceptable? . . . . . Yes No N/A

Comments:

8. COMPOUND IDENTIFICATION AND QUANTITATION

Is compound identification acceptable? . . . . . Yes No N/A

Is compound quantitation acceptable? . . . . . Yes No N/A

Comments:

9. REPORTED RESULTS AND QUANTITATION LIMITS

Are results reported for all requested analyses? . . . . . Yes No N/A

Are all results supported in the raw data? . . . . . Yes No N/A

Do results meet the CRQLs? . . . . . Yes No N/A

Has the laboratory properly identified and coded all TIC? . . . Yes No N/A

Comments:

9413225.2198

GC/MS ORGANIC DATA VALIDATION CHECKLIST

Comments (attach additional sheets as necessary):

Sample locations are not currently available. However, field blanks and field duplicates will be evaluated in the final summary report.

4/8/94

Comments to Item (4).

- 4-Methyl-2-pentanone is present in the blank associated with sample B09DT5. However, the sample concentration on the quant sheet, 2.198 ppb, is slightly higher than 5 times the assoc blank concentration of 1.955 ppb (blank conc. is 0.391 ppb). Therefore, the sample result could NOT be qualified as undetected (U). However, the sample result was qualified w/a "B" ~~However, a "B" qualifier was added to the current "U" qualification to flag this compound as present in the blank.~~ No qualification required. 4/28/94

- Toluene is present in the blank assoc w/ sample B09WF6. However, the sample conc on the quant sheet, 4.201 ppb, is slightly higher than 10 x blank concentration: Blank conc = 0.396 ppb x 10 = 3.96 ppb. ~~Therefore, the sample result was not qualified w/a "B" instead of a "U".~~ No qualification required. 4/28/94

4/8/94

038

Reviewed 4/28/94

HOLDING TIME SUMMARY

B09DT4-TMA-690

SDG:	VALIDATOR:	DATE: 4/8/94	PAGE 1 OF 1
COMMENTS: Volatile Organics			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09DT4	VOA	1/11/94		1/24/94		13	None
B09DT5		1/11/94		1/25/94		14	
B09DT6		1/11/94		1/24/94		13	
B09DT7		1/11/94		1/24/94		13	
B09DT9		1/13/94		1/24/94		11	
B09WF3		1/13/94		1/24/94		11	
B09WF5		1/13/94		1/24/94		11	
B09WF6		1/13/94		1/24/94		11	

BLANK AND SAMPLE DATA SUMMARY

B09DT4-TMA-690

SDG:	VALIDATOR: [illegible]	DATE: 4/8/94	PAGE 1 OF 2

COMMENTS: Volatile Organics, Blank ch, Assoc. w/samples B09DT4, B09DT6, B09DT7, B09DT9, B09DF3, B09WF5, B09WF6.

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
VBLK0124R	$MeCl_2$	2	J		ug/kg		20	B09DT4	10 u
								B09DT6	12 u
								B09DT9	11 u
								B09DF6	10 u
VBLK0124R	Acetone	13	—		ug/kg		130	B09DT4	13 u
								B09DT6	12 u
								B09DT7	10 u
								B09DT9	11 u
								B09DF3	11 u
								B09WF5	10 u
								B09WF6	14 u
VBLK0124R	4-Me-2-pentanone	2	J		ug/kg	10		B09DT6	12 u
								B09WF5	10 u
VBLK0124R	Toluene	0.396	J		ug/kg		3.96	B09DT6	12 u
		Seem						B09WF6	None - Since
		~~[illegible]~~						Sample result > 10x blank	
		ment.							concentration
		report							
		4/8/94							

BLANK AND SAMPLE DATA SUMMARY

B09OT4-TMA-690

SDG:	VALIDATOR: [illegible]	DATE: 4/8/94	PAGE 2 OF 2

COMMENTS: Blank adjustment Assoc. w/ sample B09OT5

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
VBLK0125R	Acetone	8	J		ug/kg		80	B09OT5	134

~~000302~~

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK0124R

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 01025 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: SBLK0124

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 40124R03

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

% Moisture: not dec. _____ Date Analyzed: 01/24/94

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

Assoc w/Samples B090T4, B090T6, B090T7, B090T9, B090F3, B090F5, & B090F6.

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

CAS NO.	COMPOUND			
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	2	J	x10=20
67-64-1	Acetone	13		x10=130
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	
108-10-1	4-Methyl-2-Pentanone	2	J	x5=10
591-78-6	2-Hexanone	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	

4/8/94

L042

FORM I VOA 4/8/94 3/90

VBLK0124R

~~000307~~

Assoc. w/ B090T4, B090T6, B090T7, B090T9, B090F3, B090F5, & B090F6.

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	183	7:37	1	1.000	A BB	30191.	50.000 PPB	15.06
2	114	391	16:17	2	1.000	A BV	136544.	50.000 PPB	15.06
3	117	490	20:25	3	1.000	A BB	116371.	50.000 PPB	15.06
4	65	240	10:00	1	1.311	A BB	66743.	51.395 PPB	15.48
5	98	465	19:22	3	0.949	A BB	132835.	54.517 PPB	16.42
6	95	578	24:05	3	1.180	A BB	90300.	53.193 PPB	16.02
7	NOT FOUND								
~~8~~	~~94~~	~~40~~	~~1:40~~	~~1~~	~~0.219~~	~~A BB~~	~~975.~~	~~1.100 PPB~~	~~0.33~~
9	NOT FOUND								
10	NOT FOUND								
11	84	112	4:40	1	0.612	A BB	1735.	1.722 PPB	0.52
12	43	126	5:15	1	0.689	A VV	8088.	13.269 PPB	4.00
13	NOT FOUND								
14	NOT FOUND								
15	NOT FOUND								
16	NOT FOUND								
17	NOT FOUND								
~~18~~	~~43~~	~~240~~	~~10:00~~	~~1~~	~~1.311~~	~~A VB~~	~~2276.~~	~~2.666 PPB~~	~~0.80~~
19	NOT FOUND								
~~20~~	~~97~~	~~266~~	~~11:05~~	~~2~~	~~0.680~~	~~A VV~~	~~819.~~	~~0.454 PPB~~	~~0.14~~
21	NOT FOUND								
~~22~~	~~43~~	~~280~~	~~11:40~~	~~2~~	~~0.716~~	~~A VV~~	~~1148.~~	~~0.312 PPB~~	~~0.09~~
~~23~~	~~83~~	~~287~~	~~11:57~~	~~2~~	~~0.734~~	~~A*BB~~	~~612.~~	~~0.263 PPB~~	~~0.08~~
24	NOT FOUND								
25	NOT FOUND								
26	NOT FOUND								
27	NOT FOUND								
28	NOT FOUND								
~~29~~	~~97~~	~~347~~	~~14:27~~	~~2~~	~~0.887~~	~~A BV~~	~~731.~~	~~0.743 PPB~~	~~0.22~~
30	NOT FOUND								
31	NOT FOUND								
32	NOT FOUND								
33	43	407	16:57	3	0.831	A BB	3424.	1.717 PPB	0.52
34	NOT FOUND								
35	NOT FOUND								
36	NOT FOUND								
~~37~~	~~91~~	~~470~~	~~19:35~~	~~3~~	~~0.959~~	~~A BB~~	~~1139.~~	~~0.396 PPB~~	~~0.12~~
38	NOT FOUND								
39	NOT FOUND								
40	NOT FOUND								
41	NOT FOUND								
42	NOT FOUND								

Toluene

0.396 ppb x 10 = 3.96 ppb

1-25-94

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	7:40	0.99	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	16:17	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	20:25	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	10:00	1.00	1.304	1.01	51.40	50.00	2.211	2.151	1.03
5	19:22	1.00	0.949	1.00	54.52	50.00	1.141	1.047	1.09
6	24:02	1.00	1.178	1.00	53.19	50.00	0.776	0.729	1.06
7	0:52		0.114						
8	1:35	1.05	0.207	1.06	1.10	50.00	0.032	1.468	0.02
9	2:02		0.266						
10	2:50		0.370						
11	4:42	0.99	0.614	1.00	1.72	50.00	0.057	1.669	0.03
12	5:22	0.98	0.701	0.98	13.27	50.00	0.268	1.009	0.27

043

4/18/94

01/28/94

~~000316~~

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK0125R

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 01025 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: SBLK0125

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 40125R03

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

% Moisture: not dec. ____ Date Analyzed: 01/25/94

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

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

Assoc. w/ B090T5

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

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	8	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
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	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

NO=80

044

FORM I VOA 4/12/94 3/90

Assoc. w/ BO90TS VBLK0125R

~~000321~~

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	179	7:27	1	1.000	A BB	41268.	50.000 PPB	15.95
2	114	390	16:15	2	1.000	A BB	166793.	50.000 PPB	15.95
3	117	489	20:22	3	1.000	A BB	142714.	50.000 PPB	15.95
4	65	238	9:55	1	1.330	A BB	73003.	47.182 PPB	15.05
5	98	464	19:20	3	0.949	A BB	144943.	48.567 PPB	15.49
6	95	576	24:00	3	1.178	A BB	99222.	46.713 PPB	14.90
7	NOT FOUND								
~~8~~	~~94~~	~~40~~	~~1:40~~	~~1~~	~~0.223~~	~~A BB~~	~~1710.~~	~~1.438 PPB~~	~~0.46~~
9	NOT FOUND								
10	NOT FOUND								
~~11~~	~~84~~	~~105~~	~~4:22~~	~~1~~	~~0.587~~	~~A BB~~	~~1025.~~	~~0.777 PPB~~	~~0.25~~
12	43	120	5:00	1	0.670	A BV	5758.	8.321 PPB	2.65
13	NOT FOUND								
14	NOT FOUND								
15	NOT FOUND								
16	NOT FOUND								
17	NOT FOUND								
~~18~~	~~43~~	~~238~~	~~9:55~~	~~1~~	~~1.330~~	~~A VV~~	~~7424.~~	~~6.969 PPB~~	~~2.22~~
19	NOT FOUND								
~~20~~	~~97~~	~~266~~	~~11:05~~	~~2~~	~~0.682~~	~~A BB~~	~~888.~~	~~0.418 PPB~~	~~0.13~~
21	NOT FOUND								
~~22~~	~~43~~	~~275~~	~~11:27~~	~~2~~	~~0.705~~	~~A VV~~	~~896.~~	~~0.202 PPB~~	~~0.06~~
23	NOT FOUND								
24	NOT FOUND								
25	NOT FOUND								
26	NOT FOUND								
27	NOT FOUND								
28	NOT FOUND								
29	NOT FOUND								
30	NOT FOUND								
31	NOT FOUND								
32	NOT FOUND								
~~33~~	~~43~~	~~405~~	~~16:52~~	~~3~~	~~0.828~~	~~A BB~~	~~1036~~	~~0.391 PPB~~	~~0.12~~
~~34~~	~~43~~	~~436~~	~~18:10~~	~~3~~	~~0.892~~	~~A BV~~	~~1308.~~	~~0.653 PPB~~	~~0.21~~
35	NOT FOUND								
36	NOT FOUND								
~~37~~	~~91~~	~~468~~	~~19:30~~	~~3~~	~~0.957~~	~~A BB~~	~~2400.~~	~~0.702 PPB~~	~~0.22~~
38	NOT FOUND								
39	NOT FOUND								
40	NOT FOUND								
41	NOT FOUND								
42	NOT FOUND								

4-Methyl-2-pentanone

0.391 ppb x5 = 1.955 ppb

1-27-94

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	7:40	0.97	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	16:17	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	20:25	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	10:00	0.99	1.304	1.02	47.18	50.00	1.769	1.875	0.94
5	19:22	1.00	0.949	1.00	48.57	50.00	1.016	1.046	0.97
6	24:02	1.00	1.178	1.00	46.71	50.00	0.695	0.744	0.93
7	0:52		0.114						
8	1:35	1.05	0.207	1.08	1.44	50.00	0.041	1.441	0.03
9	2:02		0.266						
10	2:50		0.370						
11	4:42	0.93	0.614	0.96	0.78	50.00	0.025	1.599	0.02
12	5:22	0.93	0.701	0.96	8.32	50.00	0.140	0.838	0.17

045

4/8/94 01/28/94