START 9613403.0010

9310L146-WES-1339

0043066

WESTON

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

Client: WESTINGHOUSE HANFORD
RFW #: 9310L146

W.O. #: 06168-002-001-9999-00
Date Received: 10-01-93

GC/MS VOLATILE

The set of samples consisted of two (2) water samples collected on 09-27-93.

The samples were analyzed according to criteria set forth in SW 846 Method 8240 for TCL Volatile target compounds on 10-07,08-93.

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 surrogate recoveries were within EPA QC limits.

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

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

5. The laboratory blank 93LVQ174-MB1 contained the common contaminant Acetone at a level less than the CRQL.

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

Sourath Broomthorpe

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

10.28.93
Date

FEB 1996
RECEIVED
EDMC

sma/voa/10-146v.cn

0005

9613403.0011

DON'T SAY IT --- *Write It!*

DATE: December 8, 1993

TO: 9309L109
9309L110
9310L146
9310L147

FROM: Michelle Hendrix H4-23

Telephone: 372-3916

cc: Joan Kessner
Karl Pool
Briana Colley
Doris Ayres
Jon Ball

SUBJECT: CANCELLATION OF METHOD 8010/8020 DUE TO INSTRUMENT PROBLEMS.

Due to instrument difficulties, WESTON could not provide analyses for Volatiles - Aromatic (8020) and Volatiles - Halogenated (8010) in a timely fashion. Since Volatiles (8240) was also requested, the customer opted to cancel the 8010 and 8020 analyses for the above listed sample delivery groups. WESTON assured the customer that essentially the same analyte list with comparable detection limits could be obtained using the Volatile 8240 method.

Before the instrument problems, Weston was able to analyze some of the samples for 8010 and 8020 (see table below). These analyses were not canceled.

93260-01.I27	SAF 93-260	canceled 8010/8020
93261-01.I27	SAF 93-261	canceled 8010/8020
93261-07.I27	SAF 93-261	8010/8020 data provided
93261-09.I27	SAF 93-261	8010/8020 data provided
93261-05.I27	SAF 93-261	canceled 8010/8020
93262-01.I27	SAF 93-262	8010/8020 data provided

WESTON Analytics Use Only
93/0L-146

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: Westinghouse Hanford
Est. Final Proj. Sampling Date:
Work Order #: 0e1168-002-001-9999-00
Project Contact/Phone #:
AD Project Manager: Josie Edwards
QC: SL0546 Del: 9/20/93 TAT: 35 Days
Date Rec'd: 10/01/93 Date Due: 11/05/93
Account #: WS-HANFORD

Refrigerator #		1	6	6		1	4	4								
#/Type Container	Liquid	4GL	2PL	1PL		2GL	1PL	1PL			1PL	SUPO SPL				
	Solid															
Volume	Liquid	40ml	950ml	500ml		40ml	500ml	250ml			250ml	500ml				
	Solid											HNO3				
Preservatives		Na2S2O3	none	none		Na2S2O3	HCl	none			none					

ANALYSES REQUESTED →

ORGANIC								INORG					
VOA	BNA	Pest/PCB	Herb	8/2	0/3	Chloride	Metal	CN	Radchem				

WESTON Analytics Use Only

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0604H	0608H	0608X	0812	7000R	FCL	See below		FSUB				
S - Soil	001	93261-01.I27 (RUSH)			W	9/27/93	1450	X	X	X		X	X	X		X				
SE - Sediment	002	93261-02.I27 (RUSH)			W	9/27/93	—	X												
SO - Solid																				
SL - Sludge																				
W - Water																				
O - Oil																				
A - Air																				
DS - Drum Solids																				
DL - Drum Liquids																				
L - EP/TCLP Leachate																				
WI - Wipe		Metals=HSL+Ti, Tl, Sn																		
X - Other			mbh 10-2-93																	
F - Fish		Radiochem= Americum-241, Pu-238, -239, -240 -241, Total U-, Gamma Scan, Gross Alpha/Beta, Tritium																		

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
SAF#93-261

Target Date=16
Temp=3.5°C
Original Rewritten mbh

DATE/REVISIONS:
10-4-93 1. All Samples are RUSH
10-5-93 2. 0608X should be 0608H per SDR
3. 03PM 1183.
10/01/93 4. Cancel 001 for 0812 per SDR 9/27/93 mbh
5.
6.

Relinquished by	Received by	Date	Time
EMERY	M. Denise	10-1-93	2:30 pm
MBh		10/2/93	

Relinquished by	Received by	Date	Time
	mbh	10/2/93	

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

WESTON Analytics Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # 2529868502
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'd Y or N

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

9613403.0012

Westinghouse
Hanford Company

Chain of Custody / Sample Analysis Request

COC # 4864

Collector: Steffler RZ | Project Designation: 1325N Waste Stream-4 | Sampling Location: 1325N LIFT STATION
SAF #: 93-261 | Sample Date: 9/27/93 | Company Contact : MS HENDRIX | Phone #: 372-3916 | Bill of Lading #:
Laboratory: Weston | Protocol: RCRA | Log book #: WHC-IN-205-29 pages: | Offsite Prop #:

Sample Id #	Analysis (Parameters)	Matrix *	Preservative(s)	Container	Date / Time	Serial #	E#/R#	IC#
( )93261-01.127	AMERICIUM-241 (Lab Specific)	WATER	HNO3	04000mL P	9/27/93 / 1450		N/A	
	Pu-238,-239,-240,-241. TOTAL URANIUM (ALL LAB SPECIFIC)							
( )93261-01.127	CHLORIDE (9250)	WATER	NONE	00250mL P	9/27/93 / 1450		N/A	
( )93261-01.127	GAMMA SCAN (Lab Specific)	WATER	HNO3	04000mL P	9/27/93 / 1450		N/A	
	Sr89/90,Ra-226,TOTAL RADIUM, (ALL LAB SPECIFIC)							
( )93261-01.127	GROSS ALPHA/BETA (Lab Specific)	WATER	HNO3	01000mL P	9/27/93 / 1450		N/A	
( )93261-01.127	ICP METALS (6010)	WATER	HNO3	01000mL P	9/27/93 / 1450		N/A	
	TIN,TITANIUM, ARSENIC(7060), SELENIUM(7740),THALLIUM(7841),MERCURY(7470)							
( )93261-01.127	PCB/PEST (8080)	WATER	4 deg. C	01000mL aG	9/27/93 / 1450		N/A	
( )93261-01.127	SEMI-VOA (8270)	WATER	4 deg. C	02500mL aG	9/27/93 / 1450		N/A	
( )93261-01.127	TOTAL RECOVERABLE OIL & GREASE (9070)	WATER	H2SO4	01000mL aG	9/27/93 / 1450		N/A	
( )93261-01.127	TRITUM (Lab Specific)	WATER	None	00250mL aGs	9/27/93 / 1450		N/A	
( )93261-01.127	VOA (8240)	WATER	4 deg. C	00040mL aGs	9/27/93 / 1450		N/A	
( )93261-01.127	VOA (8240)	WATER	4 deg. C	00040mL aGs	9/27/93 / 1450		N/A	
( )93261-01.127	VOA AROMATIC (8020)	WATER	Na2S2O3	00040mL aGs	9/27/93 / 1450		N/A	
( )93261-01.127	VOA AROMATIC (8020)	WATER	Na2S2O3	00040mL aGs	9/27/93 / 1450		N/A	
( )93261-01.127	VOA HALOGENATED (8010)	WATER	Na2S2O3	00040mL aGs	9/27/93 / 1450		N/A	

Temp. = 3.5°C

BEST AVAILABLE COPY

9613403.0043

(sign and print names)

Relinquished By: RZ Steffler R.Z. Steffler | Date/Time: 9-29-93 0830 | Received By: | Date/Time:
Relinquished By: | Date/Time: | Received By: | Date/Time:
Relinquished By: | Date/Time: | Received By: | Date/Time:

Special Instructions/Conditions

Laboratory Section | Received By: | Title: | Date/Time:

(Sample Disposition) | Disposal Method: | Disposed of By: | Date/Time:

Westinghouse
Hanford Company

Chain of Custody / Sample Analysis Request

COC # 4864

page: 2 of 2

Collector: Steffler RZ | Project Designation: 1325N Waste Stream-4 | Sampling Location: 1325N LIFT STATION

SAF #: 93-261 | Sample Date: 9/27/93 | Company Contact : MS HENDRIX | Phone #: 372-3916 | Bill of Lading #:

Laboratory: Weston | Protocol: RCRA | Log book #: WHC-IV-205-28 pages: | Offsite Prop #:

Sample Id #	Analysis (Parameters)	Matrix *	Preservative(s)	Container	Date / Time	Serial #	E#/R#	IC#
( )93261-01.127	VOA HALOGENATED (8010)	WATER	Na2S2O3	00040mL aGs	9/27/93 /		N/A	
( )93261-02.127	VOA (8240)	WATER	4 deg. C	00040mL aGs	9/27/93 /		N/A	
( )93261-02.127	VOA (8240)	WATER	4 deg. C	00040mL aGs	9/27/93 /		N/A	

BEST AVAILABLE COPY

9413403.0014

(sign and print names)

Relinquished By: RZ Steffler R.Z. Steffler | Date/Time: 9-29-93 0830 | Received By: | Date/Time:

Relinquished By: | Date/Time: | Received By: | Date/Time:

Relinquished By: | Date/Time: | Received By: | Date/Time:

Special Instructions/Conditions

Laboratory Section | Received By: | Title: | Date/Time:

(Sample Disposition) | Disposal Method: | Disposed of By: | Date/Time:

9310L146
9310L147

FORM OF PAYMENT

Check ☐ GBL ☐ FCCOD ☐

Bill to Shipper ☒ Bill to Consignee ☐ Third Party Billing ☐

EMERY WORLDWIDE — A CF Company

SERVICES **

UNITED STATES / CANADA: Same Day (Extra Charges) ☐ AM ☐ Second Day ☐ PM ☐ Saturday Delivery

INTERNATIONAL: Express ☐ Standard Plus ☐ Preferred ☐ Standard ☐ Business Documents ☐ Customs Clearance ☐ Delivery ☐

E Shipper's Account Number: 850281585

Date: 9-30-93 | Origin: PSC | Shipment Number: 252988850 4

From:
J.E. MAXWELL (509)376-7493
U.S. DEPT. OF ENERGY C/O
WESTINGHOUSE HANFORD COMPANY
2355 STEVENS DRIVE, G2-03
RICHLAND WA.
Canada ☐

To:
JOSIE KING
ROY F. WESTON, INC.
256 WELSH POOL ROAD
LIONVILLE PA
Hold for Pick Up ☐
Canada ☐

Tariff Dest. | Gateway

Check to Shipper $

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

Customer's Reference Numbers: 12911/E17205 RMW-8259 99352

E Consignee's Account Number: 19241-1313

Description	Pcs	L	W	H	Total Pieces	Total Weight (In Lbs)
RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - LIMITED QUANTITY OF MATERIAL	2	28"	17"	16"	2	143

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

Declared Value $

2529888504

Remarks: DOT EMERGENCY RESPONSE GUIDE #61 ATTACHED
EMERGENCY CONTACT PHONE NUMBER (509)373-3800

Shipper's Signature X

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

Base Charge

International Customs Value | International Insurance

Total Transportation Charges | Other Charges/Advance at Origin ☐ OC/AO $

3 PHL A

Terms and Conditions on Back

9613403.0015

0015

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

RFW Batch Number: 9310L146 Client: WESTINGHOUSE HANFORD Work Order: 06168002001 Page: 1a Report Date: 10/15/93 08:04

	Cust ID:	93261-01.I27		93261-02.I27		93261-02.I27		93261-02.I27		VBLK		VBLK	
Sample Information	RFW#:	001		002		002 MS		002 MSD		93LVQ173-MB1		93LVQ174-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	91	%	94	%	93	%	92	%	101	%	99	%
	Bromofluorobenzene	96	%	93	%	91	%	90	%	97	%	101	%
	1,2-Dichloroethane-d4	91	%	81	%	81	%	79	%	92	%	85	%
			fl		fl		fl		fl		fl		fl
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		5	U	2	J	1	J	1	J	5	U	5	U
Acetone		3	J	8	JB	8	JB	6	JB	10	U	6	J
Carbon Disulfide		5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene		5	U	5	U	96	%	95	%	5	U	5	U
1,1-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethene (total)		5	U	5	U	5	U	5	U	5	U	5	U
Chloroform		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
2-Butanone		10	U	10	U	10	U	10	U	10	U	10	U
1,1,1-Trichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Carbon Tetrachloride		5	U	5	U	5	U	5	U	5	U	5	U
Vinyl Acetate		10	U	10	U	10	U	10	U	10	U	10	U
Bromodichloromethane		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloropropane		5	U	5	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U	5	U
Trichloroethene		5	U	5	U	96	%	94	%	5	U	5	U
Dibromochloromethane		5	U	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Benzene		5	U	5	U	97	%	96	%	5	U	5	U
Trans-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U	5	U
Bromoform		5	U	5	U	5	U	5	U	5	U	5	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		5	U	5	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U	5	U	5	U	5	U

*= Outside of EPA CLP QC limits.

0017

9613403.0016

RFW Batch Number: 9310L146 Client: WESTINGHOUSE HANFORD Work Order: 06168002001 Page: 1b

Cust ID:	93261-01.I27	93261-02.I27	93261-02.I27	93261-02.I27	VBLK	VBLK
RFW#:	001	002	002 MS	002 MSD	93LVQ173-MB1	93LVQ174-MB1
Toluene	5 U	5 U	101 %	99 %	5 U	5 U
Chlorobenzene	5 U	5 U	103 %	101 %	5 U	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

0018

9613403.0017

1A
VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

93261-01.I27

Lab Name: Roy F. Weston, Inc. Work Order: 06168002001

Client: WESTINGHOUSE HANFORD

Matrix: WATER

Lab Sample ID: 9310L146-001

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

Lab File ID: 0100733

Level: (low/med) LOW

Date Received: 10/01/93

% Moisture: not dec. _____

Date Analyzed: 10/08/93

Column: (pack/cap) PACK

Dilution Factor: 1.00

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

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

9613403.0019

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

93261-01.I27

Lab Name: Roy F. Weston, Inc. Work Order: 06168002001

Client: WESTINGHOUSE HANFORD

Matrix: WATER

Lab Sample ID: 9310L146-001

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

Lab File ID: Q100733

Level: (low/med) LOW

Date Received: 10/01/93

% Moisture: not dec. _____

Date Analyzed: 10/08/93

Column: (pack/cap) PACK

Dilution Factor: 1.00

Number TICs found: 0

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

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

FORM 1 VOA-TIC 12/88 Rev.

9613403.0020

1A

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

93261-02.I27

Lab Name: Roy F. Weston, Inc. Work Order: 06168002001

Client: WESTINGHOUSE HANFORD

Matrix: WATER

Lab Sample ID: 9310L146-002

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

Lab File ID: Q100806

Level: (low/med) LOW

Date Received: 10/01/93

% Moisture: not dec. _____

Date Analyzed: 10/08/93

Column: (pack/cap) PACK

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	8	JB
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

9615403.0021

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

93261-02.I27

Lab Name: Roy F. Weston, Inc. Work Order: 06168002001

Client: WESTINGHOUSE HANFORD

Matrix: WATER

Lab Sample ID: 9310L146-002

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

Lab File ID: Q100806

Level: (low/med) LOW

Date Received: 10/01/93

% Moisture: not dec. _____

Date Analyzed: 10/08/93

Column: (pack/cap) PACK

Dilution Factor: 1.00

Number TICs found: 0

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

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

FORM 1 VOA-TIC 12/88 Rev.

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

Client: WESTINGHOUSE HANFORD
RFW #: 9310L146

W.O. #: 06168-002-001-9999-00
Date Received: 10-01-93

SEMIVOLATILE

One (1) water sample was collected on 09-27-93.

The sample and its associated QC samples were extracted on 10-04-93 and analyzed according to criteria set forth in SW 846 Method 8270 for TCL Semivolatile target compounds on 10-11,13-93.

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

1. A non-target compound was detected in the sample 93261-01.I27.
2. All surrogate recoveries were within EPA QC limits.
3. Three (3) 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 contaminant Di-n-butylphthalate at a level less than the CRQL.
6. All internal standard area and retention time criteria were met.

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

11.11.93
Date

sma/dlc/sma/bna/10-146b.cn

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

Report Date: 10/14/93 18:24

RFW Batch Number: 9310L146 Client: WESTINGHOUSE HANFORD Work Order: 06168002001 Page: 1a

	Cust ID:	93261-01.I27	93261-01.I27	93261-01.I27	SBLK	SBLK BS
Sample Information	RFW#:	001	001 MS	001 MSD	93LE1751-MB1	93LE1751-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	65 %	66 %	68 %	90 %	80 %
	2-Fluorobiphenyl	70 %	76 %	77 %	97 %	88 %
	p-Terphenyl-d14	87 %	85 %	91 %	106 %	106 %
	Phenol-d5	59 %	58 %	58 %	84 %	66 %
	2-Fluorophenol	57 %	57 %	55 %	79 %	59 %
	2,4,6-Tribromophenol	71 %	78 %	78 %	81 %	86 %
Phenol		10 U	67 %	65 %	10 U	76 %
bis(2-Chloroethyl)ether		10 U	14 U	14 U	10 U	10 U
2-Chlorophenol		10 U	94 %	91 %	10 U	105 %
1,3-Dichlorobenzene		10 U	14 U	14 U	10 U	10 U
1,4-Dichlorobenzene		10 U	80 %	77 %	10 U	91 %
Benzyl alcohol		10 U	14 U	14 U	10 U	10 U
1,2-Dichlorobenzene		10 U	14 U	14 U	10 U	10 U
2-Methylphenol		10 U	14 U	14 U	10 U	10 U
bis(2-Chloroisopropyl)ether		10 U	14 U	14 U	10 U	10 U
4-Methylphenol		10 U	14 U	14 U	10 U	10 U
N-Nitroso-Di-n-propylamine		10 U	81 %	81 %	10 U	103 %
Hexachloroethane		10 U	14 U	14 U	10 U	10 U
Nitrobenzene		10 U	14 U	14 U	10 U	10 U
Isophorone		10 U	14 U	14 U	10 U	10 U
2-Nitrophenol		10 U	14 U	14 U	10 U	10 U
2,4-Dimethylphenol		10 U	14 U	14 U	10 U	10 U
Benzoic acid		50 U	70 U	70 U	50 U	50 U
bis(2-Chloroethoxy)methane		10 U	14 U	14 U	10 U	10 U
2,4-Dichlorophenol		10 U	14 U	14 U	10 U	10 U
1,2,4-Trichlorobenzene		10 U	102 * %	100 * %	10 U	116 * %
Naphthalene		10 U	14 U	14 U	10 U	10 U
4-Chloroaniline		10 U	14 U	14 U	10 U	10 U
Hexachlorobutadiene		10 U	14 U	14 U	10 U	10 U
4-Chloro-3-methylphenol		10 U	61 %	61 %	10 U	65 %
2-Methylnaphthalene		10 U	14 U	14 U	10 U	10 U
Hexachlorocyclopentadiene		10 U	14 U	14 U	10 U	10 U

*= Outside of EPA CLP QC limits.

0018

9613403.0023

RFW Batch Number: 9310L146 Client: WESTINGHOUSE HANFORD Work Order: 06168002001 Page: 1b

	Cust ID: 93261-01.I27	93261-01.I27	93261-01.I27	SBLK	SBLK BS
RFW#:	001	001 MS	001 MSD	93LE1751-MB1	93LE1751-MB1
2,4,6-Trichlorophenol	10 U	14 U	14 U	10 U	10 U
2,4,5-Trichlorophenol	50 U	70 U	70 U	50 U	50 U
2-Chloronaphthalene	10 U	14 U	14 U	10 U	10 U
2-Nitroaniline	50 U	70 U	70 U	50 U	50 U
Dimethylphthalate	10 U	14 U	14 U	10 U	10 U
Acenaphthylene	10 U	14 U	14 U	10 U	10 U
2,6-Dinitrotoluene	10 U	14 U	14 U	10 U	10 U
3-Nitroaniline	50 U	70 U	70 U	50 U	50 U
Acenaphthene	10 U	86 %	85 %	10 U	93 %
2,4-Dinitrophenol	50 U	70 U	70 U	50 U	50 U
4-Nitrophenol	50 U	75 %	74 %	50 U	74 %
Dibenzofuran	10 U	14 U	14 U	10 U	10 U
2,4-Dinitrotoluene	10 U	81 %	82 %	10 U	89 %
Diethylphthalate	10 U	14 U	14 U	10 U	10 U
4-Chlorophenyl-phenylether	10 U	14 U	14 U	10 U	10 U
Fluorene	10 U	14 U	14 U	10 U	10 U
4-Nitroaniline	50 U	70 U	70 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50 U	70 U	70 U	50 U	50 U
N-Nitrosodiphenylamine (1)	10 U	14 U	14 U	10 U	10 U
4-Bromophenyl-phenylether	10 U	14 U	14 U	10 U	10 U
Hexachlorobenzene	10 U	14 U	14 U	10 U	10 U
Pentachlorophenol	50 U	99 %	106 * %	50 U	103 %
Phenanthrene	10 U	14 U	14 U	10 U	10 U
Anthracene	10 U	14 U	14 U	10 U	10 U
Di-n-Butylphthalate	10 U	14 U	14 U	0.4 J	10 U
Fluoranthene	10 U	14 U	14 U	10 U	10 U
Pyrene	10 U	98 %	107 %	10 U	106 %
Butylbenzylphthalate	10 U	14 U	14 U	10 U	10 U
3,3'-Dichlorobenzidine	20 U	28 U	28 U	20 U	20 U
Benzo(a)anthracene	10 U	14 U	14 U	10 U	10 U
Chrysene	10 U	14 U	14 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10 U	14 U	14 U	10 U	10 U
Di-n-Octyl phthalate	10 U	14 U	14 U	10 U	10 U
Benzo(b)fluoranthene	10 U	14 U	14 U	10 U	10 U
Benzo(k)fluoranthene	10 U	14 U	14 U	10 U	10 U
Benzo(a)pyrene	10 U	14 U	14 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	14 U	14 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	14 U	14 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	14 U	14 U	10 U	10 U

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

0019

9613403.0024

1B

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

93261-01.I27

Lab Name: Roy F. Weston, Inc. Work Order: 06168002001

Client: WESTINGHOUSE HANFORD

Matrix: WATER Lab Sample ID: 9310L146-001

Sample wt/vol: 1000 (g/mL) ML Lab File ID: M101306

Level: (low/med) LOW Date Received: 10/01/93

% Moisture: not dec. _____ dec. Date Extracted: 10/04/93

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10/13/93

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
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
100-51-6	Benzyl alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	bis(2-Chloroisopropyl)ether	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
65-85-0	Benzoic acid	50	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	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

93261-01.I27

Lab Name: Roy F. Weston, Inc. Work Order: 06168002001

Client: WESTINGHOUSE HANFORD

Matrix: WATER Lab Sample ID: 9310L146-001

Sample wt/vol: 1000 (g/mL) ML Lab File ID: M101306

Level: (low/med) LOW Date Received: 10/01/93

% Moisture: not dec. _____ dec. Date Extracted: 10/04/93

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10/13/93

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	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	50	U
534-52-1	4,6-Dinitro-2-methylphenol	50	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	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	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	20	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	Dibenzo(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

FORM 1 SV-2 12/88 Rev.

9613403.0027

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

93261-01.I27

Lab Name: Roy F. Weston, Inc. Work Order: 06168002001

Client: WESTINGHOUSE HANFORD

Matrix: WATER Lab Sample ID: 9310L146-001

Sample wt/vol: 1000 (g/mL) ML Lab File ID: M101306

Level: (low/med) LOW Date Received: 10/01/93

% Moisture: not dec. _____ dec. Date Extracted: 10/04/93

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 10/13/93

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	PHOSPHATE	20.02	20	J

FORM 1 SV-TIC 12/88 Rev.

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

Client: WESTINGHOUSE HANFORD
RFW #: 9310L146

W.O. #: 06168-002-001-9999-00
Date Received: 10-01-93

PESTICIDE/PCB

1. One (1) water sample was collected on 09-27-93.

2. The sample and its associated QC samples were analyzed based on SW-846, 3rd Edition, procedures. The extraction procedure used was based on Method 3520 and the extracts were analyzed based on Method 8080.

3. All required holding times for extraction and analysis were met.

4. The method blank was below the reporting limits for all target compounds.

5. Blank spike recoveries were unobtainable because the blank spikes were inadvertently not spiked and double surrogated. A Sample Discrepancy Report (SDR) has been enclosed.

6. All surrogate recoveries were within acceptance criteria with the exception of:

Sample ID	% Recovery	Control Limit
93LE1747-MB1 BS	169 (DCB)	22% - 126%
93LE1747-MB1 BS	132 (TCX)	27% - 129%
93LE1747-MB1 BSD	185 (DCB)	22% - 126%
93LE1747-MB1 BSD	145 (TCX)	27% - 129%

A Sample Discrepancy Report (SDR) has been enclosed.

7. Due to insufficient sample volume, matrix spike QC could not be performed on the sample in this data set.

8. All initial and continuing standard calibrations associated with this data set were within acceptance criteria.

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

10. 29. 93
Date

sma/pcb/10-146pp.cn

9613403.0029 3GL205

WESTON SAMPLE DISCREPANCY REPORT (SDR)

SDR IN-PROGRESS ROUTING: (see other side)

Initiator: J. HOHL
Date: 10/11/93
Client: Westinghouse Hanford
RFW Lot #: 9310L140, 9310L147
Samples: ALL

Parameter: 0608H
Matrix: Water
Prep Batch: 93LE1747
Urgency: X Immediate ___ Other

Category for Discrepancy:
___ Log-In
___ LIMS
X Analysis/Sample
___ Project Revision
___ Other:

A. Reason for SDR:

A1a. Requires Verification By (circle): Log-In or Prep Group

___ Missing Sample/Extract
___ Wrong Sample Pulled
___ Improper Bottle Type
___ Container Broken
___ Preservation Wrong
___ Received Past Hold
___ Insufficient Sample
___ Label ID's Illegible

A2. Verified By (circle): Log-In or Prep Group (signature) (date)

A1b.

___ Re-Log: Tech Profile Error..Client Changed Request.. Sampler Error on C-O-C..Transcription Error.. Wrong Test Code, Re-Log As _____
___ Re-Leach: Metals/Inorg/VOA/BNA/Pest/Herb/____
___ Re-Digest: AA/ICP/HG/_____
___ Re-Extract: BNA/PEST/_____
X QC Out: SURR/MS...High/Low/<10%/Missing/2X
X QC Out: B/BS/BSD/LCS/LCS-D...High/Low
___ Hold Time Exceeded: Prep/Analysis/Report
___ Not Amenable to Analysis
___ Other (describe)

The BS & BSD for batch [1747] appear to both have been double surrogated and inadvertently not spiked.

B. PM Instructions For Disposition (signature/date): Deb Haydt 10/12/9

___ Cancel ___ Add ___ Subout Analysis
___ Place On Hold ___ Take Off Hold
___ Change W.O. # to: _____
___ MS/MSD on Sample ____, if enough sample: ORG/INORG
___ MS/DUP on Sample ____, if enough sample: ORG/INORG
___ Change Client name to: _____
___ Wrong Test Code, Re-Log As _____
___ Include in Narrative

___ Other, explain:

~~Reextract~~ DH 10/11/93
Please include in Narrative

C. FINAL ACTION: a clear description of what was done for resolution, when it was done, and by whom it was done

Action Taken:
___ Revision To Chain-of-Custody Completed
___ LIMS Corrections Completed
X Other, explain

Additional sample volume is not available for re-extraction
NOTED IN NARRATIVE JBH 10/20/93

Action By (name/date): Dina Osei-Mensah 10/12/93
Forward to Pat Feldman, QA for distribution ---

D. Distribution of Completed SDR (include name)

X Initiator: J. HOHL
X Lab Manager: J. PETER HERSHEY
X Project Mgr: J. Edwards
X Unit Leader: D. Skrzat
X QA (original): K. RYAN
___ Log-In: _____
___ Data Reporting: _____
___ Billing: S. BRENER
X K. Cromer
X D. Osei Mensah

Distributed By: (signature/date)

0016

RFW 21-21-006/E-10/90 (SDR Revision 5.0)

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

Report Date: 10/24/93 11:40

RFW Batch Number: 9310L146 Client: WESTINGHOUSE HANFORD Work Order: 06168002001 Page: 1

0018

	Cust ID:	93261-01.I27	PBLK	PBLK BS	PBLK BSD
Sample Information	RFW#:	001	93LE1747-MB1	93LE1747-MB1	93LE1747-MB1
	Matrix:	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L
Surrogate:	Decachlorobiphenyl	91 %	102 %	169 * %	185 * %
	Tetrachloro-m-xylene	68 %	75 %	132 * %	145 * %
Alpha-BHC		0.050 U	0.050 U	0.050 U	0.050 U
Beta-BHC		0.050 U	0.050 U	0.050 U	0.050 U
Delta-BHC		0.050 U	0.050 U	0.050 U	0.050 U
gamma-BHC (Lindane)		0.050 U	0.050 U	NS %	NS %
Heptachlor		0.050 U	0.050 U	NS %	NS %
Aldrin		0.050 U	0.050 U	NS %	NS %
Heptachlor epoxide		0.050 U	0.050 U	0.050 U	0.050 U
Endosulfan I		0.050 U	0.050 U	0.050 U	0.050 U
Dieldrin		0.10 U	0.10 U	NS %	NS %
4,4'-DDE		0.10 U	0.10 U	0.10 U	0.10 U
Endrin		0.10 U	0.10 U	NS %	NS %
Endosulfan II		0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDD		0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan sulfate		0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDT		0.10 U	0.10 U	NS %	NS %
Methoxychlor		0.50 U	0.50 U	0.50 U	0.50 U
Endrin ketone		0.10 U	0.10 U	0.10 U	0.10 U
alpha-Chlordane		0.50 U	0.50 U	0.50 U	0.50 U
gamma-Chlordane		0.50 U	0.50 U	0.50 U	0.50 U
Toxaphene		1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1016		0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1221		0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1232		0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1242		0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1248		0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1254		1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260		1.0 U	1.0 U	1.0 U	1.0 U

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

9610403.0080

JHCot 10/24/93

9613403.0031

PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

93261-01.I27

Lab Name: Roy F. Weston, Inc. Work Order: 06168002001

Client: WESTINGHOUSE HANFORD

Matrix: WATER Lab Sample ID: 9310L146-001

Sample wt/vol: 1000 (g/mL) ML Lab File ID: 10089310.22

Level: (low/med) LOW Date Received: 10/01/93

% Moisture: not dec. _____ dec. Date Extracted: 10/04/93

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 10/09/93

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
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
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

JWH 10/23/93

FORM 1 PEST 12/88 Rev.

9613403.0032

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

Client : WESTINGHOUSE HANFORD
RFW# : 9310L146

W.O. #: 06168-002-001-9999-00
Date Received: 10-01-93

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. All sample holding times as required by 40CFR136 were met.

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

3. All laboratory control standards (blank spikes) were within the control limits of 80-120%. All %RPD were within the 20% guidance limit.

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. All recoveries were within the 75-125% guidance limits. All %RPD were within the 20% guidance limit.

6. Replicate results are summarized on the Inorganic Precision Report contained within this document. All results were within the 20% RPD guidance limit.

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), Standard Methods for the Examination of Water and Wastewater 16 ed. and Test Methods for Evaluating Solid Waste (USEPA SW846).

RECORD COPY

NOV 1993
RECEIVED
SDLA

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

11.1.93
Date

0001

pas/i10-146

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 10/27/93

CLIENT: WESTINGHOUSE HANFORD

WESTON BATCH #: 9310L146

WORK ORDER: 06168-002-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	93261-01.I27	Chloride	26.9		MG/L	2.5	10.0
		Oil & Grease Gravimetri	5.0	u	MG/L	5.0	1.0

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

Client: WESTINGHOUSE HANFORD
RFW #: 9310L146

W.O. #: 06168-002-001-9999-00
Date Received: 10-01-93

CLP METALS

1. This narrative covers the analysis of one (1) water sample.

2. The sample and associated QC samples were prepared and analyzed in accordance with the following protocols: SW-846.

3. ICVs, CCVs, and LCSs stock standards were purchased from Inorganic Ventures Laboratory and High Purity.

4. All analyses were performed within the required holding times.

5. All Initial and Continuing Calibration Verifications (ICV/CCV's) were within control limits.

6. All Initial and Continuing Calibration Blanks (ICB/CCB's) were within control limits.

7. All Preparation/Method Blanks were below Reporting Limits except for: 93L6955-MB1 for Lead.

   1.) All samples were found to contain Lead at concentrations less than the Reporting Limit, and therefore redigestion and reanalysis were not required.

8. All ICP Interference Check Samples (ICSA and ICSAB) were within control limits.

9. All Laboratory Control Samples (LCS) were within the 80-120% control limits.

10. All Serial Dilution percent differences were within SW-846 control limits.

11. All Matrix Spike recoveries were within the 75-125% control limits (exception allowed when sample concentration exceeds the spike added concentration by a factor of 4 or more)
    except for:

RFW #	Element	%Recovery	RFW #	Element	%Recovery
001	Arsenic	150.7	001T	Arsenic	154.0

For analytes where the Matrix Spike is out of control, a Post-digestion Matrix Spike and Serial Dilution are performed (exception allowed for Ag).
Matrix spike analyses are not required for Ca, Mg, Na, and K in waters.

WESTON

12. All Matrix Spike Duplicates were within the 20% Relative Percent Difference (RPD) control limits.

13. All Duplicate analyses were within the 20% Relative Percent Difference (RPD) control limits for samples values greater than 5X Reporting Limit, or +/- the Reporting Limits for sample values less than 5X Reporting Limit.

14. 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.

15. 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).

16. ICP Interelement Correction Factors for IC1 and IC3 are included in this package, but do not appear on EDD.

17. 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.

18. The sample ID was changed to accommodate the EPA naming convention which allows a maximum of 6 characters on all CLP Forms. Refer to the Cover Page of the CLP Forms to correlate the modified sample ID to the RFW#. Refer to the Chain of Custody to correlate RFW# to the original client ID.

Raymond A. Siery
Inorganic Section Manager
Lionville Analytical Laboratory

11.5.93
Date

mlj/clp-met.nar

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

Client: WESTINGHOUSE HANFORD
RFW #: 9310L146

W.O. #: 06168-002-001-9999-00
Date Received: 10-01-93

CLP METALS ADDENDUM

1. 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.

Raymond A. Siery
Inorganic Section Manager
Lionville Analytical Laboratory

11.5.93
Date

mlj\clp-met.nar

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 11/04/93

CLIENT: WESTINGHOUSE HANFORD

WESTON BATCH #: 9310L146

WORK ORDER: 06168-002-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	93261-01.I27	Silver, Total	10.0	u	UG/L	10.0	1.0
		Aluminum, Total	200	u	UG/L	200	1.0
		Arsenic, Total	10.0	u	UG/L	10.0	1.0
		Barium, Total	200	u	UG/L	200	1.0
		Beryllium, Total	5.0	u	UG/L	5.0	1.0
		Calcium, Total	17000		UG/L	5000	1.0
		Cadmium, Total	5.0	u	UG/L	5.0	1.0
		Cobalt, Total	50.0	u	UG/L	50.0	1.0
		Chromium, Total	10.0	u	UG/L	10.0	1.0
		Copper, Total	25.0	u	UG/L	25.0	1.0
		Iron, Total	100	u	UG/L	100	1.0
		Mercury, Total	0.20	u	UG/L	0.20	1.0
		Potassium, Total	5000	u	UG/L	5000	1.0
		Magnesium, Total	5000	u	UG/L	5000	1.0
		Manganese, Total	15.0	u	UG/L	15.0	1.0
		Sodium, Total	32300		UG/L	5000	1.0
		Nickel, Total	40.0	u	UG/L	40.0	1.0
		Lead, Total	3.0	u	UG/L	3.0	1.0
		Antimony, Total	60.0	u	UG/L	60.0	1.0
		Selenium, Total	5.0	u	UG/L	5.0	1.0
		Tin, Total	100	u	UG/L	100	1.0
		Titanium, Total	100	u	UG/L	100	1.0
		Thallium, Total	10.0	u	UG/L	10.0	1.0
		Vanadium, Total	50.0	u	UG/L	50.0	1.0
		Zinc, Total	20.0	u	UG/L	20.0	1.0

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

01.I27

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP146

Matrix (soil/water): WATER Lab Sample ID: 931014601

Level (low/med): LOW Date Received: 10/01/93

% 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	48.00	U		P
7440-36-0	Antimony	46.00	U		P
7440-38-2	Arsenic	2.00	U	N	F
7440-39-3	Barium	33.80	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	5.00	U		P
7440-70-2	Calcium	17000.00			P
7440-47-3	Chromium	6.20	B		P
7440-48-4	Cobalt	7.00	U		P
7440-50-8	Copper	7.00	U		P
7439-89-6	Iron	79.00	B		P
7439-92-1	Lead	2.00	U		F
7439-95-4	Magnesium	3390.00	B		P
7439-96-5	Manganese	11.50	B		P
7439-97-6	Mercury	.10	U		CV
7440-02-0	Nickel	12.00	U		P
7440-09-7	Potassium	2530.00	B		P
7782-49-2	Selenium	2.00	U		F
7440-22-4	Silver	7.00	U		P
7440-23-5	Sodium	32300.00			P
7440-28-0	Thallium	2.00	U		F
7440-62-2	Vanadium	3.00	U		P
7440-66-6	Zinc	19.00	B		P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN