WESTON Analytics Use Only
9108L424

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: Westinghouse Hanford/J. D. Fancher
Est. Final Proj. Sampling Date:
Work Order #: 6116-02-01
Project Contact/Phone #: JD Fancher (509) 376-2081
AD Project Manager:
QC: CLP Del: CLP TAT: 35 day
Date Rec'd: 8/12/91 Date Due: 9/16/91
Account #: WS-Hanford

Refrigerator #:
#/Type Container: Liquid / Solid: 1/G
Volume: Liquid / Solid: 500 ml
Preservatives:

ANALYSES REQUESTED →

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓)	Matrix	Date Collected	ORGANIC VOA	ORGANIC BNA	ORGANIC Pest/PCB	ORGANIC Herb	500 ml AG 1	500 ml G 2	125 ml GS 3	INORG Metal	INORG CN					
								CPCB		29 8/13/91	1508	06244	01HSCTO		DIHSN	See below	3PH		23
S - Soil	001	B01DL2		S	8/8/91			✓		X	X	X	✓		✓	✓	✓		
SE - Sediment	002	B01DL4		S	8/8/91			✓		X	X	X	✓		✓	✓	✓		
SO - Solid	003	B01DL6		S	8/8/91			✓		X	X	X	✓		✓	✓	✓		
SL - Sludge	004	B00YN6		S	8/8/91			✓		X	X	X	✓		✓	✓	✓		
W - Water																			
O - Oil																			
A - Air																			
DS - Drum Solids																			
DL - Drum Liquids																			
L - EP/TCLP Leachate																			
WI - Wipe																			
X - Other																			
F - Fish																			

ANALYSES REQUESTED: Anions - IC(F, IC-SO4, IC-NO2, IC-NO3)

1) PCB's; CLP Metals; Ammonium; Anions by IC (F, SO4, NO2, NO3); pH
2) Gross Alpha; Gross Beta; Co-60; Sr-90; Cs-137; U-235; U-238
3) CLP VOA

Special Instructions:

Project No: 91-038 (300-FF-5)

See WHC Chain of Custody

DATE/REVISIONS:
8/13/91 1. Radioactivity subtracted to Teledyne
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___ Airbill # ___
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) 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

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
Ernest Fleming	[illegible]	8/12/91	11:00		RP 8/12/91		
	RP 8/12/91						

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

DFW 21-21-001/A-8/90 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# N/A Cooler# N/A 381-596a

START 0000002 0044102 1815 9613440

9108L424-WES-141 64 2

9613441.1816 2A

9108L424

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator

Company Contact Jon D. Fancher

Telephone (509) 376-2081

Project Designation/Sampling Locations 300-FF-1/ Well ~~4B~~ 5C and 5B

Collection Date 8-8-91

Ice Chest No. SML-10

Field Logbook No. WHC-N-521 and WHC-

Bill of Lading/Airbill No.

Offsite Property No. W91-0214 #

Method of Shipment AIR

Shipped to WESTON

PROJECT NO. 91-016

Possible Sample Hazards/Remarks None detected with field instruments.

Sample Identification

1) ~~B010K2~~ B010L2 500ml Amber Glass: PCB's; CLP Metals; Anions (F, SO4, NO2, NO3); pH; Ammonium

500ml Clear Glass: Gross Alpha; Gross Beta; Co-60; Sr-90; Cs-137; U-235; U-238

125ml Amber Glass: CLP VOA

2) B010L4 500ml Amber Glass PCBs CLP Metals Anions (F SO4 NO2 NO3) ph Ammonium

500ml Clear Glass Gross Alpha Gross Beta Co-60, Sr-90, Cs137 U-235; U-238

125ml Amber Glass CLP VOA

3) B010L6 500ml Amber Glass PCBs CLP Metals Anions (F SO4 NO2 NO3) Ph Ammonium

500ml Clear Glass Gross Alpha Gross Beta Co-60 Sr-90 Cs137 U-235 U-238

125ml Amber Glass CLP VOA

4) B00YN6 500ml Amber Glass PCBs, CLP metals, Anions (F, SO4, NO2, NO3) pH, Ammonium

500ml Clear Glass, Alpha, Beta, Co-60, Sr-90 (Cs-137) U-235, U-238

125 ml Glass, CLP VOA

[] Field Transfer of Custody

Chain of Possession (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
J. D. Fancher J. D. Fancher		
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:
Relinquished by: Emery	Received by: [illegible]	Date/Time: 8/17/91 11:00 am

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

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

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

RFW Batch Number: 9108L424 Client: WESTINGHOUSE HANFORD Work Order: 6168-02-01-0000 Report Date: 08/28/91 22:11 Page: 1a

	Cust ID:	B01OL2		B01OL4		B01OL6		B00YN6		B00YN6		B00YN6	
Sample Information	RFW#:	001		002		003		004		004 MS		004 MSD	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	0.962		0.980		0.962		1.00		1.00		1.00	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Surrogate Recovery	Toluene-d8	97	%	102	%	102	%	102	%	110	%	102	%
	Bromofluorobenzene	89	%	92	%	92	%	83	%	82	%	80	%
	1,2-Dichloroethane-d4	112	%	116	%	114	%	116	%	120	%	115	%
			fl		fl		fl		fl		fl		fl
Chloromethane		10	U	10	U	10	U	15	U	15	U	15	U
Bromomethane		10	U	10	U	10	U	15	U	15	U	15	U
Vinyl Chloride		10	U	10	U	10	U	15	U	15	U	15	U
Chloroethane		10	U	10	U	10	U	15	U	15	U	15	U
Methylene Chloride		19	B	17	B	18	B	48	B	43	B	51	B
Acetone		26	B	19	B	25	B	67		52		51	
Carbon Disulfide		1	J	1	J	5	U	8	U	8	U	8	U
1,1-Dichloroethene		5	U	5	U	5	U	8	U	110	%	117	%
1,1-Dichloroethane		5	U	5	U	5	U	8	U	8	U	8	U
1,2-Dichloroethene (total)		5	U	5	U	5	U	8	U	8	U	8	U
Chloroform		5	U	5	U	5	U	8	U	8	U	8	U
1,2-Dichloroethane		5	U	5	U	5	U	8	U	8	U	8	U
2-Butanone		10	U	10	U	10	U	15	U	15	U	15	U
1,1,1-Trichloroethane		5	U	5	U	5	U	8	U	8	U	8	U
Carbon Tetrachloride		5	U	5	U	5	U	8	U	8	U	8	U
Vinyl Acetate		10	U	10	U	10	U	15	U	15	U	15	U
Bromodichloromethane		5	U	5	U	5	U	8	U	8	U	8	U
1,2-Dichloropropane		5	U	5	U	5	U	8	U	8	U	8	U
cis-1,3-Dichloropropene		5	U	5	U	5	U	8	U	8	U	8	U
Trichloroethene		5	U	5	U	5	U	8	U	115	%	118	%
Dibromochloromethane		5	U	5	U	5	U	8	U	8	U	8	U
1,1,2-Trichloroethane		5	U	5	U	5	U	8	U	8	U	8	U
Benzene		5	U	5	U	5	U	8	U	121	%	121	%
Trans-1,3-Dichloropropene		5	U	5	U	5	U	8	U	8	U	8	U
Bromoform		5	U	5	U	5	U	8	U	8	U	8	U
4-Methyl-2-pentanone		10	U	10	U	10	U	15	U	15	U	15	U
2-Hexanone		10	U	10	U	10	U	15	U	15	U	15	U
Tetrachloroethene		5	U	5	U	5	U	8	U	8	U	8	U
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U	8	U	8	U	8	U

*= Outside of EPA CLP QC limits.

9613441.1817 000004

Cust ID:	B01OL2	B01OL4	B01OL6	B00YN6	B00YN6	B00YN6
RFW#:	001	002	003	004	004 MS	004 MSD
Toluene	5 U	5 U	5 U	8 U	122 %	119 %
Chlorobenzene	5 U	5 U	5 U	8 U	113 %	113 %
Ethylbenzene	5 U	5 U	5 U	8 U	8 U	8 U
Styrene	5 U	5 U	5 U	8 U	8 U	8 U
Xylene (total)	5 U	5 U	5 U	8 U	8 U	8 U

*= Outside of EPA CLP QC limits.

9613441.818 0000005

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WESTINGHOUSE HANFORD **SAMPLES RECEIVED:** 08-12-91
RFW #: 9108L424, GC/MS VOLATILE
W.O. #: 6168-02-01

NARRATIVE

The set of samples consisted of four (4) soil samples collected on 08-08-91.

The samples were analyzed according to criteria set forth in CLP SOW 02/88 (Rev. 05/89) for TCL Volatile target compounds on 08-14,15-91.

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

1. 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.

4. The laboratory blanks contained the common contaminants methylene chloride and acetone at levels less than 2x the CRQL.

5. Internal standard areas were outside QC limits for sample B00YN6. The matrix spike and spike duplicate analyses of that sample fulfill the re-analysis requirment.

9.10.91.

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

9613441.1820 1A 0000021

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

B01OL2

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9108L424-001

Sample wt/vol: 5.20 (g/mL) G

Lab File ID: B081416

Level: (low/med) LOW

Date Received: 08/12/91

% Moisture: not dec. 6

Date Analyzed: 08/14/91

Column: (pack/cap) CAP

Dilution Factor: 0.962

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

CAS NO.	COMPOUND		
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	19	B
67-64-1	Acetone	26	B
75-15-0	Carbon Disulfide	1	J
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

9613441.1821

1E 0000022

CLIENT SAMPLE NO.

BO1OL2

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9108L424-001

Sample wt/vol: 5.20 (g/mL) G

Lab File ID: B081416

Level: (low/med) LOW

Date Received: 08/12/91

% Moisture: not dec. 6

Date Analyzed: 08/14/91

Column: (pack/cap) CAP

Dilution Factor: 0.962

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	25.13	8	J

9613441.1822

1A 0000034

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

B01OL4

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9108L424-002

Sample wt/vol: 5.10 (g/mL) G

Lab File ID: B081417

Level: (low/med) LOW

Date Received: 08/12/91

% Moisture: not dec. 1

Date Analyzed: 08/14/91

Column: (pack/cap) CAP

Dilution Factor: 0.980

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

CAS NO.	COMPOUND		
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	17	B
67-64-1	Acetone	19	B
75-15-0	Carbon Disulfide	1	J
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

9613441.1823

1E 0000035

CLIENT SAMPLE NO.

BO1OL4

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9108L424-002

Sample wt/vol: 5.10 (g/mL) G

Lab File ID: B081417

Level: (low/med) LOW

Date Received: 08/12/91

% Moisture: not dec. 1

Date Analyzed: 08/14/91

Column: (pack/cap) CAP

Dilution Factor: 0.980

Number TICs found: 0

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

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

9613441.1824 0000045

1A

VOLATILE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

B01OL6

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9108L424-003

Sample wt/vol: 5.20 (g/mL) G

Lab File ID: B081418

Level: (low/med) LOW

Date Received: 08/12/91

% Moisture: not dec. 5

Date Analyzed: 08/14/91

Column: (pack/cap) CAP

Dilution Factor: 0.962

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

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

9613441.1825 0000046

1E

CLIENT SAMPLE NO.

BO1OL6

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9108L424-003

Sample wt/vol: 5.20 (g/mL) G

Lab File ID: B081418

Level: (low/med) LOW

Date Received: 08/12/91

% Moisture: not dec. 5

Date Analyzed: 08/14/91

Column: (pack/cap) CAP

Dilution Factor: 0.962

Number TICs found: 0

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

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

CLIENT SAMPLE NO.

BOOYN6

VOLATILE ORGANICS ANALYSIS SHEET

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9108L424-004

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

Lab File ID: B081506

Level: (low/med) LOW

Date Received: 08/12/91

% Moisture: not dec. 34

Date Analyzed: 08/15/91

Column: (pack/cap) CAP

Dilution Factor: 1.00

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

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

9613441.1827

1E 0000055

CLIENT SAMPLE NO.

BOOYN6

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9108L424-004

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

Lab File ID: B081506

Level: (low/med) LOW

Date Received: 08/12/91

% Moisture: not dec. 34

Date Analyzed: 08/15/91

Column: (pack/cap) CAP

Dilution Factor: 1.00

Number TICs found: 0

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

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

9613441 1828 0000003

WESTON RADIOACTIVE SAMPLE EVALUATION (Page 2 of 2)

RFW Batch # 9108L426 9108L424 9108L423 9108L425 Completed By _____

Activity Rating*	Sample ID	Form (liq or sol)	RFW ID	Gamma microR/hr	Alpha cpm	Alpha eff. fact	Alpha dpm	nCi/g	Mass (g)	nC
2	B01185	LIQ		4	0			0.0086	929.4	7.9
1	1167			4	0			0.0007		
1	1169			4	0			0		
1	1188			4	0			0		
1	B00X91	SOL		4	0			0		
1	B010L2			4	0			0.0202		
1	L4			4	0			0.0241		
1	L6			4	0			0.0139		
1	N6			4	0			0.0022		

CJB 8-12-91

*Activity Rating:
(per lab NRC License)

1 Not Radioactive
2 Radioactive
3 Too Radioactive to Handle at Lab

RFW 21-21-013/A-06/91 (Side 2 of 2)

Roy F. Weston, Inc. - Lionville Laboratory

PCBs by GC

Report Date: 09/06/91 21:46

RFW Batch Number: 9108L424 Client: WESTINGHOUSE HANFORD Work Order: 6168-02-01-0000 Page: 1

	Cust ID:	B01OL2	B01OL4	B01OL6	B00YN6	PBLK	PBLK BS
Sample Information	RFW#:	001	002	003	004	91LE1046-MB1	91LE1046-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: Di-n-butylchlorendate		79 %	65 %	63 %	73 %	107 %	57 %
		fl	fl	fl	fl	fl	fl
Aroclor-1016		84 U	79 U	83 U	120 U	80 U	80 U
Aroclor-1221		84 U	79 U	83 U	120 U	80 U	80 U
Aroclor-1232		84 U	79 U	83 U	120 U	80 U	80 U
Aroclor-1242		84 U	79 U	83 U	120 U	80 U	80 U
Aroclor-1248		84 U	79 U	83 U	120 U	80 U	80 U
Aroclor-1254		170 U	160 U	170 U	240 U	160 U	67 %
Aroclor-1260		170 U	160 U	170 U	240 U	160 U	160 U

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

9613441.1829 0000005

9613441.1830 6A

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WESTINGHOUSE HANFORD **SAMPLE RECEIVED:08-12-91**
RFW # : 9108L424, PCB
W.O. #: 6168-02-01

NARRATIVE

The set of samples consisted of four (4) soil samples collected on 08-08-91.

The samples were extracted on 08-14-91 and analyzed according to criteria set forth in the Contract Laboratory Program for PCB target compounds on 09-05-91.

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

1. Linearity and breakdown criteria were met for all compounds on the primary column except for DBC (RSD of calibration factors exceeded 10%). The DBC linearity criteria were met on the confirmation column and surrogate recoveries were determined from this analysis.

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

3. Retention time criteria were exceeded prior to the sample extracts for the following compounds:

Compound	Column	Date/Time of Analysis	
AR1254	SP2100	09-04-91	13:08
AR1254	SP2250/2401	09-04-91	21:07
AR1254	SP2100	09-04-91	21:09
AR1254	SP2250/2401	09-05-91	04:46
AR1254	SP2100	09-05-91	04:48

Larger retention time windows were used for the evaluation of the accompanying data.

4. All surrogate recoveries were within EPA QC limits.

5. The blank spike recovery was within laboratory control limits.

9.17.91.

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

9613441.1831 0000013

1D

PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

B01OL2

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9108L424-001

Sample wt/vol: 30.3 (g/mL) G

Lab File ID: 09049109.48

Level: (low/med) LOW

Date Received: 08/12/91

% Moisture: not dec. 6 dec.

Date Extracted: 08/14/91

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 09/05/91

GPC Cleanup: (Y/N) Y pH: 8.6

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
12674-11-2	Aroclor-1016	84	U
11104-28-2	Aroclor-1221	84	U
11141-16-5	Aroclor-1232	84	U
53469-21-9	Aroclor-1242	84	U
12672-29-6	Aroclor-1248	84	U
11097-69-1	Aroclor-1254	170	U
11096-82-5	Aroclor-1260	170	U

DER 9/10/91

FORM 1 PEST 12/88 Rev.

9613441.1832 0000019

1D

CLIENT SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS SHEET

B01OL4

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9108L424-002

Sample wt/vol: 30.9 (g/mL) G

Lab File ID: 09049109.49

Level: (low/med) LOW

Date Received: 08/12/91

% Moisture: not dec. 1 dec.

Date Extracted: 08/14/91

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 09/05/91

GPC Cleanup: (Y/N) Y pH: 8.7

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
12674-11-2	Aroclor-1016	79	U
11104-28-2	Aroclor-1221	79	U
11141-16-5	Aroclor-1232	79	U
53469-21-9	Aroclor-1242	79	U
12672-29-6	Aroclor-1248	79	U
11097-69-1	Aroclor-1254	160	U
11096-82-5	Aroclor-1260	160	U

DER 9/10/91

FORM 1 PEST 12/88 Rev.

9613441.1833 1D 0000024

CLIENT SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS SHEET

B01OL6

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9108L424-003

Sample wt/vol: 30.5 (g/mL) G

Lab File ID: 09049109.50

Level: (low/med) LOW

Date Received: 08/12/91

% Moisture: not dec. 5 dec.

Date Extracted: 08/14/91

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 09/05/91

GPC Cleanup: (Y/N) Y pH: 8.9

Dilution Factor: 1.00

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

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

DER 9/10/91

FORM 1 PEST 12/88 Rev.

9613441.1834

1D 0000029

PESTICIDE ORGANICS ANALYSIS SHEET

CLIENT SAMPLE NO.

BOOYN6

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

Client: WESTINGHOUSE HANFORD

Matrix: SOIL

Lab Sample ID: 9108L424-004

Sample wt/vol: 30.5 (g/mL) G

Lab File ID: 09049109.51

Level: (low/med) LOW

Date Received: 08/12/91

% Moisture: not dec. 34 dec.

Date Extracted: 08/14/91

Extraction: (SepF/Cont/Sonc) SONC

Date Analyzed: 09/05/91

GPC Cleanup: (Y/N) Y pH: 9.3

Dilution Factor: 1.00

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

CAS NO.	COMPOUND		
12674-11-2	Aroclor-1016	120	U
11104-28-2	Aroclor-1221	120	U
11141-16-5	Aroclor-1232	120	U
53469-21-9	Aroclor-1242	120	U
12672-29-6	Aroclor-1248	120	U
11097-69-1	Aroclor-1254	240	U
11096-82-5	Aroclor-1260	240	U

JER 9/10/91

FORM 1 PEST 12/88 Rev.

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WESTINGHOUSE HANFORD **SAMPLES RECEIVED:** 08-12-91
RFW #: 9108L424
W.O. #: 6168-02-01

INORGANIC NARRATIVE

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 preparation blank results were below the required detection limit.

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

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

4. Matrix spike recoveries are summarized on the Inorganic Accuracy Report contained within this document. All recoveries were within the 75-125% guidance limit.

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

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

OCT 1991
RECEIVED
DATA RECEIPT

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

9.30.91
Date

pas.21\i8-424

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 09/18/91

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

WESTON BATCH #: 9108L424

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	BO1OL2	% Solids	93.9		%	0.10
		Fluoride by IC	2.6	u	MG/KG	2.6
		Nitrite by IC	1.3	u	MG/KG	1.3
		Nitrate by IC	2.9		MG/KG	1.3
		Sulfate by IC	5.3		MG/KG	1.3
		Ammonia, as N	1.3	u	MG/KG	1.3
		pH	8.8		PH UNITS	0.010
-002	BO1OL4	% Solids	98.9		%	0.10
		Fluoride by IC	2.3	u	MG/KG	2.3
		Nitrite by IC	1.2	u	MG/KG	1.2
		Nitrate by IC	1.6		MG/KG	1.2
		Sulfate by IC	4.5		MG/KG	1.2
		Ammonia, as N	1.3	u	MG/KG	1.3
		pH	8.9		PH UNITS	0.010
-003	BO1OL6	% Solids	94.9		%	0.10
		Fluoride by IC	2.4	u	MG/KG	2.4
		Nitrite by IC	1.2	u	MG/KG	1.2
		Nitrate by IC	1.9		MG/KG	1.2
		Sulfate by IC	3.9		MG/KG	1.2
		Ammonia, as N	1.3	u	MG/KG	1.3
		pH	9.0		PH UNITS	0.010
-004	BOOYN6	% Solids	66.2		%	0.10
		Fluoride by IC	3.9	u	MG/KG	3.9
		Nitrite by IC	2.0	u	MG/KG	2.0
		Nitrate by IC	2.0	u	MG/KG	2.0
		Sulfate by IC	58.0		MG/KG	2.0
		Ammonia, as N	10.6		MG/KG	1.8
		pH	9.7		PH UNITS	0.010

ROY F. WESTON INC.

INORGANICS PRECISION REPORT 09/18/91

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

WESTON BATCH #: 9108L424

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	% DIFF
-001REP	B01OL2	Ammonia, as N	1.3 u	1.3 u	NC
BLANREP	91LAM112-MB1	Ammonia, as N	1.2 u	1.2 u	NC

Roy F. Weston, INC.
Lionville Laboratory

CLIENT: WESTINGHOUSE HANFORD **SAMPLES RECEIVED:** 8/12/91
RFW #: 9108L424
W.O. #: 6168-02-01

METALS NARRATIVE

The set of samples consisted of four (4) soil samples collected on 8/8/91.

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

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

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

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

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

4. All preparation blank values were within control limits.

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

6. All matrix spike recoveries were within the 75-125% control limits.

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

8. As, Pb sample results were calculated by the method of standard addition (MSA). All corresponding samples were flagged with an "S" according to CLP protocol.

9. For MSA, results reported on Form 8 are calculated from absorbance values. Results reported on other forms are based concentration. As indicated in the SOW1LJM01.0, page B-32, differences due to rounding may be found between the MSA values on Form 8 and the results reported on the other forms.

WESTON

10. 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.

11. 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).

12. Quarterly Detection Limits for IC2 are included in this package.

Margaret M. Beaty

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

10/18/91
Date

pas\ clp-met.nar

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 10/16/91

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

WESTON BATCH #: 9108L424

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	BO1OL2	Silver, Total	2.0	u	MG/KG	2.0
		Aluminum, Total	3070		MG/KG	41.0
		Arsenic, Total	1.9	u	MG/KG	1.9
		Barium, Total	61.1		MG/KG	41.0
		Beryllium, Total	1.0	u	MG/KG	1.0
		Calcium, Total	3850		MG/KG	1020
		Cadmium, Total	1.0	u	MG/KG	1.0
		Cobalt, Total	10.2	u	MG/KG	10.2
		Chromium, Total	3.8		MG/KG	2.0
		Copper, Total	8.9		MG/KG	5.1
		Iron, Total	11000		MG/KG	20.5
		Mercury, Total	0.11	u	MG/KG	0.11
		Potassium, Total	1020	u	MG/KG	1020
		Magnesium, Total	2200		MG/KG	1020
		Manganese, Total	230		MG/KG	3.1
		Sodium, Total	1020	u	MG/KG	1020
		Nickel, Total	8.2	u	MG/KG	8.2
		Lead, Total	2.7		MG/KG	0.58
		Antimony, Total	12.3	u	MG/KG	12.3
		Selenium, Total	0.97	u	MG/KG	0.97
		Thallium, Total	1.9	u	MG/KG	1.9
		Vanadium, Total	16.9		MG/KG	10.2
		Zinc, Total	20.5		MG/KG	4.1

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 10/16/91

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

WESTON BATCH #: 9108L424

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-002	BO1OL4	Silver, Total	1.5	u	MG/KG	1.5
		Aluminum, Total	2240		MG/KG	30.8
		Arsenic, Total	1.6	u	MG/KG	1.6
		Barium, Total	40.0		MG/KG	30.8
		Beryllium, Total	0.77	u	MG/KG	0.77
		Calcium, Total	2320		MG/KG	770
		Cadmium, Total	0.77	u	MG/KG	0.77
		Cobalt, Total	7.7	u	MG/KG	7.7
		Chromium, Total	7.4		MG/KG	1.5
		Copper, Total	8.1		MG/KG	3.8
		Iron, Total	5650		MG/KG	15.4
		Mercury, Total	0.10	u	MG/KG	0.10
		Potassium, Total	770	u	MG/KG	770
		Magnesium, Total	1340		MG/KG	770
		Manganese, Total	139		MG/KG	2.3
		Sodium, Total	770	u	MG/KG	770
		Nickel, Total	6.2	u	MG/KG	6.2
		Lead, Total	2.7		MG/KG	0.48
		Antimony, Total	9.2	u	MG/KG	9.2
		Selenium, Total	0.80	u	MG/KG	0.80
		Thallium, Total	1.6	u	MG/KG	1.6
		Vanadium, Total	7.9		MG/KG	7.7
		Zinc, Total	13.8		MG/KG	3.1

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 10/16/91

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

WESTON BATCH #: 9108L424

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-003	B01OL6	Silver, Total	1.6	u	MG/KG	1.6
		Aluminum, Total	2230		MG/KG	31.2
		Arsenic, Total	1.6	u	MG/KG	1.6
		Barium, Total	42.5		MG/KG	31.2
		Beryllium, Total	0.78	u	MG/KG	0.78
		Calcium, Total	2480		MG/KG	780
		Cadmium, Total	0.78	u	MG/KG	0.78
		Cobalt, Total	7.8	u	MG/KG	7.8
		Chromium, Total	4.5		MG/KG	1.6
		Copper, Total	9.0		MG/KG	3.9
		Iron, Total	6630		MG/KG	15.6
		Mercury, Total	0.10	u	MG/KG	0.10
		Potassium, Total	780	u	MG/KG	780
		Magnesium, Total	1510		MG/KG	780
		Manganese, Total	144		MG/KG	2.3
		Sodium, Total	780	u	MG/KG	780
		Nickel, Total	6.2	u	MG/KG	6.2
		Lead, Total	1.8		MG/KG	0.49
		Antimony, Total	9.4	u	MG/KG	9.4
		Selenium, Total	0.81	u	MG/KG	0.81
		Thallium, Total	1.6	u	MG/KG	1.6
		Vanadium, Total	10.8		MG/KG	7.8
		Zinc, Total	13.7		MG/KG	3.1

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 10/16/91

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

WESTON BATCH #: 9108L424

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-004	BOOYN6	Silver, Total	2.4	u	MG/KG	2.4
		Aluminum, Total	7760		MG/KG	48.5
		Arsenic, Total	9.3		MG/KG	2.4
		Barium, Total	167		MG/KG	48.5
		Beryllium, Total	1.2	u	MG/KG	1.2
		Calcium, Total	6900		MG/KG	1210
		Cadmium, Total	1.2	u	MG/KG	1.2
		Cobalt, Total	13.6		MG/KG	12.1
		Chromium, Total	12.5		MG/KG	2.4
		Copper, Total	24.6		MG/KG	6.1
		Iron, Total	13700		MG/KG	24.2
		Mercury, Total	0.15	u	MG/KG	0.15
		Potassium, Total	2180		MG/KG	1210
		Magnesium, Total	5630		MG/KG	1210
		Manganese, Total	328		MG/KG	3.6
		Sodium, Total	1210	u	MG/KG	1210
		Nickel, Total	16.1		MG/KG	9.7
		Lead, Total	11.8		MG/KG	0.72
		Antimony, Total	14.5	u	MG/KG	14.5
		Selenium, Total	1.2	u	MG/KG	1.2
		Thallium, Total	2.4	u	MG/KG	2.4
		Vanadium, Total	19.9		MG/KG	12.1
		Zinc, Total	62.1		MG/KG	4.8

ROY F. WESTON INC.

INORGANICS PRECISION REPORT 10/16/91

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

WESTON BATCH #: 9108L424

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	% DIFF
-003REP	B01OL6	Mercury, TOT	0.10u	0.10u	NC

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B01OL2

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP424

Matrix (soil/water): SOIL Lab Sample ID: 910842401

Level (low/med): LOW Date Received: 8/12/91

% Solids: 93.9

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3070.00			P
7440-36-0	Antimony	4.10	U		P
7440-38-2	Arsenic	.88	B		F
7440-39-3	Barium	61.10			P
7440-41-7	Beryllium	.25	B		P
7440-43-9	Cadmium	.62	U		P
7440-70-2	Calcium	3850.00			P
7440-47-3	Chromium	3.80			P
7440-48-4	Cobalt	7.10	B		P
7440-50-8	Copper	8.90			P
7439-89-6	Iron	11000.00			P
7439-92-1	Lead	2.70		S	F
7439-95-4	Magnesium	2200.00			P
7439-96-5	Manganese	230.00			P
7439-97-6	Mercury	.11	U		CV
7440-02-0	Nickel	4.70	B		P
7440-09-7	Potassium	574.00	B		P
7782-49-2	Selenium	.39	U		F
7440-22-4	Silver	2.05	U		P
7440-23-5	Sodium	131.00	B		P
7440-28-0	Thallium	.39	U		F
7440-62-2	Vanadium	16.90			P
7440-66-6	Zinc	20.50			P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B01OL4

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP424

Matrix (soil/water): SOIL Lab Sample ID: 910842402

Level (low/med): LOW Date Received: 8/12/91

% Solids: 98.9

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2240.00			P
7440-36-0	Antimony	3.08	U		P
7440-38-2	Arsenic	.83	B	W	F
7440-39-3	Barium	40.00			P
7440-41-7	Beryllium	.18	B		P
7440-43-9	Cadmium	.46	U		P
7440-70-2	Calcium	2320.00			P
7440-47-3	Chromium	7.40			P
7440-48-4	Cobalt	3.40	B		P
7440-50-8	Copper	8.10			P
7439-89-6	Iron	5650.00			P
7439-92-1	Lead	2.70		S	F
7439-95-4	Magnesium	1340.00			P
7439-96-5	Manganese	139.00			P
7439-97-6	Mercury	.10	U		CV
7440-02-0	Nickel	5.70	B		P
7440-09-7	Potassium	508.00	B		P
7782-49-2	Selenium	.32	U	W	F
7440-22-4	Silver	1.54	U		P
7440-23-5	Sodium	94.60	B		P
7440-28-0	Thallium	.32	U		F
7440-62-2	Vanadium	7.90			P
7440-66-6	Zinc	13.80			P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B01OL6

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP424

Matrix (soil/water): SOIL Lab Sample ID: 910842403

Level (low/med): LOW Date Received: 8/12/91

% Solids: 94.9

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2230.00			P
7440-36-0	Antimony	3.12	U		P
7440-38-2	Arsenic	.76	B	W	F
7440-39-3	Barium	42.50			P
7440-41-7	Beryllium	.23	B		P
7440-43-9	Cadmium	.47	U		P
7440-70-2	Calcium	2480.00			P
7440-47-3	Chromium	4.50			P
7440-48-4	Cobalt	3.80	B		P
7440-50-8	Copper	9.00			P
7439-89-6	Iron	6630.00			P
7439-92-1	Lead	1.80		S	F
7439-95-4	Magnesium	1510.00			P
7439-96-5	Manganese	144.00			P
7439-97-6	Mercury	.11	U		CV
7440-02-0	Nickel	4.80	B		P
7440-09-7	Potassium	442.00	B		P
7782-49-2	Selenium	.32	U		F
7440-22-4	Silver	1.56	U		P
7440-23-5	Sodium	87.30	B		P
7440-28-0	Thallium	.32	U		F
7440-62-2	Vanadium	10.80			P
7440-66-6	Zinc	13.70			P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOOYN6

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP424

Matrix (soil/water): SOIL Lab Sample ID: 910842404

Level (low/med): LOW Date Received: 8/12/91

% Solids: 66.2

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7760.00			P
7440-36-0	Antimony	4.85	U		P
7440-38-2	Arsenic	9.30		S	F
7440-39-3	Barium	167.00			P
7440-41-7	Beryllium	.95	B		P
7440-43-9	Cadmium	.73	U		P
7440-70-2	Calcium	6900.00			P
7440-47-3	Chromium	12.50			P
7440-48-4	Cobalt	13.60			P
7440-50-8	Copper	24.60			P
7439-89-6	Iron	13700.00			P
7439-92-1	Lead	11.80		S	F
7439-95-4	Magnesium	5630.00			P
7439-96-5	Manganese	328.00			P
7439-97-6	Mercury	.15	U		CV
7440-02-0	Nickel	16.10			P
7440-09-7	Potassium	2180.00			P
7782-49-2	Selenium	.48	U		F
7440-22-4	Silver	2.42	U		P
7440-23-5	Sodium	361.00	B		P
7440-28-0	Thallium	.48	U		F
7440-62-2	Vanadium	19.90			P
7440-66-6	Zinc	62.10			P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

9613441.1849 9108L424-WCS-141

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST - FORM A-6

PROJECT: 300-FF-1 RI/FS	REVIEWER: SG	DATE: 5-28-92
LABORATORY: Weston	CASE: 9108L424	SDG:
SAMPLES/MATRIX: B01OL2 (soil)		
B01OL4 (")		
B01OL6 (")		
B00YN6 (")		

1. COMPLETENESS AND CONTRACT COMPLIANCE

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

Data Package Item	Present?: Yes	No	N/A
Case Narrative	✓		
Cover Page	✓		
Traffic Reports	✓		
Sample Data			
Inorganic Analysis Data Sheets	✓		
Standards Data			
Initial and Continuing Calibration Verification	✓		
CRDL Standard for AA and ICP	✓		
QC Summary			
Blanks	✓		
ICP Interference Check Summary	✓		
Spike Sample Recovery	✓		
Post-Digestion Spike Sample Recovery		✓	
Duplicate	✓		
Laboratory Control Sample	✓		
Standard Addition Results	✓		
ICP Serial Dilutions		✓	
Instrument Detection Limits	✓		
ICP Interelement Correction Factors	✓		
ICP Linear Ranges	✓		
Preparation Log	✓		
Analysis Run Log	✓		
Raw Data			
ICP Raw Data	✓		
Furnace AA Raw Data	✓		
Mercury Raw Data	✓		
Cyanide Raw Data		✓	
Additional Data			
Internal laboratory chain-of-custody		✓	
Laboratory Sample Preparation Records	✓		

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

2. HOLDING TIMES

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

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

3. INITIAL CALIBRATIONS

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

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

Was a midrange cyanide standard distilled? Yes No N/A

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

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

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

Are there calculation errors? Yes No N/A

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

5. ICP INTERFERENCE CHECK SAMPLE

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

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

Are there calculation errors? Yes No N/A

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

6. LABORATORY BLANKS

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

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

7. FIELD BLANKS

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

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

8. MATRIX SPIKE SAMPLE ANALYSIS

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

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

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

9. LABORATORY CONTROL SAMPLE

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

Are there calculation errors? Yes No N/A

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

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

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

10. PERFORMANCE AUDIT ANALYSES

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

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

11. DUPLICATE SAMPLE ANALYSIS

Are RPD values acceptable? Yes No N/A

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

12. ICP SERIAL DILUTION

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

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

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

13. FIELD DUPLICATE SAMPLES

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

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

14. FIELD SPLIT SAMPLES

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

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

1516. FURNACE ATOMIC ABSORPTION QUALITY CONTROL

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

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

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

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

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

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

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

17. ANALYTE QUANTITATION AND DETECTION LIMITS

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

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

18. OVERALL ASSESSMENT AND SUMMARY

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

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

PESTICIDE/PCB DATA VALIDATION CHECKLIST - FORM A-3

PROJECT: 300-FF-1 RIFS	REVIEWER: SS	DATE: 5-28-92
LABORATORY: Weston	CASE: 91081424	SDG:
SAMPLES/MATRIX: B01042 (soil)		
B01044 (")		
B01046 (")		
B0G4N6 (")		

1. DATA PACKAGE COMPLETENESS

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

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

Data Package Item	Present?: Yes	No	N/A
Additional Data			
Moisture/% solids data sheets	—	✓	—
Reduction formulae	—	✓	—
Instrument time logs	—	✓	—
Chemist notebook pages	—	✓	—
Sample preparation sheets	✓	—	—

2. HOLDING TIMES

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

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS

3.1 INSTRUMENT PERFORMANCE (2/88 SOW)

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

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

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

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

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

ACTION: If the standards do not meet the retention time criteria and peaks are not present near or within the retention time windows no sample qualification is necessary. If peaks are near or within the retention time windows and the standards and matrix spikes do not fall within the expanded retention time windows calculated according to the validation requirements, qualify all associated sample results from the last in-control point as unusable (R).

Are DDT breakdowns $\leq$20%?	Yes	No	N/A

ACTION: If the DDT percent breakdown exceeds 20%, qualify all detected results for DDT as estimated (J) and all nondetects as unusable (R) if DDD and DDE are detected. In addition qualify all results for DDD or DDE as presumptive and estimated (NJ).

Are endrin breakdowns $\leq$20%?	Yes	No	N/A

ACTION: If the endrin breakdown exceeds 20%, qualify all detected results for endrin as estimated (J) and all nondetects as unusable (R) if endrin aldehyde or endrin ketone are detected. In addition, qualify all results for endrin ketone as presumptive and estimated (NJ).

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

ACTION: If DBC %D values are outside the limits and the shift is ocurring repeatedly in samples and standards, qualify affected sample results as unusable (R).

3.2 CALIBRATIONS (2/88 SOW)

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

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

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

Is peak resolution acceptable? Yes No N/A

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

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

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

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

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

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

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

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

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

3.4 CALIBRATION VERIFICATION (3/90 SOW)

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

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

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

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

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

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

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

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

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

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

4. BLANKS

4.1 LABORATORY BLANKS

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

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

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

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

ACTION: Qualify all associated positive results as nondetects (U) that are <5 times the highest concentration in any acceptable blank.

4.2 FIELD BLANKS

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

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

5. ACCURACY

5.1 SURROGATE RECOVERY

Are any surrogate recoveries out of specification?	Yes	No	N/A
Do any samples show nondetects for surrogates?	Yes	No	N/A
Are any method blank surrogates out of specification?	Yes	No	N/A

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

5.2 MATRIX SPIKE RECOVERY

Has the laboratory analyzed a MS/MSD per matrix for the the sample group?	Yes	No	N/A
Are MS/MSD recoveries within specification?	Yes	No	N/A
Are there any calculation or transcription errors?	Yes	No	N/A

ACTION: If MS/MSD analyses have not been conducted contact the laboratory for clarification. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is >5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by the low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

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

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

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLES

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

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPD values are out of specification and sample results are >5xCRQL qualify positive results as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

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

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

6.3 FIELD SPLIT SAMPLES

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

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

7. COMPOUND IDENTIFICATION AND QUANTITATION

7.1 COMPOUND IDENTIFICATION

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

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

If dieldrin and DDE were reported was a 3% OV-1 column used for confirmation (2/88 SOW data only)? Yes No N/A

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

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

ACTION: If positive results do not meet the retention time criteria qualify all detected results as nondetects as follows: If the misidentified peak is outside the retention time windows and no interferences are noted report the CRQL and if the misidentified peak interferes with a target peak then the report value is qualified as estimated and nondetected (UJ). If positive results were not confirmed on disimilar columns, reject affected results (R). If a 3% OV-1 was used to confirm dieldrin and DDE, reject the affected data (R). If PCB, chlordane or toxaphene identification is questionable qualify the results as presumptive and estimated (NJ). If GC/MS confirmation was not conducted contact the laboratory for explanation and note in the validation narrative.

7.2 REPORTED RESULTS AND QUANTITATION LIMITS

Are results and quantitation limits calculated properly?	Yes	No	N/A
Has the laboratory reported the sample quantitation limits within 5xCRQL values?	Yes	No	N/A

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

8. OVERALL ASSESSMENT AND SUMMARY

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

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

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VOLATILE ORGANIC DATA VALIDATION CHECKLIST - FORM A-1

PROJECT: 300-FF-1 RIFS	REVIEWER: SS	DATE: 5-28-92
LABORATORY: Weston	CASE: 9108L424	SDG:
SAMPLES/MATRIX: B010L2 (soil)		
B010L4 (")		
B010L6 (")		
B00YN6 (")		

1. DATA PACKAGE COMPLETENESS

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

Data Package Item	Present?: Yes	No	N/A
Case Narrative	✓		
Data Summary	✓		
Chain-of-Custody	✓		
QC Summary			
Surrogate report	✓		
MS/MSD report	✓		
Blank summary report	✓		
GC/MS tuning report	✓		
Internal standard summary report		✓	
Sample Data			
Sample reports	✓		
TIC reports for each sample	✓		
RIC reports for all samples	✓		
Raw and corrected spectra for all detected results	✓		
Raw and corrected library search data for all reported TIC	✓		
Quantitation and calculation data for all TIC		✓	
Standards Data			
Initial calibration report	✓		
RIC and quantitation reports for initial calibration	✓		
Continuing calibration reports	✓		
RIC and quantitation reports for cont. calibrations	✓		
Internal standard summary report	✓		
Raw QC Data			
Tuning report, spectra and mass lists	✓		
Blank analysis reports	✓		
TIC reports for all blanks	✓		
RIC and quantitation reports for blanks	✓		
Raw and corrected spectra for all detected results in blanks	✓		
Raw and corrected library search data for all reported TIC			✓

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

2. HOLDING TIMES

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

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

ACTION: If any holding times were exceeded, but not by greater than a factor of two, qualify associated samples as estimated (J for detects or UJ for nondetects), otherwise reject all nondetects (R) and qualify all associated detects as estimated (J).

3. INSTRUMENT CALIBRATION, TUNING AND PERFORMANCE CHECKS

3.1 GC/MS TUNING AND PERFORMANCE CHECKS

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

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

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

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

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

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

3.2 INITIAL CALIBRATION

Is an initial calibration report provided for all instruments? Yes No N/A

Are all RSD values $\leq 30\%$ (2/88 SOW)? Yes No N/A

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

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

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all detected results for the particular compound as estimated (J) and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any RSD value is out of specification qualify all associated data as estimated (J for detects or UJ for nondetects).

3.3. CONTINUING CALIBRATION

Is a continuing calibration report present for all 12-h periods in which associated samples were analyzed?	Yes	No	N/A
Are all RRF values ≥0.05 (2/88 SOW)?	Yes	No	N/A
Are all %D values ≤25% (2/88 or 3/90 SOW)?	Yes	No	N/A
Are all %D values ≤40% (3/90 SOW)?	Yes	No	N/A
Are all RRF values within SOW limits (3/90 SOW)?	Yes	No	N/A
Are all erratic performance compound RRF values ≥0.01 (3/90 SOW)?	Yes	No	N/A

ACTION: With the exception of compounds that exhibit erratic performance and making allowances for up to two TCL compounds, if any RRF value is out of specification qualify all associated detected results as estimated and all nondetects as unusable (R). Making allowances for up to two TCL compounds, if any %D is out of specification, qualify all associated results as estimated (J for detects or UJ for nondetects).

4. BLANKS

4.1 LABORATORY BLANKS

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

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

4.2. FIELD BLANKS

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

ACTION: Qualify all detected sample results ≤ 5 times the amount in any valid field blank as nondetects (U) and note the field blank results in the validation narrative.

5. ACCURACY

5.1 SURROGATE/SYSTEM MONITORING COMPOUND RECOVERY

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

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

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

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

5.2 MATRIX SPIKE RECOVERY

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

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

Are there any calculation errors? Yes No N/A

ACTION: If an MS/MSD analysis has not been conducted contact the laboratory for an explanation. Review the MS/MSD recoveries in conjunction with other QC data such as surrogate recoveries and note the results in the validation narrative. If MS/MSD recoveries are out of specification and sample concentration is > 5 times the spike concentration, no qualification is required, otherwise qualify results as follows: Qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J) in all samples if associated surrogates are also out of specification. The qualification shall only be done on samples of similar matrix as the MS/MSD samples. If it is determined from the review that only the spiked samples are affected by low recoveries, qualify only the results for the spiked sample as described above. If it is determined from the review that out of specification MS/MSD recoveries are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

5.3 PERFORMANCE AUDIT SAMPLES

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

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

6. PRECISION

6.1 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

Are RPD values within specification? Yes No N/A

Are there any calculation errors? Yes No N/A

ACTION: Review the MS/MSD results in conjunction with other QC data such as field duplicates and note the results in the validation narrative. If MS/MSD RPDs are out of specification and sample results are >5xCRQL qualify positive results for the specific class of compound (aromatics and non-aromatics) as estimated (J). If it is determined from the review that out of specification MS/MSD results are indicative of systematic problems in the laboratory such as sample preparation or sample-specific matrix interferences this must be noted in the validation narrative along with the potential affect on the sample results.

6.2 FIELD DUPLICATE SAMPLES

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

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

6.3 FIELD SPLIT SAMPLES

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

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

7. SYSTEM PERFORMANCE

7.1 INTERNAL STANDARDS PERFORMANCE

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

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

ACTION: If the area counts are outside the acceptance limits qualify all associated results as estimated (J for detects or UJ for nondetects). If it is determined from the review that out of specification area counts and relative retention times are indicative of systematic problems within the laboratory the reviewer may consider rejection of all affected sample data (R).

8. COMPOUND IDENTIFICATION AND QUANTITATION

8.1 COMPOUND IDENTIFICATION

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

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

8.2 REPORTED RESULTS AND QUANTITATION LIMITS

Has the laboratory used the correct RRF values and internal standard(s) for quantitation?	Yes	No	N/A
Are results and quantitation limits calculated properly?	Yes	No	N/A
Has the laboratory reported the sample quantitation limits within 5xCRQL values?	Yes	No	N/A

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

8.3 TENTATIVELY IDENTIFIED COMPOUNDS (TIC)

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

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

9. OVERALL ASSESSMENT AND SUMMARY

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

ACTION: Summarize all the data qualifications recommended in the foregoing sections, and complete the data validation narrative according to the requirements of Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

WET CHEMISTRY DATA VALIDATION CHECKLIST - FORM A-7

PROJECT: 300-FF-1 RIFS	REVIEWER: SS	DATE: 5-28-92
LABORATORY: Weston	CASE: 91081424	SDG:
SAMPLES/MATRIX: B010L2 (soil)		
B010L4 (")		
B010L6 (")		
B00YN6 (")		

1. DATA PACKAGE COMPLETENESS

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

Data Package Item	Present?: Yes	No	N/A
Case Narrative	—	—	—
Cover Page	✓	—	—
Traffic Reports/Chain-of-Custody	✓	—	—
Sample Analysis Data Report Forms	✓	—	—
Standards Data	✓	—	—
QC Summary			
Blanks Summary Report Forms	✓	—	—
Spike Sample Recovery Report Forms	✓	—	—
Duplicate Sample Analysis Report Forms	—	✓	—
Laboratory Control Sample Report Forms	—	✓	—
Raw Data			
Ion Chromatograph Chromatograms	—	✓	—
TOC and TOX Instrument Printouts	—	✓	—
Laboratory Bench Sheets	—	✓	—
Additional Data			
Laboratory Sample Preparation Logs	—	✓	—
Instrument Run Logs	—	✓	—
Internal Laboratory Chain-of-Custory	—	✓	—
Percent Solids Analysis Records	✓	—	—
Reduction Formulae	—	✓	—
Chemist Notebook Pages	—	✓	—

2. HOLDING TIMES

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

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

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used?	Yes	No	N/A
Are the correlation coefficients ≥0.995?	Yes	No	N/A
Was a balance check conducted prior to the TDS analysis?	Yes	No	N/A
Was the titrant normality checked?	Yes	No	N/A

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

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Have ICV and CCV been analyzed at the proper frequency?	Yes	No	N/A
Are ICV and CCV percent recoveries within control?	Yes	No	N/A
Are there calculation errors?	Yes	No	N/A

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

5. LABORATORY BLANKS

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

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

6. FIELD BLANKS

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

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

7. MATRIX SPIKE SAMPLE ANALYSIS

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

ACTION: If the sample concentration exceeds the spike concentration by a factor of 4 or more, and spike recoveries are outside the acceptance limits, no qualification is necessary. If spike recovery is outside the control limits and the sample results are >CRQL, qualify the data as estimated (J). If the spike recovery is <30% and the sample results are less then the IDL qualify the data as unusable (R).

8. LABORATORY CONTROL SAMPLE

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

Are there calculation errors? Yes No N/A

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

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

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

9. PERFORMANCE AUDIT ANALYSES

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

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

10. DUPLICATE SAMPLE ANALYSIS

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

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

11. FIELD DUPLICATE SAMPLES

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

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

12. FIELD SPLIT SAMPLES

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

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

13. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly?	Yes	No	N/A
Are instrument detection limits below the CRDL?	Yes	No	N/A

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

14. OVERALL ASSESSMENT AND SUMMARY

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

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10.0 of the data validation requirements.

COMMENTS (attach additional sheets as necessary):

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