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APPENDIX C
DATA VALIDATION DOCUMENTATION

Roy F. Weston Laboratories

Data Package 9105L529

Volatile Organic Analyses

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THIS APPENDIX CONSISTS OF FIVE ATTACHMENTS

Attachment 1 - Glossary of Data Qualifiers

This attachment provides a glossary explaining all data qualifiers applied as a result of the validation.

Attachment 2 - As Received Laboratory Sample Concentration Reports

This attachment provides a copy of the as-received sample concentration reports. This may be a tabular summary similar to that provided in Attachment 4, or may be a copy of the laboratory reports (e.g. Form I).

Attachment 3 - Summary of Data Qualifications (Form B-7)

This attachment provides a complete summary of all qualifications applied as a result of the validation.

Attachment 4 - As Qualified Data Summary

This attachment provides a tabular data summary of all data qualified from the validation.

Attachment 5 - Data Review Supporting Documentation

This attachment provides copies of the data validation checklists, data summary forms, telephone contact memoranda and other documentation completed as a result of the data validation.

ATTACHMENT 1

Glossary of Data Qualifiers

U - Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to quality control deficiencies identified during data validation the value reported may not accurately reflect the sample quantitation limit.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated but the data are useable for decision making processes.

R - Indicates the compound or analyte was analyzed for and due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

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ATTACHMENT 2

As Received Laboratory Sample Concentration Reports

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1A
VOLATILE ORGANICS ANALYSIS SHEET

0000026

CLIENT SAMPLE NO.

BOOVRD

I Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9105L529-002

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: W050914

Level: (low/med) LOW

Date Received: 05/08/91

% Moisture: not dec. 3

Date Analyzed: 05/09/91

Column: (pack/cap) PACK

Dilution Factor: 1.00

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	18	B
67-64-1	Acetone	27	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	1	J
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

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1E

0000027 CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BOOVRD

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9105L529-002

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: W050914

Level: (low/med) LOW

Date Received: 05/08/91

% Moisture: not dec. 3

Date Analyzed: 05/09/91

Column: (pack/cap) PACK

Dilution Factor: 1.00

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	*PROBABLE LAB CONTAMINANT			
2.	1,4-DIOXANE*	8.67	30	J

9613473.2482

1A
VOLATILE ORGANICS ANALYSIS SHEET

00000 CLIENT SAMPLE NO.

BOOVQ9

I 'ame: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9105L529-001

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: AX5F14

Level: (low/med) LOW

Date Received: 05/08/91

% Moisture: not dec. 2

Date Analyzed: 05/15/91

Column: (pack/cap) CAP

Dilution Factor: 1.00

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	33	B
67-64-1	Acetone	31	B
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	1	J
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

9613473.2483

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

00000 2 CLIENT SAMPLE NO.

BOOVQ9

Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9105L529-001

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: AX5F14

Level: (low/med) LOW

Date Received: 05/08/91

% Moisture: not dec. 2

Date Analyzed: 05/15/91

Column: (pack/cap) CAP

Dilution Factor: 1.00

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

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ATTACHMENT 3

Summary Of Data Qualifications

9613473.2485

DRAFT 7/91

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: 9105L529	REVIEWER: KAK/mr	DATE: 3/26/92	PAGE 1 OF 1
COMMENTS: Volatiles			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
methylene chloride	UJ	BOOVRD	ICAL %RSD; <10x blank
acetone	U		<10x blank
1,2-dichloroethane	UJ		CCV %D
2-butanone	J		<QL (possible lab contam.)
vinyl acetate	UJ		ICAL %RSD; CCV %D
4-methyl-2-pentanone	UJ		CCV %D
chloroethane	UJ	BOOVQ9	CCV %D
methylene chloride	U		<10x blank
acetone	UJ		ICAL %RSD; lab contam.
2-butanone	UJ		CCV %D
trans-1,3-dichloropropene	UJ		CCV %D
4-methyl-2-pentanone	U		no confirm. spectra

9613473.2486

ATTACHMENT 4

As Qualified Data Summary

9613473.2487

1A

VOLATILE ORGANICS ANALYSIS SHEET

0000026

CLIENT SAMPLE NO.

BOOVRD

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9105L529-002

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: W050914

Level: (low/med) LOW

Date Received: 05/08/91

% Moisture: not dec. 3

Date Analyzed: 05/09/91

Column: (pack/cap) PACK

Dilution Factor: 1.00

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	18 ✓	~~B~~ UJ ICAL %RSD; <10x blank
67-64-1	Acetone	27	~~B~~ UJ <10x blank
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	UJ CCV %D
78-93-3	2-Butanone	1	J <QL; poss. lab contam.
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	UJ ICAL %RSD; CCV %D
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	UJ CCV %D
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

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1E

0000027 CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BOOVRD

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9105L529-002

Sample wt/vol: 5.00 (g/mL) G Lab File ID: W050914

Level: (low/med) LOW Date Received: 05/08/91

% Moisture: not dec. 3 Date Analyzed: 05/09/91

Column: (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	*PROBABLE LAB CONTAMINANT			
2.	1,4-DIOXANE*	8.67	30	NJ

presumptive evidence; prob. lab contam.

FORM 1 VOA-TIC 12/88 Rev.

9613473.2489

1A

00000 CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS SHEET

B00VQ9

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9105L529-001

Sample wt/vol: 5.00 (g/mL) G Lab File ID: AX5F14

Level: (low/med) LOW Date Received: 05/08/91

% Moisture: not dec. 2 Date Analyzed: 05/15/91

Column: (pack/cap) CAP Dilution Factor: 1.00

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	UJ CCV %D
75-09-2	Methylene Chloride	~~38~~ 35	B U <10x Blank
67-64-1	Acetone	31	B UJ ICAL % RSD; lab contam.
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	UJ CCV %D
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	UJ CCV %D
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	5 ~~1~~	~~J~~ U no confirm. spectra
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

FORM 1-V-1 12/88 Rev.

4/2/92

9613473.2490

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VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

0 0 0 0 0 2 CLIENT SAMPLE NO.

B00VQ9

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9105L529-001

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: AX5F14

Level: (low/med) LOW

Date Received: 05/08/91

% Moisture: not dec. 2

Date Analyzed: 05/15/91

Column: (pack/cap) CAP

Dilution Factor: 1.00

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

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ATTACHMENT 5

Data Review Supporting Documentation

9613473.2492

DRAFT 7/91

VOLATILE ORGANIC DATA REVIEW CHECKLIST - FORM A-1

PROJECT: Westinghouse 2978-40	REVIEWER: CMR	DATE: 2/17/92 / 3/26/92
LABORATORY: Weston / Lionville	CASE: 91051529	SDG:
SAMPLES/MATRIX:		
B00VQ9 soil		
B00VRD ↓		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	✓	—	—
Data Summary	✓	—	—
Chain-of-Custody	✓	—	—
QC Summary			
Surrogate report	✓	—	—
MS/MSD report not project-specific	✓	—	—
Blank summary report 5/9, 5/15	✓	—	—
GC/MS tuning report [(10SW) 5/6, 5/9] [(HPMSDX) 5/8, 5/15] (10SW - packed, HPMSDX - capillary)	✓	—	—
Internal standard summary report	✓	—	—
Sample Data			
Sample reports	✓	—	—
TIC reports for each sample	✓	—	—
RIC reports for all samples	✓	—	—
Raw and corrected spectra for all detected results	✓	—	—
Raw and corrected library search data for all reported TIC	✓	—	—
Quantitation and calculation data for all TIC	✓	—	—
Standards Data			
Initial calibration report	✓	—	—
RIC and quantitation reports for initial calibration	✓	—	—
Continuing calibration reports	✓	—	—
RIC and quantitation reports for cont. calibrations	✓	—	—
Internal standard summary report	✓	—	—

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Data Package Item	Present?: Yes	No	N/A
Raw QC Data			
Tuning report, spectra and mass lists	✓		
Blank analysis reports	✓		
TIC reports for all blanks	✓		~~✓~~ Curr
RIC and quantitation reports for blanks	✓		
Raw and corrected spectra for all detected results in blanks	✓		
Raw and corrected library search data for all reported TIC			✓ curr
Quantitation and calculation data for all TIC			✓
MS/MSD report forms		✓	
RIC and quantitation reports for MS/MSD (form for non-project MS/MSD)		✓	
Additional Data			
Moisture/% solids data sheets (in wet chem pkg)		✓	
Reduction formulae		✓	(not needed)
Instrument time logs		✓	
Chemist notebook pages		✓	
Sample preparation sheets (printout is in pkg.)		✓	

2. HOLDING TIMES

Complete the holding time summary form listing all samples and dates of collection and analysis.

Were all samples analyzed within holding time? **Yes** No N/A

ACTION: If any holding times were exceeded, qualify associated samples as estimated (J for detects or UJ for non-detects).

3. INSTRUMENT CALIBRATION AND TUNING

3.1 GC/MS TUNING

Is a BFB tune report present for each applicable 12h period? **Yes** No N/A

Do all tunes on all instruments meet the tuning criteria? **Yes** No N/A

Do all tunes on all instruments meet the expanded criteria? **Yes** No N/A

Has the laboratory made any calculation or transciption errors? Yes **No** N/A

Have the proper significant figures been reported? **Yes** No N/A

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects or UJ for non-detects). If all tuning criteria are missed, qualify all associated data as unusable (R).

3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments?	Yes	No	N/A
Are all RSD values ≤30%?	Yes	No	N/A
Are all RRF values ≥0.05? but all RRF were >0.05 unk	Yes	No	N/A

ACTION: If any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all non-detects as unusable (R). If any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for non-detects).

3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12h periods in which associated samples were analyzed ?	Yes	No	N/A
Are all RRF values ≥0.05?	Yes	No	N/A
Are all %D values ≤25%?	Yes	No	N/A

ACTION: If any RRF value is out of specification qualify all associated detected results as estimated and all non-detects as unusable (R). If any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for non-detects).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory conducted a method blank analysis per matrix for every 12h period in which samples were analyzed?	Yes	No	N/A
Are TCL compounds present in the laboratory blanks?	Yes	No	N/A

ACTION: Qualify all sample results <10X the highest blank concentration for the common laboratory contaminants, as non-detects (U) or at the SQL if the result is < CRQL. Qualify all remaining sample results <5X the blank concentration in similar fashion.

4.2. FIELD BLANKS

Are TCL compounds present in the field blanks? Yes No N/A

ACTION: Qualify all detected sample results less than or equal to five times the amount in any valid field blank as non-detects (U) and note the field blank results in the validation narrative.

5. ACCURACY

5.1 SURROGATE RECOVERY

Are any surrogate recoveries out of specification? Yes No N/A

Are any surrogate recoveries less than 10%? Yes No N/A

Are any method blank surrogate recoveries out of specification? Yes No N/A

ACTION: Qualify all associated sample results as estimated (J for detects or UJ for non-detects) for surrogates out of specification but greater than 10%. Qualify all associated positive sample results as estimated (J) and all non-detect results as unusable (R) for all surrogates below 10%. If method blank surrogates are out of specification and the associated sample surrogates are acceptable no qualification is necessary, however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has an MS/MSD analysis been conducted per matrix in the sample group? not project-specific, though use Yes No N/A

Are MS/MSD recoveries within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit sample in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are RPD values within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and not the results in the validation narrative. If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

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

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

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

ACTION: Note the results of the field split samples in the validation narrative.

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes No N/A

Are retention times for any internal standard outside the ±30 second windows established by the most recent calibration check? Yes No N/A

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects or UJ for non-detects). If area counts are outside the acceptance limits and the retention time criteria are not met qualify all non-detects in the associated samples as unusable (R).

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

Are detected compounds within ±0.06 relative retention time units of the associated calibration standard?	Yes	No	N/A
Are all ions at a relative intensity of ≥10% in the standard spectra present in the sample spectra?	Yes	No	N/A
Do the relative intensities between the standard and sample spectra agree within 20%?	Yes	No	N/A
Have all ions >10% in the sample spectra that are not present in the standard spectra been explained?	Yes	No	N/A

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R). Note the results in the validation narrative.

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standard(s) for quantitation?	Yes	No	N/A
Are results and quantitation limits calculated properly?	Yes	No	N/A
Has the laboratory reported the sample quantitation limits within five times the CRQL values?	Yes	No	N/A

ACTION: If the results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8.3 TENTATIVELY IDENTIFIED COMPOUNDS (TIC)

Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW?	Yes	No	N/A
Has the laboratory properly identified and coded all TIC?	Yes	No	N/A

9615473.2498

ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as non-detects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as non-detects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

9. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW? Yes No N/A

Were project specific data quality objectives met for this analysis? Yes No N/A

ACTION: Summarize all the data qualifications recommended in the foregoing sections, and complete the data validation narrative according to the requirements of Section 10 of the data validation requirements.

9613473.2499

COMMENTS (attach additional sheets as necessary):

4-methyl-2-pentanone in sample B00VQ9 was reported as detected but did not have a confirmation spectra. ∴ qual. as (U)

HOLDING TIME SUMMARY - FORM B-1

SDG:	REVIEWER: KAK / CMR	DATE: 3/26/92	PAGE 1 OF 1
COMMENTS: 91054529			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED NONE	DATE ANALYZED cbs	PREP. HOLDING TIME, DAYS NONE	ANALYSIS HOLDING TIME, DAYS ↓	QUALIFIER
B00VQ9	VOLATILES	5/6/91	N/A	5/15/91	N/A	7	NONE
B00VR0	VOLATILES	5/6/91	N/A	5/9/91	N/A	1	NONE
							KAK

DRAFT

7/91

96134732500

CALIBRATION DATA SUMMARY - FORM B-2

SDG:	REVIEWER: KAK / CMR	DATE: 4/1/92		PAGE 1 OF 1	
COMMENTS:	VOLATILES				
CALIB. TYPE:	INITIAL CONTINUING	INSTRUMENT:			
CALIB. DATE	COMPOUND	RF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
1050W ① ICAL 5/6/91	METHYLENE CHLORIDE	1.133	43.7	BOOVRD	UJ
	VINYL ACETATE	1.114	32.4	↓	UJ
② CCV 5/9/91	1,2-DICHLOROETHANE	3.545	29.0	BOOVRD	UJ
	VINYL ACETATE.		31.3	↓	UJ
	4-METHYL-2-PENTANONE		31.5	↓	UJ
HP-MSDX ① ICAL 5/8/91	acetone	0.481	36.6 %RSD	BOOVQ9	UJ
② CCV 5/15/91	chloroethane		29.0 %D	BOOVQ9	UJ
	2-butanone		26.7 ↓	↓	↓
	trans-1,3-dichloropropene		26.0 ↓	↓	↓
	This CCV had minor calculation errors which were corrected				
	during data validation.				

TUNES 1050W 5/6/91 12:22 → ICAL
5/9/91 12:13 → CCV, BLK, BOOVRD
HPMSDX 5/8/91 11:08 → ICAL
5/15/91 10:32 → CCV, BLK BOOVQ9

CMR

all are [illegible]

✓ CMR

B-2

DRAFT

7/91

9613473.25011

BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG: 9105L529	REVIEWER: KAK/CMR	DATE: 3/26/92	PAGE 1 OF 1

COMMENTS:

Instrument	SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	SAMPLES AFFECTED	QUALIFIER
1050W	VBLK	methylene chloride	9			ug/kg	B00VRD	U
	↓	acetone	29			ug/kg	↓	
HP-MSDX	VBLK	Methylene Chloride	7			ug/kg	B00VQ9	U
	—	Acetone	CLC			—	1500VQ9	U
		CLC = common lab contamination. CMR						

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7/91

B-3

96139473.2502

✓CMR

ACCURACY DATA SUMMARY - FORM B-4

SDG: 9105L529	REVIEWER: KAK/CMR	DATE: 3/26/92	PAGE 1 OF 1	
COMMENTS:				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
surrogate ① All surrogate percent recoveries are acceptable and range from 94 – 110%. CMR			all	none
matrix spike ② There was no project-specific matrix spike sample(s) analyzed. The laboratory did perform a soil matrix spike on a non-project sample, and all percent recoveries were acceptable, and ranged from 107 – 123%. No raw data was supplied. Therefore, % recoveries are assumed to be correct. CMR				none
internal stds. ③ all internal standard areas are within the acceptable range. CMR				

B-4

DRAFT

7/91

9613473.2503

PRECISION DATA SUMMARY - FORM B-5

SDG: 9105L529	REVIEWER KAK/CMR	DATE: 3/26/92	PAGE 1 OF 1
COMMENTS: Volatiles			

COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER
All matrix-spike duplicate precision data is acceptable, and %RPDs range from 0-2%RPD. This is not a project-specific sample, however. CMR					none

DRAFT

7/91

96134732504

9613473 2505

DRAFT
CALCULATION SUMMARY - FORM B-6

7/91

SDG: 910521	REVIEWER: CAK	DATE: 3 26 '91	PAGE 1 OF 1

COMMENTS:

BOOKRD

2-butanone:

$$\frac{383}{295184} * \frac{50}{0.052} * \frac{1}{0.97} = 1.3 \text{ mg/kg}$$

9613473.2506

OSM ORGANIC DATA ASSESSMENT

both ~~wood~~ soil matrix

DATE 10/15/91 SAMPLES/MATRIX B00VQ9 , B00VRD

REVIEWED BY Mark A. Beckman

LABORATORY Weston

CASE # RFW # 9105L529

SDG #

DATA ASSESSMENT SUMMARY

	VOA	ABN	~~PEST~~/PCB
1. Holding Times (Form I)	O		O
2. Surrogate Recovery (II)	O		O
3. Matrix Spike/ MSD (III)	O		O
4. Blanks (IV)	X		O
5. GC/MS Tune (V)	O		
6. Calibration (VI-VII; VIII pest)	O		O
7. Internal Standards (VIII)	O		
8. Instr. Perform. (IX pest)			O
9. Other ( )	O		X

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems, some data may be unusable

OVERALL ASSESSMENT: VOA OK with attached qualifications. PCB-OK with note below and under "Other" noted.

NOTES : VOA-2 samples, each done on different instruments, which doubles QC requirements. PCB- There is no "PCB" standalone for RCP

Refer to the corresponding attachments for explanation of any problems.

9613473.2507

ORGANIC QC - Holding Times

Name Mark A. Beck Date 10/15/97

COMMENTS: VOA - Both samples met analysis holding time requirements. ~~PCB~~ VOA - continued: ~~No~~ formal requirements have been established for soils, the above holding times refer to water matrix requirments. PCB:- Both samples met both extraction and analysis holding time requirements.

ACTION: VOA - none - none required
PCB: none, none required or needed

sample #	constituent	value/qual	sample #	constituent	value/qual

9613473.2508

ORGANIC QC - Surrogate Recovery

Name Mark O. Bec MAB Date 10/15/91

COMMENTS: List all surrogate compounds showed acceptable recoveries. PCB/Pest - The surrogate compound had a recoveries that were acceptable except for for the method blank. The method blank recovery was biased high.

ACTION: VOA - no [illegible] required [illegible]
PCB/Pest - no qualification because: 1) the blank has much different recoveries than the sample, 2) The PCB/Pest surrogate recovery is only advisory by CLP.

sample #	constituent	value/qual	sample #	constituent	value/qual

9613473.2509

ORGANIC QC - MS/MSD

Name Mark G. Beckmann Date 10/15/91

COMMENTS: The matrix spike was not done on a sample in the RFW#. The sample used was D3-4301-19 RFW# 4105E467-003 from ZIA Tile Field (an ERA site). This sample may not reflect the matrix of the analyzed samples. But it lists it a sample of soil from Hanford site. All compounds met all recovery and RPD requirements. "PCB" - No matrix spike/the duplicate was run, matrix spike recovery ~~accepted~~ acceptable.

ACTION: (DAT) None required, as MS/MSD was in trending and are only advisory to any specific RFW#. "PCB" - none, none needed.

sample #	constituent	value/qual	sample #	constituent	value/qual

9613473.2510

ORGANIC QC - Blanks

Name Mark A. Beck MD. Date 10/15/91

COMMENTS: VOA- a blank was associated with each of the samples. The blanks were contaminated with the common laboratory contaminants methylene chloride and acetone. 2 Butanone was "detected" in the samples at less than the IDL (SQL) but not in the blanks. "PCB"- an appropriate soil blank was run for both samples. No contaminants detected.

ACTION: VOA- qualify all methylene chloride and acetone results as undetected. Qualify 2 butanone as undetected and change from I-value to that of the IDL for BOOVRD. "PCB"- none, none needed.

sample #	constituent	value/qual
BOOVQ9	methylene chloride	U
BOOVRD	acetone	
BOOVRD	2 Butanone	10U

sample #	constituent	value/qual

9613473.2511

ORGANIC QC - GC/MS Tune

Name Mark A. Beckman Date 10/14/91

COMMENTS: VOA- All standards, samples and blanks had a GC/MS tune appropriately associated with them. all times met acceptance criteria.
"PCB" - not applicable.

ACTION: VOA- none - all criteria met.

sample #	constituent	value/qual	sample #	constituent	value/qual

9613473.2512

ORGANIC QC - Calibrations

Name Mark G. Beckman Date 10/15/91

COMMENTS: VOA - appropriate calibration were run. All NAP and BD met acceptance criteria for initial and continuing calibrations. "PCB" - %RSD of calibration factors all are greater than 10%. The analytical sequence was performed acceptably. All PCB standards had %D calibration factors <15% on both quantitation and confirmation columns.

ACTION: VOA - none. none needed, "PCB" - All relevant calibration factors measures were acceptable, no action needed

sample #	constituent	value/qual	sample #	constituent	value/qual

9613473.2513

ORGANIC QC - Internal Standards

Name Mark A. Beck Date 10/15/91

COMMENTS: Volt All samples and blanks had internal standard that met area and retention time criteria.
"PCB" - not applicable.

ACTION: Volt - none, none needed.

sample #	constituent	value/qual	sample #	constituent	value/qual

9613473.2514

ORGANIC QC - Instrument Performance (pest)

Name Mark A. Beck Date 10/15/91

COMMENTS: "PCB" all retention time of standards fell within the retention time window. % breakdown was exceeded for the last EtvalB mix (@ 2150, 2152) for both columns. EtvalA %D was 0.0 and therefore acceptable for both columns.

ACTION: % breakdown not relevant to PCB analyses. All relevant performance measures were in control, no action needed.

sample #	constituent	value/qual	sample #	constituent	value/qual

9613473.2515

ORGANIC QC - Other

Name Mark A. Bedkman. Date 10/15/91

COMMENTS: VOA The samples were run on different instruments on different days, necessitating 2 sets of QC data. Two complete sets were not provided ~~and~~ upon ~~in~~ initial transmittal.
"PCB" - PCB is not a standalone CLP method. This data package was validated using validation ~~on proce~~ procedure for PCB/Pesticides as a matter of convenience.

ACTION: VOA. none, except the above comment.
"PCB" - none, except the above and cover page notes.

sample #	constituent	value/qual	sample #	constituent	value/qual

9613473.2516

1A

VOLATILE ORGANICS ANALYSIS SHEET

0000026

CLIENT SAMPLE NO.

BOOVRD

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9105L529-002

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: W050914

Level: (low/med) LOW

Date Received: 05/08/91

% Moisture: not dec. 3

Date Analyzed: 05/09/91

Column: (pack/cap) PACK

Dilution Factor: 1.00

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	18	~~B~~ U
67-64-1	Acetone	27	~~B~~ U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	~~J~~ U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

FORM 1 V-1 12/88 Rev.

MUB. 10/15/91

9613473.2517
1E

U U U U U 2 7 CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BOOVRD

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9105L529-002

Sample wt/vol: 5.00 (g/mL) G Lab File ID: W050914

Level: (low/med) LOW Date Received: 05/08/91

% Moisture: not dec. 3 Date Analyzed: 05/09/91

Column: (pack/cap) PACK Dilution Factor: 1.00

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	*PROBABLE LAB CONTAMINANT			
2.	1,4-DIOXANE*	8.67	30	J

FORM 1 VOA-TIC 12/88 Rev.

MGB
10/15/91

1A 9613473.2518

00000 CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS SHEET

BOOVQ9

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9105L529-001

Sample wt/vol: 5.00 (g/mL) G Lab File ID: AX5F14

Level: (low/med) LOW Date Received: 05/08/91

% Moisture: not dec. 2 Date Analyzed: 05/15/91

Column: (pack/cap) CAP Dilution Factor: 1.00

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	33	~~B~~ 4
67-64-1	Acetone	31	~~B~~ 4
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	1	J
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

MCG 10/15/91

9613473.2519

1E

U U U U U CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BOOVQ9

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9105L529-001

Sample wt/vol: 5.00 (g/mL) G Lab File ID: AX5F14

Level: (low/med) LOW Date Received: 05/08/91

% Moisture: not dec. 2 Date Analyzed: 05/15/91

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

FORM 1 VOA-TIC 12/88 Rev.

MAB
10/15/91

9613423.2520

1D

0 0 0 0 0 1

CLIENT SAMPLE NO.

BOOVRD

PESTICIDE ORGANICS ANALYSIS SHEET

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9105L529-002

Sample wt/vol: 31.6 (g/mL) G

Lab File ID: 06149103.42

Level: (low/med) LOW

Date Received: 05/08/91

% Moisture: not dec. 5 dec.

Date Extracted: 05/10/91

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 06/15/91

GPC Cleanup: (Y/N) Y pH: 7.1

Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	
12674-11-2	Aroclor-1016	80	U
11104-28-2	Aroclor-1221	80	U
11141-16-5	Aroclor-1232	80	U
53469-21-9	Aroclor-1242	80	U
12672-29-6	Aroclor-1248	80	U
11097-69-1	Aroclor-1254	160	U
11096-82-5	Aroclor-1260	160	U

FORM 1 PEST 12/88 Rev.

mag
10/15/91

9613473.2521
1D

U U U U U 1 CLIENT SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS SHEET

BOOVQ9

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL Lab Sample ID: 9105L529-001

Sample wt/vol: 29.9 (g/mL) G Lab File ID: 06149103.41

Level: (low/med) LOW Date Received: 05/08/91

% Moisture: not dec. 3 dec. Date Extracted: 05/10/91

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 06/15/91

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	
12674-11-2	Aroclor-1016	83	U
11104-28-2	Aroclor-1221	83	U
11141-16-5	Aroclor-1232	83	U
53469-21-9	Aroclor-1242	83	U
12672-29-6	Aroclor-1248	83	U
11097-69-1	Aroclor-1254	170	U
11096-82-5	Aroclor-1260	170	U

FORM 1 PEST 12/88 Rev.

MGB
10/15/91

9613473.2522

300-FF-1 OPERABLE UNIT DATA VALIDATION
WESTINGHOUSE HANFORD COMPANY
DISTRIBUTION & FILE RECORD FORM

Task E-92-15 /2978-40
2/3/92
Rev. 0

Document Title: Volatiles 91051529 (App. C, 300FF1 - #2) Date: 10/20/92
Document Number: Originator: CMR

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S-1 Original Data Packages		
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TASK TECHNICAL		
T-1 Validation Calculations and Notated Packages	X	
T-2 Progress Memos		
T-3 Completeness Checklists		
T-4 Draft Summary Report(s)		
T-5 Final Summary Report(s)		
T-6 Draft Summary Report Review Comments		
T-7 Other Technical Documentation		

FORM

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WESTINGHOUSE HANFORD **SAMPLES RECEIVED:** 05-08-91
RFW #: 9105L529, GC/MS VOLATILE
W.O. #: 6168-02-01

NARRATIVE

The set of samples consisted of two (2) soil samples collected on 05-06-91.

The samples were analyzed according to criteria set forth in SW 846 Method 8240 for TCL Volatile target compounds on 05-09,15-91.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analysis:

1. Significant non-target compounds were not detected in these samples.

2. All surrogate recoveries were within EPA QC limits.

3. Matrix spike and spike duplicate samples are associated with RFW lot 9105L467.

4. The laboratory blanks contained the common contaminants methylene chloride and acetone at levels less than 3x the CRQL.

5. All internal standard area and retention time criteria were met.

Jack R. Tuschall, Ph.D.
Laboratory Manager
Lionville Analytical Laboratory

6-25-91
Date

9613473.2524

1A

VOLATILE ORGANICS ANALYSIS SHEET

00000 1 CLIENT SAMPLE NO.

BOOVQ9

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9105L529-001

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: AX5F14

Level: (low/med) LOW

Date Received: 05/08/91

% Moisture: not dec. 2

Date Analyzed: 05/15/91

Sample conc. = area compound / area I.S. * I.S. conc / RRF50 ÷ % Solids * 100

Column: (pack/cap) CAP

Dilution Factor: 1.00

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

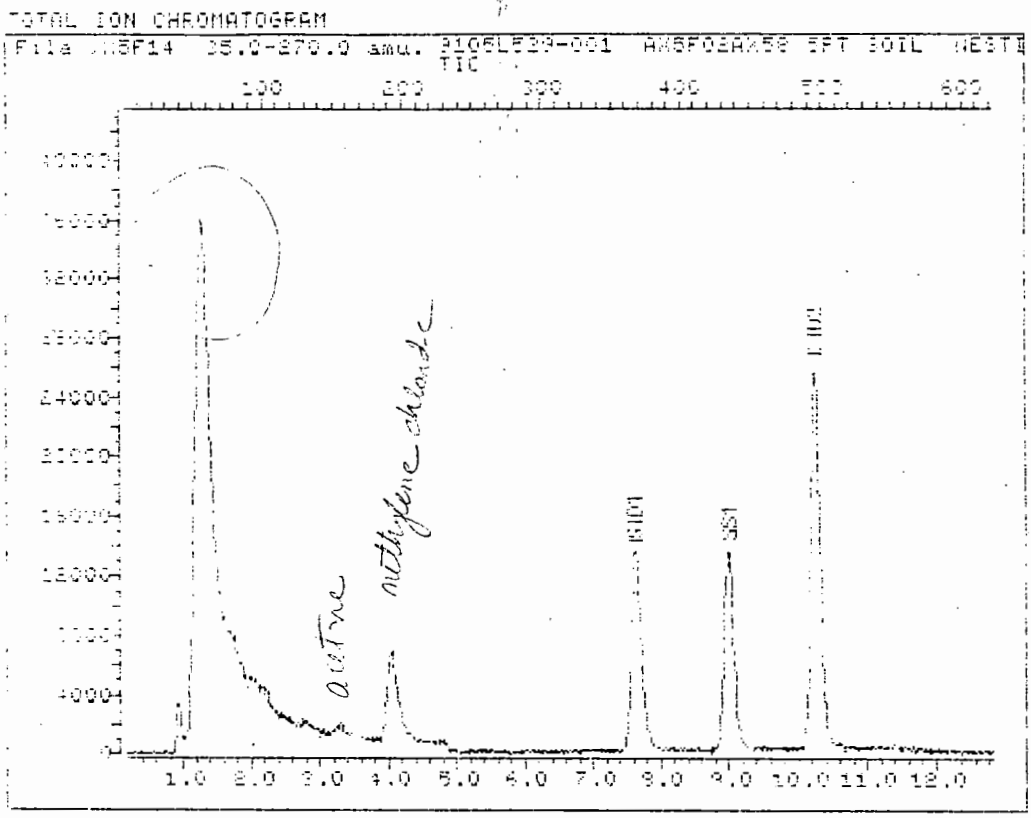
CAS NO.	COMPOUND			
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	UJ	CCV %D
75-09-2	Methylene Chloride	~~38~~ 35	~~B~~ U	< 10x Blank
67-64-1	Acetone	31	~~B~~ UJ	ICAL %RSD; lab contam.
75-15-0	Carbon Disulfide	5	U	
75-35-4	1,1-Dichloroethene	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	5	U	
67-66-3	Chloroform	5	U	
107-06-2	1,2-Dichloroethane	5	U	
78-93-3	2-Butanone	10	UJ	CCV %D
71-55-6	1,1,1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	
108-05-4	Vinyl Acetate	10	U	
75-27-4	Bromodichloromethane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
79-01-6	Trichloroethene	5	U	
124-48-1	Dibromochloromethane	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
71-43-2	Benzene	5	U	
10061-02-6	Trans-1,3-Dichloropropene	5	UJ	CCV %D
75-25-2	Bromoform	5	U	
108-10-1	4-Methyl-2-pentanone	5 ~~2~~	~~J~~ U	no confirm. spectra
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
108-88-3	Toluene	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
100-42-5	Styrene	5	U	
1330-20-7	Xylene (total)	5	U	

FORM 1-V-1 12/88 Rev.

4/8/92

9613473.2525

000002



Data File: >X5F14::D3 Quant Output File: ^X5F14::QQ
Name: 9105L529-001 AX5F02
Misc: AX58 5PT SOIL WESTINGHOUSE 5.0G #HP-MSD X BB

Id File: I_X5FA::QQ
Title: VOLATILES BY CAPILLARY
Last Calibration: 910515 11:30

Operator ID: BB
Quant Time: 910515 19:08
Injected at: 910515 18:39

TIC page 1 of 2

9615473.2526

0000022

QUANT REPORT

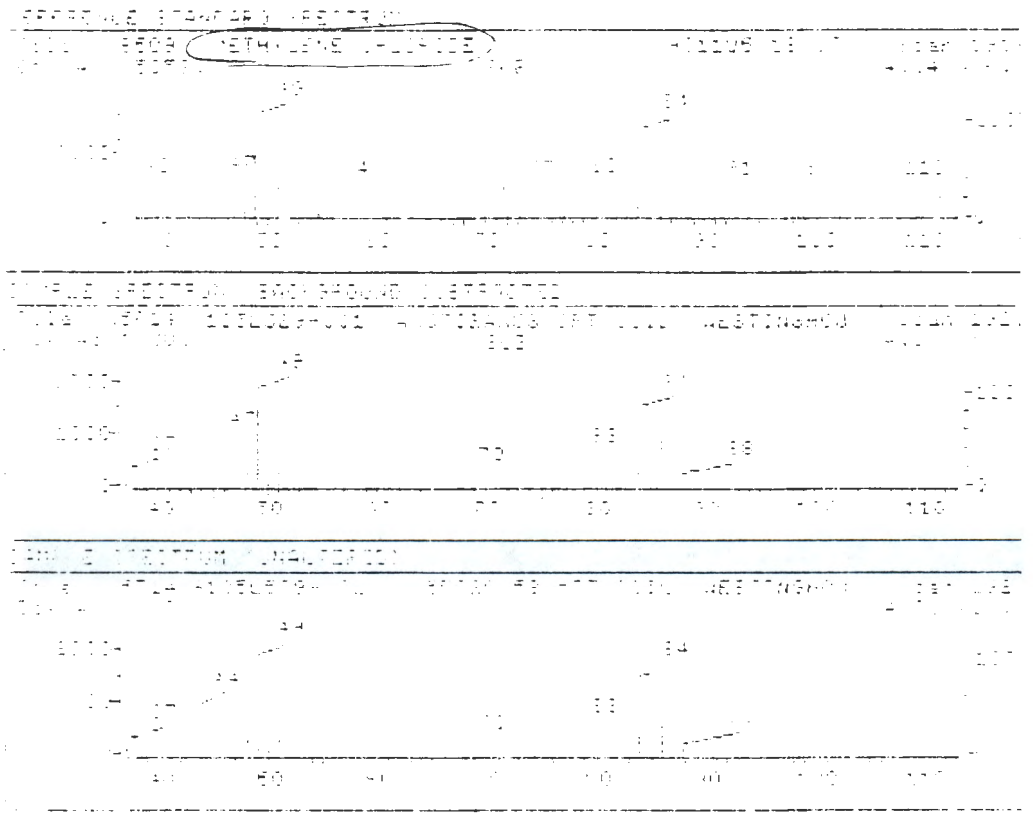
Operator ID: BB Quant Rev: 6 Quant Time: 910515 19:08
Output File: ^X5F14::QQ Injected at: 910515 18:39
Data File: >X5F14::D3 Dilution Factor: 1.00000
Name: 9105L529-001 AX5F02
Misc: AX58 5PT SOIL WESTINGHOUSE 5.0G #HP-MSD X BB

ID File: I_X5FA::QQ
Title: VOLATILES BY CAPILLARY
Last Calibration: 910515 11:30

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*BROMOCHLOROMETHANE	7.62	128.0	18169	50.00	ug/kg	54
10)	ACETONE	3.30	43.0	6208M	31.42	ug/kg	84
11)	METHYLENE CHLORIDE	4.06	84.0	14970	32.79	ug/kg	86
21)	*1,4-DIFLUOROBENZENE	10.26	114.0	77714	50.00	ug/kg	67
23)	1,2-DICHLOROETHANE D4	9.01	65.0	63869	53.55	ug/kg	74
29)	*CHLOROBENZENE-D5	16.94	117.0	60967	50.00	ug/kg	93
31)	TOLUENE D8	13.49	98.0	72386	52.31	ug/kg	93
33)	4-METHYL-2-PENTANONE	13.53	43.0	529	~~1.11~~	~~ug/kg~~	36
45)	4-BROMOFLUOROBENZENE	20.01	95.0	63608	51.68	ug/kg	92

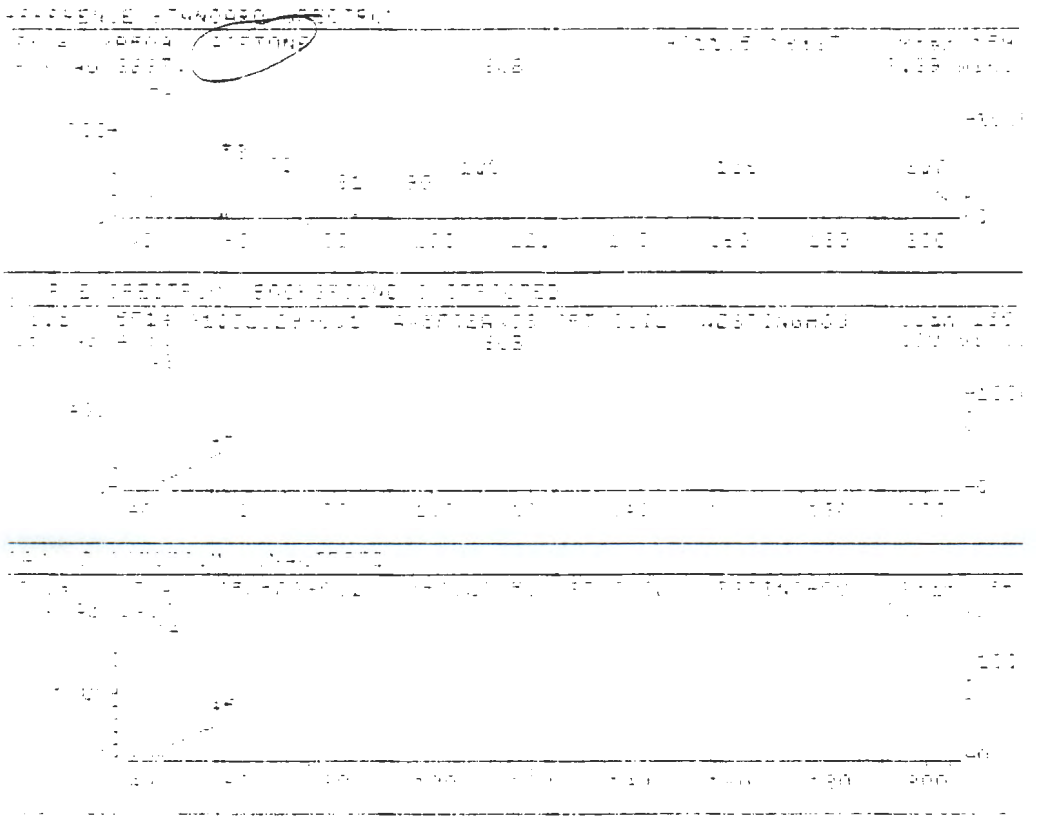
* Compound is ISTD

5-16-91



Data File: >X5F14::D3 Quant Output File: ^X5F14::QQ
Name: 9105L529-001 AX5F02
Misc: AX58 5PT SOIL WESTINGHOUSE 5.0G #HP-MSD X BB
Quant Time: 910515 19:08 Quant ID File: I_X5FA::QQ
Injected at: 910515 18:39 Last Calibration: 910515 11:30

Compound No: 11
Compound Name: METHYLENE CHLORIDE
Scan Number: 192
Retention Time: 4.06 min.
Quant Ion: 84.0
Area: 14970
Concentration: 32.79 ug/kg
q-value: 86



Data File: >X5F14::D3 Quant Output File: ^X5F14::QQ
Name: 9105L520-001 AX5F02
Misc: AX58 5PT SOIL WESTINGHOUSE 5.0G #HP-MSD X BB
Quant Time: 910515 19:08 Quant ID File: !_X5FA::QQ
Injected at: 910515 18:39 Last Calibration: 910515 11:30

Compound No: 10
Compound Name: ACETONE
Scan Number: 155
Retention Time: 3.30 min.
Quant Ion: 43.0
Area: 6208M
Concentration: 31.42 ug/kg
q-value: 84

9613473.2529
1A

VOLATILE ORGANICS ANALYSIS SHEET

0000026

CLIENT SAMPLE NO.

BOOVRD

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9105L529-002

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: W050914

Level: (low/med) LOW

Date Received: 05/08/91

% Moisture: not dec. 3

Date Analyzed: 05/09/91

Column: (pack/cap) PACK

Dilution Factor: 1.00

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	18 ✓	~~B~~ UJ	ICAL %RSD; <10xblank
67-64-1	Acetone	27	~~B~~ UJ	<10xblank
75-15-0	Carbon Disulfide	5	U	
75-35-4	1,1-Dichloroethene	5	U	
75-34-3	1,1-Dichloroethane	5	U	
540-59-0	1,2-Dichloroethene (total)	5	U	
67-66-3	Chloroform	5	U	
107-06-2	1,2-Dichloroethane	5	UJ	CCV %D
78-93-3	2-Butanone	1	J	<QL; poss. lab contam.
71-55-6	1,1,1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	
108-05-4	Vinyl Acetate	10	UJ	ICAL %RSD; CCV %D
75-27-4	Bromodichloromethane	5	U	
78-87-5	1,2-Dichloropropane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
79-01-6	Trichloroethene	5	U	
124-48-1	Dibromochloromethane	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
71-43-2	Benzene	5	U	
10061-02-6	Trans-1,3-Dichloropropene	5	U	
75-25-2	Bromoform	5	U	
108-10-1	4-Methyl-2-pentanone	10	UJ	CCV %D
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	5	U	
79-34-5	1,1,2,2-Tetrachloroethane	5	U	
108-88-3	Toluene	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
100-42-5	Styrene	5	U	
1330-20-7	Xylene (total)	5	U	

9613473.2530
1E

0000027 CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BOOVRD

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9105L529-002

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: W050914

Level: (low/med) LOW

Date Received: 05/08/91

% Moisture: not dec. 3

Date Analyzed: 05/09/91

Column: (pack/cap) PACK

Dilution Factor: 1.00

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	*PROBABLE LAB CONTAMINANT			
2.	1,4-DIOXANE*	8.67	30	NJ

presumptive evidence prob. lab contam

FORM 1 VOA-TIC 12/88 Rev.

9613473.2531

Quantitation Report File: W050914 0000029

Data: W050914.TI
05/09/91 19:27:00
Sample: 9105L529-002 WS-HANFORD 5.0G
Conds.: 1050W, VO, METHOD 2
Formula: W050904 Instrument: 1050W Weight: 0.008
Submitted by: Analyst: BMP Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name		
1	IS1	BROMOCHLOROMETHANE	INTERNAL STANDARD #1
2	SS1	1,2-DICHLOROETHANE D4	SURROGATE STANDARD#1
3	45V	CHLOROMETHANE	
4	46V	BROMOMETHANE	
5	88V	VINYL CHLORIDE	
6	16V	CHLOROETHANE	
7	44V	METHYLENE CHLORIDE	
8	13H	ACETONE	
9	21H	ACROLEIN	
10	15H	CARBON DISULFIDE	
11	24H	TRICHLOROFLUOROMETHANE	
12	22H	ACRYLONITRILE	
13	29V	1,1-DICHLOROETHYLENE	
14	13V	1,1-DICHLOROETHANE	
15		1,2-DICHLOROETHENE (TOTAL)	
16	23V	CHLOROFORM	
17	10V	1,2-DICHLOROETHANE	
18	IS2	1,4-DIFLUOROBENZENE	INTERNAL STANDARD #2
19	14H	2-BUTANONE	
20	11V	1,1,1-TRICHLOROETHANE	
21	6V	CARBON TETRACHLORIDE	
22	19H	VINYL ACETATE	
23	48V	BROMODICHLOROMETHANE	
24	32V	1,2-DICHLOROPROPANE	
25	33VC	CIS-1,3-DICHLOROPROPENE	
26		TRICHLOROETHYLENE	
27	51V	DIBROMOCHLOROMETHANE	
28	14V	1,1,2-TRICHLOROETHANE	
29	4V	BENZENE	
30	33VT	TRANS-1,3-DICHLOROPROPENE	
31		2-CHLOROETHYLVINYLETHER	
32	47V	BROMOFORM	
33	IS3	CHLOROBENZENE D5	INTERNAL STANDARD #3
34	SS2	TOLUENE D8	SURROGATE STANDARD #2
35	SS3	4-BROMOFLUOROBENZENE	SURROGATE STANDARD #3
36	17H	4-METHYL-2-PENTANONE	
37	16H	2-HEXANONE	
38	85V	TETRACHLOROETHYLENE	
39	15V	1,1,2,2-TETRACHLOROETHANE	
40	86V	TOLUENE	
41	7V	CHLOROBENZENE	
42	38V	ETHYLBENZENE	
43	18H	STYRENE	
44	20H	XYLENES (TOTAL)	
45	26B	1,3-DICHLOROBENZENE	
46	25B	1,2-DICHLOROBENZENE	
47	27B	1,4-DICHLOROBENZENE	

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0000030

No	Name
48	M-XYLENE
49	METHYL-T-BUTYLETHER
50	DIETHYLETHER

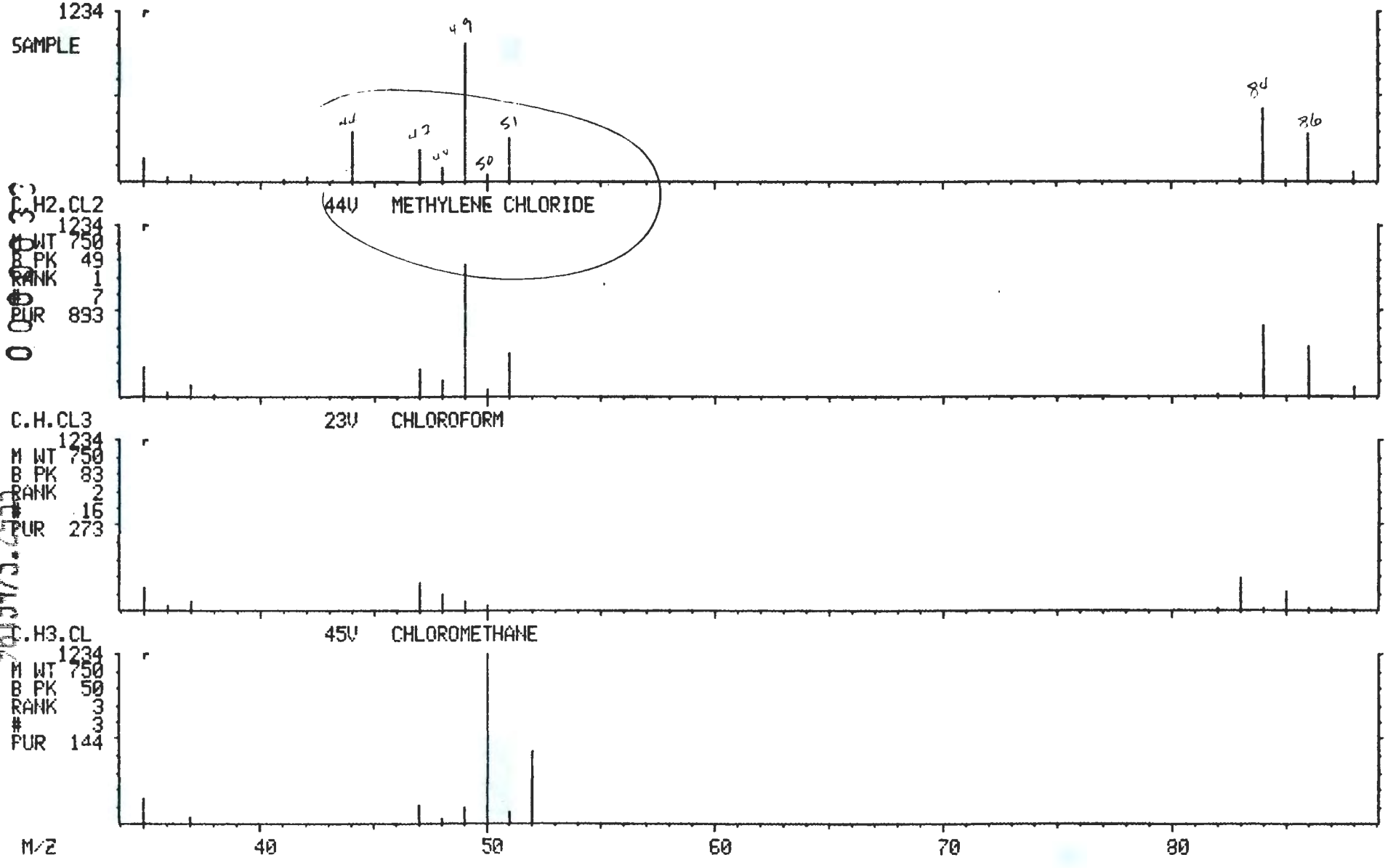
No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	139	4:38	1	1.000	A BB	40699.	50.000 UG/L	14.26
2	65	212	7:04	1	1.525	A BB	103617.	56.491 UG/L	16.11
3	NOT FOUND								
4	NOT FOUND								
5	NOT FOUND								
6	NOT FOUND								
7	84	78	2:36	1	0.561	A BB	17643.	17.932 UG/L	5.11
8	43	92	3:04	1	0.662	A BB	29592.	26.689 UG/L	7.61
9	NOT FOUND								
10	NOT FOUND								
11	NOT FOUND								
12	NOT FOUND								
13	NOT FOUND								
14	NOT FOUND								
15	NOT FOUND								
16	NOT FOUND								
17	NOT FOUND								
18	114	439	14:38	18	1.000	A BB	295189.	50.000 UG/L	14.26
19	72	217	7:14	18	0.494	A BB	383.	1.251 UG/L	0.36
20	NOT FOUND								
21	NOT FOUND								
22	NOT FOUND								
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	117	585	19:30	33	1.000	A BB	283259.	50.000 UG/L	14.26
34	98	551	18:22	33	0.942	A BB	323753.	48.889 UG/L	13.94
35	95	709	23:38	33	1.212	A BB	219052.	46.781 UG/L	13.34
36	43	459	15:18	33	0.785	A BB	3854.	0.914 UG/L	0.26
37	43	507	16:54	33	0.867	A BB	2144.	0.565 UG/L	0.16
38	NOT FOUND								
39	NOT FOUND								
40	92	557	18:34	33	0.952	A BB	3368.	0.843 UG/L	0.24
41	NOT FOUND								
42	NOT FOUND								
43	NOT FOUND								
44	NOT FOUND								
45	NOT FOUND								
46	NOT FOUND								
47	NOT FOUND								
48	NOT FOUND								
49	NOT FOUND								
50	59	193	6:26	1	1.388	A BB	246.	0.309 UG/L	0.09

AC
6/13/91

LIBRARY SEARCH
05/09/91 19:27:00 + 2:36
SAMPLE: 9105L529-002 WS-HANFORD 5.0G
CONDS.: 1050W, VO, METHOD 2
ENHANCED (S 15B 2N 0T)

DATA: W050914 # 78
CALI: W050914 # 2

BASE M/Z: 49
RIC: 15223.

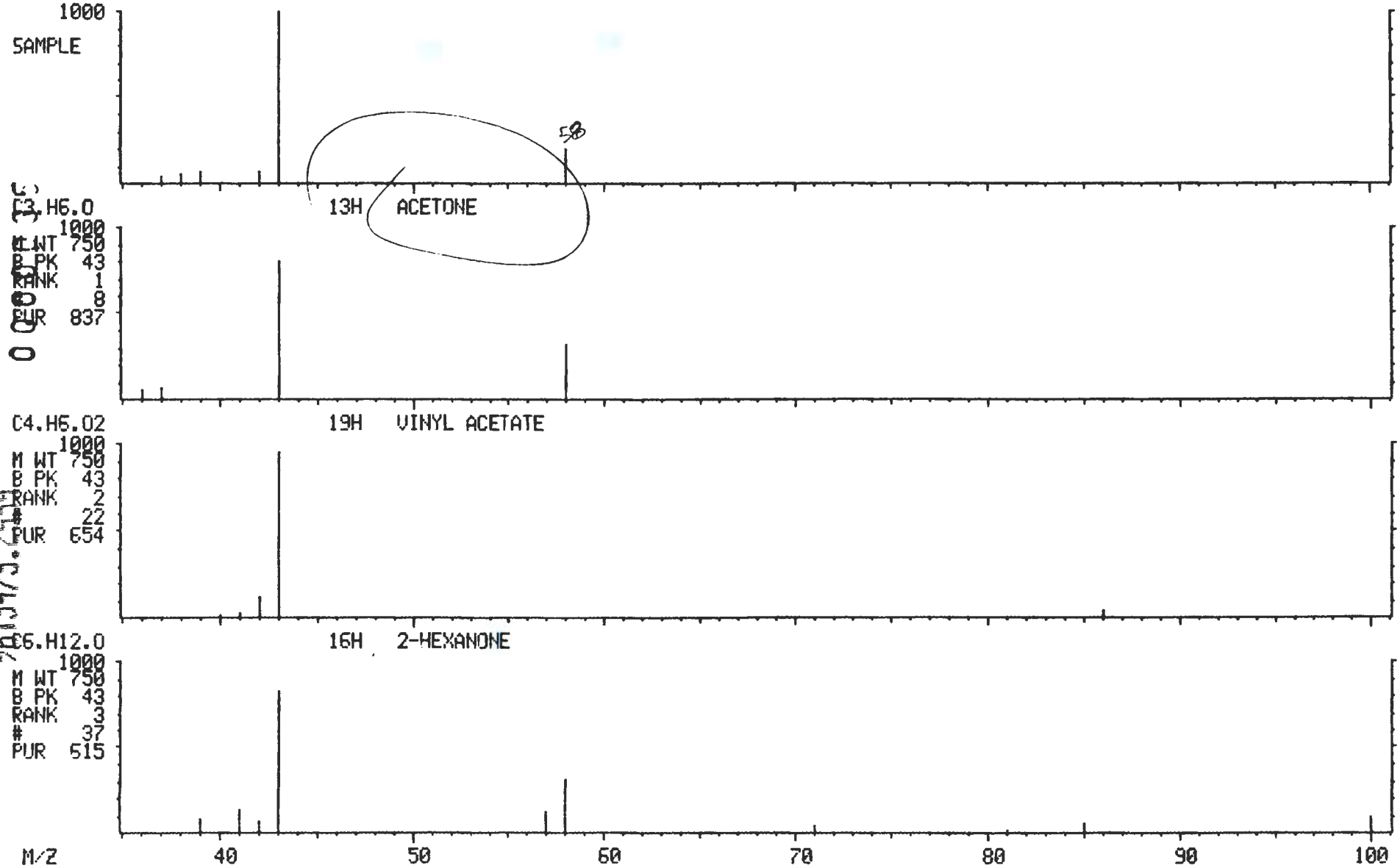


9413473.2533

LIBRARY SEARCH
05/09/91 19:27:00 + 3:04
SAMPLE: 9105L529-002 WS-HANFORD 5.0G
CONDS.: 1050W, VO, METHOD 2
ENHANCED (S 15B 2N 0T)

DATA: W050914 # 92
CALI: W050914 # 2

BASE M/Z: 43
RIC: 5135.

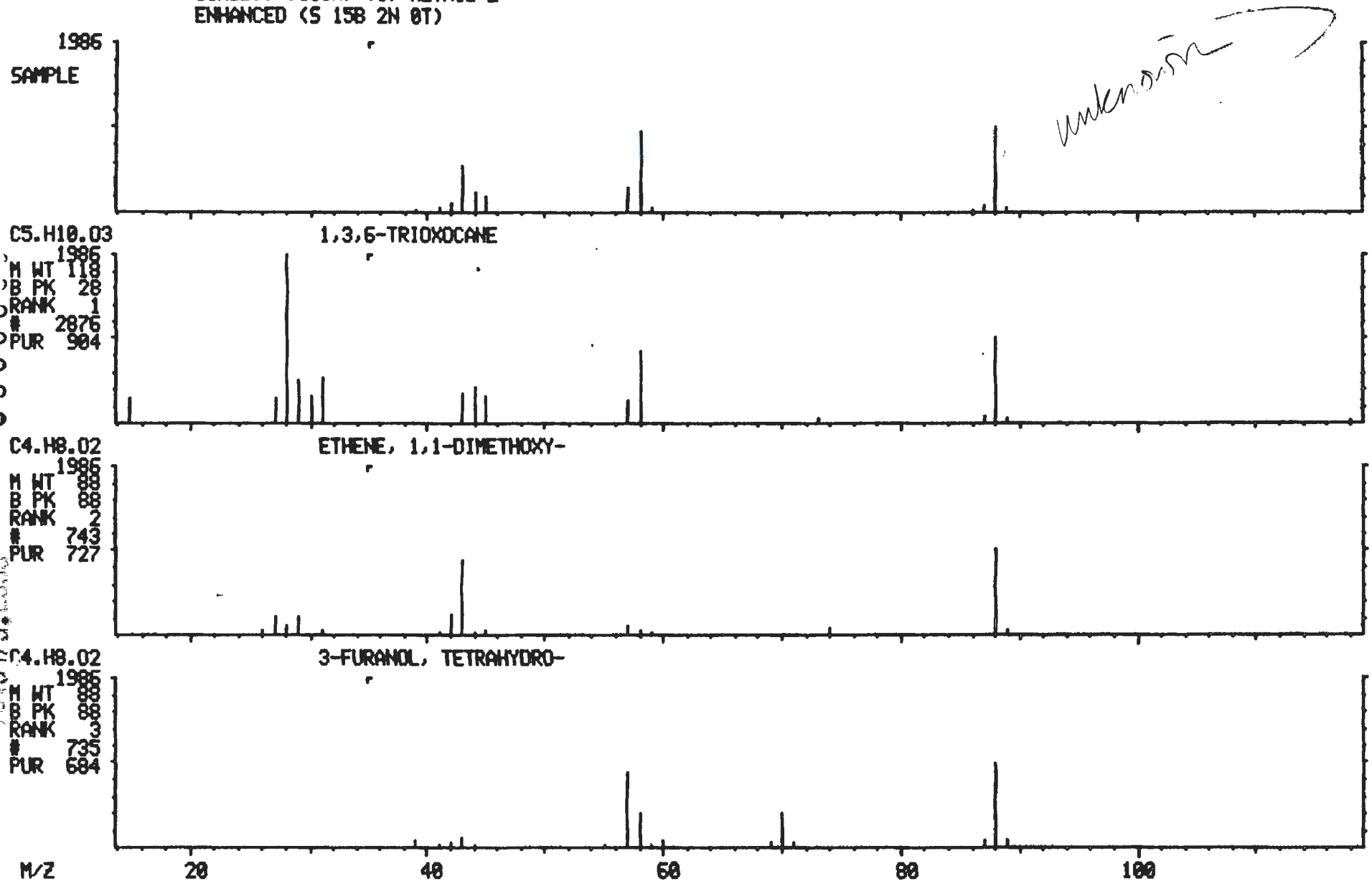


9613473.2534

LIBRARY SEARCH
05/09/91 19:27:00 + 8:40
SAMPLE: 9105L529-002 WS-HANFORD 5.0G
CONDS.: 1050W, VO, METHOD 2
ENHANCED (S 15B 2N 0T)

DATA: W050914 # 2B0
CALI: W050914 # 2

BASE M/Z: 60
RIC: 23423.

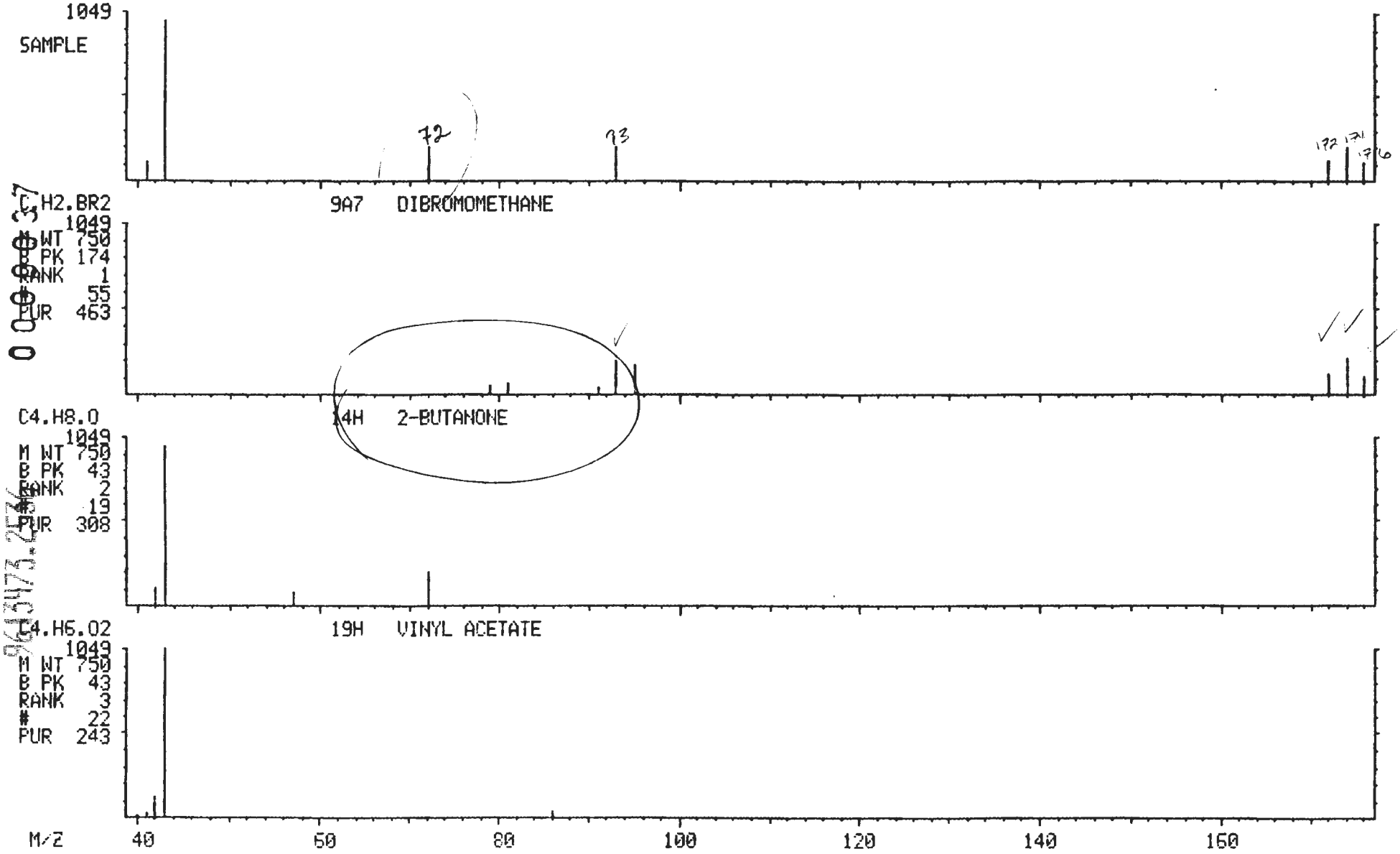


0000003

LIBRARY SEARCH
05/09/91 19:27:00 + 7:14
SAMPLE: 9105L529-002 WS-HANFORD 5.0G
CONDS.: 1050W, VO, METHOD 2
ENHANCED (S 15B 2N 0T)

DATA: W050914 # 217
CALI: W050914 # 2

BASE M/Z: 43
RIC: 1443.



9613473.2537

000001

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD

Lab File ID: W050604 BFB Injection Date: 05/06/91

Instrument ID: 1050W BFB Injection Time: 1222

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) PACK

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	24.5
75	30.0 - 60.0% of mass 95	49.4
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	8.7
173	Less than 2.0% of mass 174	0.0(0.0)1
174	Greater than 50.0% of mass 95	85.4
175	5.0 - 9.0% of mass 174	6.7(7.8)1
176	Greater than 95.0% but less than 101.0% of mass 174	83.7(98.0)1
177	5.0 - 9.0% of mass 176	6.4(7.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD20	VSTD20	W050605	05/06/91	1235
02	VSTD50	VSTD50	W050606	05/06/91	1312
03	VSTD100	VSTD100	W050607	05/06/91	1349
04	VSTD150	VSTD150	W050608	05/06/91	1425
05	VSTD200	VSTD200	W050609	05/06/91	1502
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

12 hr - elu
not.
CMR

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD

Lab File ID: W050904 BFB Injection Date: 05/09/91

Instrument ID: 1050W BFB Injection Time: 1213

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) PACK

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	27.3
75	30.0 - 60.0% of mass 95	46.1
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	8.6
173	Less than 2.0% of mass 174	0.0(0.0)1
174	Greater than 50.0% of mass 95	82.0
175	5.0 - 9.0% of mass 174	5.7(6.9)1
176	Greater than 95.0% but less than 101.0% of mass 174	80.7(98.4)1
177	5.0 - 9.0% of mass 176	6.6(8.2)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD50	VSTD50	W050905	05/09/91	1318
02	VBLKLVW070-MB1	91LVW070-MB1	W050906	05/09/91	1355
03	BOOVRD	9105L529-002	W050914	05/09/91	1927
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

9613473.2539

0000016

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD

Lab File ID: AX5805 BFB Injection Date: 5/08/91

Instrument ID: HP-MSD X BFB Injection Time: 1108

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

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.9
75	30.0 - 60.0% of mass 95	50.7
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	5.8
173	Less than 2.0% of mass 174	0.0(0.0)1
174	Greater than 50.0% of mass 95	79.4
175	5.0 - 9.0% of mass 174	6.4(8.1)1
176	Greater than 95.0% but less than 101.0% of mass 174	75.8(95.5)1
177	5.0 - 9.0% of mass 176	6.3(8.3)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD20	VSTD20	AX5808	05/08/91	1340
02	VSTD50	VSTD50	AX5809	05/08/91	1419
03	VSTD200	VSTD200	AX5810	05/08/91	1458
04	VSTD150	VSTD150	AX5811	05/08/91	1540
05	VSTD100	VSTD100	AX5812	05/08/91	1618
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

9613473.2540 GA000017

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD

Lab File ID: AX5F02 BFB Injection Date: 5/15/91

Instrument ID: HP-MSD X BFB Injection Time: 1032

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

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.3
75	30.0 - 60.0% of mass 95	51.5
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	8.8
173	Less than 2.0% of mass 174	0.0(0.0)1 ?
174	Greater than 50.0% of mass 95	85.0
175	5.0 - 9.0% of mass 174	6.0(7.1)1
176	Greater than 95.0% but less than 101.0% of mass 174	83.0(97.6)1
177	5.0 - 9.0% of mass 176	6.8(8.2)2

1-Value is % mass 174 2-Value is % mass 176

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD50	VSTD50	AX5F03	05/15/91	1057
02	VBLKLVX079-MB1	91LVX079-MB1	AX5F04.	05/15/91	1145
03	BOOVQ9	9105L529-001	AX5F14.	05/15/91	1839
04					
05					
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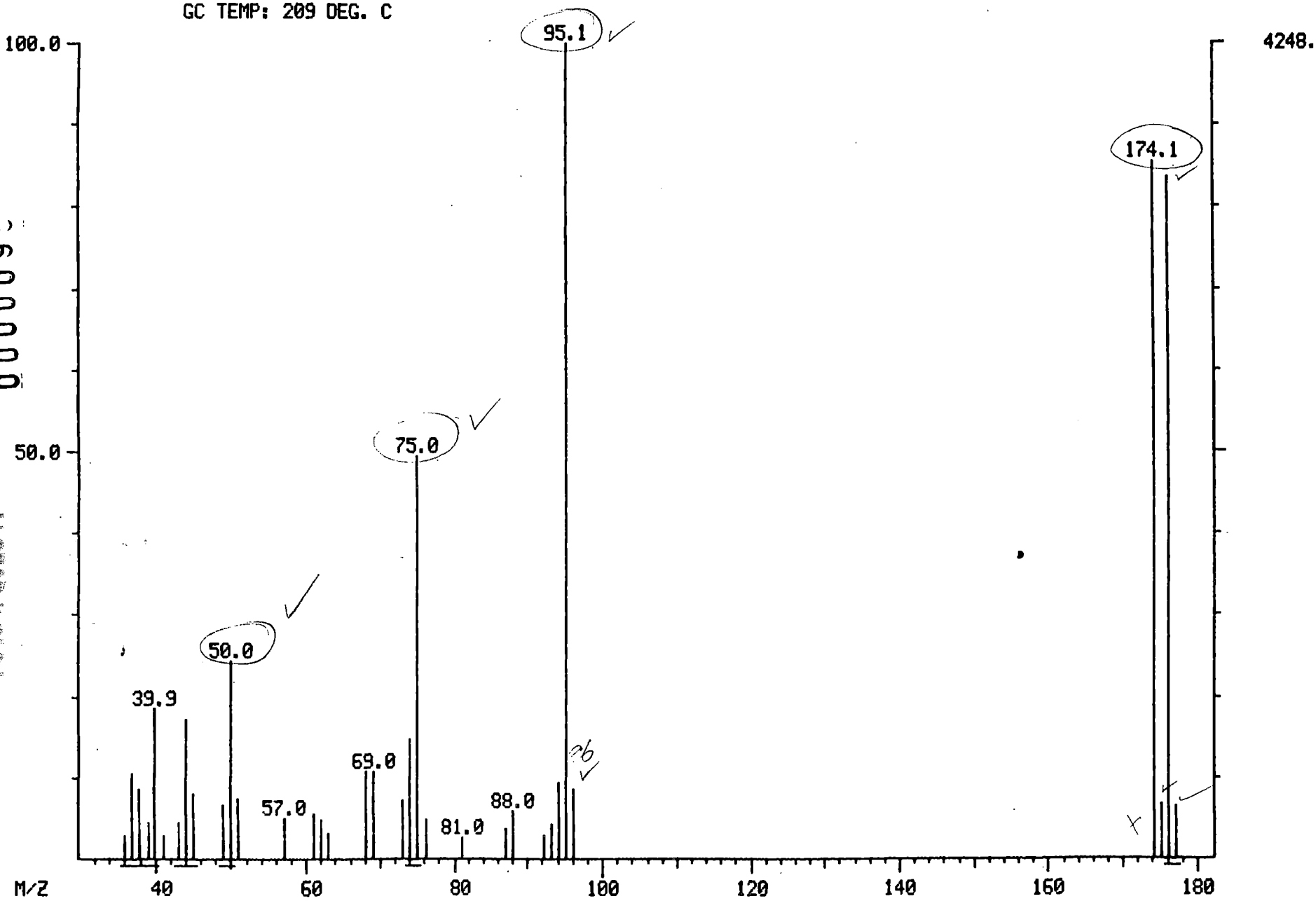
18					
19					
20					

MASS SPECTRUM
05/06/91 12:22:00 + 5:45
SAMPLE: BFB 50NG TUNE
CONDS.: 1050W, BF, METHOD 1
GC TEMP: 209 DEG. C

DATA: W050504 #203
CALI: W050504 #2

BASE M/Z: 95
RIC: 23520.



1156 2243 6196

9613473.2542

Mass List Data: W050604 # 2 Base m/z: 95
05/06/91 12:22:00 + 6:46 Cali: W050604 # 2 RIC: 23520.
Sample: BFB 50NG TUNE
Conds.: 1050W, BF, METHOD 1

36 0.00 0.00 0. Minima Min inten: 0.
177 # 0 Maxima

Mass	% RA	% RIC	Inten.
35.93?F	2.82	0.51	120.
36.94?F	10.50	1.90	446.
37.93?F	8.73	1.58	371.
38.96?F	4.68	0.85	199.
39.89?F	18.50	3.34	786.
40.99?	3.06	0.55	130.
42.97?F	4.47	0.81	190.
43.93?F	17.28	3.12	734.
44.98?F	8.12	1.47	345.
48.98?F	6.69	1.21	284.
49.98?F	24.53	4.43	1042.
50.99?	7.60	1.37	323.
57.01?	5.13	0.93	218.
60.98?	5.70	1.03	242.
62.02?	4.78	0.86	203.
63.02?	3.30	0.60	140.
68.02?	10.64	1.92	452.
69.02	10.73	1.94	456.
73.02	7.20	1.30	306.
74.03 F	14.76	2.67	627.
75.04 F	49.44	8.93	2100.
76.05	4.97	0.90	211.
80.96	2.59	0.47	110.
87.03	3.74	0.68	159.
88.05	5.84	1.05	248.
92.07	3.06	0.55	130.
93.05	4.28	0.77	182.
94.06	9.37	1.69	398.
95.08	100.00	18.06	4248.
96.08	8.73	1.58	371.
174.09	85.40	15.43	3628.
175.11	6.66	1.20	283.
176.09 F	83.71	15.12	3556.
177.09 F	6.40	1.16	272.

$\frac{1042}{4248} \times 100 = 24.5\%$

9613473.2543

Mass List Data: W050904 # 204 Base m/z: 95
05/09/91 12:13:00 + 6:48 Cali: W050904 # 2 RIC: 20320.
Sample: BFB 50NG TUNE
Conds.: 1050W, BF, METHOD 1

37	0.00	0.00	0.	Minima	Min inten: 0.
207			# 0	Maxima	
Mass	% RA	% RIC	Inten.		
36.60?F	5.74	1.02	207.		
37.65?F	14.57	2.58	525.		
38.93?F	5.10	0.91	185.		
39.89?F	26.05	4.62	939.		
41.00?	4.58	0.81	165.		
41.96?	2.97	0.53	107.		
42.98?F	7.52	1.33	271.		
43.93?F	15.57	2.76	561.		
44.98?F	8.63	1.53	311.		
48.91?F	4.66	0.83	168.		
49.95?F	27.30	4.84	984.		
50.98?	7.41	1.31	267.		
55.01?	3.19	0.57	115.		
57.02?	6.88	1.22	248.		
58.02?	3.52	0.62	127.		
61.02?	4.97	0.88	179.		
62.01?	4.91	0.87	177.		
63.03?	3.22	0.57	116.		
68.02?	10.07	1.79	363.		
69.02	11.32	2.01	408.		
73.02	6.55	1.16	236.		
74.03 F	15.34	2.72	553.		
75.03 F	46.06	8.17	1660.		
76.03	3.72	0.66	134.		
81.02	3.30	0.59	119.		
86.99	3.66	0.65	132.		
88.04	5.11	0.91	184.		
93.09	4.22	0.75	152.		
94.05	10.27	1.82	370.		
95.07	100.00	17.74	3604.		
96.09	8.57	1.52	309.		
174.09	82.02	14.55	2956.		
175.06	5.69	1.01	205.		
176.09	80.69	14.31	2908.		
177.09	6.60	1.17	238.		
207.22	4.91	0.87	177.		

9613473.2544

0000100

>X5805 BFB 50NG AX5805AX58 5PT SOIL BFB TUNE #HP

142 NRM

File: >X5805 Scan #: 142 Retn. time: 3.03

m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.
36.20	1.124	56.15	1.330	74.10	18.037	92.00	4.158	128.00	.318
37.10	6.256	57.15	1.929	75.05	50.665	93.10	3.540	129.90	.693
38.00	3.971	60.00	1.011	75.95	4.458	94.00	9.852	140.85	.937
39.00	2.379	61.00	5.076	77.05	1.049	95.10	100.000	142.85	1.068
39.90	3.596	62.00	4.064	78.15	.393	96.10	5.844	159.00	.243
43.95	1.480	63.10	4.064	78.95	2.098	104.00	.693	173.95	79.416
48.35	.450	68.10	9.964	79.85	.824	104.20	.730	174.95	6.406
48.95	4.046	69.10	10.358	80.85	1.292	109.75	.262	175.95	75.838
50.05	19.929	70.10	.749	81.15	1.255	115.85	.674	176.85	6.275
51.05	6.762	72.00	.656	87.15	2.266	116.85	.581	204.40	.262
55.95	1.480	73.10	3.652	87.95	1.498				

>X5F02 BFB 50NG AX5F02AX58 5PT SOIL BFB TUNE #HP

141 NRM ENH

File: >X5F02 Scan #: 141 Retn. time: 3.01

m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.
36.90	6.426	51.05	7.512	74.10	19.409	95.10	100.000	175.95	82.957
39.00	.564	57.05	2.888	75.05	51.476	96.10	8.771	176.85	6.817
40.10	7.642	59.80	.977	76.05	5.623	117.95	.608	191.00	2.605
41.00	.521	61.00	2.692	77.85	.586	142.95	.434	205.00	.803
43.85	4.147	68.10	11.116	87.05	.521	147.85	.304	207.05	1.259
44.15	.760	69.10	9.205	92.00	3.018	173.85	85.020	250.95	.261
48.85	1.433	72.30	1.064	93.00	3.561	174.85	6.014	265.20	1.194
50.05	20.343	72.90	4.993	94.00	12.050				

9613473.2546

0000046

6A

VOLATILE ORGANICS INTITIAL CALIBRATION DATA

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9105L529

Instrument ID: 1050W Calibration Date(s): 05/06/91 05/06/91

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) PACK

Min RRF for SPCC(#) = 0.300 (0.250 for Bromoform) Max %RSD for CCC(*) = 30.0%

LAB FILE ID: RRF20 = W050605 RRF50 = W050606
RRF100= W050607 RRF150= W050608 RRF200= W050609

COMPOUND		RRF20	RRF50	RRF100	RRF150	RRF200	RRF	% RSD
Chloromethane	#	0.954	1.154	1.100	1.090	0.982	1.056	8.0#
Bromomethane		1.203	0.891	0.872	0.954	0.774	0.939	17.2
Vinyl Chloride	*	1.293	0.805	0.779	0.813	0.726	0.883	26.2*
Chloroethane		0.951	0.796	0.720	0.738	0.653	0.772	14.6
Methylene Chloride		1.919	1.294	0.941	0.841	0.668	1.133	43.7
Acetone		1.265	1.336	1.030	1.009	0.820	1.092	19.1
Carbon Disulfide		1.913	1.894	1.891	1.767	1.761	1.845	4.0
1,1-Dichloroethene ethylene	*	1.231	1.223	1.173	1.152	1.110	1.178	4.3*
1,1-Dichloroethane	#	3.082	3.048	2.953	3.113	3.082	3.056	2.0#
1,2-Dichloroethene (total)		1.359	1.332	1.305	1.329	1.297	1.324	1.9
Chloroform	*	3.437	3.478	3.117	3.246	3.130	3.282	5.1*
1,2-Dichloroethane		3.700	3.660	3.446	3.505	3.413	3.545	3.6
2-Butanone		0.035	0.057	0.059	0.066	0.075	0.058	25.4
1,1,1-Trichloroethane		0.533	0.542	0.526	0.542	0.522	0.533	1.7
Carbon Tetrachloride		0.498	0.491	0.442	0.440	0.408	0.456	8.3
Vinyl Acetate		0.634	0.824	1.308	1.373	1.431	1.114	32.4
Bromodichloromethane		0.537	0.593	0.574	0.589	0.556	0.570	4.1
1,2-Dichloropropane	*	0.373	0.391	0.384	0.404	0.397	0.390	3.1*
cis-1,3-Dichloropropene		0.474	0.514	0.513	0.536	0.529	0.513	4.7
Trichloroethene ethylene		0.505	0.531	0.504	0.520	0.509	0.514	2.2
Dibromochloromethane		0.498	0.536	0.535	0.548	0.533	0.530	3.6
1,1,2-Trichloroethane		0.343	0.343	0.322	0.323	0.312	0.329	4.2
Benzene		0.872	0.863	0.787	0.777	0.740	0.808	7.1
Trans-1,3-Dichloropropene		0.488	0.530	0.513	0.532	0.520	0.517	3.4
Bromoform	#	0.386	0.476	0.501	0.545	0.550	0.492	13.5#
4-Methyl-2-pentanone		0.751	1.069	1.116	1.222	1.273	1.086	18.8
2-Hexanone		0.585	0.822	0.847	0.939	0.982	0.835	18.5
Tetrachloroethene ethylene		0.561	0.541	0.503	0.495	0.465	0.513	7.4
1,1,2,2-Tetrachloroethane	#	0.561	0.630	0.597	0.598	0.581	0.593	4.3#
Toluene	*	0.702	0.703	0.664	0.669	0.653	0.678	3.4*
Chlorobenzene	#	1.035	1.028	0.950	0.967	0.931	0.982	4.8#
Ethylbenzene	*	0.492	0.493	0.466	0.474	0.452	0.475	3.7*
Styrene		0.908	0.937	0.920	0.946	0.916	0.925	1.7
Xylene (total)		0.525	0.529	0.516	0.525	0.518	0.523	1.0
Toluene-d8		1.077	1.058	0.998	1.020	0.968	1.024	4.3
Bromofluorobenzene		0.818	0.828	0.781	0.817	0.772	0.803	3.1
1,2-Dichloroethane-d4		3.126	3.068	2.849	2.981	2.836	2.972	4.3

cmc

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0000040

RRF = area found / [illegible] * [illegible]

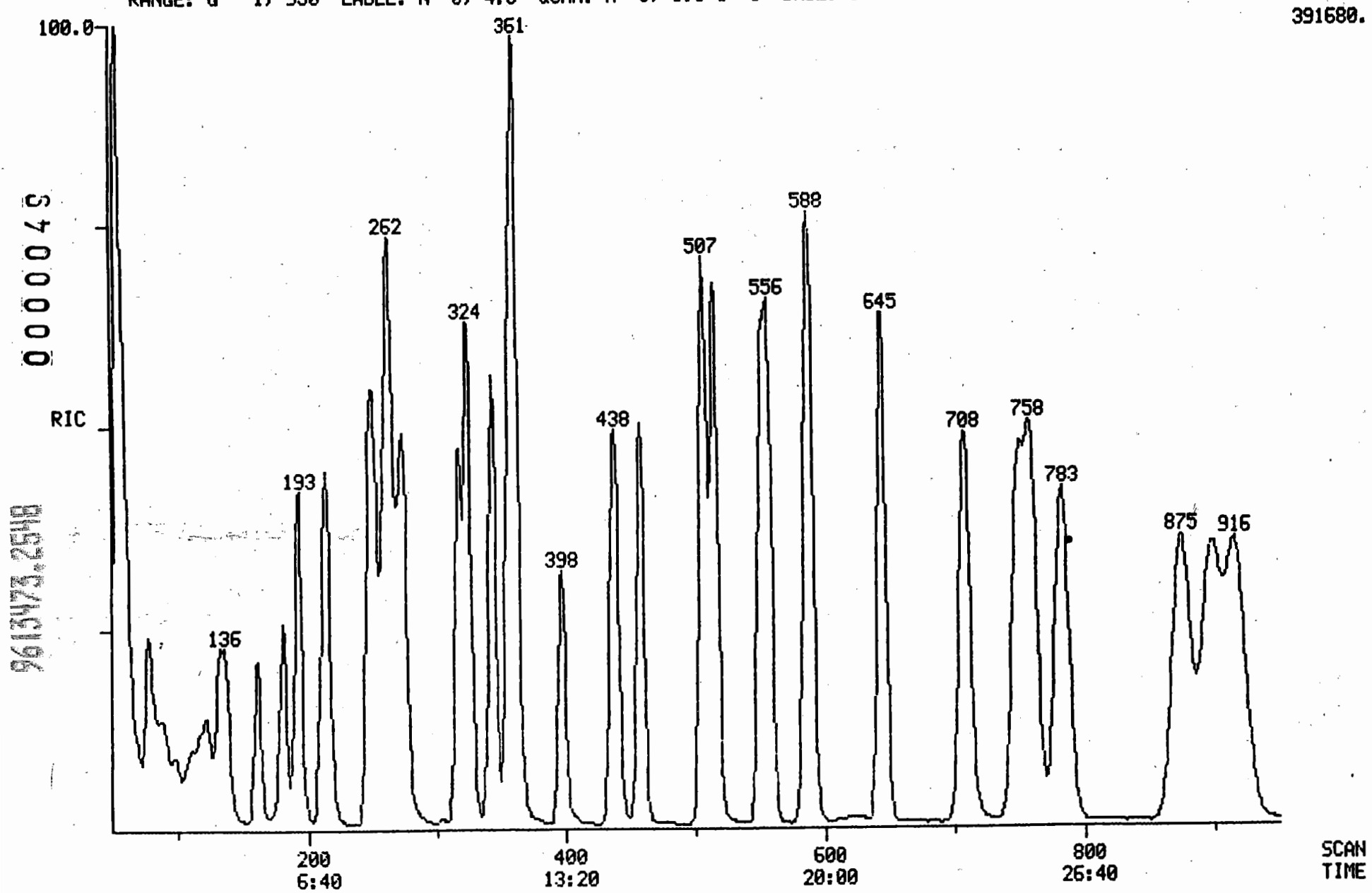
No	Name
48	M-XYLENE
49	METHYL-T-BUTYLETHER
50	DIETHYLETHER

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	140	4:40	1	1.000	A BB	34946.	50.000 UG/L	4.59
2	65	214	7:08	1	1.529	A BB	43691.	20.000 UG/L	1.83
3	50	35	1:10	1	0.250	A BB	13333.	20.000 UG/L	1.83
4	94	45	1:30	1	0.321	A BB	16811.	20.000 UG/L	1.83
5	62	52	1:44	1	0.371	A BB	18070.	20.000 UG/L	1.83
6	64	59	1:58	1	0.421	A VB	13296.	20.000 UG/L	1.83
7	84	80	2:40	1	0.571	A BB	26818.	20.000 UG/L	1.83
8	43	91	3:02	1	0.650	A BV	17689.	20.000 UG/L	1.83
9	56	91	3:02	1	0.650	A BB	3450.	20.000 UG/L	1.83
10	76	112	3:44	1	0.800	A BB	26742.	20.000 UG/L	1.83
11	101	123	4:06	1	0.879	A BB	41296.	20.000 UG/L	1.83
12	53	102	3:24	1	0.729	A BB	3662.	20.000 UG/L	1.83
13	96	135	4:30	1	0.964	A BB	17205.	20.000 UG/L	1.83
14	63	164	5:28	1	1.171	A BB	43085.	20.000 UG/L	1.83
15	96	183	6:06	1	1.307	A BB	18999.	20.000 UG/L	1.83
16	83	195	6:30	1	1.393	A BB	48045.	20.000 UG/L	1.83
17	62	216	7:12	1	1.543	A BB	51718.	20.000 UG/L	1.83
18	114	440	14:40	18	1.000	A BB	243198.	50.000 UG/L	4.59
19	72	217	7:14	18	0.493	A BB	3425.	20.000 UG/L	1.83
20	97	253	8:26	18	0.575	A BB	51804.	20.000 UG/L	1.83
21	117	264	8:48	18	0.600	A VB	48448.	20.000 UG/L	1.83
22	43	272	9:04	18	0.618	A BB	61639.	20.000 UG/L	1.83
23	83	277	9:14	18	0.630	A BB	52276.	20.000 UG/L	1.83
24	63	319	10:38	18	0.725	A BB	36320.	20.000 UG/L	1.83
25	75	327	10:54	18	0.743	A BB	69151.	30.000 UG/L	2.75
26	130	345	11:30	18	0.784	A BV	49142.	20.000 UG/L	1.83
27	129	358	11:56	18	0.814	A BB	48449.	20.000 UG/L	1.83
28	97	363	12:06	18	0.825	A BB	33396.	20.000 UG/L	1.83
29	78	363	12:06	18	0.825	A BB	84862.	20.000 UG/L	1.83
30	75	365	12:10	18	0.830	A BB	23750.	10.000 UG/L	0.92
31	63	399	13:18	18	0.907	A BB	24481.	20.000 UG/L	1.83
32	173	438	14:36	18	0.995	A BB	37572.	20.000 UG/L	1.83
33	117	586	19:32	33	1.000	A BB	235980.	50.000 UG/L	4.59
34	98	552	18:24	33	0.942	A BB	101698.	20.000 UG/L	1.83
35	95	709	23:38	33	1.210	A BB	77174.	20.000 UG/L	1.83
36	43	459	15:18	33	0.783	A BB	70889.	20.000 UG/L	1.83
37	43	507	16:54	33	0.865	A BB	55244.	20.000 UG/L	1.83
38	164	516	17:12	33	0.881	A BB	52927.	20.000 UG/L	1.83
39	83	509	16:58	33	0.869	A BB	52999.	20.000 UG/L	1.83
40	92	558	18:36	33	0.952	A BB	66228.	20.000 UG/L	1.83
41	112	590	19:40	33	1.007	A BB	97686.	20.000 UG/L	1.83
42	106	645	21:30	33	1.101	A BB	46421.	20.000 UG/L	1.83
43	104	750	25:00	33	1.280	A BB	85717.	20.000 UG/L	1.83
44	106	783	26:06	33	1.336	A BB	49584.	20.000 UG/L	1.83
45	146	875	29:10	33	1.493	M XX	121427.	20.000 UG/L	1.83
46	146	899	29:58	33	1.534	M XX	116596.	20.000 UG/L	1.83
47	146	917	30:34	33	1.565	M XX	127977.	20.000 UG/L	1.83
48	106	760	25:20	33	1.297	A BB	51679.	20.000 UG/L	1.83
49	73	249	8:18	2	1.164	A BB	71014.	20.000 UG/L	1.83
50	59	195	6:30	1	1.393	A VB	17809.	20.000 UG/L	1.83

RIC
05/06/91 13:49:00
SAMPLE: VSTD100 LOW SOIL CAL STD
CONDS.: 1050W, VO, METHOD 2
RANGE: G 1, 950 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: W050607 #1
CALI: W050607 #2

SCANS 50 TO 950



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9613473.2548

9613473.2549

Quantitation Report File: W050607 0000050

Data: W050607.TI
05/06/91 13:49:00
Sample: VSTD100 LOW SOIL CAL STD
Conds.: 1050W, VO, METHOD 2
Formula: W050604 Instrument: 1050W Weight: 0.001
Submitted by: Analyst: AIS Acct. No.:

AMOUNT=AREA * REF AMNT/(REF AREA * RESP FACT)
Resp. fac. from Library Entry

No	Name		
1	IS1	BROMOCHLOROMETHANE	INTERNAL STANDARD #1
2	SS1	1,2-DICHLOROETHANE D4	SURROGATE STANDARD#1
3	45V	CHLOROMETHANE	
4	46V	BROMOMETHANE	
5	88V	VINYL CHLORIDE	
6	16V	CHLOROETHANE	
7	44V	METHYLENE CHLORIDE	
8	13H	ACETONE	
9	21H	ACROLEIN	
10	15H	CARBON DISULFIDE	
11	24H	TRICHLOROFLUOROMETHANE	
12	22H	ACRYLONITRILE	
13	29V	1,1-DICHLOROETHYLENE	
14	13V	1,1-DICHLOROETHANE	
15		1,2-DICHLOROETHENE (TOTAL)	
16	23V	CHLOROFORM	
17	10V	1,2-DICHLOROETHANE	
18	IS2	1,4-DIFLUOROBENZENE	INTERNAL STANDARD #2
19	14H	2-BUTANONE	
20	11V	1,1,1-TRICHLOROETHANE	
21	6V	CARBON TETRACHLORIDE	
22	19H	VINYL ACETATE	
23	48V	BROMODICHLOROMETHANE	
24	32V	1,2-DICHLOROPROPANE	
25	33VC	CIS-1,3-DICHLOROPROPENE	
26		TRICHLOROETHYLENE	
27	51V	DIBROMOCHLOROMETHANE	
28	14V	1,1,2-TRICHLOROETHANE	
29	4V	BENZENE	
30	33VT	TRANS-1,3-DICHLOROPROPENE	
31		2-CHLOROETHYLVINYLETHER	
32	47V	BROMOFORM	
33	IS3	CHLOROBENZENE D5	INTERNAL STANDARD #3
34	SS2	TOLUENE D8	SURROGATE STANDARD #2
35	SS3	4-BROMOFLUOROBENZENE	SURROGATE STANDARD #3
36	17H	4-METHYL-2-PENTANONE	
37	16H	2-HEXANONE	
38	85V	TETRACHLOROETHYLENE	
39	15V	1,1,2,2-TETRACHLOROETHANE	
40	86V	TOLUENE	
41	7V	CHLOROBENZENE	
42	38V	ETHYLBENZENE	
43	18H	STYRENE	
44	20H	XYLENES (TOTAL)	
45	26B	1,3-DICHLOROBENZENE	
46	25B	1,2-DICHLOROBENZENE	
47	27B	1,4-DICHLOROBENZENE	

9613473.2550 000005

No	Name
48	M-XYLENE
49	METHYL-T-BUTYLETHER
50	DIETHYLETHER

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	138	4:36	1	1.000	A BB	35993.	50.000 UG/L	1.03
2	65	211	7:02	1	1.529	A BB	205060.	100.000 UG/L	2.06
3	50	36	1:12	1	0.261	A BB	79209.	100.000 UG/L	2.06
4	94	44	1:28	1	0.319	A BB	62807.	100.000 UG/L	2.06
5	62	52	1:44	1	0.377	A BB	56053.	100.000 UG/L	2.06
6	64	57	1:54	1	0.413	A BB	51833.	100.000 UG/L	2.06
7	84	78	2:36	1	0.565	A BB	67719.	100.000 UG/L	2.06
8	43	91	3:02	1	0.659	A BB	74145.	100.000 UG/L	2.06
9	56	89	2:58	1	0.645	A BB	14192.	100.000 UG/L	2.06
10	76	112	3:44	1	0.812	A BB	136156.	100.000 UG/L	2.06
11	101	123	4:06	1	0.891	A BB	176893.	100.000 UG/L	2.06
12	53	99	3:18	1	0.717	A VB	27870.	100.000 UG/L	2.06
13	96	133	4:26	1	0.964	A BB	84463.	100.000 UG/L	2.06
14	63	162	5:24	1	1.174	A BB	212588.	100.000 UG/L	2.06
15	96	181	6:02	1	1.312	A BB	93956.	100.000 UG/L	2.06
16	83	192	6:24	1	1.391	A BB	224360.	100.000 UG/L	2.06
17	62	214	7:08	1	1.551	A BB	248094.	100.000 UG/L	2.06
18	114	439	14:38	18	1.000	A BB	242111.	50.000 UG/L	1.03
19	72	216	7:12	18	0.492	A BB	28412.	100.000 UG/L	2.06
20	97	251	8:22	18	0.572	A BB	254481.	100.000 UG/L	2.06
21	117	263	8:46	18	0.599	A VB	213961.	100.000 UG/L	2.06
22	43	270	9:00	18	0.615	A BB	633236.	100.000 UG/L	2.06
23	83	275	9:10	18	0.626	A BB	277892.	100.000 UG/L	2.06
24	63	317	10:34	18	0.722	A BB	185949.	100.000 UG/L	2.06
25	75	325	10:50	18	0.740	A BB	372569.	150.000 UG/L	3.09
26	130	344	11:28	18	0.784	A BV	243866.	100.000 UG/L	2.06
27	129	356	11:52	18	0.811	A BB	258947.	100.000 UG/L	2.06
28	97	361	12:02	18	0.822	A BB	156088.	100.000 UG/L	2.06
29	78	361	12:02	18	0.822	A BB	381186.	100.000 UG/L	2.06
30	75	363	12:06	18	0.827	A BB	124259.	50.000 UG/L	1.03
31	63	398	13:16	18	0.907	A BB	157166.	100.000 UG/L	2.06
32	173	436	14:32	18	0.993	A BB	242540.	100.000 UG/L	2.06
33	117	585	19:30	33	1.000	A BB	236741.	50.000 UG/L	1.03
34	98	551	18:22	33	0.942	A BB	472337.	100.000 UG/L	2.06
35	95	708	23:36	33	1.210	A BB	369738.	100.000 UG/L	2.06
36	43	458	15:16	33	0.783	A BB	528408.	100.000 UG/L	2.06
37	43	506	16:52	33	0.865	A BB	400880.	100.000 UG/L	2.06
38	164	515	17:10	33	0.880	A BB	238375.	100.000 UG/L	2.06
39	83	508	16:56	33	0.868	A BB	282599.	100.000 UG/L	2.06
40	92	557	18:34	33	0.952	A BB	314433.	100.000 UG/L	2.06
41	112	589	19:38	33	1.007	A BB	449883.	100.000 UG/L	2.06
42	106	644	21:28	33	1.101	A BB	220772.	100.000 UG/L	2.06
43	104	749	24:58	33	1.280	A BB	435743.	100.000 UG/L	2.06
44	106	783	26:06	33	1.338	A BB	244480.	100.000 UG/L	2.06
45	146	875	29:10	33	1.496	M XX	596079.	100.000 UG/L	2.06
46	146	899	29:58	33	1.537	M XX	601728.	100.000 UG/L	2.06
47	146	916	30:32	33	1.566	M XX	597693.	100.000 UG/L	2.06
48	106	759	25:18	33	1.297	A BB	256552.	100.000 UG/L	2.06
49	73	247	8:14	2	1.171	A BB	333980.	100.000 UG/L	2.06
50	59	193	6:26	1	1.399	A BB	74959.	100.000 UG/L	2.06

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No	Name
48	M-XYLENE
49	METHYL-T-BUTYLETHER
50	DIETHYLETHER

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	137	4:34	1	1.000	A BB	34568.	50.000 UG/L	0.69
2	65	211	7:02	1	1.540	A BB	309112.	150.000 UG/L	2.08
3	50	35	1:10	1	0.255	A BB	113015.	150.000 UG/L	2.08
4	94	43	1:26	1	0.314	A BB	98889.	150.000 UG/L	2.08
5	62	51	1:42	1	0.372	A BB	84347.	150.000 UG/L	2.08
6	64	57	1:54	1	0.416	A BB	76506.	150.000 UG/L	2.08
7	84	77	2:34	1	0.562	A BB	87209.	150.000 UG/L	2.08
8	43	90	3:00	1	0.657	A BB	104682.	150.000 UG/L	2.08
9	56	88	2:56	1	0.642	A BB	17122.	150.000 UG/L	2.08
10	76	111	3:42	1	0.810	A BB	183246.	150.000 UG/L	2.08
11	101	122	4:04	1	0.891	A BB	246136.	150.000 UG/L	2.08
12	53	98	3:16	1	0.715	A VB	32080.	150.000 UG/L	2.08
13	96	132	4:24	1	0.964	A BB	119448.	150.000 UG/L	2.08
14	63	161	5:22	1	1.175	A BB	322841.	150.000 UG/L	2.08
15	96	180	6:00	1	1.314	A BB	137843.	150.000 UG/L	2.08
16	83	192	6:24	1	1.401	A BB	336591.	150.000 UG/L	2.08
17	62	214	7:08	1	1.562	A BB	363475.	150.000 UG/L	2.08
18	114	439	14:38	18	1.000	A BB	229068.	50.000 UG/L	0.69
19	72	215	7:10	18	0.490	A BB	45681.	150.000 UG/L	2.08
20	97	251	8:22	18	0.572	A BB	372211.	150.000 UG/L	2.08
21	117	262	8:44	18	0.597	A VB	302487.	150.000 UG/L	2.08
22	43	270	9:00	18	0.615	A BB	943256.	150.000 UG/L	2.08
23	83	274	9:08	18	0.624	A VB	404996.	150.000 UG/L	2.08
24	63	317	10:34	18	0.722	A BB	277517.	150.000 UG/L	2.08
25	75	324	10:48	18	0.738	A BB	552017.	225.000 UG/L	3.13
26	130	343	11:26	18	0.781	A BV	357041.	150.000 UG/L	2.08
27	129	356	11:52	18	0.811	A BB	376591.	150.000 UG/L	2.08
28	97	361	12:02	18	0.822	A BB	222002.	150.000 UG/L	2.08
29	78	361	12:02	18	0.822	A BB	534170.	150.000 UG/L	2.08
30	75	363	12:06	18	0.827	A BB	182821.	75.000 UG/L	1.04
31	63	397	13:14	18	0.904	A BB	239411.	150.000 UG/L	2.08
32	173	436	14:32	18	0.993	A BB	374710.	150.000 UG/L	2.08
33	117	584	19:28	33	1.000	A BB	224033.	50.000 UG/L	0.69
34	98	550	18:20	33	0.942	A BB	685230.	150.000 UG/L	2.08
35	95	707	23:34	33	1.211	A BB	549106.	150.000 UG/L	2.08
36	43	458	15:16	33	0.784	A BB	821164.	150.000 UG/L	2.08
37	43	505	16:50	33	0.865	A BB	631249.	150.000 UG/L	2.08
38	164	515	17:10	33	0.882	A BB	332666.	150.000 UG/L	2.08
39	83	507	16:54	33	0.868	A BB	402122.	150.000 UG/L	2.08
40	92	556	18:32	33	0.952	A BB	449944.	150.000 UG/L	2.08
41	112	588	19:36	33	1.007	A BB	650187.	150.000 UG/L	2.08
42	106	643	21:26	33	1.101	A BB	318463.	150.000 UG/L	2.08
43	104	748	24:56	33	1.281	A BB	635995.	150.000 UG/L	2.08
44	106	782	26:04	33	1.339	A BB	352546.	150.000 UG/L	2.08
45	146	874	29:08	33	1.497	M XX	832568.	150.000 UG/L	2.08
46	146	898	29:56	33	1.538	M XX	846560.	150.000 UG/L	2.08
47	146	914	30:28	33	1.565	M XX	880911.	150.000 UG/L	2.08
48	106	758	25:16	33	1.298	A BB	361597.	150.000 UG/L	2.08
49	73	247	8:14	2	1.171	A BB	491331.	150.000 UG/L	2.08
50	59	193	6:26	1	1.409	A VB	128389.	150.000 UG/L	2.08

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0000059

No	Name
48	M-XYLENE
49	METHYL-T-BUTYLETHER
50	DIETHYLETHER

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	137	4:34	1	1.000	A BB	33987.	50.000 UG/L	0.52
2	65	211	7:02	1	1.540	A BB	385579.	200.000 UG/L	2.09
3	50	36	1:12	1	0.263	A BB	133540.	200.000 UG/L	2.09
4	94	44	1:28	1	0.321	A BB	105232.	200.000 UG/L	2.09
5	62	52	1:44	1	0.380	A BB	98689.	200.000 UG/L	2.09
6	64	57	1:54	1	0.416	A BB	88762.	200.000 UG/L	2.09
7	84	79	2:38	1	0.577	A BB	90817.	200.000 UG/L	2.09
8	43	91	3:02	1	0.664	A BB	111519.	200.000 UG/L	2.09
9	56	89	2:58	1	0.650	A BB	16083.	200.000 UG/L	2.09
10	76	113	3:46	1	0.825	A BB	239461.	200.000 UG/L	2.09
11	101	123	4:06	1	0.898	A BB	309300.	200.000 UG/L	2.09
12	53	99	3:18	1	0.723	A VB	38892.	200.000 UG/L	2.09
13	96	133	4:26	1	0.971	A BB	150842.	200.000 UG/L	2.09
14	63	161	5:22	1	1.175	A BB	418984.	200.000 UG/L	2.09
15	96	181	6:02	1	1.321	A BB	176285.	200.000 UG/L	2.09
16	83	192	6:24	1	1.401	A BB	425458.	200.000 UG/L	2.09
17	62	214	7:08	1	1.562	A BB	464047.	200.000 UG/L	2.09
18	114	440	14:40	18	1.000	A BB	220909.	50.000 UG/L	0.52
19	72	216	7:12	18	0.491	A BB	65903.	200.000 UG/L	2.09
20	97	252	8:24	18	0.573	A BB	461328.	200.000 UG/L	2.09
21	117	262	8:44	18	0.595	A VB	360318.	200.000 UG/L	2.09
22	43	271	9:02	18	0.616	A BB	1264750.	200.000 UG/L	2.09
23	83	275	9:10	18	0.625	A VB	491377.	200.000 UG/L	2.09
24	63	318	10:36	18	0.723	A BB	350810.	200.000 UG/L	2.09
25	75	325	10:50	18	0.739	A BB	700535.	300.000 UG/L	3.14
26	130	344	11:28	18	0.782	A BB	450156.	200.000 UG/L	2.09
27	129	356	11:52	18	0.809	A BB	470944.	200.000 UG/L	2.09
28	97	362	12:04	18	0.823	A BB	275659.	200.000 UG/L	2.09
29	78	361	12:02	18	0.820	A BB	653457.	200.000 UG/L	2.09
30	75	364	12:08	18	0.827	A BB	229790.	100.000 UG/L	1.05
31	63	398	13:16	18	0.905	A BB	315710.	200.000 UG/L	2.09
32	173	437	14:34	18	0.993	A BB	486356.	200.000 UG/L	2.09
33	117	585	19:30	33	1.000	A BB	217884.	50.000 UG/L	0.52
34	98	551	18:22	33	0.942	A BB	843511.	200.000 UG/L	2.09
35	95	709	23:38	33	1.212	A BB	672588.	200.000 UG/L	2.09
36	43	459	15:18	33	0.785	A BB	1109800.	200.000 UG/L	2.09
37	43	506	16:52	33	0.865	A BB	855631.	200.000 UG/L	2.09
38	164	516	17:12	33	0.882	A BB	405289.	200.000 UG/L	2.09
39	83	508	16:56	33	0.868	A BB	506415.	200.000 UG/L	2.09
40	92	557	18:34	33	0.952	A BB	569144.	200.000 UG/L	2.09
41	112	589	19:38	33	1.007	A BB	811560.	200.000 UG/L	2.09
42	106	645	21:30	33	1.103	A BB	394162.	200.000 UG/L	2.09
43	104	749	24:58	33	1.280	A BB	798714.	200.000 UG/L	2.09
44	106	783	26:06	33	1.338	A BB	451075.	200.000 UG/L	2.09
45	146	874	29:08	33	1.494	M XX	1042280.	200.000 UG/L	2.09
46	146	899	29:58	33	1.537	M XX	1060570.	200.000 UG/L	2.09
47	146	915	30:30	33	1.564	M XX	1099490.	200.000 UG/L	2.09
48	106	759	25:18	33	1.297	A BB	447745.	200.000 UG/L	2.09
49	73	248	8:16	2	1.175	A BB	607540.	200.000 UG/L	2.09
50	59	193	6:26	1	1.409	A VB	189940.	200.000 UG/L	2.09

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6A

VOLATILE ORGANICS INTITIAL CALIBRATION DATA

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9105L529

Instrument ID: HP-MSD X Calibration Date(s): 05/08/91 05/08/91

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

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

LAB FILE ID: RRF20 = AX5808 RRF50 = AX5809
RRF100= AX5812 RRF150= AX5811 RRF200= AX5810

COMPOUND	RRF20	RRF50	RRF100	RRF150	RRF200	$\overline{RRF}$	% RSD
Chloromethane #	0.428	0.409	0.368	0.411	0.350	0.393	8.3#
Bromomethane	1.148	1.082	0.927	1.061	0.943	1.032	9.2
Vinyl Chloride *	0.698	0.617	0.554	0.637	0.546	0.610	10.3*
Chloroethane	0.502	0.538	0.445	0.544	0.488	0.504	8.0
Methylene Chloride	1.662	1.734	1.097	1.113	1.025	1.326	25.8
Acetone	0.782	0.486	0.411	0.389	0.339	0.481	36.6
Carbon Disulfide	2.736	2.425	2.360	2.673	2.365	2.512	7.1
1,1-Dichloroethene *	1.182	1.103	1.023	1.058	1.035	1.080	6.0*
1,1-Dichloroethane #	0.821	0.734	0.662	0.744	0.664	0.725	9.1#
1,2-Dichloroethene (total)	1.318	1.221	1.110	1.238	1.158	1.209	6.6
Chloroform *	3.900	3.668	3.157	3.450	3.083	3.451	9.9*
1,2-Dichloroethane	0.923	0.802	0.718	0.722	0.697	0.772	12.1
2-Butanone	0.077	0.080	0.091	0.097	0.086	0.086	9.6
1,1,1-Trichloroethane	4.587	4.033	3.572	3.810	3.359	3.872	12.2
Carbon Tetrachloride	4.760	4.338	3.905	4.136	3.753	4.178	9.4
Vinyl Acetate	2.439	2.092	1.908	2.456	2.038	2.186	11.3
Bromodichloromethane	0.907	0.828	0.773	0.764	0.749	0.804	8.0
1,2-Dichloropropane *	0.276	0.230	0.220	0.234	0.213	0.235	10.4*
cis-1,3-Dichloropropene	0.648	0.609	0.577	0.615	0.602	0.610	4.2
Trichloroethene	0.491	0.444	0.412	0.424	0.420	0.438	7.2
Dibromochloromethane	0.994	0.916	0.866	0.913	0.872	0.912	5.6
1,1,2-Trichloroethane	0.369	0.340	0.329	0.345	0.331	0.343	4.7
Benzene	0.703	0.643	0.580	0.623	0.596	0.629	7.6
Trans-1,3-Dichloropropene	0.514	0.463	0.453	0.503	0.496	0.485	5.4
Bromoform #	0.955	0.859	0.825	0.872	0.823	0.867	6.2#
4-Methyl-2-pentanone	0.416	0.331	0.336	0.378	0.315	0.355	11.5
2-Hexanone	0.299	0.239	0.269	0.292	0.246	0.269	9.9
Tetrachloroethene	0.633	0.583	0.528	0.560	0.530	0.567	7.7
1,1,2,2-Tetrachloroethane #	0.624	0.529	0.502	0.574	0.523	0.550	8.9#
Toluene *	0.635	0.554	0.526	0.542	0.540	0.559	7.7*
Chlorobenzene #	0.962	0.870	0.800	0.860	0.850	0.868	6.8#
Ethylbenzene *	0.406	0.386	0.358	0.385	0.374	0.382	4.6*
Styrene	0.851	0.794	0.760	0.798	0.803	0.801	4.1
Xylene (total)	0.507	0.485	0.428	0.461	0.451	0.466	6.6
Toluene-d8	1.243	1.089	1.056	1.031	1.012	1.086	8.5
Bromofluorobenzene	1.181	0.998	0.962	0.948	0.915	1.001	10.5
1,2-Dichloroethane-d4	0.820	0.724	0.676	0.623	0.600	0.688	12.7

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7A

VOLATILE CONTINUING CALIBRATION CHEC

Lab Name: Roy F. Weston, Inc. Contr

Case No.: WESTINGHOUSE HANFORD RFW L

Instrument ID: 1050W Calibration Date: 05/

Lab File ID: W050905 Init. Calib. Date(s):

CCVs

$\frac{\text{Area Cmpd}}{\text{Area IS}} * \frac{\text{Conc IS}}{\text{Conc Cmpd}}$

$\frac{RRF - RRF_{50}}{RRF} * 100$

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) PACK

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

COMPOUND		$\overline{RRF}$	RRF50	%D	
Chloromethane	#	1.056	0.997	5.6	#
Bromomethane		0.939	1.047	-11.5	
Vinyl Chloride	*	0.883	1.036	-17.3	*
Chloroethane		0.772	0.732	5.2	
Methylene Chloride		1.133	1.209	-6.7	
Acetone		1.092	1.362	-24.7	
Carbon Disulfide		1.845	1.585	14.1	
1,1-Dichloroethene	*	1.178	1.016	13.8	*
1,1-Dichloroethane	#	3.056	2.895	5.3	#
1,2-Dichloroethene (total)		1.324	1.183	10.6	
Chloroform	*	3.282	3.062	6.7	*
1,2-Dichloroethane		3.545	2.518	29.0	
2-Butanone		0.058	0.052	10.3	
1,1,1-Trichloroethane		0.533	0.480	9.9	
Carbon Tetrachloride		0.456	0.436	4.4	
Vinyl Acetate		1.114	0.765	31.3	
Bromodichloromethane		0.570	0.497	12.8	
1,2-Dichloropropane	*	0.390	0.339	13.1	*
cis-1,3-Dichloropropene		0.513	0.450	12.3	
Trichloroethene		0.514	0.481	6.4	
Dibromochloromethane		0.530	0.465	12.3	
1,1,2-Trichloroethane		0.329	0.295	10.3	
Benzene		0.808	0.819	-1.4	
Trans-1,3-Dichloropropene		0.517	0.470	9.1	
Bromoform	#	0.492	0.373	24.2	#
4-Methyl-2-pentanone		1.086	0.744	31.5	
2-Hexanone		0.835	0.670	19.8	
Tetrachloroethene		0.513	0.532	-3.7	
1,1,2,2-Tetrachloroethane	#	0.593	0.559	5.7	#
Toluene	*	0.678	0.705	-4.0	*
Chlorobenzene	#	0.982	0.974	0.8	#
Ethylbenzene	*	0.475	0.492	-3.6	*
Styrene		0.925	0.911	1.5	
Xylene (total)		0.523	0.523	0.0	
Toluene-d8		1.024	1.169	-14.2	
Bromofluorobenzene		0.803	0.827	-3.0	
1,2-Dichloroethane-d4		2.972	2.253	24.2	

FORM VII VOA 5/88 Rev.

4/1/92 KAK

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000006

No	Name
48	M-XYLENE
49	METHYL-T-BUTYLETHER
50	DIETHYLETHER

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	140	4:40	1	1.000	A BB	47565.	50.000 UG/L	2.00
2	65	213	7:06	1	1.521	A BB	107183.	50.000 UG/L	2.00
3	50	35	1:10	1	0.250	A BB	47402.	50.000 UG/L	2.00
4	94	45	1:30	1	0.321	A BB	49796.	50.000 UG/L	2.00
5	62	52	1:44	1	0.371	A BB	49254.	50.000 UG/L	2.00
6	64	60	2:00	1	0.429	A VB	34813.	50.000 UG/L	2.00
7	84	80	2:40	1	0.571	A BB	57492.	50.000 UG/L	2.00
8	43	98	3:16	1	0.700	A BB	64790.	50.000 UG/L	2.00
9	56	93	3:06	1	0.664	A BB	10481.	50.000 UG/L	2.00
10	76	111	3:42	1	0.793	A BB	75380.	50.000 UG/L	2.00
11	101	123	4:06	1	0.879	A BB	99789.	50.000 UG/L	2.00
12	53	104	3:28	1	0.743	A BB	10956.	50.000 UG/L	2.00
13	96	134	4:28	1	0.957	A BB	48322.	50.000 UG/L	2.00
14	63	163	5:26	1	1.164	A BB	137704.	50.000 UG/L	2.00
15	96	183	6:06	1	1.307	A BB	56258.	50.000 UG/L	2.00
16	83	194	6:28	1	1.386	A BB	145646.	50.000 UG/L	2.00
17	62	215	7:10	1	1.536	A BB	119748.	50.000 UG/L	2.00
18	114	439	14:38	18	1.000	A BB	309372.	50.000 UG/L	2.00
19	72	219	7:18	18	0.499	A BB	16046.	50.000 UG/L	2.00
20	97	252	8:24	18	0.574	A BB	148382.	50.000 UG/L	2.00
21	117	263	8:46	18	0.599	A VB	134740.	50.000 UG/L	2.00
22	43	271	9:02	18	0.617	A BB	236659.	50.000 UG/L	2.00
23	83	275	9:10	18	0.626	A BB	153745.	50.000 UG/L	2.00
24	63	318	10:36	18	0.724	A BB	104890.	50.000 UG/L	2.00
25	75	325	10:50	18	0.740	A BB	208717.	75.000 UG/L	3.00
26	130	344	11:28	18	0.784	A BV	148787.	50.000 UG/L	2.00
27	129	356	11:52	18	0.811	A BB	143761.	50.000 UG/L	2.00
28	97	361	12:02	18	0.822	A BB	91383.	50.000 UG/L	2.00
29	78	361	12:02	18	0.822	A BB	253344.	50.000 UG/L	2.00
30	75	363	12:06	18	0.827	A BB	72692.	25.000 UG/L	1.00
31	63	398	13:16	18	0.907	A BB	55089.	50.000 UG/L	2.00
32	173	436	14:32	18	0.993	A BB	115314.	50.000 UG/L	2.00
33	117	584	19:28	33	1.000	A BB	299882.	50.000 UG/L	2.00
34	98	550	18:20	33	0.942	A BB	350541.	50.000 UG/L	2.00
35	95	707	23:34	33	1.211	A BB	247864.	50.000 UG/L	2.00
36	43	458	15:16	33	0.784	A BB	223235.	50.000 UG/L	2.00
37	43	506	16:52	33	0.866	A BB	200935.	50.000 UG/L	2.00
38	164	515	17:10	33	0.882	A BB	159559.	50.000 UG/L	2.00
39	83	507	16:54	33	0.868	A BB	167673.	50.000 UG/L	2.00
40	92	556	18:32	33	0.952	A BB	211434.	50.000 UG/L	2.00
41	112	588	19:36	33	1.007	A BB	292111.	50.000 UG/L	2.00
42	106	643	21:26	33	1.101	A BB	147450.	50.000 UG/L	2.00
43	104	748	24:56	33	1.281	A BB	273251.	50.000 UG/L	2.00
44	106	782	26:04	33	1.339	A BB	156731.	50.000 UG/L	2.00
45	146	873	29:06	33	1.495	A BB	181196.	50.000 UG/L	2.00
46	146	898	29:56	33	1.538	M XX	179872.	50.000 UG/L	2.00
47	146	915	30:30	33	1.567	M XX	207612.	50.000 UG/L	2.00
48	106	758	25:16	33	1.298	A BB	169762.	50.000 UG/L	2.00
49	73	248	8:16	2	1.164	A BB	194261.	50.000 UG/L	2.00
50	59	195	6:30	1	1.393	A VB	46543.	50.000 UG/L	2.00

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7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9105L529

Instrument ID: HP-MSD X Calibration Date: 05/15/91 Time: 1057

Lab File ID: AX5F03 Init. Calib. Date(s): 05/08/91 05/08/91

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

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

COMPOUND	RRF	RRF50	%D	
Chloromethane #	0.393	0.450	-14.5 #	
Bromomethane	1.032	1.113	-7.9	7.84
Vinyl Chloride *	0.610	0.687	-12.6 *	
Chloroethane	0.504	0.650	-29.0	
Methylene Chloride	1.326	1.257	5.2	
Acetone	0.481	0.544	-13.0	13.1
Carbon Disulfide	2.512	2.753	-9.6	
1,1-Dichloroethene *	1.080	1.189	-10.1 *	
1,1-Dichloroethane #	0.725	0.787	-8.6 #	
1,2-Dichloroethene (total)	1.209	1.305	-7.9	
Chloroform *	3.451	3.591	-4.0 *	
1,2-Dichloroethane	0.772	0.806	-4.4	
2-Butanone	0.086	0.109	-27.2	26.7
1,1,1-Trichloroethane	3.872	4.044	-4.4	
Carbon Tetrachloride	4.178	3.964	5.1	
Vinyl Acetate	2.186	2.316	-5.9	
Bromodichloromethane	0.804	0.788	1.9	2.0
1,2-Dichloropropane *	0.235	0.247	-5.1 *	
cis-1,3-Dichloropropene	0.610	0.760	-24.6	
Trichloroethene	0.438	0.455	-3.8	-3.9
Dibromochloromethane	0.912	0.909	0.3	
1,1,2-Trichloroethane	0.343	0.367	-7.1	7.0
Benzene	0.629	0.656	-4.3	
Trans-1,3-Dichloropropene	0.485	0.359	26.0	
Bromoform #	0.867	0.809	6.6 #	
4-Methyl-2-pentanone	0.355	0.392	-10.3	-10.4
2-Hexanone	0.269	0.295	-9.5	9.7
Tetrachloroethene	0.567	0.542	4.5	4.4
1,1,2,2-Tetrachloroethane #	0.550	0.497	9.7 #	9.6
Toluene *	0.559	0.565	-1.1 *	
Chlorobenzene #	0.868	0.798	8.1 #	
Ethylbenzene *	0.382	0.381	0.3 *	
Styrene	0.801	0.790	1.3	1.4
Xylene (total)	0.466	0.454	2.6	
Toluene-d8	1.086	1.135	-4.5	
Bromofluorobenzene	1.001	1.009	-0.8	
1,2-Dichloroethane-d4	0.688	0.767	-11.5	

minor rounding errors. AWC

FORM VII VOA 5/88 Rev.

KAK 4/12/95

AW

QUANT REPORT

Operator ID: BB
Output File: ^X5F03::QQ
Data File: >X5F03::D3
Name: VSTD50 AX5F02
Misc: AX58 5PT SOIL VSTD50

Quant Rev: 6
Quant Time: 910515 11:22
Injected at: 910515 10:57
Dilution Factor: 1.00000
#HP-MSD X BB

ID File: I_X5FA::QQ
Title: VOLATILES BY CAPILLARY
Last Calibration: 910510 15:12

	Compound	R.T.	Q ion	Area	Conc	Units	q
1)	*BROMOCHLOROMETHANE	7.63	128.0	29038	50.00	ug/kg	41
2)	CHLOROMETHANE	1.55	50.0	13066	57.23	ug/kg	99
3)	VINYL CHLORIDE	1.63	62.0	19948	56.30	ug/kg	96
4)	BROMOMETHANE	1.96	94.0	32324	53.91	ug/kg	100
5)	CHLOROETHANE	2.02	64.0	18881	64.56	ug/kg	93
6)	TRICHLOROFLUOROMETHANE	2.27	101.0	127725M	50.19	ug/kg	95
7)	1,1-DICHLOROETHYLENE	3.01	96.0	34534	55.05	ug/kg	85
8)	ACROLEIN	2.99	56.0	3231	54.84	ug/kg	97
9)	CARBON DISULFIDE	3.17	76.0	79931	54.79	ug/kg	100
10)	ACETONE	3.31	43.0	15787	56.48	ug/kg	62
11)	METHYLENE CHLORIDE	4.01	84.0	36488	47.38	ug/kg	87
12)	1,2-DICHLOROETHENE (TOTAL)	4.60	96.0	37883	53.96	ug/kg	90
13)	ACRYLONITRILE	4.68	53.0	6987	67.55	ug/kg	75
14)	1,1-DICHLOROETHANE	5.60	65.0	22858	54.31	ug/kg	92
15)	VINYL ACETATE	6.14	43.0	67243	52.96	ug/kg	77
16)	1,2-DICHLOROETHENE (CIS)	7.10	96.0	35218	54.13	ug/kg	87
17)	2-BUTANONE	7.45	72.0	3177M	63.55	ug/kg	87
18)	CHLOROFORM	8.04	83.0	104265	52.02	ug/kg	92
19)	1,1,1-TRICHLOROETHANE	8.16	97.0	117418	52.21	ug/kg	81
20)	CARBON TETRACHLORIDE	8.51	117.0	115093	47.43	ug/kg	77
21)	*1,4-DIFLUOROBENZENE	10.23	114.0	121613	50.00	ug/kg	67
22)	BENZENE	9.00	78.0	79778	52.13	ug/kg	63
23)	1,2-DICHLOROETHANE D4	9.00	65.0	93321	55.73	ug/kg	79
24)	1,2-DICHLOROETHANE	9.17	62.0	97981	52.16	ug/kg	91
25)	TRICHLOROETHYLENE	10.64	130.0	55307	51.92	ug/kg	92
26)	2-CHLOROETHYLVINYLETHER	12.93	63.0	20974	51.64	ug/kg	79
27)	1,2-DICHLOROPROPANE	11.09	63.0	30026	52.61	ug/kg	93
28)	BROMODICHLOROMETHANE	11.93	83.0	95888	49.02	ug/kg	90
29)	*CHLOROBENZENE-D5	16.92	117.0	98748	50.00	ug/kg	89
30)	CIS-1,3-DICHLOROPROPENE	12.99	75.0	96033	79.67	ug/kg	96
31)	TOLUENE D8	13.50	98.0	112075	52.24	ug/kg	96
32)	TOLUENE	13.65	92.0	55793	50.50	ug/kg	95
33)	4-METHYL-2-PENTANONE	13.57	43.0	38677	55.17	ug/kg	94
34)	TRANS-1,3-DICHLOROPROPENE	14.47	75.0	25511	26.61	ug/kg	91
35)	TETRACHLOROETHYLENE	14.88	164.0	53472	47.76	ug/kg	98
36)	1,1,2-TRICHLOROETHANE	14.81	97.0	36288	53.60	ug/kg	99
37)	DIBROMOCHLOROMETHANE	15.63	129.0	89792	49.85	ug/kg	90
38)	2-HEXANONE	15.65	43.0	29099	54.77	ug/kg	80
39)	CHLOROBENZENE	16.98	112.0	78784	45.94	ug/kg	64
40)	ETHYLBENZENE	17.41	106.0	37600	49.86	ug/kg	94
41)	XYLENE	17.74	106.0	93993	102.46	ug/kg	84
42)	STYRENE	18.74	104.0	78060	49.34	ug/kg	57
43)	XYLENES (TOTAL)	18.68	106.0	44818	48.67	ug/kg	90

2B

SOIL VOLATILE SURROGATE RECOVERY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD Level:(low/med)LOW

RFW Lot No.: 9105L529

	CLIENT SAMPLE NO.	S1 (TOL)#	S2 (BFB)#	S3 (DCE)#	OTHER	TOT OUT
01	BOOVQ9	105	103	107		0
02	BOOVRD	98	94	113		0
03	VBLKLVX079-MB1	110	105	105		0
04	VBLKLVW070-MB1	99	100	108		0

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

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

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9105L529

Lab File ID (Standard): W050905 Date Analyzed: 05/09/91

Instrument ID: 1050W Time Analyzed: 1318

Matrix:(soil/water) SOIL Level:(low/med) LOW Column:(pack/cap) PACK

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	47565	4.67	309372	14.63	299882	19.47
	UPPER LIMIT	95130	5.17	618744	15.13	599764	19.97
	LOWER LIMIT	23783	4.17	154686	14.13	149941	18.97
	CLIENT SAMPLE NO.						
01	BOOVRD	40699	4.63	295189	14.63	283259	19.50
02	VBLKLVW070-MB1	42050	4.60	268304	14.67	263836	19.53

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

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9105L529

Lab File ID (Standard): AX5F03 Date Analyzed: 05/15/91

Instrument ID: HP-MSD X Time Analyzed: 1057

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

		IS1(BCM) AREA #	RT	IS2(DFB) AREA #	RT	IS3(CBZ) AREA #	RT
	12 HOUR STD	29038	7.63	121613	10.23	98748	16.92
	UPPER LIMIT	58076	8.13	243226	10.73	197496	17.42
	LOWER LIMIT	14519	7.13	60807	9.73	49374	16.42
	CLIENT SAMPLE NO.						
01	BOOVQ9	18169	7.62	77714	10.26	60967	16.94
02	VBLKLVX079-MB1	26157	7.62	115775	10.22	88846	16.91

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

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag internal standard area values with an asterisk

3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot No.: 9105L467-003

MATRIX Spike - Sample No.: D3-4301-19 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	55.0	0	61.6	112	59-172
Trichloroethene	55.0	0	67.6	123	62-137
Benzene	55.0	0	59.1	107	66-142
Toluene	55.0	0	63.7	116	59-139
Chlorobenzene	55.0	0	60.1	109	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC
1,1-Dichloroethene	55.0	62.7	114	1	22	59-172
Trichloroethene	55.0	66.1	120	2	24	62-137
Benzene	55.0	59.0	107	0	21	66-142
Toluene	55.0	64.4	117	0	21	59-139
Chlorobenzene	55.0	59.9	109	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:

4A

VOLATILE METHOD BLANK SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD

Lab File ID: W050906 Lab Sample ID: 91LVW070-MB1

Date Analyzed: 05/09/91 Time Analyzed: 1355

Matrix:(Soil/Water) SOIL Level:(low/med) LOW

Instrument ID: 1050W

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	BOOVRD	9105L529-002	W050914	1927

COMMENTS:

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1A

0000102

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS SHEET

VBLK

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 91LVW070-MB1

Sample wt/vol: 5.00 (g/mL) G

Lab File ID: W050906

Level: (low/med) LOW

Date Received: 05/09/91

% Moisture: not dec. 0

Date Analyzed: 05/09/91

Column: (pack/cap) PACK

105000

Dilution Factor: 1.00

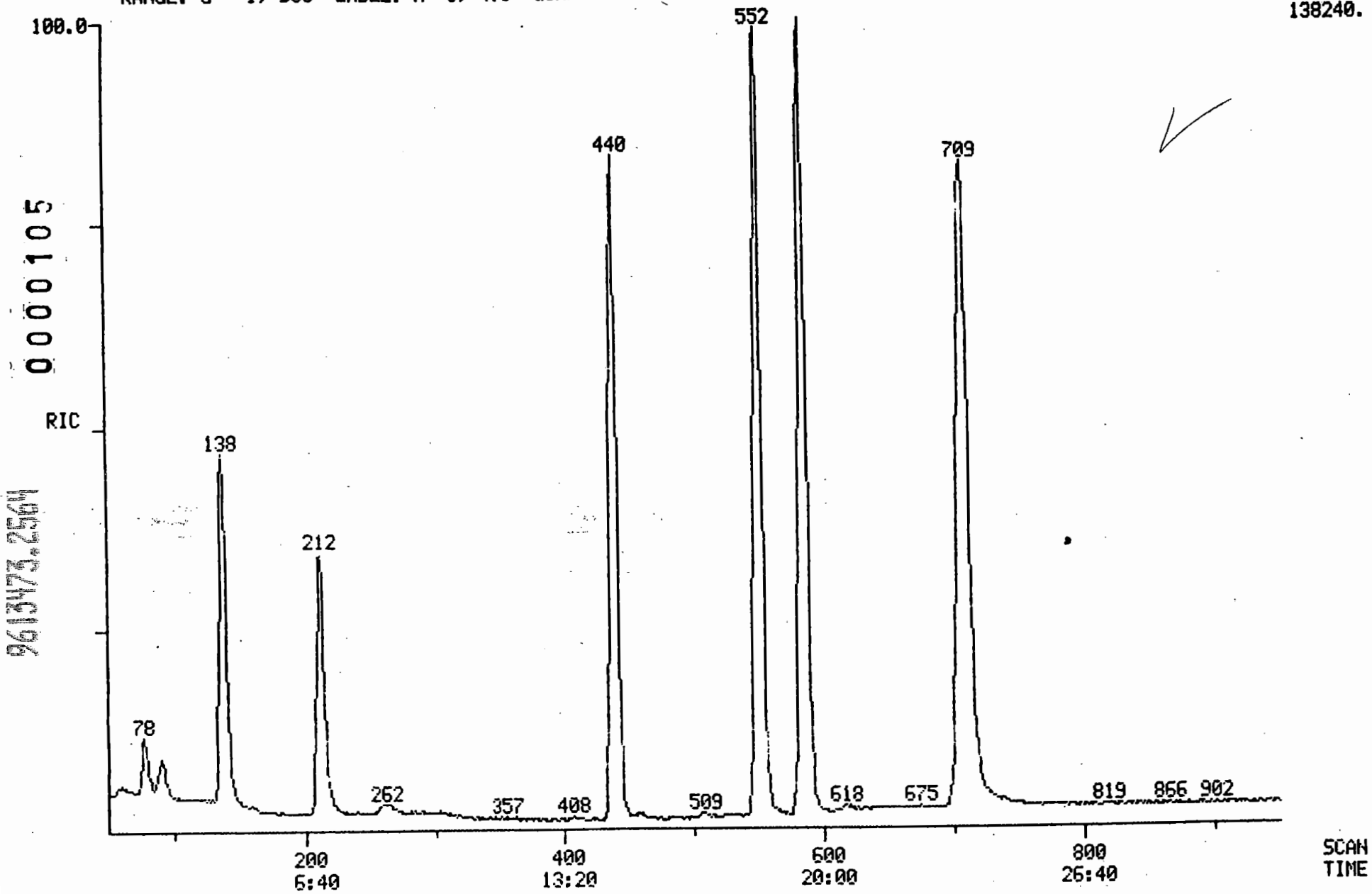
CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

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	9	
67-64-1	Acetone	29	
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

RIC
05/09/91 13:55:00
SAMPLE: 91LVW070-MB1 VOA BLANK
CONDS.: 1050W, VO, METHOD 2
RANGE: G 1, 950 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: W050906 #1
CALI: W050906 #2

SCANS 50 TO 950

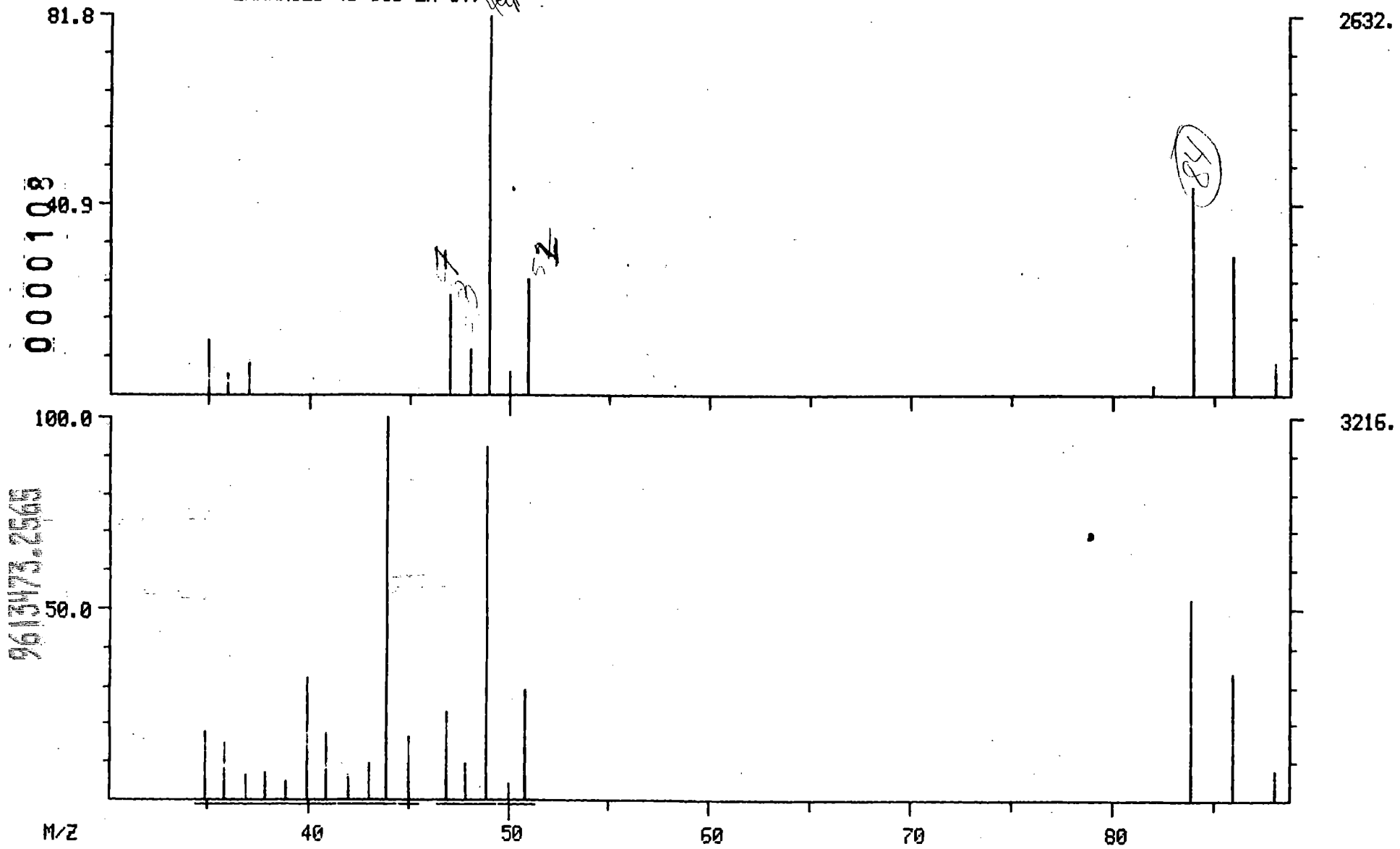


00001105
9613473.2564

DUAL MASS SPECTRUM
05/09/91 13:55:00 + 2:34
SAMPLE: 91LVW070-MB1 VOA BLANK
CONDS.: 1050W, VO, METHOD 2
GC TEMP: 76 DEG. C
ENHANCED (S 15B 2N 0T)

DATA: W050906 #77
CALI: W050906 #2

BASE M/Z: 49/ 44
RIC: 7991./ 15631.



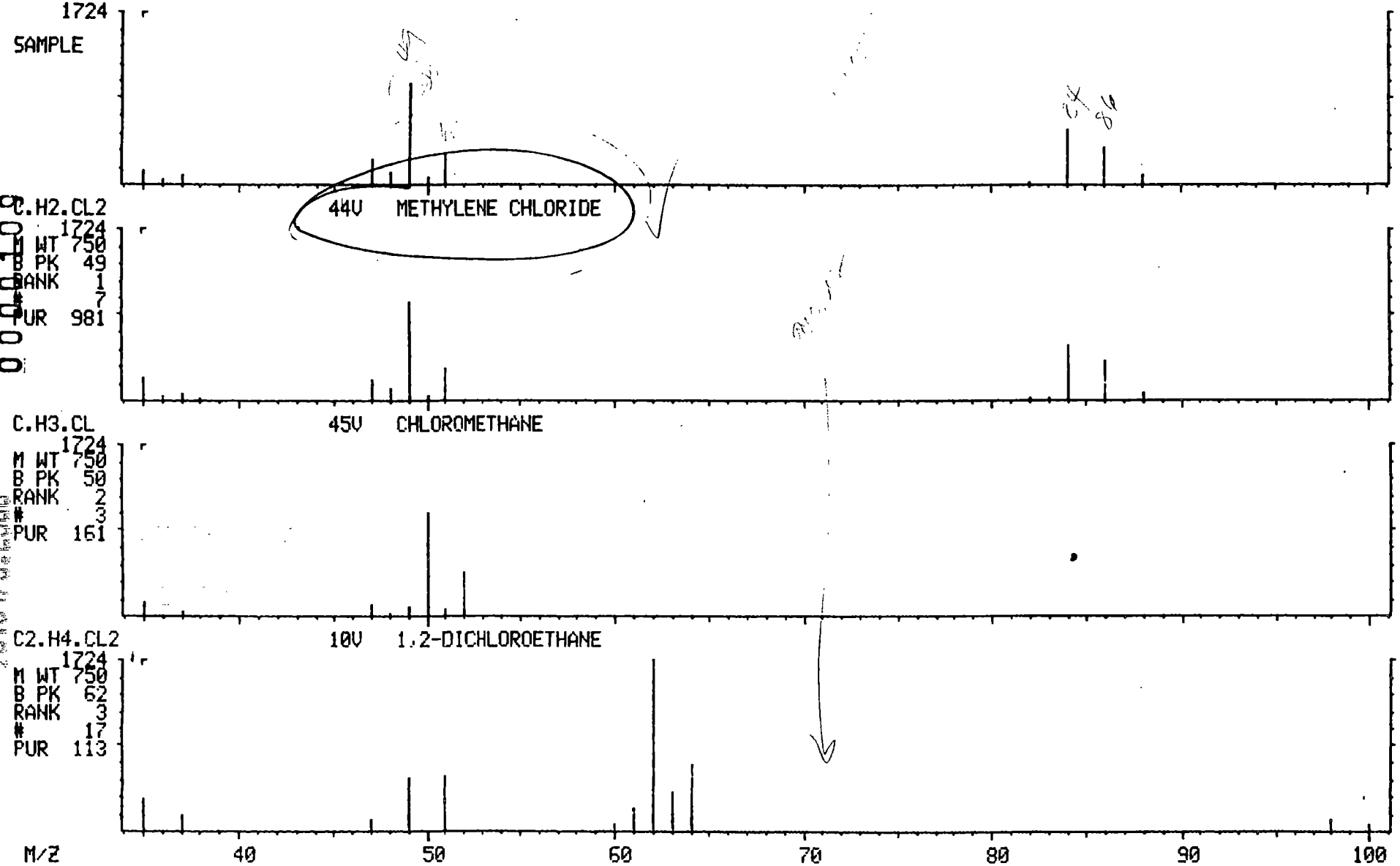
00001018

96134732565

LIBRARY SEARCH
05/09/91 13:55:00 + 2:34
SAMPLE: 91LVW070-MB1 VOA BLANK
CONDS.: 1050W, VO, METHOD 2
ENHANCED (S 15B 2N 0T)

DATA: W050906 # 77
CALI: W050906 # 2

BASE M/Z: 49
RIC: 7991.



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9613473.2567

VOLATILE ORGANIC DATA REVIEW CHECKLIST - FORM A-1

PROJECT: Westinghouse 2978-40	REVIEWER: CMR	DATE: 2/17/92
LABORATORY: Weston / Lionville	CASE: 91051529	SDG:
SAMPLES/MATRIX:		
B00VQ9 soil		
B00VRD ↓		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	✓	—	—
Data Summary	✓	—	—
Chain-of-Custody	✓	—	—
QC Summary			
Surrogate report	✓	—	—
MS/MSD report not project-specific	✓	—	—
Blank summary report 5/9, 5/15	✓	—	—
GC/MS tuning report [(1050W) 5/6, 5/9] [(HPMSDX) 5/8, 5/15] (1050W - packed, HPMSDX - capillary)	✓	—	—
Internal standard summary report	✓	—	—
Sample Data			
Sample reports	✓	—	—
TIC reports for each sample	✓	—	—
RIC reports for all samples	✓	—	—
Raw and corrected spectra for all detected results	✓	—	—
Raw and corrected library search data for all reported TIC	✓	—	—
Quantitation and calculation data for all TIC	✓	—	—
Standards Data			
Initial calibration report	✓	—	—
RIC and quantitation reports for initial calibration	✓	—	—
Continuing calibration reports	✓	—	—
RIC and quantitation reports for cont. calibrations	✓	—	—
Internal standard summary report	✓	—	—

Data Package Item	Present?: Yes	No	N/A
Raw QC Data			
Tuning report, spectra and mass lists	✓		
Blank analysis reports	✓		
TIC reports for all blanks	✓		~~✓~~ Curve
RIC and quantitation reports for blanks	✓		
Raw and corrected spectra for all detected results in blanks	✓		
Raw and corrected library search data for all reported TIC			✓ Curve
Quantitation and calculation data for all TIC			✓
MS/MSD report forms		✓	
RIC and quantitation reports for MS/MSD (form for non-project MS/MSD)		✓	
Additional Data			
Moisture/% solids data sheets (in wet chem pkg.)		✓	
Reduction formulae		✓	(not needed)
Instrument time logs		✓	
Chemist notebook pages		✓	
Sample preparation sheets (printout is in pkg.)		✓	

2. HOLDING TIMES

Complete the holding time summary form listing all samples and dates of collection and analysis.

Were all samples analyzed within holding time? Yes No N/A

ACTION: If any holding times were exceeded, qualify associated samples as estimated (J for detects or UJ for non-detects).

3. INSTRUMENT CALIBRATION AND TUNING

3.1 GC/MS TUNING

Is a BFB tune report present for each applicable 12h period? Yes No N/A

Do all tunes on all instruments meet the tuning criteria? Yes No N/A

Do all tunes on all instruments meet the expanded criteria? Yes No N/A

Has the laboratory made any calculation or transciption errors? Yes No N/A

Have the proper significant figures been reported? Yes No N/A

ACTION: If the mass calibration is out of specification but within the expanded criteria, qualify associated data as estimated (J for detects or UJ for non-detects). If all tuning criteria are missed, qualify all associated data as unusable (R).

3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments?	Yes	No	N/A
Are all RSD values ≤30%?	Yes	No	N/A
Are all RRF values ≥0.05?	Yes	No	N/A

ACTION: If any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all non-detects as unusable (R). If any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for non-detects).

3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12h periods in which associated samples were analyzed ?	Yes	No	N/A
Are all RRF values ≥0.05?	Yes	No	N/A
Are all %D values ≤25%?	Yes	No	N/A

ACTION: If any RRF value is out of specification qualify all associated detected results as estimated and all non-detects as unusable (R). If any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for non-detects).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory conducted a method blank analysis per matrix for every 12h period in which samples were analyzed?	Yes	No	N/A
Are TCL compounds present in the laboratory blanks?	Yes	No	N/A

ACTION: Qualify all sample results <10X the highest blank concentration for the common laboratory contaminants, as non-detects (U) or at the SQL if the result is < CRQL. Qualify all remaining sample results <5X the blank concentration in similar fashion.

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4.2. FIELD BLANKS

Are TCL compounds present in the field blanks? Yes No N/A

ACTION: Qualify all detected sample results less than or equal to five times the amount in any valid field blank as non-detects (U) and note the field blank results in the validation narrative.

5. ACCURACY

5.1 SURROGATE RECOVERY

Are any surrogate recoveries out of specification? Yes No N/A

Are any surrogate recoveries less than 10%? Yes No N/A

Are any method blank surrogate recoveries out of specification? Yes No N/A

ACTION: Qualify all associated sample results as estimated (J for detects or UJ for non-detects) for surrogates out of specification but greater than 10%. Qualify all associated positive sample results as estimated (J) and all non-detect results as unusable (R) for all surrogates below 10%. If method blank surrogates are out of specification and the associated sample surrogates are acceptable no qualification is necessary, however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has an MS/MSD analysis been conducted per matrix in the sample group? Yes No N/A

Are MS/MSD recoveries within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

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5.3 PERFORMANCE AUDIT SAMPLES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit sample in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are RPD values within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and not the results in the validation narrative. If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

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

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

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

ACTION: Note the results of the field split samples in the validation narrative.

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

Are any internal standard area counts outside the acceptance limits? Yes No N/A

Are retention times for any internal standard outside the ±30 second windows established by the most recent calibration check? Yes No N/A

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ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects or UJ for non-detects). If area counts are outside the acceptance limits and the retention time criteria are not met qualify all non-detects in the associated samples as unusable (R).

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

Are detected compounds within ±0.06 relative retention time units of the associated calibration standard?	Yes	No	N/A
Are all ions at a relative intensity of ≥10% in the standard spectra present in the sample spectra?	Yes	No	N/A
Do the relative intensities between the standard and sample spectra agree within 20%?	Yes	No	N/A
Have all ions >10% in the sample spectra that are not present in the standard spectra been explained?	Yes	No	N/A

ACTION: If compound identification is in error and retention time and mass spectral criteria are exceeded qualify all affected positive results as unusable (R). If cross-contamination between analyses is suspected, qualify affected data as unusable (R). Note the results in the validation narrative.

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standard(s) for quantitation?	Yes	No	N/A
Are results and quantitation limits calculated properly?	Yes	No	N/A
Has the laboratory reported the sample quantitation limits within five times the CRQL values?	Yes	No	N/A

ACTION: If the results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8.3 TENTATIVELY IDENTIFIED COMPOUNDS (TIC)

Has the laboratory conducted a spectral library search on all candidate TIC peaks in accordance with the analytical SOW?	Yes	No	N/A
Has the laboratory properly identified and coded all TIC?	Yes	No	N/A

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ACTION: If the laboratory has failed to search the minimum number of TIC peaks in the chromatogram contact the laboratory for submittal of the required data. Qualify as non-detects (U) all TIC compounds present in samples and blanks using the review criteria specified in the validation requirements. If TIC identification is in error sample results should be qualified as non-detects (U) or unusable (R). If TIC identifications are judged valid, qualify the results as presumptive and estimated (JN).

9. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications recommended in the foregoing sections, and complete the data validation narrative according to the requirements of Section 10 of the data validation requirements.

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COMMENTS (attach additional sheets as necessary):

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APPENDIX F
DATA VALIDATION DOCUMENTATION

Roy F. Weston Laboratories

Data Package 9105L529

Pesticide and PCB Analyses

9613423.2576

THIS APPENDIX CONSISTS OF FIVE ATTACHMENTS

Attachment 1 - Glossary of Data Qualifiers

This attachment provides a glossary explaining all data qualifiers applied as a result of the validation.

Attachment 2 - As Received Laboratory Sample Concentration Reports

This attachment provides a copy of the as-received sample concentration reports. This may be a tabular summary similar to that provided in Attachment 4, or may be a copy of the laboratory reports (e.g. Form I).

Attachment 3 - Summary of Data Qualifications (Form B-7)

This attachment provides a complete summary of all qualifications applied as a result of the validation.

Attachment 4 - As Qualified Data Summary

This attachment provides a tabular data summary of all data qualified from the validation.

Attachment 5 - Data Review Supporting Documentation

This attachment provides copies of the data validation checklists, data summary forms, telephone contact memoranda and other documentation completed as a result of the data validation.

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ATTACHMENT 1

Glossary of Data Qualifiers

U - Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to quality control deficiencies identified during data validation the value reported may not accurately reflect the sample quantitation limit.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated but the data are useable for decision making processes.

R - Indicates the compound or analyte was analyzed for and due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

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ATTACHMENT 2

As Received Laboratory Sample Concentration Reports

Roy F. Weston, Inc. - Lionville Laboratory

PCBs by GC

Report Date: 06/20/91 14:53

RFW Batch Number: 9105L529 Client: WESTINGHOUSE HANFORD Work Order: 6168-02-01-0000 Page: 1

	Cust ID:	BOOVQ9	BOOVRD	PBLK	PBLK BS
Sample Information	RFW#:	001	002	91LE0607-MB1	91LE0607-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate: Di-n-butylchlorendate		46 %	68 %	196 * %	147 %
Aroclor-1016		83 U	80 U	80 U	80 U
Aroclor-1221		83 U	80 U	80 U	80 U
Aroclor-1232		83 U	80 U	80 U	80 U
Aroclor-1242		83 U	80 U	80 U	80 U
Aroclor-1248		83 U	80 U	80 U	80 U
Aroclor-1254		170 U	160 U	160 U	51 %
Aroclor-1260		170 U	160 U	160 U	160 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

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ATTACHMENT 3

Summary Of Data Qualifications

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DRAFT 7/91

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: NA	REVIEWER: CER	DATE: 4	PAGE 1 OF 1
COMMENTS: CASE 9105 LSG			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
~~ALL~~	~~UJ~~	~~METHOD BLANK~~	~~DRC HIGH~~ CLR
~~ALL~~ ENDRIN KETONE	J	B00VQ9,	%D OVERLIMIT
~~ALL~~ G-CHLOR	J	B00VR2D	ON FINAL CALIBRAT
A-BHC	J		CHECK
B-BHC	J		
D-BHC	J		
G-BHC	J		
DDD	J		
DDT	J		
ENDOSULFAN SULF.	J		
ENDOSULFAN II	J		
DIELDRIN	J		
ALDRIN	J	B00VQ9, B00VR2D	%D RSD ≥10%
ENDRIN	J		
DDT	J		
DBC	J		
all, except compounds	UJ	B00VQ9, B00VR2D	blank spike (50%)

all past compounds

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ATTACHMENT 4

As Qualified Data Summary

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO

B00VQ9

ab Name: Roy F. Weston Contract: _____

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

Matrix: (soil/water) soil Lab Sample ID: 91054529-001

Sample wt/vol: 29.9 (g/mL) g Lab File ID: 06149103.41

Level: (low/med) low Date Received: 5/8/91

% Moisture: not dec. 3 dec. _____ Date Extracted: 5/10/91

Extraction: (SepF/Cont/Sonc) Sonc Date Analyzed: 6/15/91

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	8.3	UJ
319-85-7	beta-BHC	8.3	UJ
319-86-8	delta-BHC	8.3	UJ
58-89-9	gamma-BHC (Lindane)	8.3	UJ
76-44-8	Heptachlor	8.3	UJ
309-00-2	Aldrin	8.3	UJ
1024-57-3	Heptachlor epoxide	8.3	UJ
959-98-8	Endosulfan I	8.3	UJ
60-57-1	Dieldrin	17	UJ
72-55-9	4,4'-DDE	17	UJ
72-20-8	Endrin	17	UJ
33213-65-9	Endosulfan II	17	UJ
72-54-8	4,4'-DDD	17	UJ
1031-07-8	Endosulfan sulfate	17	UJ
50-29-3	4,4'-DDT	17	UJ
72-43-5	Methoxychlor	83	UJ
53494-70-5	Endrin ketone	17	UJ
5103-71-9	alpha-Chlordane	83	UJ
5103-74-2	gamma-Chlordane	83	UJ
8001-35-2	Toxaphene	170	UJ
12674-11-2	Aroclor-1016	83	UJ
11104-28-2	Aroclor-1221	83	UJ
11141-16-5	Aroclor-1232	83	UJ
53469-21-9	Aroclor-1242	83	UJ
12672-29-6	Aroclor-1248	83	UJ
11097-69-1	Aroclor-1254	170	UJ
11096-82-5	Aroclor-1260	170	UJ
		~~170~~	~~UJ~~

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO

BOOVRD

Lab Name: Roy F. Weston Contract: _____

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

Matrix: (soil/water) Soil Lab Sample ID: 91054529-002

Sample wt/vol: 31.6 (g/mL) g Lab File ID: 06149103.42

Level: (low/med) low Date Received: 5/8/91

% Moisture: not dec. 5 dec. _____ Date Extracted: 5/10/91

Extraction: (SepF/Cont/Sonc) sonc Date Analyzed: 6/15/91

GPC Cleanup: (Y/N) y pH: 7.1 Dilution Factor: 1.00

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

CAS NO.	COMPOUND		Q
319-84-6	alpha-BHC	8	UJ
319-85-7	beta-BHC	8	UJ
319-86-8	delta-BHC	8	UJ
58-89-9	gamma-BHC (Lindane)	8	UJ
76-44-8	Heptachlor	8	UJ
309-00-2	Aldrin	8	UJ
1024-57-3	Heptachlor epoxide	8	UJ
959-98-8	Endosulfan I	8	UJ
60-57-1	Dieldrin	16	UJ
72-55-9	4,4'-DDE	16	UJ
72-20-8	Endrin	16	UJ
33213-65-9	Endosulfan II	16	UJ
72-54-8	4,4'-DDD	16	UJ
1031-07-8	Endosulfan sulfate	16	UJ
50-29-3	4,4'-DDT	16	UJ
72-43-5	Methoxychlor	80	UJ
53494-70-5	Endrin ketone	16	UJ
5103-71-9	alpha-Chlordane	80	UJ
5103-74-2	gamma-Chlordane	80	UJ
8001-35-2	Toxaphene	160	UJ
12674-11-2	Aroclor-1016	80	UJ
11104-28-2	Aroclor-1221	80	UJ
11141-16-5	Aroclor-1232	80	UJ
53469-21-9	Aroclor-1242	80	UJ
12672-29-6	Aroclor-1248	80	UJ
11097-69-1	Aroclor-1254	160	UJ
11096-82-5	Aroclor-1260	160	UJ

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ATTACHMENT 5

Data Review Supporting Documentation

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PESTICIDE/PCB DATA REVIEW CHECKLIST - FORM A-3

PROJECT: Westinghouse 2978-40	REVIEWER: CMR	DATE: 2/17/92
LABORATORY: Weston/Lionville	CASE: 9105L529	SDG:
SAMPLES/MATRIX:		
B0VQ9 soil		
B0VRD ↓		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for re-submittal.

Data Package Item	Present?:	Yes	No	N/A	
Case Narrative		✓			
Data Summary		✓			
Chain-of-Custody		✓			
QC Summary					
Surrogate report		✓			
MS/MSD report	PCB matrix spike only	✓			
Blank summary report		✓			
Sample Data					
Sample reports		✓			
Chromatograms		✓			
GC integration reports		✓			
Worksheets			✓		
UV traces from GPC			✓		
GC/MS confirmation spectra				✓	nondetected
Standards Data					
Pesticides Evaluation Standards Summary		✓			
Pesticides/PCB Standards Summary		✓			
Pesticides/PCB identification		✓			
Pesticides standard chromatograms		✓			
Raw QC Data					
Blank analysis report forms and chromatograms		✓			
MS/MSD report forms and chromatograms		✓			

Data Package Item	Present?: Yes	No	N/A
Additional Data			
Moisture/% solids data sheets (in wet chem pkg, ✓)		✓	
Reduction formulae		✓	
Instrument time logs		✓	
Chemist notebook pages		✓	
Sample preparation sheets printout in pkg, not ~~[illegible]~~ log book		✓	

2. HOLDING TIMES

Were all samples extracted within holding time? 5/16/91 – 5/10/91	Yes	No	N/A
Were all samples analyzed within holding time? 5/10 – 6/15 36 days	Yes	No	N/A

Action: If any holding times were exceeded, qualify all affected sample results as estimated (J for detects and UJ for non-detects).

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

3.1 INSTRUMENT PERFORMANCE

Are DDT retention times greater than 12 minutes?	Yes	No	N/A
Is resolution between DDT peaks acceptable?	Yes	No	N/A
Do all pesticide standards elute within the established retention time windows? — Dieldrin on GPC	Yes	No	N/A
Are DDT breakdowns <20%? — LAST EVALS RUN	Yes	No	N/A
Are endrin breakdowns <20%?	Yes	No	N/A
Are DBC retention time differences within specification?	Yes	No	N/A

ACTION: If DDT retention time is <12 minutes and resolution is ≤25% qualify associated data as unusable (R). If the standards do not meet the retention time criteria and peaks are not present near or within the retention time windows no sample qualification is necessary. If peaks are near or within the retention time windows and the standards and matrix spikes do not fall within the expanded retention time windows calculated according to the validation requirements, qualify all associated sample results from the last in-control point as unusable (R). If the DDT percent breakdown exceeds 20%, qualify all detected results for DDT as estimated (J) and all non-detects as unusable (R) if DDD and DDE are detected. In addition qualify all results for DDD or DDE as presumptive and estimated (NJ). If the endrin breakdown exceeds 20%, qualify all detected results for endrin as estimated (J) and all non-

detects as unusable (R) if endrin aldehyde or endrin ketone are detected. In addition qualify all results for endrin ketone as presumptive and estimated (NJ). If DBC %D values are outside the limits and the shift is ocurring repeatedly in samples and standards, qualify affected sample results as unusable (R).

3.2 CALIBRATION

ALL ARE OVER 20% on PRIMARY CO

Are RSD values for aldrin, endrin, DDT and DBC ≤10%?	Yes	No	N/A
Have all standards been analyzed within 72 hours of any sample?	Yes	No	N/A
Has a 3-point calibration been conducted for DDT or toxaphene?	Yes	No	N/A
Have all standards been analyzed at the start of each 72h sequence?	Yes	No	N/A
Have evaluation standards A, B, and C been analyzed within 72h of any sample?	Yes	No	N/A
Has the confirmation standard mix been analyzed after every 5 samples?	Yes	No	N/A
Has evaluation standard B analyzed every 10 samples?	Yes	No	N/A
Are %D values for initial and subsequent standards ≤15% for quantitation standards and ≤20% for confirmation standards?	Yes	No	N/A

SEE COMMENTS (MUST U

20% FROM PRIM DATA

ACTION: If the RSD criteria were exceeded or three point calibrations not conducted qualify associated detects as estimated (J). If all standards were not analyzed at the beginning of each 72h sequence qualify associated data as unusable (R). If the confirmation standards were not analyzed properly qualify associated detects as estimated (J). If the continuing calibration criteria were not met qualify associated quantitation data as estimated (J).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory analyzed the method blanks for each matrix in the sample group?	Yes	No	N/A
Are target compounds present in the laboratory blanks?	Yes	No	N/A

ACTION: Qualify all associated positive results as non-detects (U) that are <5X the highest concentration in any acceptable blank.

4.2 FIELD BLANKS

Are target compounds present in the field blanks? Yes No N/A

ACTION: If target compounds are present in the field blanks qualify all positive sample results <5X the highest valid field blank concentrations as non-detects (U) and note the results in the validation narrative.

5. ACCURACY

5.1 SURROGATE RECOVERY

Are any surrogate recoveries out of specification? Yes No N/A

Do any samples show non-detects for surrogates? Yes No N/A

Are any method blank surrogates out of specification? Yes No N/A

ACTION: Qualify all associated sample results as estimated (J for detects and UJ for non-detects) for surrogates out of specification. If the surrogate was not detected (0% recovery) in the sample qualify associated non-detects as unusable (R). If method blank surrogates are out of specification and sample surrogates are acceptable, no qualification is required however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has the laboratory analyzed a MS/MSD per matrix for the the sample group? Yes No N/A

Are MS/MSD recoveries within specification? Yes No N/A

Are there any calculation or transcription errors? Yes No N/A

ACTION: If MS/MSD analyses have not been conducted contact the laboratory for clarification. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLES

Are the RPD values within specification? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and not the results in the validation narrative. If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

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

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

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

ACTION: Note the results of the field split samples in the validation narrative.

7. COMPOUND IDENTIFICATION AND QUANTITATION

7.1 COMPOUND IDENTIFICATION

NO POS RESULT

Do positive results meet the retention time window criteria? Yes No N/A

Were positive results analyzed on disimilar columns? Yes No N/A

If dieldrin and DDE were reported was a 3% OV-1 column used for confirmation? Yes No N/A

Do retention times and relative peak height ratios match the expected patterns for multipeak compounds (PCB, toxaphene or chlordane)? Yes No N/A

Has GC/MS confirmation been conducted on sample extract concentrations >10 ppm? Yes No N/A

ACTION: If positive results do not meet the retention time criteria qualify all detected results as non-detects as follows: If the misidentified peak is outside the retention time windows and no interferences are noted report the CRQL and if the misidentified peak interferes with a target peak then the report value is qualified as estimated and non-detected (UJ). If

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positive results were not confirmed on disimilar columns, reject affected results (R). If a 3% OV-1 was used to confirm dieldrin and DDE, reject the affected data (R). If PCB, chlordane or toxaphene identification is questionable qualify the results as presumptive and estimated (NJ). If GC/MS confirmation was not conducted contact the laboratory for explanation and note in the validation narrative.

7.2 REPORTED RESULTS AND QUANTITATION LIMITS

Are results and quantitation limits calculated properly? **Yes** No N/A

Has the laboratory reported the sample quantitation limits within five times the CRQL values? **Yes** No N/A

ACTION: If results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8. OVERALL ASSESSMENT AND SUMMARY

NO MS/MSD DID NOT REPORT PEST RESULTS

Has the laboratory conducted the analysis in accordance with the analytical SOW? Yes **No** N/A

Were project specific data quality objectives met for this analysis? **Yes** No N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10 of the data validation requirements.

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COMMENTS (attach additional sheets as necessary):

→ % BREAKDOWN WAS CALCULATED BY HIEGHT, NOT AREA AS PER SOW. ALSO, DDT BREAKDOWN UNACCEPTABLE

→ FORMS 8E; B00VG9 & B00VR9 NOT SHOWN THEY ARE RUNS 41 & 42 Respectively. ZZZZ IS LISTED INSTEAD

→ FORM 2F; B00VG9 RESULT FOR DBC RECOVER IS TAKEN FROM SP2100-CONFIRMATION COLUMN. PRIMARY RESULT IS 34%, STILL WITHIN LIMITS

→ FORM 3F; NO MS/MSD PERFORMED, JUST A BLANK SPIKE.

→ FORM 9; DIELDRIN R.T. ON BP2160 OUTSIDE OF SET R.T. WINDOWS - PAGE 00040.

→ FORM 9; FINAL INDA AND INDB STANDARDS INDICATE A MAJOR LOSS OF RESPONSE. IN ADDITION DDT BREAKDOWN IS EXCESSIVE. THE CALIBRATION IS UNACCEPTABLE AND ALL RESULTS ~~AE~~ SHOULD BE FLAGGED J.

HOLDING TIME SUMMARY - FORM B-1

SDG: NA	REVIEWER: CARL PURSERTS	DATE: 4/6/92	PAGE 1 OF 1
COMMENTS: CASE # 91054529 [Pesticides]			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B00NQ9	PES/PCB	5/6/91	5/10/91	6/15/91	4	36	none
B00VR5	↓	5/6/91	5/10/91	6/15/91	4	36	none

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CALIBRATION DATA SUMMARY - FORM B-2

SDG: NA	REVIEWER: CARL ROBERTS	DATE: 4/6/92	PAGE 1 OF 7
COMMENTS:	6/6 RSD IS OVER 10% LIMIT CASE# 91051529		
CALIB. TYPE:	INITIAL CONTINUING	INSTRUMENT:	03

CALIB. DATE	COMPOUND	RF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
6/14/91	ALDRIN		20.8 *	ALL (B00VRD, B00VQ9)	UJ
	ENDRIN		23.5		UJ
	4-4 DDT		24.6		UJ
	DBL		24.8		UJ
	* confirmation column showed % RSD range (11-20% RSD), better than 1° column.				

1° column

B-2

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7/91

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RUN AFTER SAMPLES ANR

CALIBRATION DATA SUMMARY - FORM B-2

SDG: NA	REVIEWER: C Rogers	DATE: 4/6/92	PAGE 2 OF 3
COMMENTS: CONTINUING CALIBRATIONS STANDARDS RUN ~~SUBSEQUENT TO SAMPLES~~ ANR			
CALIB. TYPE: INITIAL CONTINUING		INSTRUMENT: COLUMN 2250/2401	

CALIB. DATE	COMPOUND	RF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
6/16/91	G-BHC [INDA]		46.3	ALL	UJ
	A-BHC [INDB]		23.8		
	D-BHC [INDB]		75.4		
	B-BHC [INDB]		15.8		
	DDD [INDB]		21.1		
	DDT [INDB]		40.7		
	ENDOSULFAN SULFATE [INDB]		64.2		
	~~G-CHLORDANE~~ ANR				
	DIELDRIN [INDA]		15.7		
	~~ENDOSULFAN II~~ ANR				
	ENDRIN KETONE [INDB]		17.9		
all	performance criteria prior to sample analysis				
was	met. ANR				

DRAFT

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CALIBRATION DATA SUMMARY - FORM B-2

SDG: NA	REVIEWER: C Rodgers	DATE: 4/6/92	PAGE 3 OF 3		
COMMENTS: OVER LIMIT SUBSEQUENT STD %D of CONF. COLUMN (Limit 20%)					
CALIB. TYPE:	INITIAL	CONTINUING	INSTRUMENT:	COLUMN ST2100	
CALIB. DATE	COMPOUND	RF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
6/16/91	A-BHC		30.0	ALL	UJ
	B-BHC		19.0		
	D-BHC		93.4		
	G-BHC		58.4		
	DIELDRIN		67.0		
	ENDOSULFAN II		21.1		
	ENDOSULFAN SULFATE		81.1		
	DDD		36.6		
	DDT		73.0		
	G-CHLORDANE		27.0		
This was last std. All performance criteria prior to sample analysis was met.					

DRAFT

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BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG: NA	REVIEWER: CARL ROGERS	DATE: 4/6/92	PAGE 1 OF 1
COMMENTS: NO PROBLEMS CASE# 91052529			

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	SAMPLES AFFECTED	QUALIFIER
~~B00VQ9~~	Method Blank none detected					B00VQ9	none
~~B00VRD~~						B00VRD	↓

DRAFT

7/91

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ACCURACY DATA SUMMARY - FORM B-4

SDG: NA	REVIEWER: C Rodgers	DATE: 4/12	PAGE 1 OF 1	
COMMENTS: CASE 9105 L529				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
① METHOD BLANK	DBC	196	~~NONE~~ BOOVQ8, BOOVRD	none
② Blank Spike	Aroclor-1254	51%	BOOVRD, BOOVQ9	UJ all aroclors

DRAFT

7/91

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Case 91052529

PRECISION DATA SUMMARY - FORM B-5

SDG:	REVIEWER CER/CMR	DATE: 4/6/92	PAGE 1 OF 1

COMMENTS:

COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER
no precision data are available with this case.				B00VRD, B00V09	none

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CALCULATION SUMMARY - FORM B-6

7/91

SDG:	REVIEWER: CER	DATE:	PAGE 1 OF 1

COMMENTS: CASE 9105 L529

(SD) % DDT BY AREA 33/(4583+33) = 0.4%
38/(5529+38) = 0.4%
64/(8166+64) = 0.78%
(54+1959)/(54+1959+5449) = 27.0%

EVAL B STDS

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DRAFT 7/91

PESTICIDE/PCB DATA REVIEW CHECKLIST - FORM A-3

PROJECT: Westinghouse 2978-40	REVIEWER: CMR	DATE: 2/17/92
LABORATORY: Weston/Lionville	CASE: 9105L529	SDG:
SAMPLES/MATRIX:		
B00VQ9 soil		
B00VRD ↓		

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for re-submittal.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	✓		
Data Summary	✓		
Chain-of-Custody	✓		
QC Summary			
Surrogate report	✓		
MS/MSD report PCB matrix spike only	✓		
Blank summary report	✓		
Sample Data			
Sample reports	✓		
Chromatograms	✓		
GC integration reports	✓		
Worksheets		✓	
UV traces from GPC		✓	
GC/MS confirmation spectra			✓ nondetected
Standards Data			
Pesticides Evaluation Standards Summary	✓		
Pesticides/PCB Standards Summary	✓		
Pesticides/PCB identification	✓		
Pesticides standard chromatograms	✓		
Raw QC Data			
Blank analysis report forms and chromatograms	✓		
MS/MSD report forms and chromatograms	✓		

Data Package Item	Present?:	Yes	No	N/A
Additional Data				
Moisture/% solids data sheets	(in wet chem pkg, ✓)		✓	
Reduction formulae			✓	
Instrument time logs			✓	
Chemist notebook pages			✓	
Sample preparation sheets	printout in pkg, not ~~procedure~~ log book		✓	

2. HOLDING TIMES

Were all samples extracted within holding time?	Yes	No	N/A
Were all samples analyzed within holding time?	Yes	No	N/A

Action: If any holding times were exceeded, qualify all affected sample results as estimated (J for detects and UJ for non-detects).

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

3.1 INSTRUMENT PERFORMANCE

Are DDT retention times greater than 12 minutes?	Yes	No	N/A
Is resolution between DDT peaks acceptable?	Yes	No	N/A
Do all pesticide standards elute within the established retention time windows?	Yes	No	N/A
Are DDT breakdowns <20%?	Yes	No	N/A
Are endrin breakdowns <20%?	Yes	No	N/A
Are DBC retention time differences within specification?	Yes	No	N/A

ACTION: If DDT retention time is <12 minutes and resolution is ≤25% qualify associated data as unusable (R). If the standards do not meet the retention time criteria and peaks are not present near or within the retention time windows no sample qualification is necessary. If peaks are near or within the retention time windows and the standards and matrix spikes do not fall within the expanded retention time windows calculated according to the validation requirements, qualify all associated sample results from the last in-control point as unusable (R). If the DDT percent breakdown exceeds 20%, qualify all detected results for DDT as estimated (J) and all non-detects as unusable (R) if DDD and DDE are detected. In addition qualify all results for DDD or DDE as presumptive and estimated (NJ). If the endrin breakdown exceeds 20%, qualify all detected results for endrin as estimated (J) and all non-

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detects as unusable (R) if endrin aldehyde or endrin ketone are detected. In addition qualify all results for endrin ketone as presumptive and estimated (NJ). If DBC %D values are outside the limits and the shift is ocurring repeatedly in samples and standards, qualify affected sample results as unusable (R).

3.2 CALIBRATION

Are RSD values for aldrin, endrin, DDT and DBC ≤10%?	Yes	No	N/A
Have all standards been analyzed within 72 hours of any sample?	Yes	No	N/A
Has a 3-point calibration been conducted for DDT or toxaphene?	Yes	No	N/A
Have all standards been analyzed at the start of each 72h sequence?	Yes	No	N/A
Have evaluation standards A, B, and C been analyzed within 72h of any sample?	Yes	No	N/A
Has the confirmation standard mix been analyzed after every 5 samples?	Yes	No	N/A
Has evaluation standard B analyzed every 10 samples?	Yes	No	N/A
Are %D values for initial and subsequent standards ≤15% for quantitation standards and ≤20% for confirmation standards?	Yes	No	N/A

ACTION: If the RSD criteria were exceeded or three point calibrations not conducted qualify associated detects as estimated (J). If all standards were not analyzed at the beginning of each 72h sequence qualify associated data as unusable (R). If the confirmation standards were not analyzed properly qualify associated detects as estimated (J). If the continuing calibration criteria were not met qualify associated quantitation data as estimated (J).

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory analyzed the method blanks for each matrix in the sample group?	Yes	No	N/A
Are target compounds present in the laboratory blanks?	Yes	No	N/A

ACTION: Qualify all associated positive results as non-detects (U) that are <5X the highest concentration in any acceptable blank.

4.2 FIELD BLANKS

Are target compounds present in the field blanks? Yes No N/A

ACTION: If target compounds are present in the field blanks qualify all positive sample results <5X the highest valid field blank concentrations as non-detects (U) and note the results in the validation narrative.

5. ACCURACY

5.1 SURROGATE RECOVERY

Are any surrogate recoveries out of specification? Yes No N/A

Do any samples show non-detects for surrogates? Yes No N/A

Are any method blank surrogates out of specification? Yes No N/A

ACTION: Qualify all associated sample results as estimated (J for detects and UJ for non-detects) for surrogates out of specification. If the surrogate was not detected (0% recovery) in the sample qualify associated non-detects as unusable (R). If method blank surrogates are out of specification and sample surrogates are acceptable, no qualification is required however, the laboratory should be contacted for an explanation.

5.2 MATRIX SPIKE RECOVERY

Has the laboratory analyzed a MS/MSD per matrix for the the sample group? Yes No N/A

Are MS/MSD recoveries within specification? Yes No N/A

Are there any calculation or transcription errors? Yes No N/A

ACTION: If MS/MSD analyses have not been conducted contact the laboratory for clarification. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

Are performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLES

Are the RPD values within specification? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and not the results in the validation narrative. If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

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

ACTION: Note the results of the field duplicate samples in the validation narrative.

6.3 FIELD SPLIT SAMPLES

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

ACTION: Note the results of the field split samples in the validation narrative.

7. COMPOUND IDENTIFICATION AND QUANTITATION

7.1 COMPOUND IDENTIFICATION

Do positive results meet the retention time window criteria? Yes No N/A

Were positive results analyzed on disimilar columns? Yes No N/A

If dieldrin and DDE were reported was a 3% OV-1 column used for confirmation? Yes No N/A

Do retention times and relative peak height ratios match the expected patterns for multipeak compounds (PCB, toxaphene or chlordane)? Yes No N/A

Has GC/MS confirmation been conducted on sample extract concentrations >10 ppm? Yes No N/A

ACTION: If positive results do not meet the retention time criteria qualify all detected results as non-detects as follows: If the misidentified peak is outside the retention time windows and no interferences are noted report the CRQL and if the misidentified peak interferes with a target peak then the report value is qualified as estimated and non-detected (UJ). If

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positive results were not confirmed on disimilar columns, reject affected results (R). If a 3% OV-1 was used to confirm dieldrin and DDE, reject the affected data (R). If PCB, chlordane or toxaphene identification is questionable qualify the results as presumptive and estimated (NJ). If GC/MS confirmation was not conducted contact the laboratory for explanation and note in the validation narrative.

7.2 REPORTED RESULTS AND QUANTITATION LIMITS

Are results and quantitation limits calculated properly?	Yes	No	N/A
Has the laboratory reported the sample quantitation limits within five times the CRQL values?	Yes	No	N/A

ACTION: If results and quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?	Yes	No	N/A
Were project specific data quality objectives met for this analysis?	Yes	No	N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10 of the data validation requirements.

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COMMENTS (attach additional sheets as necessary):

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300-FF-1 OPERABLE UNIT DATA VALIDATION
WESTINGHOUSE HANFORD COMPANY
DISTRIBUTION & FILE RECORD FORM

Task E-92-15 /2978-40
2/3/92
Rev. 0

Document Title: PCB/Pest 9105L529 (App. F 300FF1-#2) Date: 10/20/92
Document Number: Originator: CMR

HCS - WHC/E - 92 15/T ~~1-051~~

DISTRIBUTION					
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PROJECT FILES		
MANAGEMENT		Comments
M-1 Correspondence		
M-2 Meeting Minutes		
M-3 Telecons		
M-4 Statements of Work, Task Orders		
M-5 Purchase Requisitions and Receipt documentation		
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M-7 Financial Data		
SOURCE DATA		
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S-3 Other Original Data Documentation		
TASK TECHNICAL		
T-1 Validation Calculations and Notated Packages	X	
T-2 Progress Memos		
T-3 Completeness Checklists		
T-4 Draft Summary Report(s)		
T-5 Final Summary Report(s)		
T-6 Draft Summary Report Review Comments		
T-7 Other Technical Documentation		

FORM

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WESTINGHOUSE HANFORD **SAMPLES RECEIVED:** 05-08-91
RFW #: 9105L529, PCB
W.O. #: 6168-02-01

NARRATIVE

The set of samples consisted of two (2) soil samples collected on 05-06-91.

The samples were extracted on 05-10-91 and analyzed according to criteria set forth in the Contract Laboratory Program for PCB target compounds on 06-15,16-91.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analysis:

1. Linearity criteria were exceeded for all compounds on the primary column. Breakdown criteria were exceeded on the primary column on 06-15-91 at 21:50. Target compounds were not identified in any sample extract, so re-analysis was not required.

2. Continuing calibration criteria were met on both the primary and confirmation columns for standards analyzed prior to sample extracts.

3. Retention time criteria were met for all compounds on both the primary and confirmation columns for standards analyzed prior to sample extracts.

4. One (1) of four (4) surrogate recoveries was outside EPA QC limits. The DBC surrogate recovery (196%) exceeded the EPA QC limit of 150%.

5. All blank spike recoveries were within EPA QC limits.

Linda A Hayhurst 6-24-91

Jack R. Tuschall, Ph.D. Date
Laboratory Manager
Lionville Analytical Laboratory

2F

SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD

RFW Lot No.: 9105L529

	CLIENT SAMPLE NO.	S1 (DBC)#	OTHER
01	BOOVQ9	46	
02	BOOVRD	68	
03	PBLKLE0607-MB1	196 *	
04	PBLKLE0607-MB1 BS	147	

ADVISORY QC LIMITS (20-150)

S1 (DBC) = Di-n-butylchlorendate

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

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3F

SOIL PESTICIDE MATRIX SPIKE RECOVERY

Lab Name: Roy F. Weston, Inc. Contract: 6168P02-01-0000

Case No.: WESTINGHOUSE HANFORD RFW Lot No.: 9105L529

MATRIX Spike - Sample No.: PBLKLE0607-MB1 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC
Aroclor-1254	250	0	129	51	50-150

Column to be used to flag recovery value with an asterisk
* Values outside of QC limits

Spike Recovery: 0 out of 1 outside limits

COMMENTS:

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4C

PESTICIDE METHOD BLANK SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD

Lab Sample ID: 91LE0607-MB1 Lab File ID: 06149103 .51

Matrix:(Soil/Water) SOIL Level:(low/med) LOW

Date Extracted: 05/10/91 Extraction:(SepF/Cont/Sonc) SONC

Date Analyzed (1): 06/16/91 Date Analyzed (2): 06/16/91

Time Analyzed (1): 0036 Time Analyzed (2): 0038

Instrument ID (1): 03 Instrument ID (2): 04

GC Column ID (1): 2250/2401 GC Column ID (2): SP2100

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	BOOVQ9	9105L529-001	06/15/91	06/15/91
02	BOOVRD	9105L529-002	06/15/91	06/15/91
03	PBLKLE0607-MB1 BS	91LE0607-MB1S	06/16/91	06/16/91

COMMENTS:

CRobbs 9/6

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1D

0000012 CLIENT SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS SHEET

BOOVQ9

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9105L529-001

Sample wt/vol: 29.9 (g/mL) G

Lab File ID: 06149103.41

Level: (low/med) LOW

Date Received: 05/08/91

% Moisture: not dec. 3 dec.

Date Extracted: 05/10/91

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 06/15/91

GPC Cleanup: (Y/N) Y pH: 6.9

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
12674-11-2	Aroclor-1016	83	U
11104-28-2	Aroclor-1221	83	U
11141-16-5	Aroclor-1232	83	U
53469-21-9	Aroclor-1242	83	U
12672-29-6	Aroclor-1248	83	U
11097-69-1	Aroclor-1254	170	U
11096-82-5	Aroclor-1260	170	U

9613423.2614
1D

0000018 CLIENT SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS SHEET

BOOVRD

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9105L529-002

Sample wt/vol: 31.6 (g/mL) G

Lab File ID: 06149103.42

Level: (low/med) LOW

Date Received: 05/08/91

% Moisture: not dec. 5 dec.

Date Extracted: 05/10/91

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 06/15/91

GPC Cleanup: (Y/N) Y pH: 7.1

Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	
12674-11-2	Aroclor-1016	80	U
11104-28-2	Aroclor-1221	80	U
11141-16-5	Aroclor-1232	80	U
53469-21-9	Aroclor-1242	80	U
12672-29-6	Aroclor-1248	80	U
11097-69-1	Aroclor-1254	160	U
11096-82-5	Aroclor-1260	160	U

FORM 1 PEST 12/88 Rev.

8D

PESTICIDE EVALUATION STANDARD SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 06149103

RFW Lot No.: 9105L529

Instrument ID: 03 GC Column ID: 2250/2401

Dates of Analyses: 06/14/91 to 06/15/91

Evaluation Check for Linearity

PESTICIDE	CALIBRATION FACTOR EVAL MIX A	CALIBRATION FACTOR EVAL MIX B	CALIBRATION FACTOR EVAL MIX C	%RSD (</= 10.0%)
ALDRIN	8383207	6111667	5805981	20.8
ENDRIN	2336139	1671557	1520465	23.5
4,4'-DDT	1934851	1339383	1252661	24.6 (1)
DBC	1148717	809994	729299	24.8

(1) If > 10.0% RSD, plot a standard curve and determine the ng for each sample in that set from the curve.

Evaluation Check for 4,4'-DDT/Endrin Breakdown
(percent breakdown expressed as total degradation)

		DATE ANALYZED	TIME ANALYZED	ENDRIN	4,4'-DDT	COMBINED (2)
					AREA HT	
01	INIT. EVAL MIX B	06/14/91	2136	0.0	0.4 0.6	
02	EVAL MIX B	06/15/91	0732	0.0	0.4 0.7	
03	EVAL MIX B	06/15/91	1514	0.0	0.8 0.9	
04	EVAL MIX B	06/15/91	2150	0.0	27.0 35.5	

(2) See Form Instructions.

CRibbs 4/5

8D

PESTICIDE EVALUATION STANDARD SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 06149104

RFW Lot No.: 9105L529

Instrument ID: 04 GC Column ID: SP2100

Dates of Analyses: 06/14/91 to 06/15/91

Evaluation Check for Linearity

PESTICIDE	CALIBRATION FACTOR EVAL MIX A	CALIBRATION FACTOR EVAL MIX B	CALIBRATION FACTOR EVAL MIX C	%RSD (<= 10.0%)
ALDRIN	2005251	1584511	1664499	12.8
ENDRIN	847056	649350	632868	16.8
4,4'-DDT	382350	309639	333501	10.8 (1)
DBC	380283	280744	265274	20.2

(1) If > 10.0% RSD, plot a standard curve and determine the ng for each sample in that set from the curve.

Evaluation Check for 4,4'-DDT/Endrin Breakdown
(percent breakdown expressed as total degradation)

		DATE ANALYZED	TIME ANALYZED	ENDRIN	4,4'-DDT	COMBINED (2)
01	INIT. EVAL MIX B	06/14/91	2139			4.4 3.4
02	EVAL MIX B	06/15/91	0734			3.6
03	EVAL MIX B	06/15/91	1517			2.4
04	EVAL MIX B	06/15/91	2152			49.0

(2) See Form Instructions.

4/8/92

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0000026

8E

PESTICIDE EVALUATION STANDARD SUMMARY
Evaluation of Retention Time Shift for Dibutylchlorendate

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 06149103

Instrument ID: 03 GC Column ID: 2250/2401

Dates of Analyses: 06/14/91 to 06/16/91

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	% D	*
01	EVALA	21-57	06/14/91	2104	0.0	
02	EVALB	25-57	06/14/91	2136	0.0	
03	EVALC	23-57	06/14/91	2209	0.0	
04	INDA	24-55	06/14/91	2242	0.1	
05	INDB	24-56	06/14/91	2315	0.1	
06	TOXAPH	02-270	06/14/91	2348	0.1	
07	AR1660	02-52	06/15/91	0021	0.1	
08	AR1221	01-272	06/15/91	0055	0.1	
09	AR1232	02-265	06/15/91	0128	0.1	
10	AR1242	03-266	06/15/91	0201	0.1	
11	AR1248	01-277	06/15/91	0235	0.1	
12	AR1254	03-262	06/15/91	0308	0.1	
13	ZZZZZ	ISODRIN 01-130	06/15/91	0341	0.2	
14	ZZZZZ	9105L541-001	06/15/91	0414	0.3	
15	ZZZZZ	9105L541-002	06/15/91	0447	0.3	
16	ZZZZZ	9105L541-003	06/15/91	0520	0.3	
17	ZZZZZ	9105L541-004	06/15/91	0553	0.3	
18	ZZZZZ	9105L541-005	06/15/91	0627	0.1	
19	ZZZZZ	HEXANE	06/15/91	0700	-0.2	
20	EVALB	25-57	06/15/91	0732	0.2	
21	ZZZZZ	9105L541-006	06/15/91	0805	0.1	
22	ZZZZZ	9105L541-009	06/15/91	0838	0.2	
23	ZZZZZ	9105L541-012	06/15/91	0911	0.2	
24	ZZZZZ	9105L541-013	06/15/91	0944	-0.2	
25	ZZZZZ	9105L541-001S	06/15/91	1017	0.1	
26	ZZZZZ	HEXANE	06/15/91	1050	-1.4	
27	INDA	24-55	06/15/91	1123	0.3	
28	ZZZZZ	9105L541-001T	06/15/91	1156	0.2	
29	ZZZZZ	9105L541-007	06/15/91	1229	-0.2	
30	ZZZZZ	9105L541-008	06/15/91	1302	0.1	
31	ZZZZZ	9105L541-011	06/15/91	1336	0.8	
32	ZZZZZ	9105L541-011S	06/15/91	1409	0.6	
33	ZZZZZ	HEXANE	06/15/91	1442		
34	EVALB	25-57	06/15/91	1514	0.2	
35	ZZZZZ	9105L541-011T	06/15/91	1547	0.5	
36	ZZZZZ	91LE0611-MB2	06/15/91	1620	0.1	
37	ZZZZZ	91LE0611-MB2S	06/15/91	1653	0.0	
38	INDA	24-55	06/15/91	1726	0.2	

2120

* Values outside of QC limits (2.0% for packed columns, 0.3% for capillary columns)

8E

PESTICIDE EVALUATION STANDARD SUMMARY

Evaluation of Retention Time Shift for Dibutylchlorendate

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 06149103

Instrument ID: 03 GC Column ID: 2250/2401

Dates of Analyses: 06/14/91 to 06/16/91

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	% D	*
39	INDB	24-56	06/15/91	1759	0.1	
40	ZZZZZ	9105L510-001	06/15/91	1832	0.0	
41	ZZZZZ BOOVR2	9105L529-001	06/15/91	1905	-0.2	
42	ZZZZZ BOOVR3	9105L529-002	06/15/91	1938	-0.4	
43	BOOVR1	9105L552-001	06/15/91	2011	-0.4	
44	BOOVR2	9105L552-002	06/15/91	2044	-0.4	
45	ZZZZZ	HEXANE	06/15/91	2118		
46	EVALB	25-57	06/15/91	2150	0.3	
47	BOOVR3	9105L552-003	06/15/91	2223	0.0	
48	BOOVR4	9105L552-004	06/15/91	2256	-0.4	
49	BOOVR1MS	9105L552-001S	06/15/91	2329	-0.2	
50	BOOVR1MSD	9105L552-001T	06/16/91	0002	-0.1	
51	PBLKLE0607	91LE0607-MB1	06/16/91	0036	0.0	
52	ZZZZZ	HEXANE	06/16/91	0109	-0.6	
53	AR1254	03-262	06/16/91	0140	0.3	
54	PBLKLE0607 MS	91LE0607-MB1S	06/16/91	0214	-0.4	
55	INDA	24-55	06/16/91	0247	0.4	
56	INDB	24-56	06/16/91	0320	0.3	

*. Values outside of QC limits (2.0% for packed columns, 0.3% for capillary columns)

9613473.2619

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8E

PESTICIDE EVALUATION STANDARD SUMMARY

Evaluation of Retention Time Shift for Dibutylchlorendate

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 06149104

Instrument ID: 04 GC Column ID: SP2100

Dates of Analyses: 06/14/91 to 06/16/91

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	% D	*
01	EVALA	21-57	06/14/91	2106	0.0	
02	EVALB	25-57	06/14/91	2139	0.0	
03	EVALC	23-57	06/14/91	2211	0.0	
04	INDA	24-55	06/14/91	2244	0.0	
05	INDB	24-56	06/14/91	2317	0.0	
06	TOXAPH	02-270	06/14/91	2350	0.1	
07	AR1660	02-52	06/15/91	0024	0.2	
08	AR1221	01-272	06/15/91	0057	0.1	
09	AR1232	02-265	06/15/91	0130	0.0	
10	AR1242	03-266	06/15/91	0204	0.0	
11	AR1248	01-277	06/15/91	0237	0.1	
12	AR1254	03-262	06/15/91	0310	0.1	
13	ZZZZZ	ISODRIN 01-130	06/15/91	0344	0.2	
14	ZZZZZ	9105L541-001	06/15/91	0416	0.2	
15	ZZZZZ	9105L541-002	06/15/91	0450	0.3	
16	ZZZZZ	9105L541-003	06/15/91	0523	0.2	
17	ZZZZZ	9105L541-004	06/15/91	0556	0.3	
18	ZZZZZ	9105L541-005	06/15/91	0629	0.1	
19	ZZZZZ	HEXANE	06/15/91	0702	-0.3	
20	EVALB	25-57	06/15/91	0734	0.2	
21	ZZZZZ	9105L541-006	06/15/91	0807	0.1	
22	ZZZZZ	9105L541-009	06/15/91	0840	0.1	
23	ZZZZZ	9105L541-012	06/15/91	0913	0.2	
24	ZZZZZ	9105L541-013	06/15/91	0946	0.1	
25	ZZZZZ	9105L541-001S	06/15/91	1019	0.0	
26	ZZZZZ	HEXANE	06/15/91	1053	-0.4	
27	INDA	24-55	06/15/91	1125	0.2	
28	ZZZZZ	9105L541-001T	06/15/91	1158	0.1	
29	ZZZZZ	9105L541-007	06/15/91	1231	-0.3	
30	ZZZZZ	9105L541-008	06/15/91	1305	0.1	
31	ZZZZZ	9105L541-011	06/15/91	1338	-0.5	
32	ZZZZZ	9105L541-011S	06/15/91	1411	-0.5	
33	ZZZZZ	HEXANE	06/15/91	1445		
34	EVALB	25-57	06/15/91	1517	0.1	
35	ZZZZZ	9105L541-011T	06/15/91	1549	-0.4	
36	ZZZZZ	91LE0611-MB2	06/15/91	1622	0.0	
37	ZZZZZ	91LE0611-MB2S	06/15/91	1656	0.0	
38	INDA	24-55	06/15/91	1729	0.1	

24.39

* Values outside of QC limits (2.0% for packed columns, 0.3% for capillary columns)

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PESTICIDE EVALUATION STANDARD SUMMARY
Evaluation of Retention Time Shift for Dibutylchlorendate

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 06149104

Instrument ID: 04 GC Column ID: SP2100

Dates of Analyses: 06/14/91 to 06/16/91

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	% D	*
39	INDB	24-56	06/15/91	1802	0.0	
40	ZZZZZ	9105L510-001	06/15/91	1835	0.2	
41	ZZZZZ BOOVR1	9105L529-001	06/15/91	1908	-0.1	
42	ZZZZZ BOOVR2	9105L529-002	06/15/91	1941	-0.5	
43	BOOVR1	9105L552-001	06/15/91	2014	-0.6	
44	BOOVR2	9105L552-002	06/15/91	2047	-0.7	
45	ZZZZZ	HEXANE	06/15/91	2120	-0.6	
46	EVALB	25-57	06/15/91	2152	0.1	
47	BOOVR3	9105L552-003	06/15/91	2225	0.8	
48	BOOVR4	9105L552-004	06/15/91	2258	-0.8	
49	BOOVR1MS	9105L552-001S	06/15/91	2331	-0.7	
50	BOOVR1MSD	9105L552-001T	06/16/91	0005	-0.4	
51	PBLKLE0607	91LE0607-MB1	06/16/91	0038	-0.3	
52	ZZZZZ	HEXANE	06/16/91	0111	-0.6	
53	AR1254	03-262	06/16/91	0143	0.1	
54	PBLKLE0607 MS	91LE0607-MB1S	06/16/91	0216	-0.8	
55	INDA	24-55	06/16/91	0250	0.3	
56	INDB	24-56	06/16/91	0323	0.1	

* Values outside of QC limits (2.0% for packed columns, 0.3% for capillary columns)

PESTICIDE/PCB STANDARD SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 06149103.27

RFW Lot No.: 9105L529

Instrument ID: 03 GC Column ID: 2250/2401

DATE(S) OF ANALYSIS FROM: 06/14/91 TO: 06/15/91
TIME(S) OF ANALYSIS FROM: 2242 TO: 0308

DATE OF ANALYSIS 06/15/91
TIME OF ANALYSIS 1123
EPA SAMPLE NO. (STANDARD) INDA 24-55

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR	RT	CALIBRATION FACTOR	QNT Y/N	%D
Alpha-BHC	1.92	1.90	1.94	7886577				
Beta-BHC	2.65	2.62	2.68	3813803				
Delta-BHC	3.07	3.04	3.10	3897171				
gamma-BHC (Lindane)	2.38	2.35	2.41	6992033	2.37	6951031	Y	0.6
Heptachlor	2.89	2.86	2.92	7868095	2.88	7643155	Y	2.9
Aldrin	3.45	3.42	3.48	5734995	3.44	5614273	Y	2.1
Heptachlor epoxide	5.00	4.96	5.04	4150677	4.99	4111547	Y	0.9
Endosulfan I	6.23	6.17	6.29	3139767	6.22	3125201	Y	0.5
Dieldrin	7.50	7.43	7.57	2478499	7.49	2463513	Y	0.6
4,4'-DDE	6.97	6.91	7.03	3019599				
Endrin	9.04	8.96	9.12	1540813				
Endosulfan II	10.79	10.68	10.90	1719215	10.78	1688303	Y	1.8
4,4'-DDD	10.41	10.31	10.51	1187749				
Endosulfan sulfate	16.70	16.56	16.84	1095893				
4,4'-DDT	12.46	12.32	12.60	1113625	12.43	1105859	Y	0.7
Methoxychlor	22.84	22.58	23.10	384556	22.80	382640	Y	0.5
Endrin ketone	22.46	22.44	22.48	443807				
alpha-Chlordane	5.97	5.92	6.02	2807609				
gamma-Chlordane	5.50	5.46	5.56	3108843				
Toxaphene	11.00	10.91	11.09	224345				
Aroclor-1016	2.82	2.79	2.85	1255377				
Aroclor-1221	1.78	1.76	1.80	374168				
Aroclor-1232	2.82	2.80	2.84	609023				
Aroclor-1242	2.82	2.79	2.85	1133785				
Aroclor-1248	2.82	2.79	2.85	1378947				
Aroclor-1254	8.65	8.56	8.74	1360427				
Aroclor-1260	9.67	9.60	9.74	946044				

Under QNT Y/N: enter Y if quantitation was performed, N if not performed.
%D must be less than or equal to 15.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRQL is a form of quantitation, and therefore at least one column must meet the 15.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.

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PESTICIDE/PCB STANDARD SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 06149103.38

RFW Lot No.: 9105L529

Instrument ID: 03 GC Column ID: 2250/2401

DATE(S) OF ANALYSIS FROM: 06/14/91 TO: 06/15/91
TIME(S) OF ANALYSIS FROM: 2242 TO: 0308

DATE OF ANALYSIS 06/15/91
TIME OF ANALYSIS 1726
EPA SAMPLE NO. (STANDARD) INDA 24-55

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR	RT	CALIBRATION FACTOR	QNT Y/N	%D
Alpha-BHC	1.92	1.90	1.94	7886577				
Beta-BHC	2.65	2.62	2.68	3813803				
Delta-BHC	3.07	3.04	3.10	3897171				
gamma-BHC (Lindane)	2.38	2.35	2.41	6992033	2.37	6604007	Y	5.5
Heptachlor	2.89	2.86	2.92	7868095	2.88	7645011	Y	2.8
Aldrin	3.45	3.42	3.48	5734995	3.44	5502335	Y	4.1
Heptachlor epoxide	5.00	4.96	5.04	4150677	4.99	3987851	Y	3.9
Endosulfan I	6.23	6.17	6.29	3139767	6.22	3014739	Y	4.0
Dieldrin	7.50	7.43	7.57	2478499	7.50	2368583	Y	4.4
4,4'-DDE	6.97	6.91	7.03	3019599				
Endrin	9.04	8.96	9.12	1540813				
Endosulfan II	10.79	10.68	10.90	1719215	10.78	1670011	Y	2.9
4,4'-DDD	10.41	10.31	10.51	1187749				
Endosulfan sulfate	16.70	16.56	16.84	1095893				
4,4'-DDT	12.46	12.32	12.60	1113625	12.44	1082197	Y	2.8
Methoxychlor	22.84	22.58	23.10	384556	22.82	379323	Y	1.4
Endrin ketone	22.46	22.44	22.48	443807				
alpha-Chlordane	5.97	5.92	6.02	2807609				
gamma-Chlordane	5.50	5.46	5.56	3108843				
Toxaphene	11.00	10.91	11.09	224345				
Aroclor-1016	2.82	2.79	2.85	1255377				
Aroclor-1221	1.78	1.76	1.80	374168				
Aroclor-1232	2.82	2.80	2.84	609023				
Aroclor-1242	2.82	2.79	2.85	1133785				
Aroclor-1248	2.82	2.79	2.85	1378947				
Aroclor-1254	8.65	8.56	8.74	1360427				
Aroclor-1260	9.67	9.60	9.74	946044				

Under QNT Y/N: enter Y if quantitation was performed, N if not performed.
%D must be less than or equal to 15.0% for quantitation, and less than or equal to 20.0% for confirmation.

CRitch 4/5

Note: Determining that no compounds were found above the CRQL is a form of quantitation, and therefore at least one column must meet the 15.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.

PESTICIDE/PCB STANDARD SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 06149103.39

RFW Lot No.: 9105L529

Instrument ID: 03 GC Column ID: 2250/2401

DATE(S) OF ANALYSIS FROM: 06/14/91 TO: 06/15/91
TIME(S) OF ANALYSIS FROM: 2242 TO: 0308

DATE OF ANALYSIS 06/15/91
TIME OF ANALYSIS 1759
EPA SAMPLE NO. (STANDARD) INDB 24-56

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR	RT	CALIBRATION FACTOR	QNT Y/N	%D
Alpha-BHC	1.92	1.90	1.94	7886577	1.92	7675515	Y	2.7
Beta-BHC	2.65	2.62	2.68	3813803	2.65	3686387	Y	3.3
Delta-BHC	3.07	3.04	3.10	3897171	3.07	3691013	Y	5.3
gamma-BHC (Lindane)	2.38	2.35	2.41	6992033				
Heptachlor	2.89	2.86	2.92	7868095				
Aldrin	3.45	3.42	3.48	5734995	3.44	5753693	Y	0.3
Heptachlor epoxide	5.00	4.96	5.04	4150677				
Endosulfan I	6.23	6.17	6.29	3139767				
Dieldrin	7.50	7.43	7.57	2478499				
4,4'-DDE	6.97	6.91	7.03	3019599	6.97	2933635	Y	2.8
Endrin	9.04	8.96	9.12	1540813	9.04	1608515	Y	4.4
Endosulfan II	10.79	10.68	10.90	1719215				
4,4'-DDD	10.41	10.31	10.51	1187749	10.41	1152233	Y	3.0
Endosulfan sulfate	16.70	16.56	16.84	1095893	16.70	1071807	Y	2.2
4,4'-DDT	12.46	12.32	12.60	1113625	—			
Methoxychlor	22.84	22.58	23.10	384556	—			
Endrin ketone	22.46	22.44	22.48	443807	22.45	439780	Y	0.9
alpha-Chlordane	5.97	5.92	6.02	2807609	5.97	2707029	Y	3.6
gamma-Chlordane	5.50	5.46	5.56	3108843	5.50	3057421	Y	1.7
Toxaphene	11.00	10.91	11.09	224345				
Aroclor-1016	2.82	2.79	2.85	1255377				
Aroclor-1221	1.78	1.76	1.80	374168				
Aroclor-1232	2.82	2.80	2.84	609023				
Aroclor-1242	2.82	2.79	2.85	1133785				
Aroclor-1248	2.82	2.79	2.85	1378947				
Aroclor-1254	8.65	8.56	8.74	1360427				
Aroclor-1260	9.67	9.60	9.74	946044				

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 15.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRQL is a form of quantitation, and therefore at least one column must meet the 15.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.

PESTICIDE/PCB STANDARD SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 06149103.53

RFW Lot No.: 9105L529

Instrument ID: 03 GC Column ID: 2250/2401

DATE(S) OF ANALYSIS FROM: 06/14/91	DATE OF ANALYSIS 06/16/91
TO: 06/15/91	TIME OF ANALYSIS 0140 ✓
TIME(S) OF ANALYSIS FROM: 2242	EPA SAMPLE NO.
TO: 0308	(STANDARD) AR1254 03-26

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR	RT	CALIBRATION FACTOR	QNT Y/N	%D
Alpha-BHC	1.92	1.90	1.94	7886577				
Beta-BHC	2.65	2.62	2.68	3813803				
Delta-BHC	3.07	3.04	3.10	3897171				
gamma-BHC (Lindane)	2.38	2.35	2.41	6992033				
Heptachlor	2.89	2.86	2.92	7868095				
Aldrin	3.45	3.42	3.48	5734995				
Heptachlor epoxide	5.00	4.96	5.04	4150677				
Endosulfan I	6.23	6.17	6.29	3139767				
Dieldrin	7.50	7.43	7.57	2478499				
4,4'-DDE	6.97	6.91	7.03	3019599				
Endrin	9.04	8.96	9.12	1540813				
Endosulfan II	10.79	10.68	10.90	1719215				
4,4'-DDD	10.41	10.31	10.51	1187749				
Endosulfan sulfate	16.70	16.56	16.84	1095893				
4,4'-DDT	12.46	12.32	12.60	1113625				
Methoxychlor	22.84	22.58	23.10	384556				
Endrin ketone	22.46	22.44	22.48	443807				
alpha-Chlordane	5.97	5.92	6.02	2807609				
gamma-Chlordane	5.50	5.46	5.56	3108843				
Toxaphene	11.00	10.91	11.09	224345				
Aroclor-1016	2.82	2.79	2.85	1255377				
Aroclor-1221	1.78	1.76	1.80	374168				
Aroclor-1232	2.82	2.80	2.84	609023				
Aroclor-1242	2.82	2.79	2.85	1133785				
Aroclor-1248	2.82	2.79	2.85	1378947				
Aroclor-1254	8.65	8.56	8.74	1360427	✓ 8.64	✓ 1427557	Y	4.9 ✓
Aroclor-1260	9.67	9.60	9.74	946044				

Under QNT Y/N: enter Y if quantitation was performed, N if not performed.
%D must be less than or equal to 15.0% for quantitation, and less than or equal to 20.0% for confirmation.

CPB 7/6 4/5

Note: Determining that no compounds were found above the CRQL is a form of quantitation, and therefore at least one column must meet the 15.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.

PESTICIDE/PCB STANDARD SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 06149103.55

RFW Lot No.: 9105L529

Instrument ID: 03 GC Column ID: 2250/2401

last IND A

DATE(S) OF ANALYSIS	FROM: 06/14/91	TO: 06/15/91	TIME(S) OF ANALYSIS	FROM: 2242	TO: 0308	DATE OF ANALYSIS 06/16/91	TIME OF ANALYSIS 0247	EPA SAMPLE NO. (STANDARD) INDA 24-55

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR	RT	CALIBRATION FACTOR	QNT Y/N	%D
Alpha-BHC	1.92	1.90	1.94	7886577				
Beta-BHC	2.65	2.62	2.68	3813803				
Delta-BHC	3.07	3.04	3.10	3897171				
gamma-BHC (Lindane)	2.38	2.35	2.41	6992033	2.37	3755873	Y	46.3
Heptachlor	2.89	2.86	2.92	7868095	2.88	7271537	Y	7.6
Aldrin	3.45	3.42	3.48	5734995	3.44	5347325	Y	6.8
Heptachlor epoxide	5.00	4.96	5.04	4150677	4.98	4520823	Y	8.9
Endosulfan I	6.23	6.17	6.29	3139767	6.21	3036527	Y	3.3
Dieldrin	7.50	7.43	7.57	2478499	7.48	2090279	Y	15.7
4,4'-DDE	6.97	6.91	7.03	3019599				
Endrin	9.04	8.96	9.12	1540813				
Endosulfan II	10.79	10.68	10.90	1719215	10.77	1464243	Y	14.8
4,4'-DDD	10.41	10.31	10.51	1187749				
Endosulfan sulfate	16.70	16.56	16.84	1095893				
4,4'-DDT	12.46	12.32	12.60	1113625	12.41	660319	Y	40.7
Methoxychlor	22.84	22.58	23.10	384556	22.80	408551	Y	6.2
Endrin ketone	22.46	22.44	22.48	443807				
alpha-Chlordane	5.97	5.92	6.02	2807609				
gamma-Chlordane	5.50	5.46	5.56	3108843				
Toxaphene	11.00	10.91	11.09	224345				
Aroclor-1016	2.82	2.79	2.85	1255377				
Aroclor-1221	1.78	1.76	1.80	374168				
Aroclor-1232	2.82	2.80	2.84	609023				
Aroclor-1242	2.82	2.79	2.85	1133785				
Aroclor-1248	2.82	2.79	2.85	1378947				
Aroclor-1254	8.65	8.56	8.74	1360427				
Aroclor-1260	9.67	9.60	9.74	946044				

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 15.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRQL is a form of quantitation, and therefore at least one column must meet the 15.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.

PESTICIDE/PCB STANDARD SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 06149103.56

RFW Lot No.: 9105L529

Instrument ID: 03 GC Column ID: 2250/2401

DATE(S) OF ANALYSIS FROM: 06/14/91 TO: 06/15/91
TIME(S) OF ANALYSIS FROM: 2242 TO: 0308

DATE OF ANALYSIS 06/16/91
TIME OF ANALYSIS 0320
EPA SAMPLE NO. (STANDARD) INDB 24-56

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR	RT	CALIBRATION FACTOR	QNT Y/N	%D
Alpha-BHC	1.92	1.90	1.94	7886577	1.92	6007261	Y	23.8
Beta-BHC	2.65	2.62	2.68	3813803	2.66	3211577	Y	15.8
Delta-BHC	3.07	3.04	3.10	3897171	3.06	958214	Y	75.4
gamma-BHC (Lindane)	2.38	2.35	2.41	6992033				
Heptachlor	2.89	2.86	2.92	7868095				
Aldrin	3.45	3.42	3.48	5734995	3.44	5682815	Y	0.9
Heptachlor epoxide	5.00	4.96	5.04	4150677				
Endosulfan I	6.23	6.17	6.29	3139767				
Dieldrin	7.50	7.43	7.57	2478499				
4,4'-DDE	6.97	6.91	7.03	3019599	6.95	3151425	Y	4.4
Endrin	9.04	8.96	9.12	1540813	9.02	1575925	Y	2.3
Endosulfan II	10.79	10.68	10.90	1719215				
4,4'-DDD	10.41	10.31	10.51	1187749	10.38	936957	Y	21.1
Endosulfan sulfate	16.70	16.56	16.84	1095893	16.62	392325	Y	64.2
4,4'-DDT	12.46	12.32	12.60	1113625				
Methoxychlor	22.84	22.58	23.10	384556				
Endrin ketone	22.46	22.44	22.48	443807	22.46	523333	Y	17.9
alpha-Chlordane	5.97	5.92	6.02	2807609	5.96	2554197	Y	9.0
gamma-Chlordane	5.50	5.46	5.56	3108843	5.50	2857937	Y	8.1
Toxaphene	11.00	10.91	11.09	224345				
Aroclor-1016	2.82	2.79	2.85	1255377				
Aroclor-1221	1.78	1.76	1.80	374168				
Aroclor-1232	2.82	2.80	2.84	609023				
Aroclor-1242	2.82	2.79	2.85	1133785				
Aroclor-1248	2.82	2.79	2.85	1378947				
Aroclor-1254	8.65	8.56	8.74	1360427				
Aroclor-1260	9.67	9.60	9.74	946044				

Under QNT Y/N: enter Y if quantitation was performed, N if not performed.
%D must be less than or equal to 15.0% for quantitation, and less than or equal to 20.0% for confirmation.

C Roberts 4/5

Note: Determining that no compounds were found above the CRQL is a form of quantitation, and therefore at least one column must meet the 15.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.

PESTICIDE/PCB STANDARD SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 06149104.27

RFW Lot No.: 9105L529

Instrument ID: 04 GC Column ID: SP2100

DATE(S) OF ANALYSIS FROM: 06/14/91 TO: 06/15/91
TIME(S) OF ANALYSIS FROM: 2244 TO: 0310

DATE OF ANALYSIS 06/15/91
TIME OF ANALYSIS 1125
EPA SAMPLE NO. (STANDARD) INDA 24-55

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR	RT	CALIBRATION FACTOR	QNT Y/N	%D
Alpha-BHC	2.22	2.20	2.24	777111				
Beta-BHC	2.37	2.35	2.39	1217897				
Delta-BHC	2.64	2.62	2.66	871775				
gamma-BHC (Lindane)	2.56	2.54	2.58	1538523	2.56	1501389	N	2.4
Heptachlor	3.94	3.92	3.96	2195337	3.94	2209223	N	0.6
Aldrin	4.80	4.78	4.82	1425837	4.79	1420141	N	0.4
Heptachlor epoxide	5.74	5.71	5.77	1389179	5.73	1402389	N	1
Endosulfan I	7.04	7.01	7.07	974661	7.03	995904	N	2.2
Dieldrin	8.12	8.07	8.17	768209	8.11	779401	N	1.5
4,4'-DDE	7.93	7.88	7.98	772764				
Endrin	9.03	8.97	9.09	546326				
Endosulfan II	9.20	9.16	9.26	751828	9.19	757775	N	0.8
4,4'-DDD	9.86	9.79	9.93	321965				
Endosulfan sulfate	11.61	11.54	11.68	317059				
4,4'-DDT	12.66	12.56	12.76	241537	12.65	249800	N	3.4
Methoxychlor	18.09	17.98	18.20	240370	18.07	242004	N	0.7
Endrin ketone	14.76	14.66	14.86	441100				
alpha-Chlordane	7.14	7.09	7.19	1042852				
gamma-Chlordane	6.50	6.45	6.55	1155591				
Toxaphene	9.83	9.53	10.13	97063				
Aroclor-1016	3.46	3.43	3.49	460622				
Aroclor-1221	2.24	2.22	2.26	159899				
Aroclor-1232	2.24	2.22	2.26	240999				
Aroclor-1242	4.50	4.48	4.52	453608				
Aroclor-1248	3.46	3.43	3.49	492087				
Aroclor-1254	6.78	6.73	6.83	539023				
Aroclor-1260	11.27	11.18	11.36	340129				

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 15.0% for quantitation, and less than or equal to 20.0% for confirmation.

C Pohke 4/5

Note: Determining that no compounds were found above the CRQL is a form of quantitation, and therefore at least one column must meet the 15.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.

PESTICIDE/PCB STANDARD SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 06149104.38

RFW Lot No.: 9105L529

Instrument ID: 04 GC Column ID: SP2100

DATE(S) OF ANALYSIS FROM: 06/14/91 TO: 06/15/91
TIME(S) OF ANALYSIS FROM: 2244 TO: 0310

DATE OF ANALYSIS 06/15/91
TIME OF ANALYSIS 1729
EPA SAMPLE NO. (STANDARD) INDA 24-55

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR	RT	CALIBRATION FACTOR	QNT Y/N	%D
Alpha-BHC	2.22	2.20	2.24	777111				
Beta-BHC	2.37	2.35	2.39	1217897				
Delta-BHC	2.64	2.62	2.66	871775				
gamma-BHC (Lindane)	2.56	2.54	2.58	1538523	2.56	1456231	N	5.3
Heptachlor	3.94	3.92	3.96	2195337	3.94	2157665	N	1.7
Aldrin	4.80	4.78	4.82	1425837	4.80	1352995	N	5.1
Heptachlor epoxide	5.74	5.71	5.77	1389179	5.74	1333073	N	4.0
Endosulfan I	7.04	7.01	7.07	974661	7.04	929458	N	4.6
Dieldrin	8.12	8.07	8.17	768209	8.12	734850	N	4.3
4,4'-DDE	7.93	7.88	7.98	772764				
Endrin	9.03	8.97	9.09	546326				
Endosulfan II	9.20	9.16	9.26	751828	9.20	718593	N	4.4
4,4'-DDD	9.86	9.79	9.93	321965				
Endosulfan sulfate	11.61	11.54	11.68	317059				
4,4'-DDT	12.66	12.56	12.76	241537	12.66	242435	N	0.4
Methoxychlor	18.09	17.98	18.20	240370	18.08	236617	N	1.6
Endrin ketone	14.76	14.66	14.86	441100				
alpha-Chlordane	7.14	7.09	7.19	1042852				
gamma-Chlordane	6.50	6.45	6.55	1155591				
Toxaphene	9.83	9.53	10.13	97063				
Aroclor-1016	3.46	3.43	3.49	460622				
Aroclor-1221	2.24	2.22	2.26	159899				
Aroclor-1232	2.24	2.22	2.26	240999				
Aroclor-1242	4.50	4.48	4.52	453608				
Aroclor-1248	3.46	3.43	3.49	492087				
Aroclor-1254	6.78	6.73	6.83	539023				
Aroclor-1260	11.27	11.18	11.36	340129				

Under QNT Y/N: enter Y if quantitation was performed, N if not performed.
%D must be less than or equal to 15.0% for quantitation, and less than or equal to 20.0% for confirmation.

C Pb 4/5

Note: Determining that no compounds were found above the CRQL is a form of quantitation, and therefore at least one column must meet the 15.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.

PESTICIDE/PCB STANDARD SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 06149104.39

RFW Lot No.: 9105L529

Instrument ID: 04 GC Column ID: SP2100

DATE(S) OF ANALYSIS FROM: 06/14/91 TO: 06/15/91
TIME(S) OF ANALYSIS FROM: 2244 TO: 0310

DATE OF ANALYSIS 06/15/91
TIME OF ANALYSIS 1802
EPA SAMPLE NO. (STANDARD) INDB 24-56

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR	RT	CALIBRATION FACTOR	QNT Y/N	%D
Alpha-BHC	2.22	2.20	2.24	777111	2.22	749921	N	3.5
Beta-BHC	2.37	2.35	2.39	1217897	2.37	1176347	N	3.4
Delta-BHC	2.64	2.62	2.66	871775	2.64	773671	N	11.3
gamma-BHC (Lindane)	2.56	2.54	2.58	1538523				
Heptachlor	3.94	3.92	3.96	2195337				
Aldrin	4.80	4.78	4.82	1425837	4.80	1394791	N	2.2
Heptachlor epoxide	5.74	5.71	5.77	1389179				
Endosulfan I	7.04	7.01	7.07	974661				
Dieldrin	8.12	8.07	8.17	768209				
4,4'-DDE	7.93	7.88	7.98	772764	7.93	750321	N	2.9
Endrin	9.03	8.97	9.09	546326	9.03	532068	N	2.6
Endosulfan II	9.20	9.16	9.26	751828				
4,4'-DDD	9.86	9.79	9.93	321965	9.86	316326	N	1.8
Endosulfan sulfate	11.61	11.54	11.68	317059	11.61	300699	N	5.2
4,4'-DDT	12.66	12.56	12.76	241537				
Methoxychlor	18.09	17.98	18.20	240370				
Endrin ketone	14.76	14.66	14.86	441100	14.76	436216	N	1.1
alpha-Chlordane	7.14	7.09	7.19	1042852	7.14	1027851	N	1.4
gamma-Chlordane	6.50	6.45	6.55	1155591	6.50	1151449	N	0.4
Toxaphene	9.83	9.53	10.13	97063				
Aroclor-1016	3.46	3.43	3.49	460622				
Aroclor-1221	2.24	2.22	2.26	159899				
Aroclor-1232	2.24	2.22	2.26	240999				
Aroclor-1242	4.50	4.48	4.52	453608				
Aroclor-1248	3.46	3.43	3.49	492087				
Aroclor-1254	6.78	6.73	6.83	539023				
Aroclor-1260	11.27	11.18	11.36	340129				

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 15.0% for quantitation, and less than or equal to 20.0% for confirmation.

C Pohl 4/5

Note: Determining that no compounds were found above the CRQL is a form of quantitation, and therefore at least one column must meet the 15.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.

PESTICIDE/PCB STANDARD SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 06149104.53

RFW Lot No.: 9105L529

Instrument ID: 04 GC Column ID: SP2100

DATE(S) OF ANALYSIS	FROM: 06/14/91	TO: 06/15/91	TIME(S) OF ANALYSIS	FROM: 2244	TO: 0310	DATE OF ANALYSIS 06/16/91	TIME OF ANALYSIS 0143	EPA SAMPLE NO. (STANDARD) AR1254 03-26

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR	RT	CALIBRATION FACTOR	QNT Y/N	%D
Alpha-BHC	2.22	2.20	2.24	777111				
Beta-BHC	2.37	2.35	2.39	1217897				
Delta-BHC	2.64	2.62	2.66	871775				
gamma-BHC (Lindane)	2.56	2.54	2.58	1538523				
Heptachlor	3.94	3.92	3.96	2195337				
Aldrin	4.80	4.78	4.82	1425837				
Heptachlor epoxide	5.74	5.71	5.77	1389179				
Endosulfan I	7.04	7.01	7.07	974661				
Dieldrin	8.12	8.07	8.17	768209				
4,4'-DDE	7.93	7.88	7.98	772764				
Endrin	9.03	8.97	9.09	546326				
Endosulfan II	9.20	9.16	9.26	751828				
4,4'-DDD	9.86	9.79	9.93	321965				
Endosulfan sulfate	11.61	11.54	11.68	317059				
4,4'-DDT	12.66	12.56	12.76	241537				
Methoxychlor	18.09	17.98	18.20	240370				
Endrin ketone	14.76	14.66	14.86	441100				
alpha-Chlordane	7.14	7.09	7.19	1042852				
gamma-Chlordane	6.50	6.45	6.55	1155591				
Toxaphene	9.83	9.53	10.13	97063				
Aroclor-1016	3.46	3.43	3.49	460622				
Aroclor-1221	2.24	2.22	2.26	159899				
Aroclor-1232	2.24	2.22	2.26	240999				
Aroclor-1242	4.50	4.48	4.52	453608				
Aroclor-1248	3.46	3.43	3.49	492087				
Aroclor-1254	6.78	6.73	6.83	539023	6.79	554289	N	2.8
Aroclor-1260	11.27	11.18	11.36	340129				

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 15.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRQL is a form of quantitation, and therefore at least one column must meet the 15.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.

PESTICIDE/PCB STANDARD SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 06149104.55

RFW Lot No.: 9105L529

Instrument ID: 04 GC Column ID: SP2100

DATE(S) OF ANALYSIS FROM: 06/14/91 TO: 06/15/91
TIME(S) OF ANALYSIS FROM: 2244 TO: 0310

DATE OF ANALYSIS 06/16/91
TIME OF ANALYSIS 0250
EPA SAMPLE NO. (STANDARD) INDA 24-55

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR	RT	CALIBRATION FACTOR	QNT Y/N	%D
Alpha-BHC	2.22	2.20	2.24	777111				
Beta-BHC	2.37	2.35	2.39	1217897				
Delta-BHC	2.64	2.62	2.66	871775				
gamma-BHC (Lindane)	2.56	2.54	2.58	1538523	2.56	640079	N	58.4
Heptachlor	3.94	3.92	3.96	2195337	3.94	2149063	N	2.1
Aldrin	4.80	4.78	4.82	1425837	4.80	1384391	N	2.9
Heptachlor epoxide	5.74	5.71	5.77	1389179	5.74	1370583	N	1.3
Endosulfan I	7.04	7.01	7.07	974661	7.05	961787	N	1.3
Dieldrin	8.12	8.07	8.17	768209	8.05	1283135	N	67.0
4,4'-DDE	7.93	7.88	7.98	772764				
Endrin	9.03	8.97	9.09	546326				
Endosulfan II	9.20	9.16	9.26	751828	9.22	593094	N	21.1
4,4'-DDD	9.86	9.79	9.93	321965				
Endosulfan sulfate	11.61	11.54	11.68	317059				
4,4'-DDT	12.66	12.56	12.76	241537	12.63	65269	N	73.0
Methoxychlor	18.09	17.98	18.20	240370	18.11	205608	N	14.5
Endrin ketone	14.76	14.66	14.86	441100				
alpha-Chlordane	7.14	7.09	7.19	1042852				
gamma-Chlordane	6.50	6.45	6.55	1155591				
Toxaphene	9.83	9.53	10.13	97063				
Aroclor-1016	3.46	3.43	3.49	460622				
Aroclor-1221	2.24	2.22	2.26	159899				
Aroclor-1232	2.24	2.22	2.26	240999				
Aroclor-1242	4.50	4.48	4.52	453608				
Aroclor-1248	3.46	3.43	3.49	492087				
Aroclor-1254	6.78	6.73	6.83	539023				
Aroclor-1260	11.27	11.18	11.36	340129				

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 15.0% for quantitation, and less than or equal to 20.0% for confirmation.

Note: Determining that no compounds were found above the CRQL is a form of quantitation, and therefore at least one column must meet the 15.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.

9

PESTICIDE/PCB STANDARD SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 6168-02-01-0000

Case No.: WESTINGHOUSE HANFORD GC Sample ID: 06149104.56

RFW Lot No.: 9105L529

Instrument ID: 04 GC Column ID: SP2100

DATE(S) OF ANALYSIS FROM: 06/14/91 TO: 06/15/91
TIME(S) OF ANALYSIS FROM: 2244 TO: 0310

DATE OF ANALYSIS 06/16/91
TIME OF ANALYSIS 0323
EPA SAMPLE NO. (STANDARD) INDB 24-56

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIBRATION FACTOR	RT	CALIBRATION FACTOR	QNT Y/N	%D
Alpha-BHC	2.22	2.20	2.24	777111	2.22	544048	N	30.0
Beta-BHC	2.37	2.35	2.39	1217897	2.38	986327	N	19.0
Delta-BHC	2.64	2.62	2.66	871775	2.62	57381	N	93.4
gamma-BHC (Lindane)	2.56	2.54	2.58	1538523				
Heptachlor	3.94	3.92	3.96	2195337				
Aldrin	4.80	4.78	4.82	1425837	4.80	1425269	N	0.0
Heptachlor epoxide	5.74	5.71	5.77	1389179				
Endosulfan I	7.04	7.01	7.07	974661				
Dieldrin	8.12	8.07	8.17	768209				
4,4'-DDE	7.93	7.88	7.98	772764	7.93	778735	N	0.8
Endrin	9.03	8.97	9.09	546326	9.04	541245	N	0.9
Endosulfan II	9.20	9.16	9.26	751828				
4,4'-DDD	9.86	9.79	9.93	321965	9.88	203994	N	36.6
Endosulfan sulfate	11.61	11.54	11.68	317059	11.58	59940	N	81.1
4,4'-DDT	12.66	12.56	12.76	241537				
Methoxychlor	18.09	17.98	18.20	240370				
Endrin ketone	14.76	14.66	14.86	441100	14.80	399690	N	9.4
alpha-Chlordane	7.14	7.09	7.19	1042852	7.14	1014096	N	2.8
gamma-Chlordane	6.50	6.45	6.55	1155591	6.50	1467283	N	27.0
Toxaphene	9.83	9.53	10.13	97063				
Aroclor-1016	3.46	3.43	3.49	460622				
Aroclor-1221	2.24	2.22	2.26	159899				
Aroclor-1232	2.24	2.22	2.26	240999				
Aroclor-1242	4.50	4.48	4.52	453608				
Aroclor-1248	3.46	3.43	3.49	492087				
Aroclor-1254	6.78	6.73	6.83	539023				
Aroclor-1260	11.27	11.18	11.36	340129				

Under QNT Y/N: enter Y if quantitation was performed, N if not performed. %D must be less than or equal to 15.0% for quantitation, and less than or equal to 20.0% for confirmation.

C Rights 4/5

Note: Determining that no compounds were found above the CRQL is a form of quantitation, and therefore at least one column must meet the 15.0% criteria.

For multicomponent analytes, the single largest peak that is characteristic of the component should be used to establish retention time and %D. Identification of such analytes is based primarily on pattern recognition.

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0000072

Roy F. Weston, Inc. - Lionville Laboratory 06/15/91 08:02:51

EXTERNAL STANDARD

SAMPLE: 06149103 .20 INST:03 VIAL: 0 SEQ NUMBER:020
TEST : DATE-TIME INJECTED : 06/15/91 07:32:26
COLLECTION TIME : 29.98 DATE-TIME PROCESSED : 06/15/91 08:02:51
METHOD: 03 / 03 REV #: 00106 ANALYST: LOR SAMP RATE: 0.78
CLIENT ID: SAMPLE VOL: 3.0 ul
CLIENT: COLUMN TYPE: 2250/2401
LAB ID: EVALB 25-57 * : CONFIRMED ON COLUMN
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	HEIGHT CONC NG/UL	
001	4739	1708	V	0.892				
				1.923	1	ALPHA-BHC		
				2.377	1	GAMMA-BHC		
				2.651	1	BETA-BHC		
				2.886	1	HEPTACHLOR		
002	623923	9557	V	2.938				
				3.068	1	DELTA-BHC		
003	3705267	371041	V	3.443	1	ALDRIN	0.022	*
004	50810	5261	V	3.950				
005	16541	1711	V	4.349				
				4.998	1	HEPT. EPOXIDE		
				5.505	1	G. CHLORDANE		
				5.974	1	A. CHLORDANE		
				6.227	1	ENDOSULFAN I		
006	135511	1000	V	6.436				
				6.968	1	4,4'-DDE		
				7.503	1	DIELDRIN		
007	4063351	150563	V	9.025	1	ENDRIN	0.033	*
008	38036	1413	V	10.496	1	4,4'-DDD	0.000	*
				10.794	1	ENDOSULFAN II		
009	8529883	214667	V	12.434	1	4,4'-DDT	0.064	*
				13.835	1	ENDRIN ALDEHYDE		
010	62062	1541	V	15.770				
				16.705	1	ENDO. SULFATE		
011	96416	2068	V	19.146				
012	8825089	121819	V	21.144	1	DBC	0.068	*
				22.460	1	ENDRIN KETONE		
				22.845	1	METHOXYCHLOR		
013	55834	468		28.513				

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Roy F. Weston, Inc. - Lionville Laboratory 06/15/91 15:45:07

EXTERNAL STANDARD

SAMPLE: 06149103 .34 INST:03 VIAL: 0 SEQ NUMBER:034
TEST : DATE-TIME INJECTED : 06/15/91 15:14:42
COLLECTION TIME : 29.98 DATE-TIME PROCESSED : 06/15/91 15:45:07
METHOD: 03 / 03 REV #: 00106 ANALYST: LOR SAMP RATE: 0.78
CLIENT ID: SAMPLE VOL: 3.0 ul
CLIENT: COLUMN TYPE: 2250/2401
LAB ID: EVALB 25-57 * : CONFIRMED ON COLUMN
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	HEIGHT CONC NG/UL	
001	-1267	1515	V	0.876				
002	12467	2148	V	1.051				
				1.923	1	ALPHA-BHC		
				2.377	1	GAMMA-BHC		
				2.651	1	BETA-BHC		
				2.886	1	HEPTACHLOR		
003	376678	11198	V	2.944				
				3.068	1	DELTA-BHC		
004	3637871	370338	V	3.444	1	ALDRIN	0.022	*
005	70505	7039	V	3.949				
006	13470	1423	V	4.358				
				4.998	1	HEPT. EPOXIDE		
007	121837	1327	V	5.274				
				5.505	1	G. CHLORDANE		
				5.974	1	A. CHLORDANE		
				6.227	1	ENDOSULFAN I		
				6.968	1	4,4'-DDE		
				7.503	1	DIELDRIN		
008	4295505	161818	V	9.029	1	ENDRIN	0.035	*
009	60986	1974	V	10.539	1	4,4'-DDD	0.001	*
				10.794	1	ENDOSULFAN II		
010	8166887	213300	V	12.438	1	4,4'-DDT	0.064	*
				13.835	1	ENDRIN ALDEHYDE		
011	69414	1680	V	15.755				
				16.705	1	ENDO. SULFATE		
012	88627	1931	V	19.101				
013	8662171	120961	V	21.155	1	DBC	0.067	*
				22.460	1	ENDRIN KETONE		
				22.845	1	METHOXYCHLOR		
014	65092	534		28.650				

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Roy F. Weston, Inc. - Lionville Laboratory 06/15/91 22:20:50

EXTERNAL STANDARD

SAMPLE: 06149103 .46 INST:03 VIAL: 0 SEQ NUMBER:046
TEST : DATE-TIME INJECTED : 06/15/91 21:50:23
COLLECTION TIME : 29.98 DATE-TIME PROCESSED : 06/15/91 22:20:50
METHOD: 03 / 03 REV #: 00106 ANALYST: LOR SAMP RATE: 0.78
CLIENT ID: SAMPLE VOL: 3.0 ul
CLIENT: COLUMN TYPE: 2250/2401
LAB ID: EVALB 25-57 * : CONFIRMED ON COLUMN
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	HEIGHT CONC NG/UL	
001	6711	1854	V	0.895				
002	9218	2099	V	1.024				
003	11368	2053	V	1.574				
				1.923	1	ALPHA-BHC		
004	18190	1250	V	1.960				
				2.377	1	GAMMA-BHC		
				2.651	1	BETA-BHC		
005	65476	1600	V	2.925	1	HEPTACHLOR	0.000	
				3.068	1	DELTA-BHC		
006	3542075	368985	V	3.442	1	ALDRIN	0.021	*
007	26402	2826	V	3.949				
008	15308	1545	V	4.351				
				4.998	1	HEPT. EPOXIDE		
				5.505	1	G. CHLORDANE		
				5.974	1	A. CHLORDANE		
				6.227	1	ENDOSULFAN I		
009	1959727	90006	V	6.977	1	4,4'-DDE	0.010	*
				7.503	1	DIELDRIN		
010	3522865	138873	V	9.024	1	ENDRIN	0.030	*
011	54764	2030	V	10.536	1	4,4'-DDD	0.001	*
				10.794	1	ENDOSULFAN II		
012	5449767	167099	V	12.426	1	4,4'-DDT	0.050	*
013	163146	4813	V	13.586				
				13.835	1	ENDRIN ALDEHYDE		
				16.705	1	ENDO. SULFATE		
014	442278	9135	V	19.136				
015	7209063	110805		21.140	1	DBC	0.062	*
				22.460	1	ENDRIN KETONE		
				22.845	1	METHOXYCHLOR		

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Roy F. Weston, Inc. - Lionville Laboratory 06/14/91 22:09:49

EXTERNAL STANDARD

SAMPLE: 06149104 .02 INST:04 VIAL: 0 SEQ NUMBER:002
TEST : DATE-TIME INJECTED : 06/14/91 21:39:24
COLLECTION TIME : 29.98 DATE-TIME PROCESSED : 06/14/91 22:09:49
METHOD: 04 / 04 REV #: 00109 ANALYST: LOR SAMP RATE: 0.78
CLIENT ID: SAMPLE VOL: 3.0 ul
CLIENT: COLUMN TYPE: SP2100
LAB ID: EVALB 25-57 RAW FILE: RAW2:FE130091
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	HEIGHT CONC NG/UL
001	-16469	3076	V	0.879			
002	18754	1735	V	1.300			
				2.220	1	ALPHA-BHC	
				2.364	1	BETA-BHC	
				2.560	1	GAMMA-BHC	
				2.635	1	DELTA-BHC	
003	38908	3498	V	3.211			
				3.940	1	HEPTACHLOR	
004	44109	3789	V	4.128			
005	1145133	96972	V	4.799	1	ALDRIN	0.023
				5.742	1	HEPT. EPOXIDE	
				6.503	6	G. CHLORDANE	
				7.046	1	ENDOSULFAN I	
				7.137	1	A. CHLORDANE	
006	12529	375	V	7.973	1	4,4'-DDE	0.000
				8.132	1	DIELDRIN	
007	1250741	58422	V	9.029	1	ENDRIN	0.038
				9.230	1	ENDOSULFAN II	
				9.867	1	4,4'-DDD	
008	147551	3288	V	10.067	1	ENDRIN ALDEHYDE	0.002
				11.633	1	ENDO. SULFATE	
009	1521025	49762		12.673	1	4,4'-DDT	0.078
				14.794	1	ENDRIN KETONE	
				18.140	1	METHOXYCHLOR	
010	2762625	42617		24.334	1	DBC	0.051

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0000095

Roy F. Weston, Inc. - Lionville Laboratory 06/14/91 22:42:27

EXTERNAL STANDARD

SAMPLE: 06149104 .03 INST:04 VIAL: 0 SEQ NUMBER:003
TEST : DATE-TIME INJECTED : 06/14/91 22:11:54
COLLECTION TIME : 29.98 DATE-TIME PROCESSED : 06/14/91 22:42:27
METHOD: 04 / 04 REV #: 00109 ANALYST: LOR SAMP RATE: 0.78
CLIENT ID: SAMPLE VOL: 3.0 ul
CLIENT: COLUMN TYPE: SP2100
LAB ID: EVALC 23-57 RAW FILE: RAW2:FE130103
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	HEIGHT CONC NG/UL
001	18282	1397	V	1.308			
				2.220	1	ALPHA-BHC	
				2.364	1	BETA-BHC	
				2.560	1	GAMMA-BHC	
				2.635	1	DELTA-BHC	
002	36922	3836	V	3.211			
				3.940	1	HEPTACHLOR	
003	40058	3443	V	4.128			
004	1840497	162788	V	4.800	1	ALDRIN	0.039
				5.742	1	HEPT. EPOXIDE	
				6.503	6	G. CHLORDANE	
				7.046	1	ENDOSULFAN I	
				7.137	1	A. CHLORDANE	
005	14146	568	V	7.980	1	4,4'-DDE	0.000
				8.132	1	DIELDRIN	
006	1900275	91113	V	9.027	1	ENDRIN	0.059
				9.230	1	ENDOSULFAN II	
				9.867	1	4,4'-DDD	
007	190262	4497	V	10.066	1	ENDRIN ALDEHYDE	0.003
				11.633	1	ENDO. SULFATE	
008	2506241	85743		12.670	1	4,4'-DDT	0.135
				14.794	1	ENDRIN KETONE	
				18.140	1	METHOXYCHLOR	
009	4093633	64382		24.324	1	DBC	0.076

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Roy F. Weston, Inc. - Lionville Laboratory 06/15/91 22:23:23

EXTERNAL STANDARD

SAMPLE: 06149104 .46 INST:04 VIAL: 0 SEQ NUMBER:046
TEST : DATE-TIME INJECTED : 06/15/91 21:52:55
COLLECTION TIME : 29.98 DATE-TIME PROCESSED : 06/15/91 22:23:23
METHOD: 04 / 04 REV #: 00109 ANALYST: LOR SAMP RATE: 0.78
CLIENT ID: SAMPLE VOL: 3.0 ul
CLIENT: COLUMN TYPE: SP2100
LAB ID: EVALB 25-57 RAW FILE: RAW2:FF130396
SAMPLE WT : % MOISTURE : DILUTION FACTOR : 1.0000

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	HEIGHT CONC NG/UL
				2.224	1	ALPHA-BHC	
				2.367	1	BETA-BHC	
				2.563	1	GAMMA-BHC	
				2.637	1	DELTA-BHC	
001	8762	515	V	3.389			
				3.941	1	HEPTACHLOR	
002	27443	2346	V	4.135			
003	1189059	102146	V	4.799	1	ALDRIN	0.024
				5.739	1	HEPT. EPOXIDE	
				6.503	6	G. CHLORDANE	
				7.041	1	ENDOSULFAN I	
				7.137	1	A. CHLORDANE	
004	783857	39294	V	7.944	1	4,4'-DDE	0.017
				8.123	1	DIELDRIN	
005	1213653	56926	V	9.029	1	ENDRIN	0.035
				9.205	1	ENDOSULFAN II	
				9.862	1	4,4'-DDD	
006	126723	3578	V	10.057	1	ENDRIN ALDEHYDE	0.002
				11.611	1	ENDO. SULFATE	
007	923463	30533	V	12.661	1	4,4'-DDT	0.042
008	35335	488		14.278			
				14.758	1	ENDRIN KETONE	
				18.091	1	METHOXYCHLOR	
009	2745115	39659		24.303	1	DBC	0.043

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0000138

PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

PBLK

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 91LE0607-MB1

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: 06149103.51

Level: (low/med) LOW

Date Received: 05/10/91

% Moisture: not dec. 0 dec.

Date Extracted: 05/10/91

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 06/16/91

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

Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	
12674-11-2	Aroclor-1016	80	U
11104-28-2	Aroclor-1221	80	U
11141-16-5	Aroclor-1232	80	U
53469-21-9	Aroclor-1242	80	U
12672-29-6	Aroclor-1248	80	U
11097-69-1	Aroclor-1254	160	U
11096-82-5	Aroclor-1260	160	U

FORM 1 PEST

12/88 Rev.

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0000146

SAMPLE: 06149103 .54 PAGE NUMBER: 2
DATE-TIME INJECTED : 06/16/91 02:14:18
DATE-TIME PROCESSED : 06/16/91 02:44:43

PK NO	PEAK AREA	PEAK HEIGHT	BL	RT MINUTES	GR #	COMPONENT NAME	HEIGHT CONC NG/UL	
	1124117			~~8.660~~		~~AROCHLOR-1254~~	~~0.231~~	* DS 6-19-91
	889918			8.660		AROCHLOR-1254	0.193	*

.579

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APPENDIX L
DATA VALIDATION DOCUMENTATION

Roy F. Weston Laboratories

Data Package 9105L529

Conventional Wet Chemistry Analyses

9613473.2642

THIS APPENDIX CONSISTS OF FIVE ATTACHMENTS

Attachment 1 - Glossary of Data Qualifiers

This attachment provides a glossary explaining all data qualifiers applied as a result of the validation.

Attachment 2 - As Received Laboratory Sample Concentration Reports

This attachment provides a copy of the as-received sample concentration reports. This may be a tabular summary similar to that provided in Attachment 4, or may be a copy of the laboratory reports (e.g. Form I).

Attachment 3 - Summary of Data Qualifications (Form B-7)

This attachment provides a complete summary of all qualifications applied as a result of the validation.

Attachment 4 - As Qualified Data Summary

This attachment provides a tabular data summary of all data qualified from the validation.

Attachment 5 - Data Review Supporting Documentation

This attachment provides copies of the data validation checklists, data summary forms, telephone contact memoranda and other documentation completed as a result of the data validation.

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ATTACHMENT 1

Glossary of Data Qualifiers

U - Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected. Due to quality control deficiencies identified during data validation the value reported may not accurately reflect the sample quantitation limit.

J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated but the data are useable for decision making processes.

R - Indicates the compound or analyte was analyzed for and due to an identified quality control deficiency the data are unusable.

NJ - Indicates presumptive evidence of a compound at an estimated value.

N - Indicates presumptive evidence of a compound.

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ATTACHMENT 2

As Received Laboratory Sample Concentration Reports

9613473.2645

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 06/11/91

CLIENT: WESTINGHOUSE HANFORD
WORK ORDER: 6168-02-01-0000

WESTON BATCH #: 9105L529

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	BOOVQ9	% Solids	98.3		%	0.10
		Chloride by IC	21.0		mg/kg	1.3
		Fluoride by IC	2.6	u	mg/kg	2.6
		Nitrite by IC	1.3	u	mg/kg	1.3
		Nitrate by IC	3.0		mg/kg	1.3
		Phosphate by IC	1.3	u	mg/kg	1.3
		Sulfate by IC	5.1		mg/kg	1.3
		Ammonia, as N	1.3		MG/KG	1.2
		pH	9.0		PH UNITS	0.010
-002	BOOVRD	% Solids	96.9		%	0.10
		Chloride by IC	18.4		mg/kg	1.3
		Fluoride by IC	2.6	u	mg/kg	2.6
		Nitrite by IC	1.3	u	mg/kg	1.3
		Nitrate by IC	3.6		mg/kg	1.3
		Phosphate by IC	1.3	u	mg/kg	1.3
		Sulfate by IC	1.3	u	mg/kg	1.3
		Ammonia, as N	1.2	u	MG/KG	1.2
		pH	9.0		PH UNITS	0.010

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ATTACHMENT 3

Summary Of Data Qualifications

9613473.2647

DRAFT

7/91

DATA QUALIFICATION SUMMARY - FORM B-7

91051529

SDG:	REVIEWER: Cmk	DATE:	PAGE 1 OF 1
COMMENTS: Conventionals			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Sulfate	J or UJ	B00VRD, B00VQ9	low blank spike
pH	J	↓ ↓	H.T.

~~C6~~ B-7

9613473.2648

ATTACHMENT 4

As Qualified Data Summary

9613473.2649

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 06/11/91

CLIENT: WESTINGHOUSE HANFORD
WORK ORDER: 6168-02-01-0000

WESTON BATCH #: 9105L529

SAMPLE	SITE ID		ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	BOOVQ9	NR	~~% Solids~~	~~98.3~~		~~%~~	~~0.10~~
		NR	~~Chloride by IC~~	~~21.0~~		~~mg/kg~~	~~1.3~~
			Fluoride by IC	2.6	u	mg/kg	2.6
			Nitrite by IC	1.3	u	mg/kg	1.3
			Nitrate by IC	3.0		mg/kg	1.3
		NR	~~Phosphate by IC~~	~~1.3~~	~~u~~	~~mg/kg~~	~~1.3~~
low blank spike (SOP.)			Sulfate by IC	5.1	J	mg/kg	1.3
			Ammonia, as N	1.3	~~u~~	MG/KG	1.2
H.T.			pH	9.0	J	PH UNITS	0.010
-002	BOOVRD	NR	~~% Solids~~	~~96.9~~		~~%~~	~~0.10~~
		NR	~~Chloride by IC~~	~~18.4~~		~~mg/kg~~	~~1.3~~
			Fluoride by IC	2.6	u	mg/kg	2.6
			Nitrite by IC	1.3	u	mg/kg	1.3
			Nitrate by IC	3.6		mg/kg	1.3
		NR	~~Phosphate by IC~~	~~1.3~~	~~u~~	~~mg/kg~~	~~1.3~~
low blank spike			Sulfate by IC	1.3	uJ	mg/kg	1.3
			Ammonia, as N	1.2	u	MG/KG	1.2
H.T.			pH	9.0	J	PH UNITS	0.010

NR – not requested; not verified

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ATTACHMENT 5

Data Review Supporting Documentation

9613473.2651

DRAFT 7/91

WET CHEMISTRY DATA REVIEW CHECKLIST - FORM A-7

PROJECT: Westinghouse 2978-40	REVIEWER: CMK	DATE: 2/17/92
LABORATORY: Weston / Lionville	CASE: 9105L529	SDG:
SAMPLES/MATRIX:		
B00VG9	soil	Cl, F, NO2, NO3, PO4, SO4,
B00VRD	↓	NH4, pH, % solids

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

Data Package Item	Present?: Yes	No	N/A
Case Narrative	✓		
Cover Page	✓		
Traffic Reports/Chain-of-Custody	✓		
Sample Analysis Data Report Forms	✓		
Standards Data		✓	
QC Summary			
Blanks Summary Report Forms	✓		
Spike Sample Recovery Report Forms (Blank spike (i.e. LCS))	✓		→ not mat spike
Duplicate Sample Analysis Report Forms only dup. for ammonia ~~only~~ reported.		✓	
Laboratory Control Sample Report Forms			✓ see comm at spike
Raw Data			
Ion Chromatograph Chromatograms 1 corr 6/4 6/5/91 - 6 std; CCV + blank OK ✓	✓		
TOC and TOX Instrument Printouts			✓
Laboratory Bench Sheets	✓		
Additional Data			
Laboratory Sample Preparation Logs * soil leaching logs needed		✓	
Instrument Run Logs		✓	
Internal Laboratory Chain-of-Custory		✓	
Percent Solids Analysis Records	✓		
Reduction Formulae		✓	
Chemist Notebook Pages		✓	

note: ammonia data not readable for calib. information; I need a method reference, also. Is not clear from the worksheet.
CMK

2. HOLDING TIMES

Were all samples analyzed within holding times? Yes (No) N/A

Action: If any holding times were exceeded qualify all affected results as estimated (J for detects and UJ for non-detects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used? (Yes) No N/A

Are the correlation coefficients ≥0.995? (Yes) No N/A

Was a balance check conducted prior to the TDS analysis? Yes No (N/A)

Was the titrant normality checked? Yes No (N/A)

ACTION: Qualify all data as unusable (R) if reported from an analysis in which the above criteria were not met.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Are ICV and CCV percent recoveries within control? (Yes) No N/A

Are there calculation errors? Yes (No) N/A

ACTION: Qualify all affected data in accordance with the validation requirements.

5. LABORATORY BLANKS

Are target analytes present in the ~~field~~ lab blanks? Yes (No) N/A

ACTION: Qualify all associated sample results for any analyte <5X the amount in any laboratory blank as non-detected (U) and list the affected samples and analytes below.

6. FIELD BLANKS

Are target analytes present in the field blanks? Yes No (N/A)

ACTION: Qualify all sample results for any analyte <5X the amount in any valid field blank as non-detected (U).

9613473.2653

7. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the acceptance limits? (Yes) No N/A

ACTION: If spike recovery is outside the control limits and the sample results are greater than the CRQL, qualify the data as estimated (J). If the spike recovery is less than 30% and the sample results are less then the IDL qualify the data as unusable (R).

8. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes (No) N/A

Are there calculation errors? Yes (No) N/A

ACTION: Qualify the affected results according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results > IDL, for which the LCS %R falls within the range 50-79% or > 120%. Qualify as estimated (UJ), all sample results < IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R <50%.

SOLID LCS - Qualify as estimated (J), all sample results > IDL for which the LCS %R is outside the established control limits. Qualify as estimated (UJ), all sample results < IDL for which the LCS %R are lower than the established control limits.

9. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No (N/A)

ACTION: Note the results of the performance audit samples in the validation narrative.

10. DUPLICATE SAMPLE ANALYSIS

Are RPD values within the acceptance limits? (Yes) No N/A

Action: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD falls outside the acceptance limits.

11. FIELD DUPLICATE SAMPLES

Do RPD values exceed the acceptance limits? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

12. FIELD SPLIT SAMPLES

Do RPD values exceed the acceptance limits? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

13. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly? Yes No N/A

Are instrument detection limits below the CRDL? Yes No N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

14. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW? Yes No N/A

Were project specific data quality objectives met for this analysis? Yes No N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10 of the data validation requirements.

9613473.2655

COMMENTS (attach additional sheets as necessary):

HOLDING TIME SUMMARY - FORM B-1

9105LS29

SDG:	REVIEWER: CMR	DATE:	PAGE 1 OF 1
COMMENTS: Conventionals			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B00VRD, B00V29	fluoride	5/6/91	6/4/91	6/4/91	29	0	none
	nitrite	↓	↓	↓	↓	↓	↓
	nitrate	↓	↓	↓	↓	↓	↓
	sulfate	↓	↓	↓	↓	↓	↓
	ammonia	↓	5/15/91	5/15/91	9	↓	none
	pH	↓	5/21/91	5/15/91	15	↓	J

CMR

DRAFT

7/91

96134732666

CALIBRATION DATA SUMMARY - FORM B-2

91051529

SDG:	REVIEWER: CMR	DATE:	PAGE 1 OF 1		
COMMENTS:	Conventionals				
CALIB. TYPE:	INITIAL CONTINUING	INSTRUMENT:			
CALIB. DATE	COMPOUND	RF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
6/4/91	All calib. met acceptance window.			Both	none
	IC analytes.				

DRAFT

7/91

9613473.2657

BLANK AND SAMPLE DATA SUMMARY - FORM B-3

9105L529

SDG:	REVIEWER: CMR	DATE:	PAGE 1 OF 1
COMMENTS: Conventionals			

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	SAMPLES AFFECTED	QUALIFIER
no ~~compo~~	analytes of concern were detected in the method blanks					B00VKD, B00VQ9	None

DRAFT

7/91

9015473.2658

ACCURACY DATA SUMMARY - FORM B-4

91051529

SDG:	REVIEWER: CMR	DATE:	PAGE___OF___	
COMMENTS: Conventionals				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
blank spike	sulfate	50.6%	both	J or UJ

DRAFT

7/91

96163473.2669

PRECISION DATA SUMMARY - FORM B-5

9105L529

SDG:	REVIEWER CMR	DATE:	PAGE 1 OF 1

COMMENTS: Conventionals

COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER
only ammonia reported dup., which was acceptable. CMR				both	none

DRAFT

7/91

96134.2960

9613473.2661

ROY F. WESTON INC.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 06/11/91

CLIENT: WESTINGHOUSE HANFORD
WORK ORDER: 6168-02-01-0000

WESTON BATCH #: 9105L529

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
BLANK1	91LIC89-MB1	Chloride by IC	2.2		mg/kg	1.2
		Fluoride by IC	2.5	u	mg/kg	2.5
		Nitrite by IC	1.2	u	mg/kg	1.2
		Nitrate by IC	1.2	u	mg/kg	1.2
		Phosphate by IC	1.2	u	mg/kg	1.2
		Sulfate by IC	1.2	u	mg/kg	1.2
LCSS0	91LAM065-LCS	Ammonia, as N	1.2	u	MG/KG	1.2
BLANK10	91LAM065-MB1	Ammonia, as N	1.2	u	MG/KG	1.2

✓ am

9613473.2662

ROY F. WESTON INC.

INORGANICS ACCURACY REPORT 06/11/91

CLIENT: WESTINGHOUSE HANFORD
WORK ORDER: 6168-02-01-0000

WESTON BATCH #: 9105L529

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV
BLANK1	91LIC89-MB1	Chloride by IC	61.2	2.2	50.0	118
		Fluoride by IC	163	2.5 u	176	92.2
		Nitrite by IC	42.7	1.2 u	50.0	85.3
		Nitrate by IC	40.6	1.2 u	50.0	81.2
		Phosphate by IC	46.4	1.2 u	50.0	92.9
		Sulfate by IC	25.3	1.2 u	50.0	50.6
LCSSO	91LAM065-LCS	Ammonia, as N	49.6	1.2 u	50.0	99.2
BLANK10	91LAM065-MB1	Ammonia, as N	51.5	1.2 u	50.0	103
		Ammonia, as N MSD	102	1.2 u	100	102

9613473.2663

ROY F. WESTON INC.

INORGANICS DUPLICATE SPIKE REPORT 06/11/91

CLIENT: WESTINGHOUSE HANFORD
WORK ORDER: 6168-02-01-0000

WESTON BATCH #: 9105L529

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	91LAM065-MB1	Ammonia, as N	103	102	0.60

9613473.2664

Westinghouse Hanford Company

OSM RCRA LEVEL C DATA ASSESSMENT

both samples soil matrix

DATE 10/11/91 SAMPLES/MATRIX B00VQ9 B00VRD

REVIEWED BY Mark A. Bedelmab.

LABORATORY Weston

CASE # RFW# 9105L529

SDG #

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	Anions by IC EPA 300.0	% solids pH	ammonia as N
1.	Holding Times	X	X	O
2.	Blanks Analyses	X	N/A	O
3.	matrix spikes	O	N/A	O
4.	Duplicates analyses	X	N/A	O
5.	calibrations	O	O	O
6.	other			
7.				
8.				
9.				
10.				

O = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable

OVERALL ASSESSSMENT:

NOTES: Anions by IC ~~inc~~ include F(Fluoride), chloride nitrite, nitrate, phosphate (as ortho phosphate) and sulfate.

o Refer to the corresponding attachments for explanation of any problems.

9613473.2665

RCRA LEVEL C QC

Name Mark A. Beck mAB Date 10/14/97

QC Check: Holding times

COMMENTS: Holding times were missed for nitrate, nitrite, phosphate and pH. All other analytes were analyzed for within the required holding time.

ACTION: Qualify nitrate nitrite ~~nitrate nitrate~~ and pH as estimated, phosphate not qualified since in this reviewer's experience, phosphate is not affected much by exceeding the holding time.

sample #	constituent	value/qual	sample #	constituent	value/qual
B00VQ9	nitrate	J or UJ			
	nitrite				
B00VR0	pH				

9613473.2666

RCRA LEVEL C QC

Name Mark A. Beckman Date 10/10/91

QC Check: Blank Analyses

COMMENTS: The blanks ~~were~~ was contaminated with ~~ch~~ chloride. all other analytes were not found in the blanks. This includes NH_3 ammonia. Soil and pH blanks are not applicable.

ACTION: Qualify chloride as estimated for both sample. NH_3 (ammonia) none, none needed.

sample #	constituent	value/qual	sample #	constituent	value/qual
B00V09	chloride	J			
B00VRD					

9613473.2667

RCRA LEVEL C QC

Name Mark A. Beckman Date 10/10/91

QC Check: Matrix Spikes

COMMENTS: Anions by IC - no matrix spikes were done on this RFW #. Matrix spikes were run on other samples in this run batch with acceptable recoveries, but those samples may or may not be WHC 200300 series samples. NH_3 - no matrix spikes on this RFW

ACTION: IC - as matrix spikes are a trending measure, no qualification is necessary. action taken: the above note. NH_3 - comments and actions to IC apply here as well. pH, % solids, matrix spikes not applicable.

sample #	constituent	value/qual	sample #	constituent	value/qual

9613473.2668

RCRA LEVEL C QC

Name Mark A. Beckman Date 10/11/91

QC Check: Duplicate Analyses

COMMENTS: IC - No duplicate analyses were run for this RFW. However, duplicates were run in the same run batch but different RFW #'s) Fluoride, chloride, nitrite and phosphate had acceptable % Differences. nitrate and sulfate had unacceptable % Differences.

ACTION: Qualify nitrate and sulfate as estimated for both samples. NH_3 - none none needed. pH, % soil & cnt not applicable.

sample #	constituent	value/qual
B00VQ9	nitrate	J
B00VRD		J
B00VQ9	sulfate	J
B00VRD		UJ

sample #	constituent	value/qual
comments (continued): ~~NH_4~~ NH_3 (as N) no duplicate analyses were run on this RFW #. Duplicates run on other RFW #s indicate that duplicate analysis accuracy is within ± CRDL for ~~an~~ results less than the CRDL. This degree of precision is acceptable.		

___ of ___

9613473.2669

RCRA LEVEL C QC

Name Mark A. Beckman Date 10/11/91

QC Check: Calibrations

COMMENTS: Anions by IC - all LCS (blank spike) standards ~~to~~ had recoveries within the required limits. NH_3 - Standards run. ~~Insufficient~~ All standard checks had acceptable recoveries. ~~% soil, total balance~~

ACTION: IC - none none needed. NH_3 - none, none needed. % soil - none, see comment below pH - none.

sample #	constituent	value/qual	sample #	constituent	value/qual

comment: % soil - validation not applicable.
pH all calibrations met requirements

___ of ___

9613473.2670

RCRA LEVEL C QC

Name Mark G. Beckman Date 10/11/91

QC Check: Other

COMMENTS: anions by IC - matrix spikes, duplicate analyses were not performed for this RFWP. ~~Qualifiers~~ Validation based on analyses from the RFWPs. NH_3 (ammonia again, much QC information bidder or missing.

ACTION: All actions described in rest of validation package.

sample #	constituent	value/qual	sample #	constituent	value/qual

___ of ___

9613473.2671

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 06/11/91

CLIENT: WESTINGHOUSE HANFORD
WORK ORDER: 6168-02-01-0000

WESTON BATCH #: 9105L529

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	BOOVQ9	% Solids	98.3		%	0.10
		Chloride by IC	21.0	J	mg/kg	1.3
		Fluoride by IC	2.6	u	mg/kg	2.6
		Nitrite by IC	1.3	uJ	mg/kg	1.3
		Nitrate by IC	3.0	J	mg/kg	1.3
		Phosphate by IC	1.3	u	mg/kg	1.3
		Sulfate by IC	5.1	J	mg/kg	1.3
		Ammonia, as N	1.3		MG/KG	1.2
		pH	9.0	J	PH UNITS	0.010
-002	BOOVRD	% Solids	96.9		%	0.10
		Chloride by IC	18.4	J	mg/kg	1.3
		Fluoride by IC	2.6	u	mg/kg	2.6
		Nitrite by IC	1.3	uJ	mg/kg	1.3
		Nitrate by IC	3.6	J	mg/kg	1.3
		Phosphate by IC	1.3	u	mg/kg	1.3
		Sulfate by IC	1.3	u	mg/kg	1.3
		Ammonia, as N	1.2	u	MG/KG	1.2
		pH	9.0	J	PH UNITS	0.010

mab
10/11/91

9613473.2672

300-FF-1 OPERABLE UNIT DATA VALIDATION
WESTINGHOUSE HANFORD COMPANY
DISTRIBUTION & FILE RECORD FORM

Task E-92-15 /2978-4
2/3/92
Rev. 0

Document Title: 9105L529 General Chem.
Document Number:

Date: 10/20/92
Originator: CMR

HCS - WHC/E - 92 15/T ~~1-082~~

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PROJECT FILES		
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M-2 Meeting Minutes		
M-3 Telecons		
M-4 Statements of Work, Task Orders		
M-5 Purchase Requisitions and Receipt documentation		
M-6 Other Management Documents Generated		
M-7 Financial Data		
SOURCE DATA		
S-1 Original Data Packages		
S-2 Memos Transmitting Original Source Packages to WHC		
S-3 Other Original Data Documentation		
TASK TECHNICAL		
T-1 Validation Calculations and Notated Packages	X	
T-2 Progress Memos		
T-3 Completeness Checklists		
T-4 Draft Summary Report(s)		
T-5 Final Summary Report(s)		
T-6 Draft Summary Report Review Comments		
T-7 Other Technical Documentation		

FORM

9613473.2673

DRAFT 7/91

WET CHEMISTRY DATA REVIEW CHECKLIST - FORM A-7

PROJECT: Westinghouse 2978-40	REVIEWER: CMK	DATE: 2/17/92
LABORATORY: Weston / Lionville	CASE: 9105L529	SDG:
SAMPLES/MATRIX:		
B00VQ9 soil	Cl, F, NO2, NO3, PO4, SO4,	
B00VRD ↓	NH4, pH, % solids	

1. DATA PACKAGE COMPLETENESS

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

Data Package Item	Present?: Yes	No	N/A	
Case Narrative	✓			
Cover Page	✓			
Traffic Reports/Chain-of-Custody	✓			
Sample Analysis Data Report Forms	✓			
Standards Data		✓		
QC Summary				
Blanks Summary Report Forms	✓			
Spike Sample Recovery Report Forms (Blank spike (i.e. LCS))	✓			→ not matrix spike
Duplicate Sample Analysis Report Forms ~~only~~ or dup. for ammonia reported.		✓		
Laboratory Control Sample Report Forms			✓	see comment at spike.
Raw Data				
Ion Chromatograph Chromatograms lcmk 6/4 6/5/91 - 6 stds; CCV + blank OK ✓	✓			
TOC and TOX Instrument Printouts			✓	
Laboratory Bench Sheets	✓			
Additional Data				
Laboratory Sample Preparation Logs * soil leaching logs needed		✓		
Instrument Run Logs		✓		
Internal Laboratory Chain-of-Custory		✓		
Percent Solids Analysis Records	✓			
Reduction Formulae		✓		
Chemist Notebook Pages		✓		

note: ammonia data not readable for calib. information; I need a method reference, also. Is not clear from the worksheet.
CMK

9613473.2674

2. HOLDING TIMES

Were all samples analyzed within holding times? Yes No N/A

Action: If any holding times were exceeded qualify all affected results as estimated (J for detects and UJ for non-detects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used? Yes No N/A

Are the correlation coefficients ≥0.995? Yes No N/A

Was a balance check conducted prior to the TDS analysis? Yes No N/A

Was the titrant normality checked? Yes No N/A

ACTION: Qualify all data as unusable (R) if reported from an analysis in which the above criteria were not met.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Are ICV and CCV percent recoveries within control? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify all affected data in accordance with the validation requirements.

5. LABORATORY BLANKS

Are target analytes present in the field blanks? Yes No N/A

ACTION: Qualify all associated sample results for any analyte <5X the amount in any laboratory blank as non-detected (U) and list the affected samples and analytes below.

6. FIELD BLANKS

Are target analytes present in the field blanks? Yes No N/A

ACTION: Qualify all sample results for any analyte <5X the amount in any valid field blank as non-detected (U).

9613473.2675

7. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the acceptance limits? Yes No N/A

ACTION: If spike recovery is outside the control limits and the sample results are greater than the CRQL, qualify the data as estimated (J). If the spike recovery is less than 30% and the sample results are less then the IDL qualify the data as unusable (R).

8. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify the affected results according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results > IDL, for which the LCS %R falls within the range 50-79% or > 120%. Qualify as estimated (UJ), all sample results < IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R <50%.

SOLID LCS - Qualify as estimated (J), all sample results > IDL for which the LCS %R is outside the established control limits. Qualify as estimated (UJ), all sample results < IDL for which the LCS %R are lower than the established control limits.

9. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit samples in the validation narrative.

10. DUPLICATE SAMPLE ANALYSIS

Are RPD values within the acceptance limits? Yes No N/A

Action: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD falls outside the acceptance limits.

11. FIELD DUPLICATE SAMPLES

Do RPD values exceed the acceptance limits? Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

12. FIELD SPLIT SAMPLES

Do RPD values exceed the acceptance limits? Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

13. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly? Yes No N/A

Are instrument detection limits below the CRDL? Yes No N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

14. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW? Yes No N/A

Were project specific data quality objectives met for this analysis? Yes No N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10 of the data validation requirements.

9613473.2677

COMMENTS (attach additional sheets as necessary):