START 9613402.1733 9210L412-WES-917

0043041

WESTON

ROY F. WESTON, INC.
LIONVILLE ANALYTICAL LABORATORY
ANALYTICAL CASE NARRATIVE

Client: WESTINGHOUSE HANFORD
RFW #: 9210L412

W.O. #: 06168-002-001-9999-00
Date Received: 10-23-92

GC/MS VOLATILE

The set of samples consisted of two (2) water samples collected on 10-21-92.

The samples were analyzed according to criteria set forth in CLP 03/90 for TCL Volatile target compounds on 10-26,27-92.

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

1. Non-target compounds were not detected in these samples.

2. All system monitoring compound (surrogate) recoveries were within EPA QC limits.

3. All matrix spike recoveries were within EPA QC limits.

4. The laboratory blanks contained the common contaminants Methylene Chloride and/or Acetone at levels less than the CRQL.

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

FEB 1996 RECEIVED EDMC

J. Peter Hershey, Ph.D.
Laboratory Manager
Lionville Analytical Laboratory

12-14-92
Date

kls/mmz/10-412v.cn

PM = DI QA Date file Hanford checks

WESTON Analytics Use Only: 9210L412

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: Washington Hanford
Est. Final Prod/Sampling Date:
Work Order #: CC01LAB-009501-9999-00
Project Contact/Phone #:
AD Project Manager: Leslie Edwards
QC: CLP Del: CLP TAT: 35 days
Date Rec'd: 10/23/92 Date Due: 11/27/92
Account #: WS-HANFORD

Refrigerator #		1	6	6	SCG	1	1	4	4	4	4	4	SCG	4	4	
#/Type Container	Liquid	3G	2AG	1AG	1G	1AG	1AG	1P	1P	1P	1P	1	2 1G	1G	1G	1G
	Solid															
Volume	Liquid	None	8L	8L	1L	350	350	500	1L	1L	1L	1	250 1L	1L	500	500
	Solid															
Preservatives		—	—	—	HCl	H2SO4	H2SO4	H2SO4	HNO3	NaOH	—	—	—	—	NaOH+ Ascorbic Acid	H2SO4

ANALYSES REQUESTED →

Lab ID	Client ID/Description	MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Pesticides	TOC	TOX	NO3	Metal	CN	SO4 FL PO4 Cl	COD PH	Bromoform Free Bromide	Alk TDS	Sulfide	COD	NH3N
							WESTON Analytics Use Only															
							8260/1H	8270/1H	8080/1H	1SUB	1TOC	1TOX	IN3N2	MetalTCL	1CNTU	IISO4 IICFL IIPO4 IICl	1SPCD 1PH	1SUB	1Alk 1TDS	1SPCD	1COD	1NH3N
001	B07KD7			W	10/21/92						✓	✓										
002	B07KJ2										✓	✓										
003	B07K07										✓	✓										
004	B07KM4										✓	✓										
005	B07KL2										✓	✓										
006	B07KL4						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
007	B07KL4													✓								
008	B07KL5						✓															

Matrix Codes: S - Soil; SE - Sediment; SO - Solid; SL - Sludge; W - Water; O - Oil; A - Air; DS - Drum Solids; DL - Drum Liquids; L - EP/TCLP Leaching; WI - Wipe; X - Other; F - Fish

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

RADIOCHEM = Gross Alpha/Beta, Gamma spec, Alpha spec (U235/238, Pu-239/240 Am241) Sr-90. Tritium TC-99.

Run 1 ms/msD

ORIGINAL RE-WRITTEN

DATE/REVISIONS: RAD INFO TO FOLLOW

10/23/92 1. TC Recd broken
10-27-92 2. CN sample for 0206 out of volume
3. NH3N added to 0206
10-27-92 4. TOC + TOX cancelled on 0206
11/13/92 5. Radio Chem Sub'd to Ecotek
6.

WESTON Analytics Use Only

Samples were: 1) Shipped ✓ or Hand Delivered Airbill # 2) Ambient or Chilled 3) Received in Good Condition Y or N 4) Labels Indicate Properly Preserved Y or N 5) Received Within Holding Times Y or N

COC Tape was: 1) Present on Outer Package Y or N 2) Unbroken on Outer Package Y or N 3) Present on Sample Y or N 4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
Emery	Sparks	10/23/92	200
	SP 10/23/92		

Relinquished by	Received by	Date	Time
	SP 10/23/92		

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# N/A Cooler# N/A 381-596a

9613402.1734

00000 2

9613402.1735 65683 00003

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-BC-5

Collection Date 10-21-92

Ice Chest No. SML-184

Field Logbook No. EFL-1037

Bill of Lading/Airbill No. 2521568632

Offsite Property No. W93-0-0001-41

Method of Shipment EMERY

Shipped to WESTON

Possible Sample Hazards/Remarks N/A

Sample Identification

BO 7K07 250ml LW 10-21-92
1, ~~125ml~~, aGs, WATER, TOC(H2SO4)
1, 250ml, aGs, WATER, TOX(H2SO4)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: L. D. Walker	Received by: B WHITTEN	Date/Time: 10-22-92 800
Relinquished by: B. WHITTEN	Received by:	Date/Time:
Relinquished by: Emery	Received by: Susan Fino	Date/Time: 10/23/92 200
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

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

9613402.1736 0000004

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collecto K. Lee, L. Walker Date Sampled 10-21-92 Time 0955 hours

Company P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample LW 10-21-92	Type of Sample*	Analysis Requested
B07KD7	1; ~~125ml~~ 250 ml; aGs	WATER	TOC (H2SO4)
	1; 250ml; aGs	WATER	TOX (H2SO4)
			OPC: # W93-0-0001-41
			BOL: # 2521568632
			TASK: 92-243

Field

Special Handling and/or

Possible Sample

PART II: LABORATORY SECTION

Received Titl Date

Analysis

*Indicate whether sample is soil, sludge, water, etc.

**Use back of page for additional information relative to sample location.

A-6000-406(05/90)

9613402.1737 DUP 0000005

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-BC-5

Collection Date 10/21/92

Ice Chest No. SML-184

Field Logbook No. EFL-1036

Bill of Lading/Airbill No. 2521568632

Offsite Property No. W93-0-000411

Method of Shipment EMERY

Shipped to WESTON

Possible Sample Hazards/Remarks N/A

Sample Identification

BO 7K J2
1, 125ml, aGs, WATER, TOC(H2SO4)
1, 250ml, aGs, WATER, TOX(H2SO4)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: Kathy D. Lee K.D. Lee	Received by: B. WHITTEN	Date/Time: 10-22-92 0800
Relinquished by: B. WHITTEN	Received by:	Date/Time:
Relinquished by:	Received by: Susan Parks	Date/Time: 10/23/92 200
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

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

9613402.1738 0000006

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collecto K. Lee, L. Walker Date Sampled 10/2/92 Time 0959 hours

Company P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample	Type of Sample*	Analysis Requested
B07KJ2	1; 125ml; aGs	WATER	TOC (H2SO4)
	1; 250ml; aGs	WATER	TOX (H2SO4)
			OPC: # W93-0-0001-41
			BOL: # 2521568632
			TASK: 92-243

Field

Special Handling and/or

Possible Sample

PART II: LABORATORY SECTION

Received Titl Date

Analysis

*Indicate whether sample is soil, sludge, water, etc.

**Use back of page for additional information relative to sample location.

A-6000-406(05/90)

7070007

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-BC-5

Collection Date 10-21-92

Ice Chest No. SMC-184

Field Logbook No. EFL-1037

Bill of Lading/Airbill No. 2521568632

Offsite Property No. W93-0-0001-41

Method of Shipment EMERY

Shipped to WESTON

Possible Sample Hazards/Remarks N/A

Sample Identification

BO 7KG7 250ml LW10-21-92
1, ~~125ml~~, aGs, WATER, TOC(H2SO4) -
1, 250ml, aGs, WATER, TOX(H2SO4)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: L.D. Walker LD Walker	Received by: B-WHITTON	Date/Time: 10-22-92 0800
Relinquished by: B-WHITTON	Received by:	Date/Time:
Relinquished by: Emery	Received by: Susan Rusio	Date/Time: 10/23/92 200
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

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

9613402.1740 000008

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collecto K. Lee, L. Walker Date Sampled 10-21-92 Time 1230 hours

Company P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample LW 10-21-92	Type of Sample*	Analysis Requested
B07KG7	1; ~~125ml~~ 250ml; aGs	WATER	TOC (H2SO4)
	1; 250ml; aGs	WATER	TOX (H2SO4)
			OPC: # W93- 0-0001-91
			BOL: # 2521568632
			TASK: 92-243

Field

Special Handling and/or

Possible Sample

PART II: LABORATORY SECTION

Received Titl Date

Analysis

*Indicate whether sample is soil, sludge, water, etc.

**Use back of page for additional information relative to sample location.

A-6000-406(05/90)

9613402.1741 [illegible]

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-BC-5

Collection Date [illegible]

Ice Chest No. SML-184

Field Logbook No. EFL-[illegible]

Bill of Lading/Airbill No. 2521568632

Offsite Property No. W93-0-0001-41

Method of Shipment EMERY

Shipped to WESTON

Possible Sample Hazards/Remarks N/A

Sample Identification

BO 7K1147
1, 125ml, aGs, WATER, TOC(H2SO4)
1, 250ml, aGs, WATER, TOX(H2SO4)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: K.D. Lee	Received by: B-WHITTEN	Date/Time: 10-22-92 0800
Relinquished by: B-WHITTEN	Received by:	Date/Time:
Relinquished by: Emery	Received by: Susan Pinka	Date/Time: 10/23/92 [illegible]
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

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

9613402.1742 0000010

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collecto K. Lee, L. Walker Date Sampled 10/29/92 Time 0954 hours

Company P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample	Type of Sample*	Analysis Requested
B07Km4	1; 125ml; aGs	WATER	TOC (H2SO4)
	1; 250ml; aGs	WATER	TOX (H2SO4)
			OPC: # W93-0-0001-41
			BOL: # 2521568632
			TASK: 92-243

Field

Special Handling and/or

Possible Sample

PART II: LABORATORY SECTION

Received Titl Date

Analysis

*Indicate whether sample is soil, sludge, water, etc.

**Use back of page for additional information relative to sample location.

A-6000-406(05/90)

9613402.1743 0000011

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-BC-5

Collection Date 10/22/92

Ice Chest No. SML-245

Field Logbook No. EFL-1036

Bill of Lading/Airbill No. 2521569632

Offsite Property No. W93-0-000-1-41

Method of Shipment EMERY

Shipped to WESTON

Possible Sample Hazards/Remarks N/A

Sample Identification

BO 7KL1

1, 1L, P, WATER, CLP-ICP/AA METALS & Hg (HNO3) UNFILTERED
1, 1L, P, WATER, CLP-CYANIDE (NaOH)
3, 40ml, Gs, WATER, CLP-VOA
3, 2L, aG, WATER, CLP-SEMI-VOA & PCB/PEST
1, 1L, P, WATER, ANIONS(IC) (SO4,F,PO4,Cl), COND., pH
2, 4L, P, WATER, GROSS ALPHA/BETA, GAMMA SPEC, ALPHA SPEC (U-235/238,Pu-239/240, Am-241), Sr-90 (HNO3)
1, 250ml, G, WATER, TRITIUM, C-14
1, 500ml, P, WATER, NO2,NO3 (H2SO4)
1, 1L, G, WATER, ALKALINITY, TOTAL DISSOLVED SOLIDS
1, 500ml, G, WATER, SULFIDE (ZINC ACETATE+NaOH pH>9)
1, 500ml, G, WATER, AMMONIA, CHEMICAL OXYGEN DEMAND (H2SO4 pH<2)
1, 1L, P, WATER, Tc-99 (HCl)
7KL2 1, 125ml, aGs, WATER, TOC (H2SO4)
1, 250ml, aGs, WATER, TOX (H2SO4)

BO 7KL4

1, 1L, P, WATER, CLP-ICP/AA METALS & Hg (HNO3) FILTERED

BO 7KL5

3, 40ml, Gs, WATER, CLP-VOA

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

Relinquished by:	Received by:	Date/Time:
[illegible]	B. WHITTEN	10-22-92 0800
Relinquished by: B. WHITTEN	Received by:	Date/Time:
Relinquished by: [illegible]	Received by: [illegible]	Date/Time: 10/23/92 200
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

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

9613402.1744

000012

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collecto K. Lee, L. Walker Date Sampled 10/21/92 Time 0754 hours

Company P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample	Type of Sample*	Analysis Requested
BO7KL1	1; 1L; P;	WATER	CLP ICP/AA METALS & Hg (HNO3) UNFILTERED
	1; 1L; P	WATER	CLP-CYANIDE (NaOH)
	3; 40ml; Gs	WATER	CLP-VOA
	2; 2L; aG	WATER	CLP-SEMI-VOA & PCB/PEST
	1; 1L; P	WATER	ANIONS(IC)(SO4,F,PO4,Cl); CONDUCTIVITY; pH
	2; 4L; P	WATER	GROSS ALPHA/BETA;GAMMA SPEC;ALPHA SPEC
			(U-235/238,Pu-239/240,Am-241); Sr-90 (HNO3)
	1; 500ml; G	WATER	TRITIUM, C-14
	1; 500ml; P;	WATER	ANIONS(NO2/NO3) (H2SO4)
	1; 1L; G;	WATER	ALKALINITY; TOTAL DISSOLVED SOLIDS
	1; 500ml; G;	WATER	SULFIDE (ZINC ACETATE + NaOH pH>9)
	1; 500ml; G;	WATER	AMMONIA; CHEMICAL OXYGEN DEMAND(H2SO4 pH<2)
	1; 1L; P;	WATER	Tc-99 (HCL)
BO B07KL2	1; 125ml; aGs;	WATER	TOC (H2SO4)
↑	1; 250ml; aGs;	WATER	TOX (H2SO4)
B07KL4	1; 1L; P;	WATER	CLP-ICP/AA METAL & Hg (HNO3) FILTERED
BO7KL5	3; 40ml; Gs;	WATER	CLP-VOA
			OPC: # W930-0001-41
			BOL: # 2521568632
			TASK: 92-243

Field

Special Handling and/or

Possible Sample

PART II: LABORATORY SECTION

Received Titl Date

Analysis

*Indicate whether sample is soil, sludge, water, etc.

**Use back of page for additional information relative to sample location.

A-6000-406(05/90)

FCCOD ☐

EMERY WORLDWIDE

A CF Company

SERVICES **

UNITED STATES / CANADA

☐ Same Day (Extra Charges) ☐ Standard PM

☒ AM ☐ PM Preferred

☐ Second Day ☐ Standard

Date: 10-22-92 | Origin: PSC | 2521566

From:
DEPT (509) 376-6665
ENERGY C/O
FORD
DRIVE
RI WA
Canada ☐

To:
ROSIE KING
RF weston inc
208 WELSH POOL ROAD
LIONVILLE PA 19341
Hold for Pick Up ☐
Canada ☐

Tariff Dest $

EMERY WORLDWIDE will accept Consignee check with all risks being assumed by Shipper, including but not limited to non payment, fraud and misrepresentation

Customer's Reference Numbers: W81232 PB5 AA W93-0-0001841 99352

Consignee's Account Number: E

Declared Value $

FOR INFORMATION OR RATES CALL 1-800 44 EMERY (1-800-443-6379)

2521568632

Description	Pcs	Dimensions L	W	H	Total Pieces	Total Weight (lbs)
2 COOLERS ID: SML-184 56# 67# WATER SAMPLES	2	26	17	16	2	123

Remarks: OVERNIGHT DELIVERY SIGNATURE SECURITY SERVICE

Shipper's Signature: [illegible]

Zip Ship ☐ — For shipments within the 50 United States Shipper has the option to check this box and, by checking, agrees that the Zip Ship conditions, described in the area to the right, apply.

Mark if Emery Packaging is used: Urgent Letter 9X12 ☐ Urgent Pack 12X15 ☒

International Shipments: Free Domicile ☐ Commodity Code

Third Party Account Number mandatory for Third Party Billing: E

Third Party Account Number

International Customs Value

International Insurance

Base Charge

Total Transportation Charges

Other Charges/Advance at Origin: ☐ OC/AO $

3 PHL A

Terms and Conditions on Back

Roy F. Weston, Inc. - Lionville Laboratory
Volatiles by GC/MS, HSL List

Report Date: 11/19/92 09:07

RFW Batch Number: 9210L412 Client: WESTINGHOUSE HANFORD Work Order: 6168-02-0 Page: 1a

	Cust ID:	BO7KL1		BO7KL5		BO7KL5		BO7KL5		VBLK		VBLK	
Sample Information	RFW#:	006		008		008 MS		008 MSD		92LVB205-MB1		92LVB206-MB1	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	UG/L		UG/L		UG/L		UG/L		UG/L		UG/L	
Surrogate Recovery	Toluene-d8	97	%	99	%	94	%	96	%	96	%	94	%
	Bromofluorobenzene	97	%	92	%	99	%	101	%	99	%	88	%
	1,2-Dichloroethane-d4	113	%	106	%	111	%	114	%	113	%	107	%
Chloromethane		10	U	10	U	10	U	10	U	10	U	10	U
Bromomethane		10	U	10	U	10	U	10	U	10	U	10	U
Vinyl Chloride		10	U	10	U	10	U	10	U	10	U	10	U
Chloroethane		10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride		10	U	2	JB	2	JB	2	JB	3	J	1	J
Acetone		10	U	10	U	10	U	10	U	7	J	10	U
Carbon Disulfide		10	U	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethene		10	U	10	U	118	%	127	%	10	U	10	U
1,1-Dichloroethane		10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichloroethene (total)		10	U	10	U	10	U	10	U	10	U	10	U
Chloroform		10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichloroethane		10	U	10	U	10	U	10	U	10	U	10	U
2-Butanone		10	U	10	U	10	U	10	U	10	U	10	U
1,1,1-Trichloroethane		10	U	10	U	10	U	10	U	10	U	10	U
Carbon Tetrachloride		10	U	10	U	10	U	10	U	10	U	10	U
Bromodichloromethane		10	U	10	U	10	U	10	U	10	U	10	U
1,2-Dichloropropane		10	U	10	U	10	U	10	U	10	U	10	U
cis-1,3-Dichloropropene		10	U	10	U	10	U	10	U	10	U	10	U
Trichloroethene		10	U	10	U	114	%	119	%	10	U	10	U
Dibromochloromethane		10	U	10	U	10	U	10	U	10	U	10	U
1,1,2-Trichloroethane		10	U	10	U	10	U	10	U	10	U	10	U
Benzene		10	U	10	U	112	%	119	%	10	U	10	U
trans-1,3-Dichloropropene		10	U	10	U	10	U	10	U	10	U	10	U
Bromoform		10	U	10	U	10	U	10	U	10	U	10	U
4-Methyl-2-pentanone		10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone		10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene		10	U	10	U	10	U	10	U	10	U	10	U
1,1,2,2-Tetrachloroethane		10	U	10	U	10	U	10	U	10	U	10	U
Toluene		10	U	10	U	108	%	117	%	10	U	10	U

*= Outside of EPA CLP QC limits.

9613402.1746
000001

RFW Batch Number: 9210L412 Client: WESTINGHOUSE HANFORD Work Order: 6168-02-0 Page: 1b

Cust ID:	BO7KL1	BO7KL5	BO7KL5	BO7KL5	VBLK	VBLK
RFW#:	006	008	008 MS	008 MSD	92LVB205-MB1	92LVB206-MB1
Chlorobenzene	10 U	10 U	113 %	120 %	10 U	10 U
Ethylbenzene	10 U	10 U	10 U	10 U	10 U	10 U
Styrene	10 U	10 U	10 U	10 U	10 U	10 U
Xylene (total)	10 U	10 U	10 U	10 U	10 U	10 U

*= Outside of EPA CLP QC limits.

9613402.1747 0000015

9613402.1748 000003

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B07KL1

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9210L412-006

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

Lab File ID: B102612

Level: (low/med) LOW

Date Received: 10/23/92

% Moisture: not dec.

Date Analyzed: 10/26/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

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

9613402.1749 0000032

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B07KL1

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9210L412-006

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

Lab File ID: B102612

Level: (low/med) LOW

Date Received: 10/23/92

% Moisture: not dec.

Date Analyzed: 10/26/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

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

9613402.1750 1A 000036

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B07KL5

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9210L412-008

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

Lab File ID: B102711

Level: (low/med) LOW

Date Received: 10/23/92

% Moisture: not dec.

Date Analyzed: 10/27/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

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

9613402.1751 1E 0000037 CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BO7KL5

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9210L412-008

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

Lab File ID: B102711

Level: (low/med) LOW

Date Received: 10/23/92

% Moisture: not dec.

Date Analyzed: 10/27/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

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

ROY F. WESTON, INC.
LIONVILLE ANALYTICAL LABORATORY
ANALYTICAL CASE NARRATIVE

Client: WESTINGHOUSE HANFORD
RFW #: 9210L412

W.O. #: 06168-002-001-9999-00
Date Received: 10-23-92

SEMIVOLATILE

One (1) water sample was collected on 10-21-92.

The sample and its associated QC samples were extracted on 10-27-92 and analyzed according to criteria set forth in CLP SOW 03/90 for TCL Semivolatile target compounds on 11-03-92.

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

1. Non-target compounds were detected in these samples.

2. All surrogate recoveries were within EPA QC limits.

3. Two (2) of twenty-two (22) matrix spike recoveries were outside EPA QC limits.

4. One (1) of eleven (11) blank spike recoveries was outside EPA QC limits.

5. The laboratory blank contained the common contaminants Di-n-butylphthalate and Bis(2-ethylhexyl)phthalate at levels less than the CRQL.

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

Margaret M. Leahy

J. Peter Hershey, Ph.D.
Laboratory Manager
Lionville Analytical Laboratory

12/14/92
Date

kls/10-412b.cn

Roy F. Weston, Inc. - Lionville Laboratory
Semivolatiles by GC/MS, HSL List

RFW Batch Number: 9210L412 Client: WESTINGHOUSE HANFORD Work Order: 6168-02-0 Report Date: 12/04/92 13:56 Page: 1a

	Cust ID:	BO7KL1		BO7KL1		BO7KL1		SBLK		SBLK BS	
Sample Information	RFW#:	006		006 MS		006 MSD		92LE1826-MB1		92LE1826-MB1	
	Matrix:	WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L	
Surrogate Recovery	Nitrobenzene-d5	57	%	52	%	63	%	57	%	57	%
	2-Fluorobiphenyl	71	%	62	%	68	%	67	%	67	%
	Terphenyl-d14	85	%	85	%	90	%	84	%	83	%
	Phenol-d5	71	%	61	%	74	%	70	%	69	%
	2-Fluorophenol	66	%	57	%	70	%	70	%	62	%
	2,4,6-Tribromophenol	73	%	76	%	83	%	71	%	84	%
	2-Chlorophenol-d4	78	%	69	%	84	%	72	%	76	%
	1,2-Dichlorobenzene-d4	63	%	57	%	67	%	56	%	61	%
Phenol		10	U	67	%	81	%	10	U	73	%
bis(2-Chloroethyl)ether		10	U	10	U	10	U	10	U	10	U
2-Chlorophenol		10	U	68	%	80	%	10	U	73	%
1,3-Dichlorobenzene		10	U	10	U	10	U	10	U	10	U
1,4-Dichlorobenzene		10	U	51	%	61	%	10	U	51	%
1,2-Dichlorobenzene		10	U	10	U	10	U	10	U	10	U
2-Methylphenol		10	U	10	U	10	U	10	U	10	U
2,2'-oxybis(1-Chloropropane)		10	U	10	U	10	U	10	U	10	U
4-Methylphenol		10	U	10	U	10	U	10	U	10	U
N-Nitroso-di-n-propylamine		10	U	63	%	72	%	10	U	68	%
Hexachloroethane		10	U	10	U	10	U	10	U	10	U
Nitrobenzene		10	U	10	U	10	U	10	U	10	U
Isophorone		10	U	10	U	10	U	10	U	10	U
2-Nitrophenol		10	U	10	U	10	U	10	U	10	U
2,4-Dimethylphenol		10	U	10	U	10	U	10	U	10	U
bis(2-Chloroethoxy)methane		10	U	10	U	10	U	10	U	10	U
2,4-Dichlorophenol		10	U	10	U	10	U	10	U	10	U
1,2,4-Trichlorobenzene		10	U	58	%	67	%	10	U	57	%
Naphthalene		10	U	10	U	10	U	10	U	10	U
4-Chloroaniline		10	U	10	U	10	U	10	U	10	U
Hexachlorobutadiene		10	U	10	U	10	U	10	U	10	U
4-Chloro-3-methylphenol		10	U	68	%	75	%	10	U	71	%
2-Methylnaphthalene		10	U	10	U	10	U	10	U	10	U
Hexachlorocyclopentadiene		10	U	10	U	10	U	10	U	10	U

*= Outside of EPA CLP QC limits.

9613402.1753
0000015

RFW Batch Number: 9210L412 Client: WESTINGHOUSE HANFORD Work Order: 6168-02-0 Page: 1b

Cust ID:	BO7KL1		BO7KL1		BO7KL1		SBLK		SBLK BS	
RFW#:	006		006 MS		006 MSD		92LE1826-MB1		92LE1826-MB1	
2,4,6-Trichlorophenol	10	U	10	U	10	U	10	U	10	U
2,4,5-Trichlorophenol	26	U	26	U	26	U	25	U	25	U
2-Chloronaphthalene	10	U	10	U	10	U	10	U	10	U
2-Nitroaniline	26	U	26	U	26	U	25	U	25	U
Dimethylphthalate	10	U	10	U	10	U	10	U	10	U
Acenaphthylene	10	U	10	U	10	U	10	U	10	U
2,6-Dinitrotoluene	10	U	10	U	10	U	10	U	10	U
3-Nitroaniline	26	U	26	U	26	U	25	U	25	U
Acenaphthene	10	U	70	%	79	%	10	U	72	%
2,4-Dinitrophenol	26	U	26	U	26	U	25	U	25	U
4-Nitrophenol	26	U	90 *	%	94 *	%	25	U	89 *	%
Dibenzofuran	10	U	10	U	10	U	10	U	10	U
2,4-Dinitrotoluene	10	U	71	%	74	%	10	U	75	%
Diethylphthalate	10	U	10	U	10	U	10	U	10	U
4-Chlorophenyl-phenylether	10	U	10	U	10	U	10	U	10	U
Fluorene	10	U	10	U	10	U	10	U	10	U
4-Nitroaniline	26	U	26	U	26	U	25	U	25	U
4,6-Dinitro-2-methylphenol	26	U	26	U	26	U	25	U	25	U
N-Nitrosodiphenylamine (1)	10	U	10	U	10	U	10	U	10	U
4-Bromophenyl-phenylether	10	U	10	U	10	U	10	U	10	U
Hexachlorobenzene	10	U	10	U	10	U	10	U	10	U
Pentachlorophenol	26	U	83	%	78	%	25	U	91	%
Phenanthrene	10	U	10	U	10	U	10	U	10	U
Anthracene	10	U	10	U	10	U	10	U	10	U
Carbazole	10	U	10	U	10	U	10	U	10	U
Di-n-butylphthalate	1	JB	0.8	JB	1	JB	0.9	J	1	JB
Fluoranthene	10	U	10	U	10	U	10	U	10	U
Pyrene	10	U	85	%	89	%	10	U	93	%
Butylbenzylphthalate	10	U	10	U	10	U	10	U	10	U
3,3'-Dichlorobenzidine	10	U	10	U	10	U	10	U	10	U
Benzo(a)anthracene	10	U	10	U	10	U	10	U	10	U
Chrysene	10	U	10	U	10	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	10	U	10	U	0.7	JB	0.6	J	0.6	JB
Di-n-octyl phthalate	10	U	10	U	10	U	10	U	10	U
Benzo(b)fluoranthene	10	U	10	U	10	U	10	U	10	U
Benzo(k)fluoranthene	10	U	10	U	10	U	10	U	10	U
Benzo(a)pyrene	10	U	10	U	10	U	10	U	10	U
Indeno(1,2,3-cd)pyrene	10	U	10	U	10	U	10	U	10	U
Dibenz(a,h)anthracene	10	U	10	U	10	U	10	U	10	U
Benzo(g,h,i)perylene	10	U	10	U	10	U	10	U	10	U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

9613402.1754
000016

9613402.1755 1B 0000037

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BO7KL1

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9210L412-006

Sample wt/vol: 990 (g/mL) ML

Lab File ID: M110306

Level: (low/med) LOW

Date Received: 10/23/92

% Moisture: _____ decanted: (Y/N)__

Date Extracted: 10/27/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/03/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	26	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	26	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	26	U
83-32-9	Acenaphthene	10	U

9613402.1756 0000032

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B07KL1

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9210L412-006

Sample wt/vol: 990 (g/mL) ML

Lab File ID: M110306

Level: (low/med) LOW

Date Received: 10/23/92

% Moisture: _____ decanted: (Y/N)__

Date Extracted: 10/27/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/03/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
51-28-5	2,4-Dinitrophenol	26	U
100-02-7	4-Nitrophenol	26	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	26	U
534-52-1	4,6-Dinitro-2-methylphenol	26	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	26	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	1	JB
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octyl phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

CLIENT SAMPLE NO.

BO7KL1

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9210L412-006

Sample wt/vol: 990 (g/mL) ML

Lab File ID: M110306

Level: (low/med) LOW

Date Received: 10/23/92

% Moisture: _____ decanted: (Y/N)__

Date Extracted: 10/27/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/03/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	5.23	10	JB

WESTON

ROY F. WESTON, INC.
LIONVILLE ANALYTICAL LABORATORY
ANALYTICAL CASE NARRATIVE

Client: WESTINGHOUSE HANFORD
RFW #: 9210L412

W.O. #: 06168-002-001-9999-00
Date Received: 10-23-92

PESTICIDE/PCB

One (1) water sample was collected on 10-21-92.

The sample and its associated QC samples were extracted on 10-26-92 and analyzed according to criteria set forth in the Contract Laboratory Program 03/90 SOW for Pesticide and PCB target compounds on 11-08,09-92.

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

1. Linearity and breakdown criteria were met for each of the analytical columns.

2. Retention time criteria were met for all compounds on both analytical columns.

3. Resolution of all pesticides in the Resolution Check Standard were within EPA QC limits.

4. The RPDs of the pesticides in the individual mixes analyzed for calibration verification were within 25% for both analytical columns.

5. The RPDs of the pesticides in the Performance Evaluation Mixes analyzed for calibration verification were within 25% for both analytical columns.

6. All surrogate recoveries were within EPA QC limits.

7. All obtainable blank spike recoveries were within EPA QC limits.

8. All matrix spike recoveries were within EPA QC limits.

9. Recoveries of pesticides for the Florisil Cartridge Check were within EPA QC limits.

Margaret M. Beaty for
J. Peter Hershey, Ph.D.
Laboratory Manager
Lionville Analytical Laboratory

1/8/93
Date

sma/pcb/10-412pp.cn

Roy F. Weston, Inc. - Lionville Laboratory
Pesticide/PCBs by GC, CLP List

RFW Batch Number: 9210L412 Client: WESTINGHOUSE HANFORD Work Order: 06168-002-001-9999-00 Report Date: 12/14/92 18:07 Page: 1

	Cust ID:	BO7KL1		BO7KL1		BO7KL1		BO7KL1		BO7KL1		BO7KL1	
Sample Information	RFW#:	006		006		006 MS		006 MS		006 MSD		006 MSD	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
				CONFIRM				CONFIRM				CONFIRM	
Surrogate:	Tetrachloro-m-xylene	75	%	75	%	80	%	75	%	70	%	70	%
Surrogate:	Decachlorobiphenyl	75	%	75	%	85	%	85	%	75	%	75	%
			fl		fl		fl		fl		fl		fl
Alpha-BHC		0.050	U	NA		0.10	U	NA		0.10	U	NA	
Beta-BHC		0.050	U	NA		0.10	U	NA		0.10	U	NA	
Delta-BHC		0.050	U	NA		0.10	U	NA		0.10	U	NA	
gamma-BHC (Lindane)		0.050	U	NA		86	%	86	%	78	%	78	%
Heptachlor		0.050	U	NA		78	%	82	%	70	%	76	%
Aldrin		0.090		0.050	U	69	%	74	%	55	%	68	%
Heptachlor epoxide		0.050	U	NA		0.10	U	NA		0.10	U	NA	
Endosulfan I		0.050	U	NA		0.10	U	NA		0.10	U	NA	
Dieldrin		0.10	U	NA		91	%	89	%	84	%	81	%
4,4'-DDE		0.10	U	NA		0.20	U	NA		0.20	U	NA	
Endrin		0.10	U	NA		100	%	93	%	87	%	82	%
Endosulfan II		0.10	U	NA		0.20	U	NA		0.20	U	NA	
4,4'-DDD		0.10	U	NA		0.20	U	NA		0.20	U	NA	
Endosulfan sulfate		0.10	U	NA		0.20	U	NA		0.20	U	NA	
4,4'-DDT		0.10	U	NA		98	%	103	%	86	%	92	%
Methoxychlor		0.50	U	NA		1.0	U	NA		1.0	U	NA	
Endrin ketone		0.10	U	NA		0.20	U	NA		0.20	U	NA	
Endrin aldehyde		0.10	U	NA		0.20	U	NA		0.20	U	NA	
alpha-Chlordane		0.050	U	NA		0.10	U	NA		0.10	U	NA	
gamma-Chlordane		0.050	U	NA		0.10	U	NA		0.10	U	NA	
Toxaphene		5.0	U	NA		10	U	NA		10	U	NA	
Aroclor-1016		1.0	U	NA		2.0	U	NA		2.0	U	NA	
Aroclor-1221		2.0	U	NA		4.0	U	NA		4.0	U	NA	
Aroclor-1232		1.0	U	NA		2.0	U	NA		2.0	U	NA	
Aroclor-1242		1.0	U	NA		2.0	U	NA		2.0	U	NA	
Aroclor-1248		1.0	U	NA		2.0	U	NA		2.0	U	NA	
Aroclor-1254		1.0	U	NA		2.0	U	NA		2.0	U	NA	
Aroclor-1260		1.0	U	NA		2.0	U	NA		2.0	U	NA	

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

9613402.1759 0000015

9613402.1760 LD 0000028 CLIENT SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

B07KL1

Lab Name: Roy F. Weston, Inc. Work Order: 06168-002-001-9999-00

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER — Lab Sample ID: 9210L412-006

Sample wt/vol: 1000 (g/mL) ML — Lab File ID: 11059235.75

% Moisture: decanted: (Y/N)_ — Date Received: 10/23/92

Extraction: (SepF/Cont/Sonc) CONT — Date Extracted: 10/26/92

Concentrated Extract Volume: 10000.00(uL) — Date Analyzed: 11/08/92

Injection Volume: 0.5(uL) — Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	Alpha-BHC	0.050	U
319-85-7	Beta-BHC	0.050	U
319-86-8	Delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421934	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

B.M 01/01/93

WESTON
MANAGERS DESIGNERS/CONSULTANTS

ROY F. WESTON, INC.
LIONVILLE ANALYTICAL LABORATORY
ANALYTICAL CASE NARRATIVE

Client : WESTINGHOUSE HANFORD
RFW# : 9210L412

W.O. #: 06168-002-001-9999-00
Date Received: 10-23-92

INORGANIC

The following is a summary of the quality control results and a description of any problems encountered during the analysis of this batch of samples:

1. Sample holding times as required by 40CFR136 were met with the exception of Phosphate by IC, pH and Specific Conductance (received past hold) and Total Organic Halides (analyzed past hold).

2. All preparation blank results were below the required detection limit.

3. All laboratory control standards (blank spikes) were within the control limits of 80-120% (70-130% for Total Organic Halides). All %RPD were within the 20% guidance limit (40% for Total Organic Halides).

4. All calibration verification checks were within the required control limits of 90-110%. Calibration verification is performed using independent standards.

5. Matrix spike recoveries are summarized on the Inorganic Accuracy Report contained within this document. Recoveries were within the 75-125% guidance limits (70-130% for Total Organic Halides) with the exception of Nitrate Nitrite, Cyanide and Chemical Oxygen Demand. All %RPD were within the 20% guidance limit (40% for Total Organic Halides).

6. Replicate results are summarized on the Inorganic Precision Report contained within this document. All results were within the 20% RPD guidance limit (40% for Total Organic Halides).

7. The analytical methods applied by the laboratory, unless otherwise requested, for all inorganic analyses are derived from the USEPA Method for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020) and Standard Methods for the Examination of Water and Wastewater 16 ed. Methods for the analysis of solid samples are derived from Test Methods for Evaluating Solid Waste (USEPA SW846).

Margaret M. Beaty for
J. Peter Hershey, Ph.D.
Laboratory Manager
Lionville Analytical Laboratory

11/24/92
Date

JAN 1993
RECEIVED
OSM DMO

pas/i10-412

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 11/16/92

CLIENT: WESTINGHOUSE HANFORD
WORK ORDER: 06168-002-001-9999-00

WESTON BATCH #: 9210L412

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	BO7KD7	Total Organic Carbon	0.85		MG/L	0.50
		Total Organic Halides	20.0	u	UG/L	20.0
-002	BO7KJ2	Total Organic Carbon	1.4		MG/L	0.50
		Total Organic Halides	5.0	u	UG/L	5.0
-003	BO7KG7	Total Organic Halides	5.0	u	UG/L	5.0
-004	BO7KM4	Total Organic Carbon	2.3		MG/L	0.50
		Total Organic Halides	5.0	u	UG/L	5.0
-005	BO7KL2	Total Organic Carbon	2.5		MG/L	0.50
		Total Organic Halides	5.0	u	UG/L	5.0
-006	BO7KL1	Alkalinity	110		MG/L	2.0
		Chloride by IC	11.6		MG/L	5.0
		Fluoride by IC	0.50	u	MG/L	0.50
		Cyanide, Total	23.8		UG/L	20.0
		Chemical Oxygen Demand	6.5		MG/L	5.0
		Phosphate by IC	0.25	u	MG/L	0.25
		Sulfate by IC	52.4		MG/L	5.0
		Nitrate Nitrite	6.9		MG-N/L	5.0
		Ammonia, as N	0.10	u	MG/L	0.10
		pH	7.8		PH UNITS	0.010
		Sulfide	0.10	u	MG/L	0.10
		Specific Conductance	367		UMHOS/CM	1.0
		Total Dissolved Solids	253		MG/L	5.0

ROY F. WESTON, INC.
LIONVILLE ANALYTICAL LABORATORY
ANALYTICAL CASE NARRATIVE

Client : WESTINGHOUSE HANFORD
RFW# : 9210L412

W.O. #: 06168-002-001-9999-00
Date Received: 10-23-92

CLP METALS

The set of samples consisted of two (2) water samples collected on 10-21-92.

The samples were analyzed according to criteria set forth in CLP SOW 3/90.

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

1. ICVs, CCVs, and LCSs stock standards were purchased from Inorganic Ventures Laboratory.

2. All ICV and CCV values were within control limits.

3. All ICB and CCB values were within control limits.

4. All preparation blank values were within control limits.

5. All LCS results were within the 80-120% control limits.

6. All matrix spike recoveries were within the 75-125% control limits with the exception of selenium. All exceptions are flagged with a "N" on the CLP forms.

7. All duplicate analyses were within the 20% RPD control limit.

8. The code CV is currently in use by the laboratory for both mercury instruments in operation (HG1 and HG2). HG1 is complete with autosampler and software, but still requires manual digestion; HG2 is operated by the analyst, produces a strip chart and also requires manual digestion.

9. HG1 requires less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionally scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 ml. For soils, 0.1 gram of sample is taken to a final volume of 50 ml (including all reagents).

WESTON
MANAGERS DESIGNERS/CONSULTANTS

10. Quarterly Detection Limits, ICP Interelement Correction Factors and ICP Linear Ranges for IC3 are included in this package, but do not appear on EDD.

11. The graphite furnace time that appears on form XIV is the time of the first injection. The time that appears on the data is the print time.

Margaret M. Beaty for
J. Peter Hershey, Ph.D.
Laboratory Manager
Lionville Analytical Laboratory

12/23/92
Date

mlj/clp-met.nar

9613402.1765 000025

ROY F. WESTON, INC.
LIONVILLE ANALYTICAL LABORATORY
ANALYTICAL CASE NARRATIVE

Client: WESTINGHOUSE HANFORD
RFW #: 9210L412

W.O. #: 06168-002-001-9999-00
Date Received: 10-23-92

CLP METALS ADDENDUM

1. Following Exhibit E, Section V, Item 10, page E-23 of the USEPA Statement of Work for Inorganics Analysis, Document Number ILM02.0 ICP Instrument Detection Limits (IDLs) are reported for two (2) ICP instruments. The instrument identification numbers are "IC1" and "IC3". The highest IDL for the two instruments is used for reporting concentration values in this sample data package.

2. A discrepancy exists between raw data and Form XIVs analytical spikes recovery calculations performed for graphite furnace AA analytes. Instrument software calculates spike recoveries based on absolute values below the IDL for sample results. This is hard-coded by the vendor and is currently not correctable. CLP convention (SOW ILM02.0, Exhibit E, Section V, Item 6, page E-20) requires that when values fall below the IDL, the sample result is equal to zero (0) for the purposes of calculating the percent recovery. The Form XIVs contain the correct calculation.

Margaret M. Beatyford
J. Peter Hershey, Ph.D.
Laboratory Manager
Lionville Analytical Laboratory

12/23/92
Date

mlj\clp-met.nar

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 12/21/92

CLIENT: WESTINGHOUSE HANFORD
WORK ORDER: 06168-002-001-9999-00

WESTON BATCH #: 9210L412

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-006	BO7KL1	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Beryllium, Total	5.0	u	UG/L	5.0
		Calcium, Total	54100		UG/L	5000
		Cadmium, Total	5.0	u	UG/L	5.0
		Cobalt, Total	50.0	u	UG/L	50.0
		Chromium, Total	11.4		UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Potassium, Total	5000	u	UG/L	5000
		Magnesium, Total	8160		UG/L	5000
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	11800		UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Antimony, Total	60.0	u	UG/L	60.0
		Selenium, Total	5.0	u	UG/L	5.0
		Thallium, Total	10.0	u	UG/L	10.0
		Vanadium, Total	50.0	u	UG/L	50.0
		Zinc, Total	20.0	u	UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 12/21/92

CLIENT: WESTINGHOUSE HANFORD
WORK ORDER: 06168-002-001-9999-00

WESTON BATCH #: 9210L412

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-007	B07KL4	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Beryllium, Total	5.0	u	UG/L	5.0
		Calcium, Total	52800		UG/L	5000
		Cadmium, Total	5.0	u	UG/L	5.0
		Cobalt, Total	50.0	u	UG/L	50.0
		Chromium, Total	12.2		UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Potassium, Total	5000	u	UG/L	5000
		Magnesium, Total	8020		UG/L	5000
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	11800		UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Antimony, Total	60.0	u	UG/L	60.0
		Selenium, Total	5.0	u	UG/L	5.0
		Thallium, Total	10.0	u	UG/L	10.0
		Vanadium, Total	50.0	u	UG/L	50.0
		Zinc, Total	20.0	u	UG/L	20.0

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KL1

Lab Name: ROY F. WESTON, INC - L372 Contract: 6168-02-01

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP412

Matrix (soil/water): WATER Lab Sample ID: 921041206

Level (low/med): LOW Date Received: 10/23/92

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	49.00	U		P
7440-36-0	Antimony	60.00	U		P
7440-38-2	Arsenic	2.90	B	W	F
7440-39-3	Barium	25.30	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	7.00	U		P
7440-70-2	Calcium	54100.00			P
7440-47-3	Chromium	11.40			P
7440-48-4	Cobalt	9.00	U		P
7440-50-8	Copper	8.00	U		P
7439-89-6	Iron	15.00	U		P
7439-92-1	Lead	2.00	U	W	F
7439-95-4	Magnesium	8160.00			P
7439-96-5	Manganese	4.00	U		P
7439-97-6	Mercury	.10	U		CV
7440-02-0	Nickel	20.00	U		P
7440-09-7	Potassium	4450.00	B		P
7782-49-2	Selenium	2.10	B	NW	F
7440-22-4	Silver	10.00	U		P
7440-23-5	Sodium	11800.00			P
7440-28-0	Thallium	2.00	U	W	F
7440-62-2	Vanadium	13.30	B		P
7440-66-6	Zinc	7.00	U		P
	Cyanide	23.80			C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

BO7KL4

Lab Name: ROY F. WESTON, INC - L372 Contract: 6168-02-01

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP412

Matrix (soil/water): WATER Lab Sample ID: 921041207

Level (low/med): LOW Date Received: 10/23/92

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	49.00	U		P
7440-36-0	Antimony	60.00	U		P
7440-38-2	Arsenic	2.70	B	W	F
7440-39-3	Barium	24.50	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	7.00	U		P
7440-70-2	Calcium	52800.00			P
7440-47-3	Chromium	12.20			P
7440-48-4	Cobalt	9.00	U		P
7440-50-8	Copper	8.00	U		P
7439-89-6	Iron	15.00	U		P
7439-92-1	Lead	2.00	U	W	F
7439-95-4	Magnesium	8020.00			P
7439-96-5	Manganese	4.00	U		P
7439-97-6	Mercury	.10	U		CV
7440-02-0	Nickel	20.00	U		P
7440-09-7	Potassium	4720.00	B		P
7782-49-2	Selenium	2.00	U	NW	F
7440-22-4	Silver	10.00	U		P
7440-23-5	Sodium	11800.00			P
7440-28-0	Thallium	2.00	U		F
7440-62-2	Vanadium	11.10	B		P
7440-66-6	Zinc	7.00	U		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

9613402.1770

VALIDATION SUMMARY

9613402.1771

9201L412-WES-917

DATA QUALIFICATION SUMMARY

UNIT: 100-BC-5

DOCUMENT CONTROL NUMBER: WHC-SD-EN-TI-139

ANALYSES: VOC, BNA, Pest/PCB, Inorganics, Wet Chemistry

RFW NO.: 9210L412-WES-917

SDG NO.: B07KD7

QUALIFICATION SUMMARY:

VOLATILES

SAMPLE NUMBERS: B07KL1, B07KL5

No qualifiers added to data.

SEMIVOLATILES

SAMPLE NUMBERS: B07KL1

CONTINUING CALIBRATION

The %Ds for the continuing calibrations did not meed QC limits for the following compounds. All of the associated samples were qualified as estimates and flagged "J":

- 2,4-Dinitrophenol, 3,3'-dichlorobenzidine, Indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, Benzo(g,h,i)perylene in sample number B07KL1 in SDG No. B07KD7.

BLANKS

Due to the presence of bis(2-ethylhexyl)phthalate in the laboratory blanks, the following associated sample results were qualified as non-detects and flagged "U":

- Sample number B07KL1 in SDG No. B07KD7.

Due to the presence of di-n-butylphthalate in the laboratory blanks, the following associated sample results were qualified as non-detects and flagged "U":

- Sample number B07KL1 in SDG No. B07KD7.

PESTICIDES/PCBS

SAMPLE NUMBERS: B07KL1

INITIAL CALIBRATIONS

Due to initial calibration %RSDs above the QC limits, the following was qualified as an estimate and flagged "J":

- Heptachlor, 4,4'-DDT and methoxychlor in sample number B07KL1 in SDG No. B07KD7.

INORGANICS

SAMPLE NUMBERS: B07KL1, B07KL4

MATRIX SPIKE RECOVERY

The matrix spike recovery fell outside the QC limits and the associated results were flagged "J" for selenium in the following samples:

- Sample numbers B07KL1 and B07KL4 in SDG No. B07KD7.

ANALYTICAL SPIKE RECOVERY

The analytical spike recovery fell outside the QC limits and the associated results were flagged "J" for arsenic in the following samples:

- Sample numbers B07KL1 and B07KL4 in SDG No. B07KD7.

The analytical spike recovery fell outside the QC limits and the associated results were flagged "J" for lead in the following samples:

- Sample numbers B07KL1 and B07KL4 in SDG No. B07KD7.

The analytical spike recovery fell outside the QC limits and the associated results were flagged "J" for selenium in the following samples:

- Sample numbers B07KL1 and B07KL4 in SDG No. B07KD7.

WET CHEMISTRY

SAMPLE NUMBERS: B07KD7, B07KG7, B07KJ2, B07KL1, B07KL2, B07KM4

HOLDING TIMES

Holding times were exceeded for phosphate in SDG No. B07KD7. All associated sample results were qualified as estimates and flagged "J".

9613402.1775

Holding times were exceeded for sulfide in SDG No. B07KD7. All associated sample results were qualified as estimates and flagged "J".

Holding times were exceeded for TOX in SDG No. B07KD7. All associated sample results were qualified as estimates and flagged "J".

9613402.1774 85-80003

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-BC-5

Collection Date 10-21-92

Ice Chest No. SML-184

Field Logbook No. EFL-1037

Bill of Lading/Airbill No. 2521568632

Offsite Property No. W93-0-0001-41

Method of Shipment EMERY

Shipped to WESTON

Possible Sample Hazards/Remarks N/A

Sample Identification

BO 7K07 250ml LW 10-21-92
1, ~~125ml~~, aGs, WATER, TOC(H2SO4)
1, 250ml, aGs, WATER, TOX(H2SO4)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: L. D. Walker	Received by: B WHITTEN	Date/Time: 10-22-92 800
Relinquished by: B. WHITTEN	Received by:	Date/Time:
Relinquished by: Emery	Received by: Susan Fino	Date/Time: 10/23/92 300
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

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

9613402.1775

0000004

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collecto K. Lee, L. Walker Date Sampled 10-21-92 Time 0955 hours

Company P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample LW 10-21-92	Type of Sample*	Analysis Requested
B07KD7	1; ~~125ml~~ 250 ml; aGs	WATER	TOC (H2SO4)
	1; 250ml; aGs	WATER	TOX (H2SO4)
			OPC: # W93-0-0001-41
			BOL: # 2521568632
			TASK: 92-243

Field

Special Handling and/or

Possible Sample

PART II: LABORATORY SECTION

Received Titl Date

Analysis

*Indicate whether sample is soil, sludge, water, etc.

**Use back of page for additional information relative to sample location.

A-6000-406(05/90)

9613402.1776 DUP 0000005

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-BC-5

Collection Date 10/21/92

Ice Chest No. SML-184

Field Logbook No. EFL-1036

Bill of Lading/Airbill No. 2521568632

Offsite Property No. W93-0-000411

Method of Shipment EMERY

Shipped to WESTON

Possible Sample Hazards/Remarks N/A

Sample Identification

BO 7K J2
1, 125ml, aGs, WATER, TOC(H2SO4)
1, 250ml, aGs, WATER, TOX(H2SO4)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: Kathy D. Lee K.D. Lee	Received by: Bill Whitten B. WHITTEN	Date/Time: 10-22-92 0800
Relinquished by: Bill Whitten B. WHITTEN	Received by:	Date/Time:
Relinquished by: EFL Mail	Received by: Susan Parker	Date/Time: 10/23/92 200
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

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

9613402.1777 0000006

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collecto K. Lee, L. Walker Date Sampled 10/21/92 Time 0954 hours

Company P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample	Type of Sample*	Analysis Requested
B07KJ2	1; 125ml; aGs	WATER	TOC (H2SO4)
	1; 250ml; aGs	WATER	TOX (H2SO4)
			OPC: # W93-0-0001-41
			BOL: # 2521568632
			TASK: 92-243

Field

Special Handling and/or

Possible Sample

PART II: LABORATORY SECTION

Received Titl Date

Analysis

*Indicate whether sample is soil, sludge, water, etc.

**Use back of page for additional information relative to sample location.

A-6000-406(05/90)

9613402.1778 7P7P0007

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-BC-5

Collection Date 10-21-92

Ice Chest No. SMC-184

Field Logbook No. EFL-1037

Bill of Lading/Airbill No. 2521568632

Offsite Property No. W93-0-0001-41

Method of Shipment EMERY

Shipped to WESTON

Possible Sample Hazards/Remarks N/A

Sample Identification

BO 7KG7 250ml LW10-21-92
1, ~~125ml~~, aGs, WATER, TOC(H2SO4)-
1, 250ml, aGs, WATER, TOX(H2SO4)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: L.D. Walker LD Walker	Received by: Bill Whitten BWHITTEN	Date/Time: 10-22-92 0800
Relinquished by: Bill Whitten B-WHITTEN	Received by:	Date/Time:
Relinquished by: Emery	Received by: Susan Pusko	Date/Time: 10/23/92 200
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

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

9613402.1279

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collecto K. Lee, L. Walker Date Sampled 10-21-92 Time 1230 hours

Company P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample LW 10-21-92	Type of Sample*	Analysis Requested
B07KG7	1; ~~125ml~~ 250ml; aGs	WATER	TOC (H2SO4)
	1; 250ml; aGs	WATER	TOX (H2SO4)
			OPC: # W93- 0-0001-91
			BOL: # 2521568632
			TASK: 92-243

Field

Special Handling and/or

Possible Sample

PART II: LABORATORY SECTION

Received Titl Date

Analysis

*Indicate whether sample is soil, sludge, water, etc.

**Use back of page for additional information relative to sample location.

A-6000-406(05/90)

9613402.1780 BC-00009

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-BC-5

Collection Date 10/21/92

Ice Chest No. SML-184

Field Logbook No. EFL-1036

Bill of Lading/Airbill No. 2521568632

Offsite Property No. W93-0-0001-41

Method of Shipment EMERY

Shipped to WESTON

Possible Sample Hazards/Remarks N/A

Sample Identification

BO 7K M4
1, 125ml, aGs, WATER, TOC(H2SO4)
1, 250ml, aGs, WATER, TOX(H2SO4)

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: K.O. Lee	Received by: B. WHITTEN	Date/Time: 10-22-92 0800
Relinquished by: B. WHITTEN	Received by:	Date/Time:
Relinquished by: EMERY	Received by: Susan Pinko	Date/Time: 10/23/92 900
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

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

9613402.1781

0000010

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collecto K. Lee, L. Walker Date Sampled 10/29/92 Time 0954 hours

Company P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample	Type of Sample*	Analysis Requested
B07Km4	1; 125ml; aGs	WATER	TOC (H2SO4)
	1; 250ml; aGs	WATER	TOX (H2SO4)
			OPC: # W93-0-0001-41
			BOL: # 2521568632
			TASK: 92-243

Field

Special Handling and/or

Possible Sample

PART II: LABORATORY SECTION

Received Titl Date

Analysis

*Indicate whether sample is soil, sludge, water, etc.

**Use back of page for additional information relative to sample location.

A-6000-406(05/90)

9613402.1782 0000011

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator PH BUTCHER

Company Contact PH BUTCHER

Telephone (509)376-5045

Project Designation/Sampling Locations 100-BC-5

Collection Date 10/21/92

Ice Chest No. SML-245

Field Logbook No. FFL-1036

Bill of Lading/Airbill No. 2521568632

Offsite Property No. W93-0-000-1-41

Method of Shipment EMERY

Shipped to WESTON

Possible Sample Hazards/Remarks N/A

Sample Identification

BO 7KL1

1, 1L, P, WATER, CLP-ICP/AA METALS & Hg (HNO3) UNFILTERED
1, 1L, P, WATER, CLP-CYANIDE (NaOH)
3, 40ml, Gs, WATER, CLP-VOA
3, 2L, aG, WATER, CLP-SEMI-VOA & PCB/PEST
1, 1L, P, WATER, ANIONS(IC) (SO4,F,PO4,Cl), COND., pH
2, 4L, P, WATER, GROSS ALPHA/BETA, GAMMA SPEC, ALPHA SPEC (U-235/238,Pu-239/240, Am-241), Sr-90 (HNO3)
1, 250ml, G, WATER, TRITIUM, C-14
1, 500ml, P, WATER, NO2,NO3 (H2SO4)
1, 1L, G, WATER, ALKALINITY, TOTAL DISSOLVED SOLIDS
1, 500ml, G, WATER, SULFIDE (ZINC ACETATE+NaOH pH>9)
1, 500ml, G, WATER, AMMONIA, CHEMICAL OXYGEN DEMAND (H2SO4 pH<2)
1, 1L, P, WATER, Tc-99 (HCl)
7KL2 1, 125ml, aGs, WATER, TOC (H2SO4)
1, 250ml, aGs, WATER, TOX (H2SO4)

BO 7KL4

1, 1L, P, WATER, CLP-ICP/AA METALS & Hg (HNO3) FILTERED

BO 7KL5

3, 40ml, Gs, WATER, CLP-VOA

[] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: [illegible]	Received by: [illegible] B WHITTEN	Date/Time: 10-22-92 0800
Relinquished by: [illegible] B. WHITTEN	Received by:	Date/Time:
Relinquished by: EMERY	Received by: [illegible]	Date/Time: 10/23/92 200
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

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

0000012

9613402.1783

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collecto K. Lee, L. Walker Date Sampled 10/21/92 Time 0754 hours

Company P. H. Butcher Telephone (509) 376-5045

Sample Number	Number and Type of Sample	Type of Sample*	Analysis Requested
BO7KL1	1; 1L; P;	WATER	CLP ICP/AA METALS & Hg (HNO3) UNFILTERED
	1; 1L; P	WATER	CLP-CYANIDE (NaOH)
	3; 40ml; Gs	WATER	CLP-VOA
	2; 2L; aG	WATER	CLP-SEMI-VOA & PCB/PEST
	1; 1L; P	WATER	ANIONS(IC)(SO4,F,PO4,Cl); CONDUCTIVITY; pH
	2; 4L; P	WATER	GROSS ALPHA/BETA;GAMMA SPEC;ALPHA SPEC
			(U-235/238,Pu-239/240,Am-241); Sr-90 (HNO3)
	1; 500ml; G	WATER	TRITIUM, C-14
	1; 500ml; P;	WATER	ANIONS(NO2/NO3) (H2SO4)
	1; 1L; G;	WATER	ALKALINITY; TOTAL DISSOLVED SOLIDS
	1; 500ml; G;	WATER	SULFIDE (ZINC ACETATE + NaOH pH>9)
	1; 500ml; G;	WATER	AMMONIA; CHEMICAL OXYGEN DEMAND(H2SO4 pH<2)
	1; 1L; P;	WATER	Tc-99 (HCL)
BO B07KL2	1; 125ml; aGs;	WATER	TOC (H2SO4)
↑	1; 250ml; aGs;	WATER	TOX (H2SO4)
B07KL4	1; 1L; P;	WATER	CLP-ICP/AA METAL & Hg (HNO3) FILTERED
BO7KL5	3; 40ml; Gs;	WATER	CLP-VOA
			OPC: # W930-0001-41
			BOL: # 2521568632
			TASK: 92-243

Field

Special Handling and/or

Possible Sample

PART II: LABORATORY SECTION

Received Titl Date

Analysis

*Indicate whether sample is soil, sludge, water, etc.

**Use back of page for additional information relative to sample location.

A-6000-406(05/90)

9613402.1784

1A

000003

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B07KL1

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD WC

Matrix: (soil/water) WATER

Lab Sample ID: 9210L412-006

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

Lab File ID: B102612

Level: (low/med) LOW

Date Received: 10/23/92

10/21 = SD 199 B4-4

% Moisture: not dec.

Date Analyzed: 10/26/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

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

RB 3/24/93

~~BAF LO 500~~ (PQL minimum)

9413402.1785 0000032

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B07KL1

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9210L412-006

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

Lab File ID: B102612

Level: (low/med) LOW

Date Received: 10/23/92

% Moisture: not dec.

Date Analyzed: 10/26/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

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

RB 3/24/92

9613402.1786

1A

0000036

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B07KL5

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

WC

Matrix: (soil/water) WATER

Lab Sample ID: 9210L412-008

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

Lab File ID: B102711

TB

Level: (low/med) LOW

Date Received: 10/23/92

% Moisture: not dec.

Date Analyzed: 10/27/92

199-B4-4

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

SD=10/21/92

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

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

RB
3/24/93

9613402.1787

1E

0000037 CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B07KL5

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9210L412-008

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

Lab File ID: B102711

Level: (low/med) LOW

Date Received: 10/23/92

% Moisture: not dec.

Date Analyzed: 10/27/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

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

RLB
3/24/93

9613402.1788

1A

000031

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B07KL1

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9210L412-006

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

Lab File ID: B102612

Level: (low/med) LOW

Date Received: 10/23/92

% Moisture: not dec.

Date Analyzed: 10/26/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

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

RB 3/24/93

9613402.1789

1E

0000032

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B07KL1

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9210L412-006

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

Lab File ID: B102612

Level: (low/med) LOW

Date Received: 10/23/92

% Moisture: not dec.

Date Analyzed: 10/26/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

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

RB
3/24/93

9613402.1790 1A 000036

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B07KL5

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9210L412-008

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

Lab File ID: B102711

Level: (low/med) LOW

Date Received: 10/23/92

% Moisture: not dec.

Date Analyzed: 10/27/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

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

RB 3/24/93

9613402.1791

1E

0000037 CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BO7KL5

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9210L412-008

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

Lab File ID: B102711

Level: (low/med) LOW

Date Received: 10/23/92

% Moisture: not dec.

Date Analyzed: 10/27/92

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

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

BB
3/24/93

9613402.1792

VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-1

PROJECT: Westinghouse-Hanford	REVIEWER: VB	DATE: 3/24/93
LABORATORY: Weston	CASE: N/A	SDG: B07KL1
SAMPLES/MATRIX: 2 waters B07KL1		
B07KLS (TB)		

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	✓			
Blank summary report	✓			
GC/MS tuning report	✓			
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	✓			
Raw QC Data				
Tuning report, spectra and mass lists	✓			
Blank analysis reports	✓			
TIC reports for all blanks	✓			
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			✓	

Data Package Item	Present?:	Yes	No	N/A
Quantitation and calculation data for all TIC				✓
MS/MSD report forms		✓		
RIC and quantitation reports for MS/MSD		✓		
Additional Data				
Moisture/% solids data sheets		✓		
Reduction formulae			✓	
Instrument time logs			✓	
Chemist notebook pages			✓	
Sample preparation sheets		✗		✓

RO 3/24

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, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for non-detects), otherwise reject all non-detects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

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% (2/88 SOW)? Yes No (N/A)

Are all RRF values ≥0.05 (2/88 SOW)? Yes No (N/A)

Are all applicable RSD values ≤~~20.5%~~ 25% (3/90 SOW)?	Yes	No	N/A
Are all applicable RSD values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all applicable RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, 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). Making allowances for up to two TCL compounds, 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 (2/88 SOW)?	Yes	No	N/A
Are all %D values ≤25% (2/88 or 3/90 SOW)?	Yes	No	N/A
Are all %D values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all associated detected results as estimated and all non-detects as unusable (R). Making allowances for up to two TCL compounds, 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/SYSTEM MONITORING COMPOUND 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 MS/MSD recoveries are out of specification and sample concentration is greater than five times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. 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 MS/MSD RPDs are out of specification and sample results are greater than five times the CRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). 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 it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (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 reviewed for possible background contamination? Yes No N/A

Are molecular ions present in the reference specrum present in the sample spectrum? 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

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.

COMMENTS (attach additional sheets as necessary):

9613402.1800

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

0000037 CLIENT SAMPLE NO.

BO7KL1

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9210L412-006

Sample wt/vol: 990 (g/mL) ML

Lab File ID: M110306

Level: (low/med) LOW

Date Received: 10/23/92

% Moisture: _____ decanted: (Y/N)__

Date Extracted: 10/27/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/03/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	26	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	26	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	26	U
83-32-9	Acenaphthene	10	U

MB 3/25/93

9613402.1801 0000032

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B07KL1

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER Lab Sample ID: 9210L412-006

Sample wt/vol: 990 (g/mL) ML Lab File ID: M110306

Level: (low/med) LOW Date Received: 10/23/92

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

Concentrated Extract Volume: 1000(uL) Date Analyzed: 11/03/92

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
51-28-5	2,4-Dinitrophenol	26	UJ
100-02-7	4-Nitrophenol	26	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	26	U
534-52-1	4,6-Dinitro-2-methylphenol	26	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	26	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	~~1~~ 10	~~J~~ U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	UJ
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	10	U
117-84-0	Di-n-octyl phthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	UJ
53-70-3	Dibenz(a,h)anthracene	10	UJ
191-24-2	Benzo(g,h,i)perylene	10	UJ

NB 3/25/93

(1) - Cannot be separated from Diphenylamine

9613402.1802 0000033

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B07KL1

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9210L412-006

Sample wt/vol: 990 (g/mL) ML

Lab File ID: M110306

Level: (low/med) LOW

Date Received: 10/23/92

% Moisture: _____ decanted: (Y/N)__

Date Extracted: 10/27/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/03/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	5.23	10	~~JB~~ U

MB
3/25/93

9613402.1803

SEMI-VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-2

PROJECT: Westinghouse Hanford	REVIEWER: BB	DATE: 8/24/93
LABORATORY: Roy F. Weston	CASE: N/A	SDG: B07KL1
SAMPLES/MATRIX: Ore water		
B07KL1		

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	✓			
Blank summary report	✓			
GC/MS tuning report	✓			
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	✓			
Raw QC Data				
Tuning report, spectra and mass lists	✓			
Blank analysis reports	✓			
TIC reports for all blanks	✓			
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	✓			
Quantitation and calculation data for all TIC	✓			
MS/MSD report forms	✓			

Data Package Item	Present?:	Yes	No	N/A
RIC and quantitation reports for MS/MSD	✓			
Additional Data				
Moisture/% solids data sheets	✓			
Reduction formulae			KB 3/24 ✓	
Instrument time logs			✓	
Chemist notebook pages		✓	✓	
Sample preparation sheets	✓			

2. HOLDING TIMES

	Yes	No	N/A
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, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for non-detects), otherwise reject all non-detects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

	Yes	No	N/A
Is a DFTPP 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~~ KB 3/24	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 and UJ for non-detects). If all tuning criteria are not met, qualify all associated data as unusable (R).

3.2 INITIAL CALIBRATION

	Yes	No	N/A
Is an initial calibration report provided for all instruments?	Yes	No	N/A
Are all RSD values ≤30% (2/88 SOW)?	Yes	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	N/A
Are all applicable RSD values ≤~~20.5~~ 25% (3/90 SOW)?	Yes	No	N/A
Are all applicable RSD values ≤40% (3/90 SOW)?	Yes	No	N/A

Are all applicable RRF values within SOW limits (3/90 SOW)? Yes No N/A

Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)? Yes No N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to four TCL compounds or surrogates, 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). Making allowances for up to four TCL compounds or surrogates, 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 (2/88 SOW)? Yes No N/A

Are all %D values ≤25% (2/88 or 3/90 SOW)? Yes No ~~N/A~~ RB 3/24

Are all %D values ≤40% (3/90 SOW)? Yes No N/A

Are all RRF values within SOW limits (3/90 SOW)? Yes No N/A

Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)? Yes No N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to four TCL compounds or surrogates, if any RRF value is out of specification qualify all associated detected results as estimated and all non-detects as unusable (R). Making allowances for up to four TCL compounds or surrogates, 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 extraction batch? Yes No N/A

Are compounds reported 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 compounds reported 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 results of the field blanks in the validation narrative.

5. ACCURACY

5.1 SURROGATE RECOVERY/SYSTEM MONITORING COMPOUND 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 data as estimated (J for detects and UJ for non-detects) if at least two semivolatile surrogates are out of specification. If any surrogate is below 10% recovery qualify associated detected results as estimated (J) and associated non-detect results as unusable (R). If method blank surrogates are out of specification and associated sample surrogates are acceptable no qualification is required, 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 MS/MSD recoveries are out of specification and sample concentration is greater than five times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. 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 results for the performance audit samples 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 DUPLICATES

Are all 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 MS/MSD RPDs are out of specification and sample results are greater than five times the CRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). 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 and UJ for non-detects. If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (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 reviewed for possible background contamination?	Yes	No	N/A
Are molecular ions in the reference spectrum present in the sample spectrum?	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).

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standards 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 quantitation limits are in error contact the laboratory for clarification and note in the validation narrative.

8.3 TENTATIVELY IDENTIFIED COMPOUNDS

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

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 and complete the data validation narrative as specified in Section 10 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

COMMENTS (attach additional sheets as necessary):

toluene d8 =
IS = 3
MnF = 1.142

$$= \frac{137233}{(124430)1.142}$$

= 96.58%

Toluene MS: NA

RB
3/24/93

$$= \frac{101140\ (250\ mg)}{122851\ (0.760)(5\ ml)}$$

= 54.16 = 54.2 ug/l

9613402.1812

1B

0000037 CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

B07KL1

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

WC

Matrix: (soil/water) WATER Lab Sample ID: 9210L412-006

Sample wt/vol: 990 (g/mL) ML Lab File ID: M110306

Level: (low/med) LOW Date Received: 10/23/92

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

Concentrated Extract Volume: 1000(uL) Date Analyzed: 11/03/92

Injection Volume: 2.0(uL) Dilution Factor: 1.00

199B4-4

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	26	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	26	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	26	U
83-32-9	Acenaphthene	10	U

RB 3/24/93

RB 3/24/93

9613402.1813 0000032

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B07KL1

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER Lab Sample ID: 9210L412-006

Sample wt/vol: 990 (g/mL) ML Lab File ID: M110306

Level: (low/med) LOW Date Received: 10/23/92

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

Concentrated Extract Volume: 1000(uL) Date Analyzed: 11/03/92

Injection Volume: 2.0(uL) Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q	
51-28-5	2,4-Dinitrophenol	26	UJ	+ CC 70D
100-02-7	4-Nitrophenol	26	U	
132-64-9	Dibenzofuran	10	U	
121-14-2	2,4-Dinitrotoluene	10	U	
84-66-2	Diethylphthalate	10	U	RB 3/25/93
7005-72-3	4-Chlorophenyl-phenylether	10	U	
86-73-7	Fluorene	10	U	
100-01-6	4-Nitroaniline	26	U	
534-52-1	4,6-Dinitro-2-methylphenol	26	U	
86-30-6	N-Nitrosodiphenylamine (1)	10	U	
101-55-3	4-Bromophenyl-phenylether	10	U	
118-74-1	Hexachlorobenzene	10	U	
87-86-5	Pentachlorophenol	26	U	
85-01-8	Phenanthrene	10	U	
120-12-7	Anthracene	10	U	
86-74-8	Carbazole	10	U	
84-74-2	Di-n-butylphthalate	~~1~~ 10	~~JB~~	RB 3/24/93
206-44-0	Fluoranthene	10	U	
129-00-0	Pyrene	10	U	
85-68-7	Butylbenzylphthalate	10	U	
91-94-1	3,3'-Dichlorobenzidine	10	UJ	+ CC 7.0D
56-55-3	Benzo(a)anthracene	10	U	
218-01-9	Chrysene	10	U	
117-81-7	bis(2-Ethylhexyl)phthalate	10	U	
117-84-0	Di-n-octyl phthalate	10	U	
205-99-2	Benzo(b)fluoranthene	10	U	
207-08-9	Benzo(k)fluoranthene	10	U	
50-32-8	Benzo(a)pyrene	10	U	
193-39-5	Indeno(1,2,3-cd)pyrene	10	UJ	CC 7.0
53-70-3	Dibenz(a,h)anthracene	10	UJ	
191-24-2	Benzo(g,h,i)perylene	10	UJ	

(1) - Cannot be separated from Diphenylamine

9613402.1814

1F

0000033 CLIENT SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

B07KL1

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-0

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9210L412-006

Sample wt/vol: 990 (g/mL) ML

Lab File ID: M110306

Level: (low/med) LOW

Date Received: 10/23/92

% Moisture: _____ decanted: (Y/N)__

Date Extracted: 10/27/92

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 11/03/92

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	5.23	10	~~JB~~ U

AB
3/25/93

9613402.1815 ID 0000028 CLIENT SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

B07KL1

Lab Name: Roy F. Weston, Inc. Work Order: 06168-002-001-9999-00

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER — Lab Sample ID: 9210L412-006

Sample wt/vol: 1000 (g/mL) ML — Lab File ID: 11059235.75

% Moisture: decanted: (Y/N)_ — Date Received: 10/23/92

Extraction: (SepF/Cont/Sonc) CONT — Date Extracted: 10/26/92

Concentrated Extract Volume: 10000.00(uL) — Date Analyzed: 11/08/92

Injection Volume: 0.5(uL) — Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	Alpha-BHC	0.050	U
319-85-7	Beta-BHC	0.050	U
319-86-8	Delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	UJ
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	UJ
72-43-5	Methoxychlor	0.50	UJ
53494-70-5	Endrin ketone	0.10	U
7421934	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

RB 3/24/93

B.M 01/01/93

FORM 1 PEST 03/90

9613402.1816

PESTICIDE/PCB DATA VALIDATION CHECKLIST - FORM A-3

PROJECT: Westinghouse-Hanford	REVIEWER: RB	DATE: 3/24/93
LABORATORY: Roy F. Weston	CASE: N/A	SDG: B07KL1
SAMPLES/MATRIX: One water - B07KL1		

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	✓			
Blank summary report	✓			
Sample Data				
Sample reports	✓			
Chromatograms	✓			
GC integration reports	✓			
Worksheets	✓			
UV traces from GPC				✓
GC/MS confirmation spectra				✓
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	✓			
Reduction formulae			✓	
Instrument time logs			✓	
Chemist notebook pages			✓	
Sample preparation sheets	✓			

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, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for non-detects), otherwise reject all non-detects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

3.1 INSTRUMENT PERFORMANCE (2/88 SOW)

Are DDT retention times greater than 12 minutes? Yes No (N/A)

ACTION: If DDT retention time is < 12 minutes and resolution is ≤25% qualify associated data as unusable (R).

Is resolution between DDT peaks acceptable? Yes No (N/A)

ACTION: If resolution between DDT peaks is unacceptable qualify associated data as unusable (R).

Do all pesticide standards elute within the established retention time windows? Yes No (N/A)

ACTION: 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).

Are DDT breakdowns <20%? Yes No (N/A)

ACTION: 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).

Are endrin breakdowns <20%? Yes No (N/A)

ACTION: 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).

Are DBC retention time differences within specification? Yes No N/A

ACTION: 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 CALIBRATIONS (2/88 SOW)

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).

3.3 INSTRUMENT PERFORMANCE AND INITIAL CALIBRATION (3/90 SOW)

Is peak resolution acceptable? Yes No N/A

ACTION: If the resolution criteria are not met, reject positive sample results generated after initial calibration (R).

Are DDT and endrin breakdowns ≤20.0% Yes No N/A

ACTION: If the breakdown criteria are not met qualify sample results as described in Section 5.3.1 of the validation requirements.

Are single component target compounds in the PEMs, INDA, INDB and the calibration standards within the retention time windows? Yes No N/A

ACTION: If the retention time criteria are not met and no peaks are present in the samples within two times the retention time windows (±0.04, ±0.05 for methoxychlor), no qualification is necessary. If peaks are present in samples within the retention time window a review is made of the raw data to determine expanded retention time windows (see Section 5.3.1 of the validation requirements). If all standards and matrix spikes fall within the expanded windows then no qualification of sample results is necessary. If all standards and matrix spikes do not fall within the expanded windows then all affected sample results are qualified as unusable (R).

Are the RPDs acceptable for the PEMs? Yes No N/A

ACTION: If the RPD criteria are not met qualify associated positive sample results as estimated (J).

Are the RSDs for the calibration factors <10.0% (<15.0% for the BHC series, DDT, endrin and methoxychlor)? Yes No N/A

ACTION: If the RSD criteria are not met qualify associated positive sample results as estimated (J).

3.4 CALIBRATION VERIFICATION (3/90 SOW)

Have the analytical sequence requirements been met for the analysis of instrument blanks, PEMs, INDA and INDB mixes? Yes No N/A

ACTION: If the analytical sequence requirements are not followed and any of the resolution or retention time criteria listed below are exceeded, reject associated positive results (R).

Is peak resolution acceptable for PEMs, INDA and INDB mixes? Yes No N/A

ACTION: If the resolution criteria are not met reject positive sample results generated after a non-compliant standard analysis (R).

Are single component target compounds in the PEMs, INDA and INDB mixes within the retention time windows? Yes No N/A

ACTION: If the retention time criteria are not met and no peaks are present in the samples analyzed after the non-compliant standard within two times the retention time windows (±0.04, ±0.05 for methoxychlor), no qualification is necessary. If peaks are present in samples within the expanded windows rejected associated positive and non-detect results (R).

Are RPDs between the calculated and true amounts in the PEMs, INDA and INDB mixes ≤25.0%? Yes No N/A

ACTION: If the RPD criteria are not met qualify associated positive sample results as estimated (J).

Are DDT and endrin breakdowns in the PEMs ≤20.0% (≤30.0% total combined)? Yes No N/A

ACTION: If the breakdown criteria are not met qualify associated positive sample results in accordance with the criteria specified in Section 5.3.1.

4. BLANKS

4.1 LABORATORY BLANKS

Has the laboratory analyzed the method blanks at the required frequency? Yes No N/A

Has the laboratory analyzed a sulfur clean-up blank if required? Yes No N/A

Has the laboratory analyzed instrument blanks at the required frequency? Yes No N/A

Are target compounds present in the 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 MS/MSD recoveries are out of specification and sample concentration is greater than five times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by the low recoveries, qualify only the results for the spiked sample as described above. 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 note the results in the validation narrative. If MS/MSD RPD values are out of specification and sample results are greater than five times the CRQL qualify positive results as estimated (J). 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 (2/88 SOW data only)? 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 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.

9613402.1824 ID 0n00028 CLIENT SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET

WC

B07KL1

Lab Name: Roy F. Weston, Inc. Work Order: 06168-002-001-9999-00

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9210L412-006

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: 11059235.75

% Moisture: decanted: (Y/N)

Date Received: 10/23/92 10/21 = SD

Extraction: (SepF/Cont/Sonc) CONT

Date Extracted: 10/26/92 199-BH-4

Concentrated Extract Volume: 10000.00 (uL)

Date Analyzed: 11/08/92

Injection Volume: 0.5 (uL)

Dilution Factor: 1.00

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

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	Alpha-BHC	0.050	U
319-85-7	Beta-BHC	0.050	U
319-86-8	Delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	UJ — RSD
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	UJ
72-43-5	Methoxychlor	0.50	UJ
53494-70-5	Endrin ketone	0.10	U
7421934	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

RB 3/24/93

B.M 01/01/93

RSD out

9613402.1825

U.S. EPA - CLP 000038

Total

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

BO7KL1

Lab Name: ROY F. WESTON, INC - L372 Contract: 6168-02-01

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP412

Matrix (soil/water): WATER Lab Sample ID: 921041206

Level (low/med): LOW Date Received: 10/23/92

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	49.00	U		P
7440-36-0	Antimony	60.00	U		P
7440-38-2	Arsenic	2.90	B	~~W~~ J	F
7440-39-3	Barium	25.30	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	7.00	U		P
7440-70-2	Calcium	54100.00			P
7440-47-3	Chromium	11.40			P
7440-48-4	Cobalt	9.00	U		P
7440-50-8	Copper	8.00	U		P
7439-89-6	Iron	15.00	U		P
7439-92-1	Lead	2.00	U	~~W~~ J	F
7439-95-4	Magnesium	8160.00			P
7439-96-5	Manganese	4.00	U		P
7439-97-6	Mercury	.10	U		CV
7440-02-0	Nickel	20.00	U		P
7440-09-7	Potassium	4450.00	B		P
7782-49-2	Selenium	2.10	B	~~NW~~ J	F
7440-22-4	Silver	10.00	U		P
7440-23-5	Sodium	11800.00			P
7440-28-0	Thallium	2.00	U	~~W~~ J	F
7440-62-2	Vanadium	13.30	B		P
7440-66-6	Zinc	7.00	U		P
	Cyanide	23.80			C

3/24/93 (fm)

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

U.S. EPA - CLP 0000037

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B07KL4

Lab Name: ROY F. WESTON, INC - L372 Contract: 6168-02-01

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP412

Matrix (soil/water): WATER Lab Sample ID: 921041207

Level (low/med): LOW Date Received: 10/23/92

% Solids: 0.0

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

3/24/93

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	49.00	U		P
7440-36-0	Antimony	60.00	U		P
7440-38-2	Arsenic	2.70	B	~~W~~ J	F
7440-39-3	Barium	24.50	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	7.00	U		P
7440-70-2	Calcium	52800.00			P
7440-47-3	Chromium	12.20			P
7440-48-4	Cobalt	9.00	U		P
7440-50-8	Copper	8.00	U		P
7439-89-6	Iron	15.00	U		P
7439-92-1	Lead	2.00	U	~~W~~ J	F
7439-95-4	Magnesium	8020.00			P
7439-96-5	Manganese	4.00	U		P
7439-97-6	Mercury	.10	U		CV
7440-02-0	Nickel	20.00	U		P
7440-09-7	Potassium	4720.00	B		P
7782-49-2	Selenium	2.00	U	~~W~~ J	F
7440-22-4	Silver	10.00	U		P
7440-23-5	Sodium	11800.00			P
7440-28-0	Thallium	2.00	U		F
7440-62-2	Vanadium	11.10	B		P
7440-66-6	Zinc	7.00	U		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

9613402.1826

X02031
100-BC-5

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST - FORM A-6

PROJECT: WESTINGHOUSE - HANFORD	REVIEWER: LM	DATE: 3/24/93
LABORATORY: Roy F. WESTON	CASE:	SDG: B07KD7
SAMPLES/MATRIX: B07KL1, B07KL4		
2 water samples		
Unfiltered + Filtered		

1. COMPLETENESS AND CONTRACT COMPLIANCE

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	✓		
Sample Data			
Inorganic Analysis Data Sheets	✓		
Standards Data			
Initial and Continuing Calibration Verification	✓		
CRDL Standard for AA and ICP	✓		
QC Summary			
Blanks	✓		
ICP Interference Check Summary	✓		
Spike Sample Recovery	✓		
Post-Digestion Spike Sample Recovery			✓
Duplicate	✓		
Laboratory Control Sample	✓		
Standard Addition Results			✓
ICP Serial Dilutions	✓		
Instrument Detection Limits	✓		
ICP Interelement Correction Factors	✓		
ICP Linear Ranges	✓		
Preparation Log	✓		
Analysis Run Log	✓		
Raw Data			
ICP Raw Data	✓		
Furnace AA Raw Data	✓		
Mercury Raw Data	✓		
Cyanide Raw Data	✓		
Additional Data			
Internal laboratory chain-of-custody	✓		
Laboratory Sample Preparation Records	✓		

Data Package Item	Present?: Yes	No	N/A
Percent Solids Analysis Records			✓
Reduction Formulae		✓	
Instrument Run Logs	✓		
Chemist Notebook Pages	✓		

2. HOLDING TIMES

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

ACTION: If any holding times have been exceeded qualify all affected results as estimated (J for detects and UJ for nondetects).

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 midrange cyanide standard distilled? (Yes) No N/A

ACTION: Qualify all data as unusable if reported from an analysis in which an instrument was not calibrated or was calibrated with less than the minimum number of standards. Qualify associated sample results > IDL as estimated (J) and results < IDL as estimated (UJ), if the correlation coefficient is <0.995 or the laboratory did not distill the midrange cyanide standard.

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 Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

5. ICP INTERFERENCE CHECK SAMPLE

Has an ICS sample been analyzed at the proper frequency? (Yes) No N/A

Are the AB solution %R values within control? (Yes) No N/A

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

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

6. LABORATORY BLANKS

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

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (U). If analyte concentrations in the blank are >CRDL or below the negative CRDL, verify the laboratory has redigested and reanalyzed associated samples with analyte concentrations <10 times the blank concentration. If the laboratory has not redigested and reanalyzed the samples, note in the validation narrative.

7. FIELD BLANKS

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

ACTION: Qualify all sample results for any analyte <5 times the amount in any valid field blank as nondetected (U).

8. MATRIX SPIKE SAMPLE ANALYSIS

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

ACTION: Qualify the affected sample data according to the following requirements:

If spike recovery is >125% and sample results are <IDL no qualification is required. If spike recovery is >125% or <75% qualify all positive results as estimated (J). If spike recovery is 30% to 74% qualify all nondetects as estimated (UJ). If spike recovery is <30%, reject all nondetects (R). If the field blank has been used for spike analysis, note in the validation narrative.

9. 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 sample data 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 result 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.

10. 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 sample analyses in the data validation narrative.

11. DUPLICATE SAMPLE ANALYSIS

Are RPD values acceptable? (Yes) No N/A

ACTION: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD results fall outside the appropriate control limits. If field blanks were used for laboratory duplicates, note in the validation narrative.

12. ICP SERIAL DILUTION

Are the serial dilution results acceptable? (Yes) No N/A

Is there evidence of negative interference? Yes (No) N/A

ACTION: Qualify the associated data as estimated (J) for those analytes in which the %D is outside the control limits. If evidence of negative interference is found, use professional judgment to qualify the data.

13. FIELD DUPLICATE SAMPLES

Do the RPD values exceed the control limits? Yes No (N/A)

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

14. FIELD SPLIT SAMPLES

Do the RPD values exceed the control limits? Yes No (N/A)

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

1516. FURNACE ATOMIC ABSORPTION QUALITY CONTROL

Do all applicable analyses have duplicate injections? (Yes) No N/A

Are applicable duplicate injection RSD values within control? (Yes) No N/A

If no, were samples rerun once as required? Yes No (N/A)

Does the RSD for the rerun fall within the control limits? Yes No (N/A)

Were analytical spike recoveries within the control limits? Yes (No) N/A

If no, were MSA analyses performed when required?	Yes	No	N/A
Are MSA correlation coefficients ≥0.995?	Yes	No	N/A
If no, was a second MSA analysis performed?	Yes	No	N/A

ACTION: If duplicate injections are outside the acceptance limits and the sample has not been reanalyzed or the reanalysis is outside the acceptance limits, qualify the associated data as estimated (J for detects and UJ for nondetects). If the analytical spike recovery is <40% qualify detects as estimated (J). If the analytical spike recovery is ≥10% but <40%, qualify all nondetects as estimated (UJ) and if the analytical spike recovery is <10%, reject all nondetects (R). If the sample absorbance is <50% of the analytical spike absorbance and the analytical spike recovery is <85% or >115%, qualify all results as estimated (J for detects and UJ for nondetects). If method of standard additions (MSA) was required but was not performed, the MSA samples were spiked incorrectly, or the MSA correllation coefficient was <0.995, qualify the associated detected results as estimated (J).

17. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly?	Yes	No	N/A
Are results within the calibrated range of the instruments and within the linear range of the ICP?	Yes	No	N/A
Are all detection limits below the CRQL?	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).

18. 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 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

Incorrect ~~ID~~ ICP IDLs used. See final report for explanation.

9613402.1832 U.S. EPA - CLP 000038

Total

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

B07KL1

Lab Name: ROY F. WESTON, INC - L372 Contract: 6168-02-01

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP412

Matrix (soil/water): WATER Lab Sample ID: 921041206

Level (low/med): LOW Date Received: 10/23/92

% Solids: 0.0

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

3/24/93 fm

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	49.00	U		P	
7440-36-0	Antimony	60.00	U		P	
7440-38-2	Arsenic	2.90	B	~~W~~ J	F	- GFAA QC
7440-39-3	Barium	25.30	B		P	
7440-41-7	Beryllium	1.00	U		P	
7440-43-9	Cadmium	7.00	U		P	
7440-70-2	Calcium	54100.00			P	
7440-47-3	Chromium	11.40			P	
7440-48-4	Cobalt	9.00	U		P	
7440-50-8	Copper	8.00	U		P	
7439-89-6	Iron	15.00	U		P	
7439-92-1	Lead	2.00	U	~~W~~ J	F	- GFAA QC
7439-95-4	Magnesium	8160.00			P	
7439-96-5	Manganese	4.00	U		P	
7439-97-6	Mercury	.10	U		CV	
7440-02-0	Nickel	20.00	U		P	
7440-09-7	Potassium	4450.00	B		P	
7782-49-2	Selenium	2.10	B	~~W~~ J	F	- GFAA QC
7440-22-4	Silver	10.00	U		P	
7440-23-5	Sodium	11800.00			P	
7440-28-0	Thallium	2.00	U	~~W~~ J	F	- GFAA QC
7440-62-2	Vanadium	13.30	B		P	
7440-66-6	Zinc	7.00	U		P	
	Cyanide	23.80			C	

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

9613402.1833

U.S. EPA - CLP 000037

Filtered

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

BO7KL4

Lab Name: ROY F. WESTON, INC - L372 Contract: 6168-02-01

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP412

Matrix (soil/water): WATER Lab Sample ID: 921041207

Level (low/med): LOW Date Received: 10/23/92

% Solids: 0.0

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

3/24/93 AM

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	49.00	U		P	
7440-36-0	Antimony	60.00	U		P	
7440-38-2	Arsenic	2.70	B	~~W~~ J	F	GFAA QC
7440-39-3	Barium	24.50	B		P	
7440-41-7	Beryllium	1.00	U		P	
7440-43-9	Cadmium	7.00	U		P	
7440-70-2	Calcium	52800.00			P	
7440-47-3	Chromium	12.20			P	
7440-48-4	Cobalt	9.00	U		P	
7440-50-8	Copper	8.00	U		P	
7439-89-6	Iron	15.00	U		P	
7439-92-1	Lead	2.00	U	~~W~~ J	F	GFAA QC
7439-95-4	Magnesium	8020.00			P	
7439-96-5	Manganese	4.00	U		P	
7439-97-6	Mercury	.10	U		CV	
7440-02-0	Nickel	20.00	U		P	
7440-09-7	Potassium	4720.00	B		P	
7782-49-2	Selenium	2.00	U	~~W~~ J	F	GFAA QC
7440-22-4	Silver	10.00	U		P	
7440-23-5	Sodium	11800.00			P	
7440-28-0	Thallium	2.00	U		F	
7440-62-2	Vanadium	11.10	B		P	
7440-66-6	Zinc	7.00	U		P	
	Cyanide				NR	

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 11/16/92

CLIENT: WESTINGHOUSE HANFORD
WORK ORDER: 06168-002-001-9999-00

WESTON BATCH #: 9210L412

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-001	BO7KD7	Total Organic Carbon	0.85	MG/L	0.50
		Total Organic Halides	20.0 u	UG/L	20.0
-002	BO7KJ2	Total Organic Carbon	1.4	MG/L	0.50
		Total Organic Halides	5.0 u	UG/L	5.0
-003	BO7KG7	Total Organic Halides	5.0 u	UG/L	5.0
-004	BO7KM4	Total Organic Carbon	2.3	MG/L	0.50
		Total Organic Halides	5.0 u	UG/L	5.0
-005	BO7KL2	Total Organic Carbon	2.5	MG/L	0.50
		Total Organic Halides	5.0 u	UG/L	5.0
-006	BO7KL1	Alkalinity	110	MG/L	2.0
		Chloride by IC	11.6	MG/L	5.0
		Fluoride by IC	0.50 u	MG/L	0.50
		* ~~Cyanide, Total~~	~~23.8~~	~~UG/L~~	~~20.0~~
		Chemical Oxygen Demand	6.5	MG/L	5.0
		Phosphate by IC	0.25 u	MG/L	0.25
		Sulfate by IC	52.4	MG/L	5.0
		Nitrate Nitrite	6.9	MG-N/L	5.0
		Ammonia, as N	0.10 u	MG/L	0.10
		pH	7.8	PH UNITS	0.010
		Sulfide	0.10 u	MG/L	0.10
		Specific Conductance	367	UMHOS/CM	1.0
		Total Dissolved Solids	253	MG/L	5.0

3/24/93 JN

* Cyanide reported as part of the CLP report - metals

9613402.1835

X02031

WHC-SD-EN-SPP-002, Rev. 1

WET CHEMISTRY DATA VALIDATION CHECKLIST - FORM A-7

PROJECT: WESTINGHOUSE - HANFORD	REVIEWER: LM	DATE: 3/24/93
LABORATORY: Roy F. Weston	CASE:	SDG: B07KD7
SAMPLES/MATRIX: B07KD7, B07KJ2, B07KG7		
B07KM4, B07KL2, B07KL1		

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	✓	—	—
Duplicate Sample Analysis Report Forms	✓	—	—
Laboratory Control Sample Report Forms	—	✓	—
Raw Data			
Ion Chromatograph Chromatograms	✓	—	—
TOC and TOX Instrument Printouts	—	—	✓
Laboratory Bench Sheets	✓	—	—
Additional Data			
Laboratory Sample Preparation Logs	✓	—	—
Instrument Run Logs	✓	—	—
Internal Laboratory Chain-of-Custory	—	✓	—
Percent Solids Analysis Records	—	—	✓
Reduction Formulae	—	✓	—
Chemist Notebook Pages	✓	—	—

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 nondetects).

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

Have ICV and CCV been analyzed at the proper frequency?	(Yes)	No	N/A
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 laboratory blanks?	Yes	(No)	N/A

ACTION: Qualify all associated sample results for any analyte <5 times the amount in any laboratory blank as nondetected (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 <5 times the amount in any valid field blank as nondetected (U).

7. MATRIX SPIKE SAMPLE ANALYSIS

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

ACTION: If the sample concentration exceeds the spike concentration by a factor of 4 or more, and spike recoveries are outside the acceptance limits, no qualification is necessary. If spike recovery is outside the control limits and the sample results are >CRQL, qualify the data as estimated (J). If the spike recovery is <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 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):