9401L205-WES-1478

109
5

WESTON

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

Client: WESTINGHOUSE HANFORD
RFW #: 9401L205

W.O. #: 06168-002-001-9999-00
Date Received: 01-11-94

GC/MS VOLATILE

One (1) soil sample was collected on 01-06-94.

The sample and its associated QC samples were analyzed according to criteria set forth in CLP SOW 03/90 for TCL Volatile target compounds on 01-13,14-94.

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 contaminant Acetone at levels less than 3x the CRQL.

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

6. Sample pH information has been reported in Section XI (Preparation Logs).

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

2/14/94
Date

sma/voa/01-205v.cn

9613407.1284

Westinghouse Hanford Company

NONCONFORMANCE REPORT

1. Page 1 of 1

2. Preprinted No. 051940

QA Log No. EQA-94-007

3. P. O., W. O., or Job Control No.	4. System/End Use	5. Item/Material	6. Dwg./Spec./Other No.	7. Rev.
N/A	Field Investigation	Sample (Soil)	B09DS9	N/A

8. Program/Project/Other	9. Safety Class	10. ASME Code Items
200-UP-1 2/1/94 SAF 93-263	N/A	☐ Yes ☒ No (If yes, notify authorized inspector)

11. Supplier Name/Address

Sampling and Mobile Labs

12. Notification of Potential Occurence Required ☐ Yes ☒ No

13. Code: Lot/Heat/Serial	14. Lot Size	15. Sample	16. Qty. Acc.	17. Inspection Criteria
N/A	1	1		☐ Dwg. ☐ Spec. ☐ Insp. Plan ☒ Other WHC-CM-7-7 ETS 5.1 Rev. 5, sec. 6.2, item 2 and WHC-CM-7-7, ETS 5.2 Rev. 5, sec. 5.2 items 1 & 2.

18. Item	19. Description of Nonconformance (list serial no. where applicable)	22. Disposition, Justification, and Instructions
1	As stated in WHC-CM-7-7, ETS 5.1, Rev. 5, sec. 6.2, item 2 section E, The Witness/Field Team Leader shall initiate the Chain of Custody form and shall enter sample identification numbers or other unique sample description. Also stated in WHC-CM-7-7, ETS 5.2, Rev. 5, sec. 5.2, item 2: Item 2: Prepare the Chain of Custody/Sample Analysis Request (BC-6000-328) or Sample Analysis Request (A-6000-400) to accompany the samples to the analytical facility. Contrary to the above, the Chain of Custody was not initiated for the metals fraction for sample B09DS9 that was sent to TMA.	Interim disposition is to review data from the metals analysis for this sample and the duplicate. The duplicate was sent to Weston (HEIS #B09DT0). If metals results are less than detectable, the sample will be rejected through the NCR process and the NCR closed.

20. Originator's Signature: J.A. LERCH	Date: 1/27/94	23. Design Document Change Required? ☐ Yes, Doc. No. _____ ☐ No	
21. Cognizant QA Manager's Signature: T.L. BENNINGTON	Date: 2/1/94	24. Corrective Action Required? ☐ Yes, No. _____ ☐ No	

Disp. App.					
25. Cognizant Engineer: M.J. GARFIELD	Date: 3/16/94	26. Technical Rep.	Date	Signature/Org.	Date
QA Engineer: T.C. TRIBLE	Date: 3/15/94	Signature/Org.	Date	Signature/Org.	Date

Close

27. Accept _____ Reject _____ Follow on NCR _____

QA/C Personnel _____ Date _____

A-7310-104 (10/91)

HANFORD ANALYTICAL SERVICES MANAGEMENT

RECORD OF DISPOSITION

ROD-94-0012
Record of Disposition No.

DATE: January 18, 1994	LABORATORY: Weston
PROJECT TITLE/NO.: 200-UP-1	NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS: B09DT0, B093H5, B093J4

DESCRIPTION OF EVENT:

a) Samples B09DS9 and B09DT0 were collected as field splits and targeted for shipment to TMA (primary) and Weston (split), respectively. During collection, the metals fraction (CLP TAL plus Ti) of sample B09DS9 was inadvertently omitted. A decision was made in the field to ship the metals fraction of sample B09DT0 to TMA to obtain a complete suite of analyses at the primary lab. This change was not reflected on the Weston Chain of Custody and Analytical Request form which indicated that a 500ml container was submitted for metals analysis. No metals fraction was received by Weston.

b) The Chain of Custody and Analytical Request form indicated that VOA fractions for samples B093H5 and B093J4 were shipped to Weston. Weston did not receive a VOA fraction for either of the two samples.

DISPOSITION OF SAMPLES:

Since sample B09DT0 was soil (chemically unpreserved), Weston was instructed to use remaining sample material from the other fractions to perform analysis for the requested metals (CLP; TAL plus Ti). VOA analysis for samples B093H5 and B093J4 was canceled.

APPROVAL SIGNATURES:

J. A. Lerch — 1/19/94
OSM Project Coordinator (Print/Sign Name) — **Date**

M. J. Galgoul — 1/28/94
Technical Representative (Print/Sign Name) — **Date**

N/A
Quality Assurance (Print/Sign Name) — **Date**

WESTON Analytics Use Only

9401L205

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: Westinghouse Hanford

Est. Final Proj. Sampling Date:

Work Order #: 06116B-002-001-9999-00

Project Contact/Phone #:

AD Project Manager: Joe Edwards

QC: CLP Del: CLP TAT: 35 Days

Date Rec'd: 1-11-94 Date Due: 2/15/94

Account #: W3-HANFORD

Refrigerator #			1	6				3	3	6	3		3&B											
#/Type Container	Liquid									W/BNA														
	Solid	1GL	1GL				1GL	1GL		1GL		1PL												
Volume	Liquid																							
	Solid	125mL	30mL				125mL	85mL		85mL		60mL												
Preservatives		—	—				—	—		—		—	Radchem											
ANALYSES REQUESTED →		ORGANIC								INORG														
		VOA	BNA	Pest/PCB	Herb		ND2 TOX	FL CL SO4		Metal	CN													

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only																
S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	001	B09DT0 (RAD)			S	1-6-94	0825	X	X				X	X	X	X		X					
		Radiochem = Gross alpha/beta (PRO-032-15), Gamma Spec Cs-134, Cs-137, Co-60, Eu-152, Eu-154, Eu-155, K-40, Ru-106, Na-22 (PRO-042-3), U-235, U-234, U-238 (PRO-052-032), Np-237, (PRO-042-3) Pu-238, Pu-239, 240 (PRO-052-32), Sr-90, (PRO-032-38, PRO-032-25) Tc-99 (PRO-032-78) Am-241, Cm-244 (PRO-052-32 or PRO-062-109) Se-79																						

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
SAF#=93-263
Temp=7.9°C

Original Rewritten

DATE/REVISIONS:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

WESTON Analytics Use Only

Samples were: 1) Shipped ✓ or Hand Delivered
Airbill # 423085286
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: Metals bottle not received on original COC.

Relinquished by	Received by	Date	Time
Fed Ex	M. Bennie	1/11/94	0930
	MDB	1/11/94	

Relinquished by	Received by	Date	Time
		1/11/94	

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

9403071286

9613407.1287

9401205

Westinghouse Hanford Company	SAMPLE ANALYSIS REQUEST

Collector L E ROGERS S.A.F. # 93-263 Date 1-6-94

Company Contact L E ROGERS Telephone (509) 376-7690

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Required
B09DT0	S	1-6-94	0825	1,500ml P:CLP;TAL Metals,Hg,Ti 1,125ml Gs:VOA CLP 1,500ml aG:Semi-VOA CLP 1,250ml G:Anions F,Cl,SO4 (EPA 300.0) 1,125ml P/G:Anions NO2,NO3 (EPA 353.1) 1,250ml G:Cyanide CLP 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79
			LR 1-10-94	1,500ml P:CLP;TAL Metals,Hg,Ti 1,125ml Gs:VOA CLP 1,500ml aG:Semi-VOA CLP 1,250ml G:Anions F,Cl,SO4 (EPA 300.0) 1,125ml P/G:Anions NO2,NO3 (EPA 353.1) 1,250ml G:Cyanide CLP 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79
				1,500ml P:CLP;TAL Metals,Hg,Ti 1,125ml Gs:VOA CLP 1,500ml aG:Semi-VOA CLP 1,250ml G:Anions F,Cl,SO4 (EPA 300.0) 1,125ml P/G:Anions NO2,NO3 (EPA 353.1) 1,250ml G:Cyanide CLP 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

*Type of Sample					
	A = Air	L = Liquid	SE = Sediment	T = Tissue	X = Other
	DL = Drum Liquids	O = Oil	SL = Sludge	W = Water	
	DS = Drum Solids	S = Soil	SO = Solid	WI = Wipe	

Field Information **WESTON**

Special Handling and/or Storage Maintain at 4C ; (SOIL)

Possible Sample Hazards RADIOACTIVE

0011

9613407.1288

9401L205

Westinghouse Hanford Company

CHAIN OF CUSTODY

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

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

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 1-6-94

Ice Chest No.: EFS-11 — Field Logbook No.: EFL-1091

Bill of Lading/Airbill No.: NA — Offsite Property No.: ORSF 17596

Method of Shipment: OVERNIGHT AIR SERVICE

Shipped to: WESTON

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

Sample Identification: 9401L205-001

1) BOTTLE TO

1,500ml P:CLP;TAL Metals,Hg,Ti Did not receive GALLON
1,125ml Gs:VOA CLP
1,500ml aG:Semi-VOA CLP
1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
1,250ml G:Cyanide CLP
1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

2)

1,500ml P:CLP;TAL Metals,Hg,Ti
1,125ml Gs:VOA CLP
1,500ml aG:Semi-VOA CLP
1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
1,250ml G:Cyanide CLP
1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

3)

LER 1-10-94

1,500ml P:CLP;TAL Metals,Hg,Ti
1,125ml Gs:VOA CLP
1,500ml aG:Semi-VOA CLP
1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
1,250ml G:Cyanide CLP
1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

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

Relinquished by:	Received by:	Date/Time:
W.V. Setzer 1115 1-6-94	Laura E. Rogers	1-6-94 1115
Laura E. Rogers 1-10-94 0715	W.V. Setzer	1-10-94 0715
W.V. Setzer		
FEDEX		1-11-94 9130

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

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

0012

FEDERAL EXPRESS

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL PACKAGE TRACKING NUMBER 4230852861

4230852861

Date 1-10-94

RECIPIENT'S COPY

From (Your Name) Please Print: G.O. BONESS
Your Phone Number (Very Important): (509) 376-7627
Company: DOE/WESTINGHOUSE HANFORD
Department/Floor No.:
Street Address: 1100 AREA 1163 BLDG
(EMERGENCY CONTACT PHONE NUMBER 509-373-3800)
City: RICHLAND
State: WA
ZIP Required: 9 9 3 5 2

2 To (Recipient's Name) Please Print: JOSIE EDWARDS
Recipient's Phone Number (Very Important):
Company: ROY F. WESTON
Department/Floor No.:
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 200 WELSH POOL ROAD
City: LIONVILLE
State: PA
ZIP Required: 19341-1313

YOUR INTERNAL BILLING REFERENCE INFORMATION (First 24 characters will appear on invoice.)
RWA-8412 RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - LIMITED QUANTITY
12911 PYRA OF MATERIAL DOT EMERGENCY RESPONSE GUIDE #61 ATTACHED

H IF HOLD FOR PICK-UP, Print FEDEX Address Here (Not available at all locations)
Street Address:
City:
State:
ZIP Required:

3 PAYMENT 1 [X] Bill Sender 2 [ ] Bill Recipient's FedEx Acct No 3 [ ] Bill 3rd Party FedEx Acct No 4 [ ] Bill Credit Card
5 [ ] Cash/Check

4 SERVICES (Check only one box)

Priority Overnight	Standard Overnight
11 [X]	51 [ ]
Economy Two-Day	**Government Overnight**
30 [ ]	41 [ ]

Freight Service
70 [ ] OVERNIGHT FREIGHT ** 80 [ ] TWO-DAY FREIGHT **
†Delivery commitment may be later in some areas
**Call for delivery schedule

INSTRUCTIONS (Mark appropriate boxes)
- Dangerous Goods as per attached Shipper's Declaration [ ]
- Dangerous Goods Shipper's Declaration not required [X]
- Cargo Aircraft only [ ]

DELIVERY AND SPECIAL HANDLING (Check services required)
1 [ ] HOLD FOR PICK-UP (If so in Box H)
2 [ ] DELIVER WEEKDAY
3 [ ] DELIVER SATURDAY (Extra charges) (Not available to all locations)
4 [X] DANGEROUS GOODS (Extra charges)
6 [ ] DRY ICE kgs
• Dangerous Goods Shipper's Declaration not required
• Dry ice 9 UN 1845
7 [ ] OTHER SPECIAL SERVICE
11 [ ]
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

Packages	Weight
1	38
Total	Total
1	38

DIM SHIPMENT (Chargeable Weight) [ ] lbs

Will be delivered at:
[ ] Regular Stop [ ] On-Call Stop [ ] Drop Box [ ] BSC [ ] Station

FedEx Emp. No
Date/Time

Emp. No
Date
[ ] Cash Received
[ ] Return Shipment
[ ] Third Party [ ] Chg. To Del [ ] Chg. To Hold
Street Address
City State Zip
Received By: X
Date/Time Received 1-11-94 9:30
FedEx Employee Number
SIGNATURE RELEASE UNAVAILABLE

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 2/91
PART #137211
FORMAT #088
MBFAN 1/92
069
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0014

Roy F. Weston, Inc. - Lionville Laboratory
Volatiles by GC/MS, OLM01.8
Report Date: 02/02/94 14:59

RFW Batch Number: 9401L205 Client: WESTINGHOUSE HANFORD Work Order: 06168002001 Page: 1a

	Cust ID:	B09DT0	B09DT0	B09DT0	VBLK	VBLK
Sample Information	RFW#:	001	001 MS	001 MSD	94LVQ006-MB1	94LVQ007-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Toluene-d8	103 %	98 %	100 %	101 %	102 %
	Bromofluorobenzene	102 %	97 %	98 %	100 %	103 %
	1,2-Dichloroethane-d4	108 %	91 %	94 %	99 %	90 %
Chloromethane		10 U	10 U	10 U	10 U	10 U
Bromomethane		10 U	10 U	10 U	10 U	10 U
Vinyl Chloride		10 U	10 U	10 U	10 U	10 U
Chloroethane		10 U	10 U	10 U	10 U	10 U
Methylene Chloride		10 U	10 U	10 U	10 U	10 U
Acetone		10 U	9 JB	4 JB	14	25
Carbon Disulfide		10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethene		10 U	89 %	98 %	10 U	10 U
1,1-Dichloroethane		10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethene (total)		10 U	10 U	10 U	10 U	10 U
Chloroform		10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane		10 U	10 U	10 U	10 U	10 U
2-Butanone		10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane		10 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride		10 U	10 U	10 U	10 U	10 U
Bromodichloromethane		10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane		10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene		10 U	10 U	10 U	10 U	10 U
Trichloroethene		10 U	99 %	102 %	10 U	10 U
Dibromochloromethane		10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane		10 U	10 U	10 U	10 U	10 U
Benzene		10 U	108 %	110 %	10 U	10 U
Trans-1,3-Dichloropropene		10 U	10 U	10 U	10 U	10 U
Bromoform		10 U	10 U	10 U	10 U	10 U
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U	10 U
2-Hexanone		10 U	10 U	10 U	10 U	10 U
Tetrachloroethene		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
Toluene		10 U	105 %	106 %	10 U	10 U

*= Outside of EPA CLP QC limits.

C316

9401L205-2001

Cust ID:	B09DT0	B09DT0	B09DT0	VBLK	VBLK
RFW#:	001	001 MS	001 MSD	94LVQ006-MB1	94LVQ007-MB1
Chlorobenzene	10 U	109 %	110 %	10 U	10 U
Ethylbenzene	10 U	10 U	10 U	10 U	10 U
Styrene	10 U	10 U	10 U	10 U	10 U
Xylene (total)	10 U	10 U	10 U	10 U	10 U

*= Outside of EPA CLP QC limits.

0017

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B09DT0

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 9401L205-001

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

Lab File ID: 0011312

Level: (low/med) LOW

Date Received: 01/11/94

% Moisture: not dec. 2

Date Analyzed: 01/13/94

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	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

9613407.1293

IE

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B09DT0

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 9401L205-001

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

Lab File ID: 0011312

Level: (low/med) LOW

Date Received: 01/11/94

% Moisture: not dec. 2

Date Analyzed: 01/13/94

GC Column: SP1000 ID: 2.00(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/Kg

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

FORM 1 VOA-TIC 3/90

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

Client: WESTINGHOUSE HANFORD
RFW #: 9401L205

W.O. #: 06168-002-001-9999-00
Date Received: 01-11-94

SEMIVOLATILE

One (1) soil sample was collected on 01-06-94.

The sample and its associated QC samples were extracted on 01-13-94, 02-14-94 and analyzed according to criteria set forth in CLP SOW 3/9O for TCL Semivolatile target compounds on 01-24-94, 02-15-94.

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. All matrix spike recoveries were within EPA QC limits.

   A matrix spike and a matrix spike duplicate for sample B09DT0 were extracted, in hold in batch 94LE0070; however there were several low recoveries in the matrix spike and consequently several RPD limits were exceeded. The MS and MSD were re-extracted out of hold and only the second set of spikes were reported; the first set of MS/MSD data is available upon client request.

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

5. The laboratory blank 94LE0070-MB1 contained the common contaminant Di-n-butylphthalate at a level less than the CRQL. The laboratory blank 94LE0305-MB1 contained the common contaminants Di-n-butylphthalate at a level less than 4x the CRQL, Butylbenzylphthalate at a level less than 3x the CRQL, and Bis(2-ethylhexyl)phthalate at a level less than the CRQL.

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

Kenneth Brooks Ph.D. 03.01.94.

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

Date

/dlc/bna/01-205b.cn

9613407.1295

WESTON SAMPLE DISCREPANCY REPORT (SDR)

SDR IN-PROGRESS ROUTING (see other side)

Initiator: V. Respass
Date: 11/26/94
Client: Westinghouse
RFW Lot #: 9401L205
Samples: 0015 (MS)

Parameter: BNA
Matrix: Soil
Prep Batch: 94LE0070
Urgency: ✓ Immediate ___ Other

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

A. Reason for SDR:

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

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

A1a.	A2. (signature)	A2. (date)
___ Missing Sample/Extract		
___ Wrong Sample Pulled		
___ Improper Bottle Type		
___ Container Broken		
___ Preservation Wrong		
___ Received Past Hold		
___ Insufficient Sample		
___ Label ID's Illegible		

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/_____
✓ QC Out: SURR/MS..High/(Low)<10%/Missing/2X
___ QC Out: B/BS/BSD/LCS/LCS-D...High/Low
___ Hold Time Exceeded: Prep/Analysis/Report
___ Not Amenable to Analysis
___ Other (describe)

~~Two acid, three BN surrogates lower than QC limits~~
~~one~~ ~~three~~ acid, three BN Spikes had recoveries lower than QC limits.

VR 11/26/94

Two acid, three BN surrogates had recoveries lower than QC Limits — SIMILAR RESULTS OBTAINED with non-GAC portion

B. PM Instructions For Disposition (signature/date): Josie Edwards 12-2-94

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

___ Other, explain:

Re-extract S+T and use analysis

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
___ Other, explain

~~BN/BNA~~ D.O. 2/16/94 Re-extracted results good. Original MS/MSD analyses omitted & noted in narrative COR 2/16/94

MS/MSD for the above listed sample were re-extracted on 2/11/94, extr. batch 94LE0305

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

D. Distribution of Completed SDR (include name

X Initiator: JIM Ambler
X Lab Manager: J. PETER HERSHE
✓ Project Mgr: J. EDWARDS
X Unit Leader: C. TAYLOR
X QA (original): K. RYAN
___ Log-In: _____
___ Data Reporting: _____
___ Billing: S. BRENER
X S. Burke
X ~~Dina Osei-~~ Mensah

Distributed By: (signature/date) 0009

Roy F. Weston, Inc. - Lionville Laboratory
Semivolatiles by GC/MS, OLM01.8 Report Date: 02/23/94 13:57

RFW Batch Number: 9401L205 Client: WESTINGHOUSE HANFORD Work Order: 06168002001 Page: 1a

0017

	Cust ID:	B09DT0	B09DT0	B09DT0	SBLK	SBLK BS	SBLK
Sample Information	RFW#:	001	001 MS	001 MSD	94LE0070-MB1	94LE0070-MB1	94LE0305-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	59 %	86 %	90 %	79 %	77 %	72 %
	2-Fluorobiphenyl	65 %	77 %	79 %	79 %	75 %	73 %
	Terphenyl-d14	117 %	88 %	89 %	107 %	93 %	93 %
	Phenol-d5	64 %	86 %	87 %	80 %	78 %	72 %
	2-Fluorophenol	65 %	78 %	79 %	84 %	90 %	63 %
	2,4,6-Tribromophenol	77 %	87 %	86 %	75 %	69 %	76 %
	2-Chlorophenol-d4	58 %	83 %	83 %	78 %	75 %	72 %
	1,2-Dichlorobenzene-d4	52 %	82 %	82 %	76 %	74 %	72 %
		fl	fl	fl	fl	fl	fl
Phenol		340 U	79 %	80 %	330 U	64 %	330 U
bis(2-Chloroethyl)ether		340 U	340 U	340 U	330 U	330 U	330 U
2-Chlorophenol		340 U	77 %	78 %	330 U	71 %	330 U
1,3-Dichlorobenzene		340 U	340 U	340 U	330 U	330 U	330 U
1,4-Dichlorobenzene		340 U	73 %	76 %	330 U	69 %	330 U
1,2-Dichlorobenzene		340 U	340 U	340 U	330 U	330 U	330 U
2-Methylphenol		340 U	340 U	340 U	330 U	330 U	330 U
2,2'-oxybis(1-Chloropropane)		340 U	340 U	340 U	330 U	330 U	330 U
4-Methylphenol		340 U	340 U	340 U	330 U	330 U	330 U
N-Nitroso-di-n-propylamine		340 U	86 %	86 %	330 U	73 %	330 U
Hexachloroethane		340 U	340 U	340 U	330 U	330 U	330 U
Nitrobenzene		340 U	340 U	340 U	330 U	330 U	330 U
Isophorone		340 U	340 U	340 U	330 U	330 U	330 U
2-Nitrophenol		340 U	340 U	340 U	330 U	330 U	330 U
2,4-Dimethylphenol		340 U	340 U	340 U	330 U	330 U	330 U
bis(2-Chloroethoxy)methane		340 U	340 U	340 U	330 U	330 U	330 U
2,4-Dichlorophenol		340 U	340 U	340 U	330 U	330 U	330 U
1,2,4-Trichlorobenzene		340 U	79 %	82 %	330 U	71 %	330 U
Naphthalene		340 U	340 U	340 U	330 U	330 U	330 U
4-Chloroaniline		340 U	340 U	340 U	330 U	330 U	330 U
Hexachlorobutadiene		340 U	340 U	340 U	330 U	330 U	330 U
4-Chloro-3-methylphenol		340 U	77 %	80 %	330 U	67 %	330 U
2-Methylnaphthalene		340 U	340 U	340 U	330 U	330 U	330 U
Hexachlorocyclopentadiene		340 U	340 U	340 U	330 U	330 U	330 U

*= Outside of EPA CLP QC limits.

9401L205.296

RFW Batch Number: 9401L205 Client: WESTINGHOUSE HANFORD Work Order: 06168002001 Page: 1b

	Cust ID:	B09DT0		B09DT0		B09DT0		SBLK		SBLK BS		SBLK	
	RFW#:	001		001 MS		001 MSD		94LE0070-MB1		94LE0070-MB1		94LE0305-MB1	
2,4,6-Trichlorophenol		340	U	340	U	340	U	330	U	330	U	330	U
2,4,5-Trichlorophenol		840	U	850	U	850	U	840	U	840	U	840	U
2-Chloronaphthalene		340	U	340	U	340	U	330	U	330	U	330	U
2-Nitroaniline		840	U	850	U	850	U	840	U	840	U	840	U
Dimethylphthalate		340	U	340	U	340	U	330	U	330	U	330	U
Acenaphthylene		340	U	340	U	340	U	330	U	330	U	330	U
2,6-Dinitrotoluene		340	U	340	U	340	U	330	U	330	U	330	U
3-Nitroaniline		840	U	850	U	850	U	840	U	840	U	840	U
Acenaphthene		340	U	73	%	74	%	330	U	75	%	330	U
2,4-Dinitrophenol		840	U	850	U	850	U	840	U	840	U	840	U
4-Nitrophenol		840	U	91	%	96	%	840	U	68	%	840	U
Dibenzofuran		340	U	340	U	340	U	330	U	330	U	330	U
2,4-Dinitrotoluene		340	U	78	%	81	%	330	U	74	%	330	U
Diethylphthalate		340	U	340	U	340	U	330	U	330	U	330	U
4-Chlorophenyl-phenylether		340	U	340	U	340	U	330	U	330	U	330	U
Fluorene		340	U	340	U	340	U	330	U	330	U	330	U
4-Nitroaniline		840	U	850	U	850	U	840	U	840	U	840	U
4,6-Dinitro-2-methylphenol		840	U	850	U	850	U	840	U	840	U	840	U
N-Nitrosodiphenylamine (1)		340	U	340	U	340	U	330	U	330	U	330	U
4-Bromophenyl-phenylether		340	U	340	U	340	U	330	U	330	U	330	U
Hexachlorobenzene		340	U	340	U	340	U	330	U	330	U	330	U
Pentachlorophenol		840	U	87	%	90	%	840	U	95	%	840	U
Phenanthrene		340	U	340	U	340	U	330	U	330	U	330	U
Anthracene		340	U	340	U	340	U	330	U	330	U	330	U
Carbazole		340	U	340	U	340	U	330	U	330	U	330	U
Di-n-butylphthalate		320	JB	1200	B	700	B	50	J	56	JB	1300	
Fluoranthene		340	U	340	U	340	U	330	U	330	U	330	U
Pyrene		340	U	80	%	81	%	330	U	89	%	330	U
Butylbenzylphthalate		340	U	220	JB	510	B	330	U	330	U	910	
3,3'-Dichlorobenzidine		340	U	340	U	340	U	330	U	330	U	330	U
Benzo(a)anthracene		340	U	340	U	340	U	330	U	330	U	330	U
Chrysene		340	U	340	U	340	U	330	U	330	U	330	U
bis(2-Ethylhexyl)phthalate		22	J	33	JB	85	JB	330	U	330	U	40	J
Di-n-octyl phthalate		340	U	340	U	340	U	330	U	330	U	330	U
Benzo(b)fluoranthene		340	U	340	U	340	U	330	U	330	U	330	U
Benzo(k)fluoranthene		340	U	340	U	340	U	330	U	330	U	330	U
Benzo(a)pyrene		340	U	340	U	340	U	330	U	330	U	330	U
Indeno(1,2,3-cd)pyrene		340	U	340	U	340	U	330	U	330	U	330	U
Dibenz(a,h)anthracene		340	U	340	U	340	U	330	U	330	U	330	U
Benzo(g,h,i)perylene		340	U	340	U	340	U	330	U	330	U	330	U

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

0018

9401L205.297

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B09DT0

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 9401L205-001

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: L012408

Level: (low/med) LOW

Date Received: 01/11/94

% Moisture: 2 decanted: (Y/N)

Date Extracted: 01/13/94

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 01/24/94

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	340	U
111-44-4	bis(2-Chloroethyl)ether	340	U
95-57-8	2-Chlorophenol	340	U
541-73-1	1,3-Dichlorobenzene	340	U
106-46-7	1,4-Dichlorobenzene	340	U
95-50-1	1,2-Dichlorobenzene	340	U
95-48-7	2-Methylphenol	340	U
108-60-1	2,2'-oxybis(1-Chloropropane)	340	U
106-44-5	4-Methylphenol	340	U
621-64-7	N-Nitroso-di-n-propylamine	340	U
67-72-1	Hexachloroethane	340	U
98-95-3	Nitrobenzene	340	U
78-59-1	Isophorone	340	U
88-75-5	2-Nitrophenol	340	U
105-67-9	2,4-Dimethylphenol	340	U
111-91-1	bis(2-Chloroethoxy)methane	340	U
120-83-2	2,4-Dichlorophenol	340	U
120-82-1	1,2,4-Trichlorobenzene	340	U
91-20-3	Naphthalene	340	U
106-47-8	4-Chloroaniline	340	U
87-68-3	Hexachlorobutadiene	340	U
59-50-7	4-Chloro-3-methylphenol	340	U
91-57-6	2-Methylnaphthalene	340	U
77-47-4	Hexachlorocyclopentadiene	340	U
88-06-2	2,4,6-Trichlorophenol	340	U
95-95-4	2,4,5-Trichlorophenol	840	U
91-58-7	2-Chloronaphthalene	340	U
88-74-4	2-Nitroaniline	840	U
131-11-3	Dimethylphthalate	340	U
208-96-8	Acenaphthylene	340	U
606-20-2	2,6-Dinitrotoluene	340	U
99-09-2	3-Nitroaniline	840	U
83-32-9	Acenaphthene	340	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B09DT0

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 9401L205-001

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: L012408

Level: (low/med) LOW

Date Received: 01/11/94

% Moisture: 2 decanted: (Y/N)

Date Extracted: 01/13/94

Concentrated Extract Volume: 500(uL)

Date Analyzed: 01/24/94

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	840	U
100-02-7	4-Nitrophenol	840	U
132-64-9	Dibenzofuran	340	U
121-14-2	2,4-Dinitrotoluene	340	U
84-66-2	Diethylphthalate	340	U
7005-72-3	4-Chlorophenyl-phenylether	340	U
86-73-7	Fluorene	340	U
100-01-6	4-Nitroaniline	840	U
534-52-1	4,6-Dinitro-2-methylphenol	840	U
86-30-6	N-Nitrosodiphenylamine (1)	340	U
101-55-3	4-Bromophenyl-phenylether	340	U
118-74-1	Hexachlorobenzene	340	U
87-86-5	Pentachlorophenol	840	U
85-01-8	Phenanthrene	340	U
120-12-7	Anthracene	340	U
86-74-8	Carbazole	340	U
84-74-2	Di-n-butylphthalate	320	JB
206-44-0	Fluoranthene	340	U
129-00-0	Pyrene	340	U
85-68-7	Butylbenzylphthalate	340	U
91-94-1	3,3'-Dichlorobenzidine	340	U
56-55-3	Benzo(a)anthracene	340	U
218-01-9	Chrysene	340	U
117-81-7	bis(2-Ethylhexyl)phthalate	22	J
117-84-0	Di-n-octyl phthalate	340	U
205-99-2	Benzo(b)fluoranthene	340	U
207-08-9	Benzo(k)fluoranthene	340	U
50-32-8	Benzo(a)pyrene	340	U
193-39-5	Indeno(1,2,3-cd)pyrene	340	U
53-70-3	Dibenz(a,h)anthracene	340	U
191-24-2	Benzo(g,h,i)perylene	340	U

(1) - Cannot be separated from Diphenylamine

9613407.1300

1F

CLIENT SAMPLE NO.

B09DT0

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 9401L205-001

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: L012408

Level: (low/med) LOW

Date Received: 01/11/94

% Moisture: 2 decanted: (Y/N)

Date Extracted: 01/13/94

Concentrated Extract Volume: 500(uL)

Date Analyzed: 01/24/94

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.8

Number TICs found: 6

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	6.00	70	J
2.		ALDOL CONDENSATE	6.30	100	JA
3.		ALDOL CONDENSATE	7.37	200	JA
4.		ORGANIC ACID	16.13	200	J
5.		PHOSPHATE	23.68	400	J
6.		UNKNOWN	26.75	100	J

WESTON
MANAGERS DESIGNERS CONSULTANTS

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

Client : WESTINGHOUSE HANFORD
RFW# : 9401L205

W.O. #: 06168-002-001-9999-00
Date Received: 01-11-94

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 the analysis of solid samples are derived from Test Methods for Evaluating Solid Waste (USEPA SW846).

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

2.10.94
Date

pas/i01-205

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 02/02/94

CLIENT: WESTINGHOUSE HANFORD

WESTON BATCH #: 9401L205

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B09DT0	% Solids	98.2		%	0.10	1.0
		Chloride by IC	21.7		MG/KG	1.3	1.0
		Fluoride by IC	3.0		MG/KG	2.5	1.0
		Cyanide, Total	1.0	u	MG/KG	1.0	1.0
		Sulfate by IC	12.2		MG/KG	1.3	1.0
		Nitrate Nitrite	61.4		MG-N/KG	5.1	50.0

WESTON
MANAGERS DESIGNERS CONSULTANTS

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

Client : WESTINGHOUSE HANFORD
RFW# : 9401L205

W.O. #: 06168-002-001-9999-00
Date Received: 01-11-94

METALS

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

2. The samples were prepared and analyzed in accordance with the following protocols: CLP SOW 3/90.

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.

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 USEPA SOW control limits except for:

RFW #	Element	%Difference
001	Zinc	15.5

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).

    Matrix spike analyses are not required for Al, Fe, Ca, Mg, Na, and K in soils.

WESTON
MANAGERS DESIGNERS CONSULTANTS

12. 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.

13. Method of Standard Additions (MSA) analyses were not required.

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 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. 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.

3.1.94

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

Date

pas/m01-205.clp

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 02/21/94

CLIENT: WESTINGHOUSE HANFORD

WESTON BATCH #: 9401L205

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B09DT0	Silver, Total	2.0	u	MG/KG	2.0	1.0
		Aluminum, Total	4600		MG/KG	40.7	1.0
		Arsenic, Total	2.0		MG/KG	2.0	1.0
		Barium, Total	67.9		MG/KG	40.7	1.0
		Beryllium, Total	1.0	u	MG/KG	1.0	1.0
		Calcium, Total	8020		MG/KG	1020	1.0
		Cadmium, Total	1.0	u	MG/KG	1.0	1.0
		Cobalt, Total	10.2	u	MG/KG	10.2	1.0
		Chromium, Total	8.6		MG/KG	2.0	1.0
		Copper, Total	9.2		MG/KG	5.1	1.0
		Iron, Total	10500		MG/KG	20.4	1.0
		Mercury, Total	0.10	u	MG/KG	0.10	1.0
		Potassium, Total	1150		MG/KG	1020	1.0
		Magnesium, Total	3400		MG/KG	1020	1.0
		Manganese, Total	252		MG/KG	3.1	1.0
		Sodium, Total	1020	u	MG/KG	1020	1.0
		Nickel, Total	8.1	u	MG/KG	8.1	1.0
		Lead, Total	3.0		MG/KG	0.61	1.0
		Antimony, Total	12.2	u	MG/KG	12.2	1.0
		Selenium, Total	1.0	u	MG/KG	1.0	1.0
		Titanium, Total	612		MG/KG	20.4	1.0
		Thallium, Total	2.0	u	MG/KG	2.0	1.0
		Vanadium, Total	21.0		MG/KG	10.2	1.0
		Zinc, Total	28.3		MG/KG	4.1	1.0

U.S. EPA - CLP

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

B09DT0

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP205

Matrix (soil/water): SOIL Lab Sample ID: 940120501

Level (low/med): LOW Date Received: 1/11/94

% Solids: 98.2

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4600.00			P
7440-36-0	Antimony	5.00	B		P
7440-38-2	Arsenic	2.00	B	W	F
7440-39-3	Barium	67.90			P
7440-41-7	Beryllium	.20	U		P
7440-43-9	Cadmium	.81	U		P
7440-70-2	Calcium	8020.00			P
7440-47-3	Chromium	8.60			P
7440-48-4	Cobalt	5.60	B		P
7440-50-8	Copper	9.20			P
7439-89-6	Iron	10500.00			P
7439-92-1	Lead	3.00			F
7439-95-4	Magnesium	3400.00			P
7439-96-5	Manganese	252.00			P
7439-97-6	Mercury	.05	U		CV
7440-02-0	Nickel	7.20	B		P
7440-09-7	Potassium	1150.00			P
7782-49-2	Selenium	.41	U		F
7440-22-4	Silver	1.02	U		P
7440-23-5	Sodium	84.50	B		P
7440-28-0	Thallium	.41	U		F
7440-62-2	Vanadium	21.00			P
7440-66-6	Zinc	28.30		E	P
	Cyanide	1.02	U		C

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

VALIDATION SUMMARY

9401L205-WES-1478

MEMORANDUM

TO: 200-UP-2 Project QA Record

April 23, 1994

FR: Sandra Schildt, Golder Associates Inc. for

RE: VOLATILES DATA VALIDATION SUMMARY FOR DATA PACKAGE 9401L205-WES-1478 (923-E418)

INTRODUCTION

This memorandum presents the results of data validation on data package 9401L205-WES-1478 prepared by Roy F. Weston, Inc. (Weston). A list of the samples validated along with the analytes reported and the method of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B09DT0	1/06/94	SOIL	SEE NOTE 1

Note 1: The samples were analyzed for CLP volatile target compound list (TCL) organics.

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

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

DATA QUALITY OBJECTIVES

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

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

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

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

Revised
4-25-94

Completeness. The data package was complete for all requested analyses. One sample (1) was validated in this data set with a total of 33 determinations reported, all of which were deemed valid. This results in a completeness of 100% which meets normal work plan objectives of 90%.

MAJOR DEFICIENCIES

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

MINOR DEFICIENCIES

No minor deficiencies were identified during validation which required qualification of data.

REFERENCES

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

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

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

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

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

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

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

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

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

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

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

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

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

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY

PKG ~~SDG:~~ 9401L205-WES-1478	VALIDATOR: A. Schilaff	DATE: 4/4/94	PAGE 1 OF 1
COMMENTS: Volatiles			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
No qualification required			

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: 9401L205-WES-1478

Parameter	Units	Samp# B09DT0	Q
		Date 1-6-94	
		Location ---	
		Depth ---	
		Type ---	
		Comments ---	
CHLOROMETHANE	UG/KG	10.000	U
BROMOMETHANE	UG/KG	10.000	U
VINYL CHLORIDE	UG/KG	10.000	U
CHLOROETHANE	UG/KG	10.000	U
METHYLENE CHLORIDE	UG/KG	10.000	U
ACETONE	UG/KG	10.000	U
CARBON DISULFIDE	UG/KG	10.000	U
1,1-DICHLOROETHENE	UG/KG	10.000	U
1,1-DICHLOROETHANE	UG/KG	10.000	U
1,2-DICHLOROETHENE (TOTAL)	UG/KG	10.000	U
CHLOROFORM	UG/KG	10.000	U
1,2-DICHLOROETHANE	UG/KG	10.000	U
2-BUTANONE	UG/KG	10.000	U
1,1,1-TRICHLOROETHANE	UG/KG	10.000	U
CARBON TETRACHLORIDE	UG/KG	10.000	U
BROMODICHLOROMETHANE	UG/KG	10.000	U
1,2-DICHLOROPROPANE	UG/KG	10.000	U
CIS-1,3-DICHLOROPROPENE	UG/KG	10.000	U
TRICHLOROETHENE	UG/KG	10.000	U
DIBROMOCHLOROMETHANE	UG/KG	10.000	U
1,1,2-TRICHLOROETHANE	UG/KG	10.000	U
BENZENE	UG/KG	10.000	U
TRANS-1,3-DICHLOROPROPENE	UG/KG	10.000	U
BROMOFORM	UG/KG	10.000	U
4-METHYL-2-PENTANONE	UG/KG	10.000	U
2-HEXANONE	UG/KG	10.000	U
TETRACHLOROETHENE	UG/KG	10.000	U
1,1,2,2-TETRACHLOROETHANE	UG/KG	10.000	U
TOLUENE	UG/KG	10.000	U
CHLOROBENZENE	UG/KG	10.000	U
ETHYLBENZENE	UG/KG	10.000	U
STYRENE	UG/KG	10.000	U
XYLENES (TOTAL)	UG/KG	10.000	U

Verified 4/11/94

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B09DT0

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 9401L205-001

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

Lab File ID: 0011312

Level: (low/med) LOW

Date Received: 01/11/94

% Moisture: not dec. 2

Date Analyzed: 01/13/94

GC Column: SP1000 ID: 2.00(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	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

Verified 1/11/94

9614407.1317

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B09DT0

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 9401L205-001

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

Lab File ID: 0011312

Level: (low/med) LOW

Date Received: 01/11/94

% Moisture: not dec. 2

Date Analyzed: 01/13/94

GC Column: SP1000 ID: 2.00(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/Kg

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

FORM I VOA-TIC 3/90

0028 4/11/94

010

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

WESTON
MANAGERS DESIGNERS CONSULTANTS

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

Client: WESTINGHOUSE HANFORD
RFW #: 9401L205

W.O. #: 06168-002-001-9999-00
Date Received: 01-11-94

GC/MS VOLATILE

One (1) soil sample was collected on 01-06-94.

The sample and its associated QC samples were analyzed according to criteria set forth in CLP SOW 03/90 for TCL Volatile target compounds on 01-13,14-94.

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 contaminant Acetone at levels less than 3x the CRQL.

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

6. Sample pH information has been reported in Section XI (Preparation Logs).

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

2/14/94
Date

sma/voa/01-205v.cn

4/11/94
0005 · 012

9613407.1320 9401L205

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator L E ROGERS, W.V. SETZER

Company Contact L E ROGERS Telephone 376-7690

Project Designation/Sampling Locations 200-UP-2 Collection Date 1-6-94

Ice Chest No. EFS-11 Field Logbook No. EFL-1091

Bill of Lading/Airbill No. NA Offsite Property No. ORSC 17596

Method of Shipment OVERNIGHT AIR SERVICE

Shipped to WESTON

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

Sample Identification 9401L205-001

1) BOGDTO
- 1,500ml P:CLP;TAL Metals,Hg,Ti Did not recvd GAMMA
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

2)
- 1,500ml P:CLP;TAL Metals,Hg,Ti
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

LER 1-10-94

3)
- 1,500ml P:CLP;TAL Metals,Hg,Ti
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

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

Relinquished by:	Received by:	Date/Time:
W.V. Setzer 1115 1-6-94	Joan E. Rogers	1-6-94 1115
Joan E. Rogers 1-10-94 0715	W.V. Setzer	1-10-94 0715
W.V. Setzer		
FEDEX		1-11-94 9:30

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

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

4/11/94
0013
0013

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
				(D)	(E)

4/11/94

PROJECT: 200-UP-2		DATA PACKAGE: 9401L205-WES-1478
VALIDATOR: A. Schuldt	LAB: Weston	DATE: 4/4/94
CASE: NA		SDG: NA

ANALYSES PERFORMED

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

SAMPLES/MATRIX B09DT0/soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

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

Comments: _____

2. HOLDING TIMES

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

Comments: _____

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. INSTRUMENT TUNING AND CALIBRATION

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

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

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

Comments: _____

4. BLANKS

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

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

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

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

Comments: Sample information was not provided. Field QC samples will be evaluated in the summary report.
Acetone detected in lab blank but no detects in sample results ∴ no qualification

5. ACCURACY

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

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

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

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

Comments: _____

0016

GC/MS ORGANIC DATA VALIDATION CHECKLIST

6. PRECISION

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

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

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

Comments: Sample information was not available. Field QC results will be evaluated in the summary report.

7. SYSTEM PERFORMANCE

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

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

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

Comments:

8. COMPOUND IDENTIFICATION AND QUANTITATION

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

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

Comments: Ion 43, indicative of 2-butanone, was detected at a concentration >1 ug/L but the RIC was not included to verify presence of ion 72 which is required for positive identification. No qualification required. All reported results were non-detects.

9. REPORTED RESULTS AND QUANTITATION LIMITS

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

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

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

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

Comments:

HOLDING TIME SUMMARY

PKG ~~SDG~~: 9401L205-WES-1478	VALIDATOR: A. Schilde	DATE: 4/4/94	PAGE 1 OF 1
COMMENTS: Volatiles			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09DT0	VOA	1/6/94	1/13/94	1/13/94	7	7	none

MEMORANDUM

TO: 200-UP-2 Project QA Record April 23, 1994

FR: Sandra Schildt, Golder Associates Inc. for

RE: SEMIVOLATILES DATA VALIDATION SUMMARY FOR DATA PACKAGE 9401L205-WES-1478 (923-E418)

INTRODUCTION

This memorandum presents the results of data validation on data package 9401L205-WES-1478 prepared by Roy F. Weston, Inc. (Weston). A list of the samples validated along with the analytes reported and the method of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B09DT0	1/06/94	SOIL	SEE NOTE 1

Note 1: The samples were analyzed for CLP semivolatile target compound list (TCL) organics.

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

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

DATA QUALITY OBJECTIVES

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

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

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

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

Revised 4-25-94 .001 ~~.002~~

Completeness. The data package was complete for all requested analyses. One sample (1) was validated in this data set with a total of 64 determinations reported, all of which were deemed valid. This results in a completeness of 100% which meets normal work plan objectives of 90%.

MAJOR DEFICIENCIES

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

MINOR DEFICIENCIES

The following is a summary of the minor deficiencies identified during validation which required qualification of data.

Laboratory Blanks

- Di-n-butylphthalate and bis(2-ethylhexyl)phthalate were detected in the method blank. Attachments 2 and 5 provide a summary of the samples affected, data qualifications applied, and supporting documentation.

TENTATIVELY IDENTIFIED COMPOUND EVALUATION

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

- TICs were detected in the sample and identified as common laboratory contaminants, resulting in qualification of the results as unusable (R) as shown in Attachment 3.

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

REFERENCES

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

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

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF ORGANIC DATA REPORTING QUALIFIERS

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

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

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

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

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

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

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

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

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

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

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY

PKG SDG: 9401L205-WES-1478	VALIDATOR: A. Schuldt	DATE: 4/6/94	PAGE 1 OF 1
COMMENTS: Semivolatile			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Di-N-Butylphthalate	U	B09DT0	Compound detected in blank
Bis(2-ethylhexyl)phthalate	U	B09DT0	

006

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: 9401L205-WES-1478

Parameter	Units	Samp# B09DT0	Q
Date		1-6-94	
Location		---	
Depth		---	
Type		---	
Comments		---	
PHENOL	UG/KG	340.000	U
BIS(2-CHLOROETHYL)ETHER	UG/KG	340.000	U
2-CHLOROPHENOL	UG/KG	340.000	U
1,3-DICHLOROBENZENE	UG/KG	340.000	U
1,4-DICHLOROBENZENE	UG/KG	340.000	U
1,2-DICHLOROBENZENE	UG/KG	340.000	U
2-METHYLPHENOL	UG/KG	340.000	U
2,2'-OXYBIS(1-CHLOROPROPANE)	UG/KG	340.000	U
4-METHYLPHENOL	UG/KG	340.000	U
N-NITROSO-DI-N-PROPYLAMINE	UG/KG	340.000	U
HEXACHLOROETHANE	UG/KG	340.000	U
NITROBENZENE	UG/KG	340.000	U
ISOPHORONE	UG/KG	340.000	U
2-NITROPHENOL	UG/KG	340.000	U
2,4-DIMETHYLPHENOL	UG/KG	340.000	U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	340.000	U
2,4-DICHLOROPHENOL	UG/KG	340.000	U
1,2,4-TRICHLOROBENZENE	UG/KG	340.000	U
NAPHTHALENE	UG/KG	340.000	U
4-CHLOROANILINE	UG/KG	340.000	U
HEXACHLOROBUTADIENE	UG/KG	340.000	U
4-CHLORO-3-METHYLPHENOL	UG/KG	340.000	U
2-METHYLNAPHTHALENE	UG/KG	340.000	U
HEXACHLOROCYCLOPENTADIENE	UG/KG	340.000	U
2,4,6-TRICHLOROPHENOL	UG/KG	340.000	U
2,4,5-TRICHLOROPHENOL	UG/KG	840.000	U
2-CHLORONAPHTHALENE	UG/KG	340.000	U
2-NITROANILINE	UG/KG	840.000	U
DIMETHYLPHTHALATE	UG/KG	340.000	U
ACENAPHTHYLENE	UG/KG	340.000	U
3-NITROANILINE	UG/KG	840.000	U
ACENAPHTHENE	UG/KG	340.000	U

Validated Data Summary, Data Package: 9401L205-WES-1478

	Samp#	B09DT0	
	Date	1-6-94	
	Location	---	
	Depth	---	
	Type	---	
	Comments	---	
Parameter	Units	Result	Q
2,4-DINITROPHENOL	UG/KG	840.000	U
4-NITROPHENOL	UG/KG	840.000	U
DIBENZOFURAN	UG/KG	340.000	U
2,4-DINITROTOLUENE	UG/KG	340.000	U
2,6-DINITROTOLUENE	UG/KG	340.000	U
DIETHYLPHTHALATE	UG/KG	340.000	U
4-CHLOROPHENYL-PHENYLETHER	UG/KG	340.000	U
FLUORENE	UG/KG	340.000	U
4-NITROANILINE	UG/KG	840.000	U
4,6-DINITRO-2-METHYLPHENOL	UG/KG	840.000	U
N-NITROSODIPHENYLAMINE	UG/KG	340.000	U
4-BROMOPHENYL-PHENYLETHER	UG/KG	340.000	U
HEXACHLOROBENZENE	UG/KG	340.000	U
PENTACHLOROPHENOL	UG/KG	840.000	U
PHENANTHRENE	UG/KG	340.000	U
ANTHRACENE	UG/KG	340.000	U
CARBAZOLE	UG/KG	340.000	U
DI-N-BUTYLPHTHALATE	UG/KG	340.000	U
FLUORANTHENE	UG/KG	340.000	U
PYRENE	UG/KG	340.000	U
BUTYLBENZYLPHTHALATE	UG/KG	340.000	U
3,3'-DICHLOROBENZIDINE	UG/KG	340.000	U
BENZO(A)ANTHRACENE	UG/KG	340.000	U
BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG	340.000	U
CHRYSENE	UG/KG	340.000	U
DI-N-OCTYLPHTHALATE	UG/KG	340.000	U
BENZO(B)FLUORANTHENE	UG/KG	340.000	U
BENZO(K)FLUORANTHENE	UG/KG	340.000	U
BENZO(A)PYRENE	UG/KG	340.000	U
INDENO(1,2,3-CD)PYRENE	UG/KG	340.000	U
DIBENZ(A,H)ANTHRACENE	UG/KG	340.000	U
BENZO(G,H,I)PERYLENE	UG/KG	340.000	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B09DT0

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 9401L205-001

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: L012408

Level: (low/med) LOW

Date Received: 01/11/94

% Moisture: 2 decanted: (Y/N)

Date Extracted: 01/13/94

Concentrated Extract Volume: 500(uL)

Date Analyzed: 01/24/94

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
108-95-2	Phenol	340	U
111-44-4	bis(2-Chloroethyl)ether	340	U
95-57-8	2-Chlorophenol	340	U
541-73-1	1,3-Dichlorobenzene	340	U
106-46-7	1,4-Dichlorobenzene	340	U
95-50-1	1,2-Dichlorobenzene	340	U
95-48-7	2-Methylphenol	340	U
108-60-1	2,2'-oxybis(1-Chloropropane)	340	U
106-44-5	4-Methylphenol	340	U
621-64-7	N-Nitroso-di-n-propylamine	340	U
67-72-1	Hexachloroethane	340	U
98-95-3	Nitrobenzene	340	U
78-59-1	Isophorone	340	U
88-75-5	2-Nitrophenol	340	U
105-67-9	2,4-Dimethylphenol	340	U
111-91-1	bis(2-Chloroethoxy)methane	340	U
120-83-2	2,4-Dichlorophenol	340	U
120-82-1	1,2,4-Trichlorobenzene	340	U
91-20-3	Naphthalene	340	U
106-47-8	4-Chloroaniline	340	U
87-68-3	Hexachlorobutadiene	340	U
59-50-7	4-Chloro-3-methylphenol	340	U
91-57-6	2-Methylnaphthalene	340	U
77-47-4	Hexachlorocyclopentadiene	340	U
88-06-2	2,4,6-Trichlorophenol	340	U
95-95-4	2,4,5-Trichlorophenol	840	U
91-58-7	2-Chloronaphthalene	340	U
88-74-4	2-Nitroaniline	840	U
131-11-3	Dimethylphthalate	340	U
208-96-8	Acenaphthylene	340	U
606-20-2	2,6-Dinitrotoluene	340	U
99-09-2	3-Nitroaniline	840	U
83-32-9	Acenaphthene	340	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B09DT0

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 9401L205-001

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: L012408

Level: (low/med) LOW

Date Received: 01/11/94

% Moisture: 2 decanted: (Y/N)

Date Extracted: 01/13/94

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 01/24/94

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q	
51-28-5	2,4-Dinitrophenol	840	U	
100-02-7	4-Nitrophenol	840	U	
132-64-9	Dibenzofuran	340	U	
121-14-2	2,4-Dinitrotoluene	340	U	
84-66-2	Diethylphthalate	340	U	
7005-72-3	4-Chlorophenyl-phenylether	340	U	
86-73-7	Fluorene	340	U	
100-01-6	4-Nitroaniline	840	U	
534-52-1	4,6-Dinitro-2-methylphenol	840	U	
86-30-6	N-Nitrosodiphenylamine (1)	340	U	
101-55-3	4-Bromophenyl-phenylether	340	U	
118-74-1	Hexachlorobenzene	340	U	
87-86-5	Pentachlorophenol	840	U	
85-01-8	Phenanthrene	340	U	
120-12-7	Anthracene	340	U	
86-74-8	Carbazole	340	U	
84-74-2	Di-n-butylphthalate	340 ~~320~~	~~JB~~	U
206-44-0	Fluoranthene	340	U	
129-00-0	Pyrene	340	U	
85-68-7	Butylbenzylphthalate	340	U	
91-94-1	3,3'-Dichlorobenzidine	340	U	
56-55-3	Benzo(a)anthracene	340	U	
218-01-9	Chrysene	340	U	
117-81-7	bis(2-Ethylhexyl)phthalate	340 ~~22~~	~~J~~	U
117-84-0	Di-n-octyl phthalate	340	U	
205-99-2	Benzo(b)fluoranthene	340	U	
207-08-9	Benzo(k)fluoranthene	340	U	
50-32-8	Benzo(a)pyrene	340	U	
193-39-5	Indeno(1,2,3-cd)pyrene	340	U	
53-70-3	Dibenz(a,h)anthracene	340	U	
191-24-2	Benzo(g,h,i)perylene	340	U	

(1) - Cannot be separated from Diphenylamine

4/11/94

~~0033~~

0011

9613407.1357

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B09DT0

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 9401L205-001

Sample wt/vol: 30.2 (g/mL) G

Lab File ID: L012408

Level: (low/med) LOW

Date Received: 01/11/94

% Moisture: 2 decanted: (Y/N)

Date Extracted: 01/13/94

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 01/24/94

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y

pH: 6.8

Number TICs found: 6

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.		UNKNOWN	6.00	70	~~J~~	JN
2.		ALDOL CONDENSATE	6.30	100	JA	R
3.		ALDOL CONDENSATE	7.37	200	~~JA~~	R
4.		ORGANIC ACID	16.13	200	J	JN
5.		PHOSPHATE	23.68	400	J	JN
6.		UNKNOWN	26.75	100	J	JN

4/11/94

0034

012

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

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

Client: WESTINGHOUSE HANFORD
RFW #: 9401L205

W.O. #: 06168-002-001-9999-00
Date Received: 01-11-94

SEMIVOLATILE

One (1) soil sample was collected on 01-06-94.

The sample and its associated QC samples were extracted on 01-13-94, 02-14-94 and analyzed according to criteria set forth in CLP SOW 3/9O for TCL Semivolatile target compounds on 01-24-94, 02-15-94.

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. All matrix spike recoveries were within EPA QC limits.

   A matrix spike and a matrix spike duplicate for sample B09DT0 were extracted, in hold in batch 94LE0070; however there were several low recoveries in the matrix spike and consequently several RPD limits were exceeded. The MS and MSD were re-extracted out of hold and only the second set of spikes were reported; the first set of MS/MSD data is available upon client request.

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

5. The laboratory blank 94LE0070-MB1 contained the common contaminant Di-n-butylphthalate at a level less than the CRQL. The laboratory blank 94LE0305-MB1 contained the common contaminants Di-n-butylphthalate at a level less than 4x the CRQL, Butylbenzylphthalate at a level less than 3x the CRQL, and Bis(2-ethylhexyl)phthalate at a level less than the CRQL.

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

Kenneth Broomthead — 03.01.94.

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

Date

/dlc/bna/01-205b.cn

4/11/94

9613407.1340

9401L205

Westinghouse Hanford Company

CHAIN OF CUSTODY

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

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

Project Designation/Sampling Locations: 200-UP-2 — Collection Date: 1.6.94

Ice Chest No.: EFS-11 — Field Logbook No.: EFL-1091

Bill of Lading/Airbill No.: NA — Offsite Property No.: ORSR 17596

Method of Shipment: OVERNIGHT AIR SERVICE

Shipped to: WESTON

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

Sample Identification: 9401L205-001

1) BOGDTO

1,500ml P:CLP;TAL Metals,Hg,Ti Did not recd GA-LAB
1,125ml Gs:VOA CLP
1,500ml aG:Semi-VOA CLP
1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
1,250ml G:Cyanide CLP
1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

2)

1,500ml P:CLP;TAL Metals,Hg,Ti
1,125ml Gs:VOA CLP
1,500ml aG:Semi-VOA CLP
1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
1,250ml G:Cyanide CLP
1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

LER 1-10-94

3)

1,500ml P:CLP;TAL Metals,Hg,Ti
1,125ml Gs:VOA CLP
1,500ml aG:Semi-VOA CLP
1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
1,250ml G:Cyanide CLP
1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

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

Relinquished by:	Received by:	Date/Time:
W.V. Setzer 1115 1.6.94	Laura E. Rogers	1-6-94 1115
Laura E. Rogers 1-10-94 0715	W.V. Setzer	1-10-94 0715
W.V. Setzer		
FEDEX		1-11-94 9130

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

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

1/11/94

~~0013~~ 0015

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
				(D)	(E)

4/11/94

PROJECT: 200-UP-2		DATA PACKAGE: 9401L205-WES-1478
VALIDATOR: L. Schlicht	LAB: Weston	DATE: 4/4/94
CASE: NA		SDG: NA

ANALYSES PERFORMED

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

SAMPLES/MATRIX B09DT0/soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

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

Comments: _____

2. HOLDING TIMES

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

Comments: _____

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. INSTRUMENT TUNING AND CALIBRATION

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

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

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

Comments: _____

4. BLANKS

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

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

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

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

Comments: Di-n-butylphthalate detected in blank. Qualification is summarized in attachment 2. Sample information not available, field QC results will be evaluated in the summary report. BEHP was detected on quantitation report but not reported on SBLK report form. Sample concentration is within 10× sample blank value. KH 4/11/94

5. ACCURACY

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

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

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

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

Comments: The initial MS/MSD recoveries were low, therefore the MS/MSD samples were reextracted and reran outside of the holding time with acceptable recoveries. No qualification required.

GC/MS ORGANIC DATA VALIDATION CHECKLIST

6. PRECISION

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

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

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

Comments: Sample information unavailable. field QC results will be evaluated in the summary report.

7. SYSTEM PERFORMANCE

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

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

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

Comments:

8. COMPOUND IDENTIFICATION AND QUANTITATION

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

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

Comments:

9. REPORTED RESULTS AND QUANTITATION LIMITS

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

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

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

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

Comments:

HOLDING TIME SUMMARY

PRq ~~SDG~~: 9401L205-WES-1478	VALIDATOR: L. Schilde	DATE: 4/4/94	PAGE 1 OF 1

COMMENTS: Semivolatiles

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09DT0	~~BNA SVOA~~ SVOA 4/11/94	1/6/94	1/13/94	1/24/94	7	11 from extract	none

B-1

-020

BLANK AND SAMPLE DATA SUMMARY

~~PKG~~ ~~SDG:~~ 9401L205-WES-1478		VALIDATOR: A. Schiblat				DATE: 4/4/94		PAGE 1 OF 1	
COMMENTS: Semivolatiles									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
SB1K	Di-n-butylphthalate	50	J		ug/kg		500	B09DT0	~~320~~ U
SB1K	Bis(2-ethylhexyl)phthalate	3.5			ug/kg		35	B09DT0	~~22~~ U
									3/4/12/94

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SBLK

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) SOIL

Lab Sample ID: 94LE0070-MB1

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

Lab File ID: L012406

Level: (low/med) LOW

Date Received: 01/13/94

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

Date Extracted: 01/13/94

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 01/24/94

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
51-28-5	2,4-Dinitrophenol	840	U
100-02-7	4-Nitrophenol	840	U
132-64-9	Dibenzofuran	330	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	840	U
534-52-1	4,6-Dinitro-2-methylphenol	840	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	840	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
86-74-8	Carbazole	330	U
84-74-2	Di-n-butylphthalate	50	J
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3,3'-Dichlorobenzidine	330	U
56-55-3	Benzo(a)anthracene	330	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)phthalate	330	U
117-84-0	Di-n-octyl phthalate	330	U
205-99-2	Benzo(b)fluoranthene	330	U
207-08-9	Benzo(k)fluoranthene	330	U
50-32-8	Benzo(a)pyrene	330	U
193-39-5	Indeno(1,2,3-cd)pyrene	330	U
53-70-3	Dibenz(a,h)anthracene	330	U
191-24-2	Benzo(g,h,i)perylene	330	U

(1) - Cannot be separated from Diphenylamine

4/12/94

0165

022

9613407.1348

No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
58	NOT FOUND								
59	NOT FOUND								
60	NOT FOUND								
61	NOT FOUND								
62	NOT FOUND								
63	NOT FOUND								
64	NOT FOUND								
65	NOT FOUND								
66	NOT FOUND								
67	NOT FOUND								
68	NOT FOUND								
69	NOT FOUND								
70	149	1208	20:08	4	1.070	A BB	9001.	3.001 NG	0.28 ✓
71	NOT FOUND								
72	NOT FOUND								
73	NOT FOUND								
74	NOT FOUND								
75	NOT FOUND								
76	NOT FOUND								
77	149	1467	24:27	5	0.993	A BB	249.	0.210 NG	0.02 BEHP
78	NOT FOUND								
79	NOT FOUND								
80	NOT FOUND								
81	NOT FOUND								
82	NOT FOUND								
83	NOT FOUND								
84	NOT FOUND								
85	NOT FOUND								
86	NOT FOUND								

specimen LIMS - 6002/16/94

SBLK

VR 4/26/94

4/12/94

0172

-023

4/14/94

Data Validation Check List

for Project T PLT WST WTR 3

HEIS Samp Number	Client Sample Number	Master DP File Number	DP Sequence Number	Laboratory	Y/N	VOA	Y/N	SEMI VOA	Y/N	PEST/PCB	Y/N	WETCHEM	Y/N	METALS	COMMENTS	Y/N	RADCHEM	Date OSM Rcvd DP
BOBDG4		9402L560	1533	WESTON	N		N		N		Y	3/29/94	N		02/10/94 - SAF-94-034	N		3/29/94
BOBDG8		9402L560	1533	WESTON	N		N		N		Y	3/29/94	N		02/10/94 - SAF-94-034	N		3/29/94
BOBDH0		9402L560	1533	WESTON	N		N		N		Y	3/29/94	N		02/10/94 - SAF-94-034	N		3/29/94
BOBDH6		9402L560	1533	WESTON	N		N		N		Y	3/29/94	N		02/10/94 - SAF-94-035	N		3/29/94

VALIDATION RCVD - 04/13/94

Data Entry Complete: DP SRW

DATATRAC 9K 4/14/94

MEMORANDUM

TO: 200-UP-2 Project QA Record April 23, 1994

FR: Sandra Schildt, Golder Associates Inc. for

RE: GENERAL CHEMISTRY ANALYSIS DATA VALIDATION SUMMARY FOR DATA PACKAGE 9401L205-WES-1478 (923-E418)

INTRODUCTION

This memorandum presents the results of data validation on data package 9401L205-WES-1478 prepared by Roy F. Weston, Inc (Weston). A list of the samples validated along with the analyses reported and the method of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B09DT0	1/06/94	SOIL	SEE NOTE 1

Note 1: Samples were analyzed for IC anions and nitrate-nitrite using WHC approved methods.

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

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

DATA QUALITY OBJECTIVES

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

Precision. Goals for precision were met.

Accuracy. Goals for accuracy were met.

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

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

Completeness. The data package was complete for all requested analyses. One sample (1) was validated in this data set with a total of 6 determinations reported, all of which were deemed

Revised 4-25-94

valid. This results in a completeness of 100 percent which meets normal work plan objectives of 90%.

MAJOR DEFICIENCIES

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

MINOR DEFICIENCIES

No minor deficiencies were identified during data validation which required qualification of the data.

REFERENCES

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

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

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected. The concentration reported is less than the contract required detection limit (CRDL) but greater than the instrument detection limit (IDL). The associated data should be considered usable for decision making purposes.

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

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

BJ - Indicates the constituent was analyzed for and detected at a concentration less than the CRDL but greater then the IDL. Due to a minor quality control deficiency identified during data validation, The associated data have been qualified as estimated, but should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. Due to a minor quality control deficiency identified during data validation the associated data have been qualified as estimated, but should be considered usable for decision making purposes.

UR - Indicates the constituent was analyzed for and not detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY

~~SDG:~~ 9401L205-WES-1478	VALIDATOR: S. Schuldt	DATE: 3/31/94	PAGE 1 OF 1
COMMENTS: Wet Chemistry			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
No qualification required			

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: 9401L205-WES-1478

	Samp#	B09DT0	
	Date	1-6-94	
	Location	---	
	Depth	---	
	Type	---	
	Comments	---	
Parameter	Units	Result	Q
PERCENT SOLIDS	%	98.200	
CHLORIDE	MG/KG	21.700	
FLUORIDE	MG/KG	3.000	
CYANIDE	MG/KG	1.000	U
SULFATE	MG/KG	12.200	
NITRATE+NITRITE	MG-N/KG	61.400	

Verified 4/11/94

800

96401L205-357

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 02/02/94

CLIENT: WESTINGHOUSE HANFORD
WESTON BATCH #: 9401L205
WORK ORDER: 06168-002-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B09DT0	% Solids	98.2	%	0.10	1.0
		Chloride by IC	21.7	MG/KG	1.3	1.0
		Fluoride by IC	3.0	MG/KG	2.5	1.0
		Cyanide, Total	1.0 u	MG/KG	1.0	1.0
		Sulfate by IC	12.2	MG/KG	1.3	1.0
		Nitrate Nitrite	61.4	MG-N/KG	5.1	50.0

Verified
3/31/94

0007
0009

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

WESTON

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

Client : WESTINGHOUSE HANFORD
RFW# : 9401L205

W.O. #: 06168-002-001-9999-00
Date Received: 01-11-94

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 the analysis of solid samples are derived from Test Methods for Evaluating Solid Waste (USEPA SW846).

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

2.10.94
Date

pas/i01-205

9613407.1361

9401L205

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator L E ROGERS, W.V. SETZER

Company Contact L E ROGERS — Telephone 376-7690

Project Designation/Sampling Locations 200-UP-2 — Collection Date 1-6-94

Ice Chest No. EFS-11 — Field Logbook No. EFL-1091

Bill of Lading/Airbill No. NA — Offsite Property No. ORSF 17596

Method of Shipment OVERNIGHT AIR SERVICE

Shipped to WESTON

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

Sample Identification 9401L205-001

1) BOYDTO
- 1,500ml P:CLP;TAL Metals,Hg,Ti Did not recvd GAMMA
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

2)
- 1,500ml P:CLP;TAL Metals,Hg,Ti
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

LER 1-10-94

3)
- 1,500ml P:CLP;TAL Metals,Hg,Ti
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

[ ] Field Transfer of Custody	Chain of Possession	(Sign and Print Names)
Relinquished by: W.V. Setzer 1115 1-6-94	Received by: Lorene E. Rogers	Date/Time: 1-6-94 1115
Relinquished by: Lorene E. Rogers 1-10-94 0715	Received by: W.V. Setzer	Date/Time: 1-10-94 0715
Relinquished by: W.V. Setzer	Received by:	Date/Time:
Relinquished by: FEDEX	Received by:	Date/Time: 1-11-94 9130

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

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

~~0018~~ 4/6/94
0012

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D 4/11/94	E

PROJECT: 200-UP-2	DATA PACKAGE: 9401L205-WES-1478	
VALIDATOR: L Schilt	LAB: Weston	DATE: 3/31/94
CASE: NA	SDG: NA	

ANALYSES PERFORMED

☑ Anions/IC	☐ TOC	☐ TOX	☐ TPH-418.1	Oil and Grease	Alkalinity
☐ Ammonia	☐ BOD/COD	☐ Chloride	☐ Chromium-VI	☐ pH	☑ NO_3/NO_2
☐ Sulfate	☐ TDS	☐ TKN	☐ Phosphate	☑ % solids	☐
☐	☐	☐	☐	☐	☐

SAMPLES/MATRIX B09DT0 / soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

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

Comments: _____

2. HOLDING TIMES

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

Comments: _____

014

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

3. INSTRUMENT CALIBRATION

Was initial calibration performed for all applicable analyses? (Yes) No N/A
Are initial calibration results acceptable? . . . . . (Yes) No N/A
Was a calibration check performed for all applicable analyses? (Yes) No N/A
Are calibration check results acceptable? . . . . . (Yes) No N/A
Comments: _____

4. BLANKS

Were laboratory blanks analyzed? . . . . . (Yes) No N/A
Are laboratory blank results acceptable? . . . . . (Yes) No N/A
Were field/trip blanks analyzed? . . . . . Yes No (N/A)
Are field/trip blank results acceptable? . . . . . Yes No (N/A)
Comments: Sample information was not provided. Field QC will be reviewed in the summary report.

5. ACCURACY

Were spike samples analyzed at the required frequency? . . . . (Yes) No N/A
Are spike recoveries acceptable? . . . . . (Yes) No N/A
Were LCS analyses performed at the required frequency? . . . . (Yes) No N/A
Are LCS recoveries acceptable? . . . . . (Yes) No N/A
Comments: _____

6. PRECISION

Were laboratory duplicate samples analyzed at the required frequency? . . . . . (Yes) No N/A
Are laboratory duplicate sample RPD values acceptable? . . . . (Yes) No N/A
Are field duplicate RPD values acceptable? . . . . . Yes No (N/A)
Are field split RPD values acceptable? . . . . . Yes No (N/A)

015

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

Comments: Sample information was not provided. Field QC will be reviewed in the summary report

7. ANALYTE QUANTITATION

Was analyte quantitation performed properly? . . . . . (Yes) No N/A

Comments:

8. REPORTED RESULTS AND DETECTION LIMITS

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

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

Are results calculated properly? . . . . . (Yes) No N/A

Do results meet the CRDLs? . . . . . (Yes) No N/A

Comments:

HOLDING TIME SUMMARY

~~PKG~~ SDG: 9401L205-WSS-1478	VALIDATOR: A. Archibald	DATE: 3/31/94	PAGE 1 OF 1
COMMENTS: Wet Chemistry			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09DT0	IC-SO_4,Cl,F	1/6/94	1/18/94	1/18/94	12	12	none
	CN		1/13/94	1/13/94	7	7	none
	NO_2/NO_3		1/26/94	1/26/94	20	20	none
	%Solids		1/13/94	1/14/94	7	7	none

MEMORANDUM

TO: ~~200-UP-2 Project QA Record~~

April 12, 1994

FR: Sandra Schildt, Golder Associates Inc.

RE: METALS ANALYSIS DATA VALIDATION SUMMARY FOR DATA PACKAGE 9401L205-WES-1478 (923-E418)

INTRODUCTION

This memorandum presents the results of data validation on data package 9401L205-WES-1478 prepared by Roy F. Weston, Inc. (Weston). A list of the samples validated along with the analytes reported and the method of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B09DT0	1/06/94	SOIL	SEE NOTE 1

Note 1: All samples were analyzed for CLP Target Analyte List (TAL) metals, cyanide, and titanium.

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

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

A non-conformance report and record of disposition accompanied the metals fraction and are included in Attachment 4. No qualification of data was made due to the non-conformance.

DATA QUALITY OBJECTIVES

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

Precision. Goals for precision were met with the exception of the minor deficiencies identified below.

Accuracy. Goals for accuracy were met with the exception of the minor deficiencies identified below.

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

Detection Limits. Detection limit goals were met for all analyses.

Completeness. The data package was complete for all requested analyses. One sample (1) was validated in this data set with a total of 25 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent which meets normal work plan objectives of 90%.

MAJOR DEFICIENCIES

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

MINOR DEFICIENCIES

The following is a summary of the minor deficiencies identified during validation which required qualification of data.

Laboratory Blanks

Positive Blanks. Antimony was detected at a positive concentration in the preparation blanks. Attachment 2 provides a summary of the samples and data qualification applied.

Laboratory Spikes

- Analytical spike recovery was unacceptable for arsenic. Attachment 2 and 5 provide a summary of the samples, data qualifications applied and supporting documentation.

Serial Dilution

- The percent difference (%D) of the ICP serial dilution was unacceptable for zinc. Attachment 2 provides a summary of the samples and data qualification applied.

REFERENCES

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

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

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

GLOSSARY OF INORGANIC DATA REPORTING QUALIFIERS

B - Indicates the constituent was analyzed for and detected. The concentration reported is less than the contract required detection limit (CRDL) but greater then the instrument detection limit (IDL). The associated data should be considered usable for decision making purposes.

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

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

BJ - Indicates the constituent was analyzed for and detected at a concentration less than the CRDL but greater then the IDL. Due to a minor quality control deficiency identified during data validation, The associated data have been qualified as estimated, but should be considered usable for decision making purposes.

J - Indicates the constituent was analyzed for and detected. Due to a minor quality control deficiency identified during data validation the associated data have been qualified as estimated, but should be considered usable for decision making purposes.

UR - Indicates the constituent was analyzed for and not detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.

R - Indicates the constituent was analyzed for and detected. Due to a major quality control deficiency identified during data validation, the associated data have been qualified as unusable for decision making purposes.

ATTACHMENT 2

SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY

PRG ~~SDG:~~ 9401L205-WES-1478	VALIDATOR: L. Schuldt	DATE: 3/31/94	PAGE 1 OF 1
COMMENTS: Inorganics			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Antimony	U	B09DT0	Analyte detected in blank
Zinc	J	B09DT0	%D > 10% in serial dilution
Arsenic	BJ	B09DT0	Analytical spike recovery > 115%

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: 9401L205-WES-1478

	Samp#	B09DT0	
	Date	1-6-94	
	Location	---	
	Depth	---	
	Type	---	
	Comments	---	
Parameter	Units	Result	Q
ALUMINUM	MG/KG	4600.000	
ANTIMONY	MG/KG	5.000	U
ARSENIC	MG/KG	2.000	BJ
BARIUM	MG/KG	67.900	
BERYLLIUM	MG/KG	0.200	U
CADMIUM	MG/KG	0.810	U
CALCIUM	MG/KG	8020.000	
CHROMIUM	MG/KG	8.600	
COBALT	MG/KG	5.600	B
COPPER	MG/KG	9.200	
IRON	MG/KG	10500.000	
LEAD	MG/KG	3.000	
MAGNESIUM	MG/KG	3400.000	
MANGANESE	MG/KG	252.000	
MERCURY	MG/KG	0.050	U
NICKEL	MG/KG	7.200	B
POTASSIUM	MG/KG	1150.000	
SELENIUM	MG/KG	0.410	U
SILVER	MG/KG	1.020	U
SODIUM	MG/KG	84.500	B
THALLIUM	MG/KG	0.410	U
VANADIUM	MG/KG	21.000	
ZINC	MG/KG	28.300	J
CYANIDE	MG/KG	1.020	U
TITANIUM	MG/KG	612.000	

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B09DT0

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP205

Matrix (soil/water): SOIL Lab Sample ID: 940120501

Level (low/med): LOW Date Received: 1/11/94

% Solids: 98.2

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	4600.00			P	
7440-36-0	Antimony	5.00	~~B~~		P	U
7440-38-2	Arsenic	2.00	~~B~~	W	F	BJ
7440-39-3	Barium	67.90			P	
7440-41-7	Beryllium	.20	U		P	
7440-43-9	Cadmium	.81	U		P	
7440-70-2	Calcium	8020.00			P	
7440-47-3	Chromium	8.60			P	
7440-48-4	Cobalt	5.60	B		P	
7440-50-8	Copper	9.20			P	
7439-89-6	Iron	10500.00			P	
7439-92-1	Lead	3.00			F	
7439-95-4	Magnesium	3400.00			P	
7439-96-5	Manganese	252.00			P	
7439-97-6	Mercury	.05	U		CV	
7440-02-0	Nickel	7.20	B		P	
7440-09-7	Potassium	1150.00			P	
7782-49-2	Selenium	.41	U		F	
7440-22-4	Silver	1.02	U		P	
7440-23-5	Sodium	84.50	B		P	
7440-28-0	Thallium	.41	U		F	
7440-62-2	Vanadium	21.00			P	
7440-66-6	Zinc	28.30	—	E	P	J
	Cyanide	1.02	U		C	
	Titanium	612				

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN

Verified 3/31/94

03/90

~~0020~~

0009

ATTACHMENT 4

LABORATORY NARRATIVE AND CHAIN-OF-CUSTODY DOCUMENTATION

9613407.1577

NONCONFORMANCE REPORT

Westinghouse Hanford Company

1. Page 1 of 1

2. Preprinted No. 051940

QA Log No. EQA-94-007

3. P. O., W. O., or Job Control No.	4. System/End Use	5. Item/Material	6. Dwg./Spec./Other No.	7. Rev.
N/A	Field Investigation	Sample (Soil)	B09D59	N/A

8. Program/Project/Other	9. Safety Class	10. ASME Code Items
200-UP-1/2 SAF 93-263 (mod 1/26/94)	N/A	☐ Yes ☒ No (If yes, notify authorized inspector)

11. Supplier Name/Address: Sampling and Mobile Labs

12. Notification of Potential Occurence Required: ☐ Yes ☒ No

13. Code: Lot/Heat/Serial	14. Lot Size	15. Sample	16. Qty. Acc.	17. Inspection Criteria
N/A	1	1		☐ Dwg. ☐ Spec. ☐ Insp. Plan ☒ Other WHC-CM-7-7, ETI 5.1 Rev. 5, sec. 6.2, item 2 and WHC-CM-7-7, ETI 5.2 Rev. 5, sec. 5.2 items 1 & 2.

18. Item	19. Description of Nonconformance (list serial no. where applicable)	22. Disposition, Justification, and Instructions
1	As stated in WHC-CM-7-7, ETI 5.1, Rev. 5, sec. 6.2, item a subitem E, The Witness/Field Team Leader shall initiate the Chain of Custody form and shall enter sample identification numbers or other unique sample description. Also stated in WHC-CM-7-7, ETI 5.2, Rev. 5, sec. 5.2, item 2: Item 2: Prepare the Chain of Custody/Sample Analysis Request (A-6000-028) or Sample Analysis Request (A-6000-400) to accompany the samples to the analytical facility. Contrary to the above, the Chain of Custody was not initiated for the metals fraction for sample B09D59 that was sent to TMA.	Interim disposition is to review data from the metals analysis for this samp and the duplicate. The duplicate was sent to Weston (HEIS #B09DI0). If metals results are less than detectable, the sample will be rejecte through the NCR process and the NCR closed.

20. Originator's Signature	Date	23. Design Document Change Required?
A LERCH	1/27/94	☐ Yes, Doc. No. _____ ☐ No
21. Cognizant QA Manager's Signature	Date	24. Corrective Action Required?
TL BENNINGTON	2/1/94	☐ Yes, No. _____ ☐ No

Disp. App.	25. Cognizant Engineer	Date	26. Technical Rep.	Date	Signature/Org.	Date
	MJ GARFOOT	3/16/94				
	QA Engineer	Date	Signature/Org.	Date	Signature/Org.	Date
	TC TRIBLE	3/15/94				

Close 27. Accept _____ Reject _____ Follow on NCR _____ QA/C Personnel _____ Date

011

A-7310-104 (10/9

9615407.1578

HANFORD ANALYTICAL SERVICES MANAGEMENT

RECORD OF DISPOSITION

ROD-94-0012
Record of Disposition No.

DATE: January 18, 1994	LABORATORY: Weston
PROJECT TITLE/NO.: 200-UP-1	NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS: B09DT0, B093H5, B093J4

DESCRIPTION OF EVENT:

a) Samples B09DS9 and B09DT0 were collected as field splits and targeted for shipment to TMA (primary) and Weston (split), respectively. During collection, the metals fraction (CLP TAL plus Ti) of sample B09DS9 was inadvertently omitted. A decision was made in the field to ship the metals fraction of sample B09DT0 to TMA to obtain a complete suite of analyses at the primary lab. This change was not reflected on the Weston Chain of Custody and Analytical Request form which indicated that a 500ml container was submitted for metals analysis. No metals fraction was received by Weston.

b) The Chain of Custody and Analytical Request form indicated that VOA fractions for samples B093H5 and B093J4 were shipped to Weston. Weston did not receive a VOA fraction for either of the two samples.

DISPOSITION OF SAMPLES:

Since sample B09DT0 was soil (chemically unpreserved), Weston was instructed to use remaining sample material from the other fractions to perform analysis for the requested metals (CLP; TAL plus Ti). VOA analysis for samples B093H5 and B093J4 was canceled.

APPROVAL SIGNATURES:

J. A. Lerch — 1/19/94
OSM Project Coordinator (Print/Sign Name) — Date

M. J. Galgoul — 1/28/94
Technical Representative (Print/Sign Name) — Date

N/A
Quality Assurance (Print/Sign Name) — Date

012

WESTON

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

Client : WESTINGHOUSE HANFORD
RFW# : 9401L205

W.O. #: 06168-002-001-9999-00
Date Received: 01-11-94

METALS

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

2. The samples were prepared and analyzed in accordance with the following protocols: CLP SOW 3/90.

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.

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 USEPA SOW control limits except for:

RFW #	Element	%Difference
001	Zinc	15.5

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).

Matrix spike analyses are not required for Al, Fe, Ca, Mg, Na, and K in soils.

4/11/94

0007

013

WESTON

12. 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.

13. Method of Standard Additions (MSA) analyses were not required.

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 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. 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.

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

3.1.94
Date

pas/m01-205.clp

4/11/94

9613407.1381 9401L205

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator L E ROGERS, W.V. SETZER

Company Contact L E ROGERS Telephone 376-7690

Project Designation/Sampling Locations 200-UP-2 Collection Date 1-6-94

Ice Chest No. EFS-11 Field Logbook No. EFL-1091

Bill of Lading/Airbill No. NA Offsite Property No. ORSR 17596

Method of Shipment OVERNIGHT AIR SERVICE

Shipped to WESTON

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

Sample Identification 9401L205-001

1) BOBTO
- 1,500ml P:CLP;TAL Metals,Hg,Ti Did not recd GAMMA
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

2)
- 1,500ml P:CLP;TAL Metals,Hg,Ti
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

3)
- 1,500ml P:CLP;TAL Metals,Hg,Ti
- 1,125ml Gs:VOA CLP
- 1,500ml aG:Semi-VOA CLP
- 1,250ml G:Anions F,Cl,SO4 (EPA 300.0)
- 1,125ml P/G:Anions NO2,NO3 (EPA 353.1)
- 1,250ml G:Cyanide CLP
- 1,1000ml P/G:Gross alpha/beta (PRO-032-15), Gamma Spec to include,Cs-134,Cs-137,Co-60,Eu-152, Eu-154,Eu-155,K-40,Ru-106,Na-22 (PRO-042-5), U-235,U-234,U-238 (PRO-052-32) Np-237,(PRO-042-5) Pu-238,Pu-239/240 (PRO-052-32) Sr-90 (PRO-032-38,PRO-032-25) Tc-99 (PRO-032-78) Am-241,Cm-244 (PRO-052-32 or PRO-062-109) Se-79

LER 1-10-94

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

Relinquished by:	Received by:	Date/Time:
W.V. Setzer 1115 1-6-94	Loren E. Rogers	1-6-94 1115
Loren E. Rogers 1-10-94 0715	W.V. Setzer	1-10-94 0715
W.V. Setzer		
FEDEX		1-11-94 9:30

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

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

4/11/94
~~0004~~
-015

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D 4/1/94	E
PROJECT: 200-UP-2			DATA PACKAGE: 9401L205-WES-1478		
VALIDATOR: L Schildt		LAB: Weston		DATE: 3/31/94	
CASE: West			SDG: N/A		

ANALYSES PERFORMED					
☒ CLP/ICP	☒ CLP/GFAA	☒ CLP/Hg	☒ CLP/Cyanide	☐	☐
☐ SW-846/ICP	☐ SW-846/GFAA	☐ SW-846/Hg	☐ SW-846 Cyanide	☐	☐

SAMPLES/MATRIX B09DTO / soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

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

Comments: _____

2. HOLDING TIMES

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

Comments: _____

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

Were initial calibrations performed on all instruments? . . . . (Yes) No N/A
Are initial calibrations acceptable? . . . . . (Yes) No N/A
Are ICP interference checks acceptable? . . . . . (Yes) No N/A
Were ICV and CCV checks performed on all instruments? . . . . . (Yes) No N/A
Are ICV and CCV checks acceptable? . . . . . (Yes) No N/A
Comments:

4. BLANKS

Were ICB and CCB checks performed for all applicable analyses? (Yes) No N/A
Are ICB and CCB results acceptable? . . . . . (Yes) No N/A
Were preparation blanks analyzed? . . . . . (Yes) No N/A
Are preparation blank results acceptable? . . . . . Yes (No) N/A
Were field/trip blanks analyzed? . . . . . Yes No (N/A)
Are field/trip blank results acceptable? . . . . . Yes No (N/A)
Comments: Sample information was not provided. Field QC data will be reviewed in the summary report. Antimony detected in the prep blank

5. ACCURACY

Were spike samples analyzed? . . . . . (Yes) No N/A
Are spike sample recoveries acceptable? . . . . . (Yes) No N/A
Were laboratory control samples (LCS) analyzed? . . . . . (Yes) No N/A
Are LCS recoveries acceptable? . . . . . (Yes) No N/A
Comments:

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

6. PRECISION

Were laboratory duplicates analyzed? . . . . . (Yes) No N/A

Are laboratory duplicate samples RPD values acceptable? . . . . (Yes) No N/A

Were ICP serial dilution samples analyzed? . . . . . (Yes) No N/A

Are ICP serial dilution %D values acceptable? . . . . . Yes (No) N/A

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

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

Comments: Sample information was not provided. Field QC data will be reviewed in the summary report. %D for Zinc exceeded 10% while sample result was >50×IDL.

7. FURNACE AA QUALITY CONTROL

Were duplicate injections performed as required? . . . . . (Yes) No N/A

Are duplicate injection %RSD values acceptable? . . . . . (Yes) No N/A

Were analytical spikes performed as required? . . . . . (Yes) No N/A

Are analytical spike recoveries acceptable? . . . . . Yes (No) N/A

Was MSA performed as required? . . . . . Yes No (N/A)

Are MSA results acceptable? . . . . . Yes No (N/A)

Comments: Recovery >115% for Antimony

8. REPORTED RESULTS AND DETECTION LIMITS

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

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

Are results calculated properly? . . . . . (Yes) No N/A

Do results meet the CRDLs? . . . . . (Yes) No N/A

Comments:

HOLDING TIME SUMMARY

~~SDG~~ PKG: 9401L205-WES-1478	VALIDATOR: S. Schilatt	DATE: 3/31/94	PAGE 1 OF 1
COMMENTS: Inorganics			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09DT0	ICP	1/6/94	2/9/94	2/15/94	34	40	none
	ICP-Ti			2/17/94		42	
	GFAA-As			2/17/94			
	GFAA-Pb			2/17/94			
	GFAA-Se			2/17/94			
	GFAA-Tl		~~2/9/94~~ 3/31/94	2/17/94	~~2/9/94~~		
	CV-Hg		2/3/94	2/3/94	28 ~~33~~ 3/31/94	28	
	CN		1/12/94	1/13/94	6	7	

BLANK AND SAMPLE DATA SUMMARY

SDG: 94011205-WES-1478	VALIDATOR: A. Schilbert	DATE: 3/31/94	PAGE ____ OF ____

COMMENTS: Inorganics

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
PBLK	Antimony	5.5	B		mg/kg	27.5		B090TO	5U

PRECISION DATA SUMMARY

PRG 94012205- ~~SDG:~~ WES-1478	VALIDATOR: A. Schilatt	DATE: 3/31/94	PAGE 1 OF 1
COMMENTS: ICP Serial Dilution			

COMPOUND	SAMPLE ID: B09DT0	SAMPLE ID: B09DT0L	~~RPD~~ %D	SAMPLES AFFECTED	QUALIFIER
Zinc	139	160.5	15.5	B09DT0	J

ACCURACY DATA SUMMARY

SDG: 9401L205-WES-1478	VALIDATOR: S. Schildt	DATE: 3/31/94	PAGE ____ OF ____	
COMMENTS: GFAA Analytical Spike				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B09DT0	Arsenic	151	B09DT0	BJ

U.S. EPA - CLP

3
BLANKS

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

Lab code: WESTON Case No.: WEST SAS No.: SDG No.: CLP205

Preparation Blank Matrix (soil/water): SOIL

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	27.0	U	27.0	U	-55.0	B	27.0	U	5.400	U	P
Antimony	19.0	U	23.4	B	19.0	U	19.0	U	5.500	B	P
Arsenic	2.0	U	2.0	U	-2.2	B			.400	U	F
Barium	6.0	U	6.0	U	6.0	U	6.0	U	1.200	U	P
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	.200	U	P
Cadmium	4.0	U	4.0	U	4.0	U	4.0	U	.800	U	P
Calcium	20.0	U	20.0	U	20.0	U	20.0	U	4.000	U	P
Chromium	5.0	U	5.0	U	5.0	U	5.0	U	1.300	B	P
Cobalt	5.0	U	5.0	U	5.0	U	5.0	U	1.000	U	P
Copper	7.0	U	7.0	U	7.0	U	7.0	U	1.400	U	P
Iron	7.0	U	7.0	U	7.0	U	7.0	U	1.400	U	P
Lead	2.0	U	2.0	U	2.0	U	-2.9	B	.400	U	F
Magnesium	-30.0	B	29.0	U	29.0	U	29.0	U	5.800	U	P
Manganese	1.0	U	1.0	U	1.0	U	1.0	U	.200	U	P
Mercury	.1	U	.1	U	.1	U	.1	U	.050	U	CV
Nickel	9.0	U	9.0	U	9.0	U	9.0	U	1.800	U	P
Potassium	938.0	U	938.0	U	938.0	U	938.0	U	197.600	B	P
Selenium	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	F
Silver	5.0	U	5.0	U	5.0	U	5.0	U	1.000	U	P
Sodium	48.0	U	50.3	B	48.0	U	48.0	U	12.200	B	P
Thallium	2.0	U	2.0	U	2.0	U	2.0	U	.400	U	F
Vanadium	4.0	U	4.0	U	4.0	U	4.0	U	.960	B	P
Zinc	2.0	U	2.0	U	2.0	U	2.0	U	.920	B	P
Cyanide	10.0	U	10.0	U	10.0	U	10.0	U	1.000	U	C

3/31/94 ~~0027~~
024

U.S. EPA - CLP

9

ICP SERIAL DILUTIONS

EPA SAMPLE NO.

B09DT0L

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP205

Matrix (soil/water): SOIL Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	22599.10		22140.51		2.0		P
Antimony	24.40	B	254.00	B	941.0		P
Arsenic							
Barium	333.20		325.00	B	2.5		P
Beryllium	1.00	B	5.00	U	100.0		P
Cadmium	4.00	U	21.50	B	100.0		P
Calcium	39374.30		38888.01		1.2		P
Chromium	42.10		68.00		61.5		P
Cobalt	27.60	B	51.50	B	86.6		P
Copper	45.10		76.50	B	69.6		P
Iron	51473.50		52501.99		2.0		P
Lead							
Magnesium	16685.80		16656.50	B	.2		P
Manganese	1238.00		1209.50		2.3		P
Mercury							
Nickel	35.20	B	47.50	B	34.9		P
Potassium	5622.90		10402.50	B	85.0		P
Selenium							
Silver	5.00	U	42.50	B	100.0		P
Sodium	415.00	B	1097.50	B	164.5		P
Thallium							
Vanadium	103.10		124.50	B	20.8		P
Zinc	139.00		160.50		15.5	E	P

FORM IX - IN

03/90

3/31/94