START 9613403.0132 0043072 93091094-WES-1287

HANFORD ANALYTICAL SERVICES MANAGEMENT

RECORD OF DISPOSITION

ROD-93-0226
Record of Disposition No.

DATE: October 15, 1993

LABORATORY: WESTON

PROJECT TITLE/NO.: 200-UP-1

NCR NO.: N/A

SAMPLE IDENTIFICATION NUMBERS:
B093G1, B093G4, B093G7

DESCRIPTION OF EVENT:
The Chain of Custody and Sample Analysis Request Forms contained an analysis (anions) that was not included on the Sampling Authorization Form.

DISPOSITION OF SAMPLES:
With the customer's concurrence, Weston was instructed to analyze for anions and report data for all six analytes (nitrate, nitrite, phosphate, sulfate, chloride, and fluoride).

APPROVAL SIGNATURES:

Jon W. Ball / Jon W Ball
HASM Project Coordinator (Print/Sign Name)

10-15-93
Date

FEB 1996
RECEIVED
EDMC

Bruce H. Ford / B. E. Ford
Technical Representative (Print/Sign Name)

11-18-95
Date

N/A
Quality Assurance (Print/Sign Name)

Date

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

Client: WESTINGHOUSE HANFORD
RFW #: 9309L094

W.O. #: 06168-002-001-9999-00
Date Received: 09-28-93

GC/MS VOLATILE

The set of samples consisted of four (4) water samples collected on 09-23-93.

The samples were analyzed according to criteria set forth in CLP SOW 03/90 for TCL Volatile target compounds on 09-30-93 and 10-01,05,06,12,13-93.

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

1. Samples B093G3 MS and B093G3 MSD were inadvertently analyzed outside holding time.

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

3. The following samples required dilution because they contained high levels of target compounds:

Sample ID	Dilution Factor
B093G1	10
B093G4	10
B093G7	6.67

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

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

6. The laboratory blanks contained the common contaminants Methylene Chloride and/or Acetone at levels less than 2x the CRQL.

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

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

10.25.93
Date

sma/mmz/sma/voa/09-094v.cn

Roy F. Weston, Inc. - Lionville Laboratory
Volatiles by GC/MS, OLM01.8 Report Date: 10/15/93 12:11

RFW Batch Number: 9309L094 Client: WESTINGHOUSE HANFORD Work Order: 6168-02-0 Page: 1a

0023

	Cust ID:	B093G1		B093G1		B093G3		B093G3		B093G3		B093G4	
Sample Information	RFW#:	001		001 DL		002		002 MS		002 MSD		003	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		10.0		1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Surrogate Recovery	Toluene-d8	96	%	107	%	103	%	91	%	90	%	99	%
	Bromofluorobenzene	95	%	105	%	101	%	87	%	87	%	97	%
	1,2-Dichloroethane-d4	102	%	113	%	106	%	92	%	95	%	105	%
Chloromethane		10	U	NA		10	U	10	U	10	U	10	U
Bromomethane		10	U	NA		10	U	10	U	10	U	10	U
Vinyl Chloride		10	U	NA		10	U	10	U	10	U	10	U
Chloroethane		10	U	NA		10	U	10	U	10	U	10	U
Methylene Chloride		1	JB	NA		2	JB	7	JB	3	JB	4	JB
Acetone		10	U	NA		5	JB	10	B	5	JB	3	JB
Carbon Disulfide		10	U	NA		10	U	10	U	10	U	10	U
1,1-Dichloroethene		10	U	NA		10	U	112	%	100	%	10	U
1,1-Dichloroethane		10	U	NA		10	U	10	U	10	U	10	U
1,2-Dichloroethene (total)		10	U	NA		10	U	10	U	10	U	10	U
Chloroform		10		NA		10	U	10	U	10	U	15	
1,2-Dichloroethane		10	U	NA		10	U	10	U	10	U	10	U
2-Butanone		10	U	NA		10	U	10	U	10	U	10	U
1,1,1-Trichloroethane		10	U	NA		10	U	10	U	10	U	10	U
Carbon Tetrachloride			E	1400		10	U	10	U	10	U		E
Bromodichloromethane		10	U	NA		10	U	10	U	10	U	10	U
1,2-Dichloropropane		10	U	NA		10	U	10	U	10	U	10	U
cis-1,3-Dichloropropene		10	U	NA		10	U	10	U	10	U	10	U
Trichloroethene		10	U	NA		10	U	106	%	98	%	10	U
Dibromochloromethane		10	U	NA		10	U	10	U	10	U	10	U
1,1,2-Trichloroethane		10	U	NA		10	U	10	U	10	U	10	U
Benzene		10	U	NA		10	U	105	%	97	%	10	U
Trans-1,3-Dichloropropene		10	U	NA		10	U	10	U	10	U	10	U
Bromoform		10	U	NA		10	U	10	U	10	U	10	U
4-Methyl-2-pentanone		10	U	NA		10	U	10	U	10	U	10	U
2-Hexanone		10	U	NA		10	U	10	U	10	U	10	U
Tetrachloroethene		10	U	NA		10	U	10	U	10	U	10	U
1,1,2,2-Tetrachloroethane		10	U	NA		10	U	10	U	10	U	10	U
Toluene		10	U	NA		10	U	104	%	97	%	10	U

*= Outside of EPA CLP QC limits.

9613403.0134

RFW Batch Number: 9309L094 Client: WESTINGHOUSE HANFORD Work Order: 6168-02-0 Page: 1b

	B093G1	B093G1	B093G3	B093G3	B093G3	B093G4
Cust ID:	B093G1	B093G1	B093G3	B093G3	B093G3	B093G4
RFW#:	001	001 DL	002	002 MS	002 MSD	003
Chlorobenzene	10 U	NA	10 U	103 %	98 %	10 U
Ethylbenzene	10 U	NA	10 U	10 U	10 U	10 U
Styrene	10 U	NA	10 U	10 U	10 U	10 U
Xylene (total)	10 U	NA	10 U	10 U	10 U	10 U

*= Outside of EPA CLP QC limits.

0024

9413402.0135

Roy F. Weston, Inc. - Lionville Laboratory
Volatiles by GC/MS, OLM01.8

RFW Batch Number: 9309L094 Client: WESTINGHOUSE HANFORD Work Order: 6168-02-0 Report Date: 10/15/93 12:11 Page: 2a

0025

	Cust ID:	B093G4		B093G7		B093G7	VBLK		VBLK		VBLK	
Sample Information	RFW#:	003 DL		004		004 DL	93LVB252-MB1		93LVB253-MB1		93LVB263-MB1	
	Matrix:	WATER		WATER		WATER	WATER		WATER		WATER	
	D.F.:	10.0		1.00		6.67	1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L	ug/L		ug/L		ug/L	
Surrogate Recovery	Toluene-d8	100	%	104	%	101 %	103	%	100	%	97	%
	Bromofluorobenzene	96	%	102	%	100 %	107	%	93	%	95	%
	1,2-Dichloroethane-d4	109	%	112	%	111 %	106	%	106	%	101	%
Chloromethane		NA		10	U	NA	10	U	10	U	10	U
Bromomethane		NA		10	U	NA	10	U	10	U	10	U
Vinyl Chloride		NA		10	U	NA	10	U	10	U	10	U
Chloroethane		NA		10	U	NA	10	U	10	U	10	U
Methylene Chloride		NA		4	JB	NA	3	J	6	J	5	J
Acetone		NA		10	U	NA	3	J	10		4	J
Carbon Disulfide		NA		10	U	NA	10	U	10	U	10	U
1,1-Dichloroethene		NA		10	U	NA	10	U	10	U	10	U
1,1-Dichloroethane		NA		10	U	NA	10	U	10	U	10	U
1,2-Dichloroethene (total)		NA		10	U	NA	10	U	10	U	10	U
Chloroform		NA		49		NA	10	U	10	U	10	U
1,2-Dichloroethane		NA		10	U	NA	10	U	10	U	10	U
2-Butanone		NA		10	U	NA	10	U	10	U	10	U
1,1,1-Trichloroethane		NA		10	U	NA	10	U	10	U	10	U
Carbon Tetrachloride		1300			E	820	10	U	10	U	10	U
Bromodichloromethane		NA		10	U	NA	10	U	10	U	10	U
1,2-Dichloropropane		NA		10	U	NA	10	U	10	U	10	U
cis-1,3-Dichloropropene		NA		10	U	NA	10	U	10	U	10	U
Trichloroethene		NA		10	U	NA	10	U	10	U	10	U
Dibromochloromethane		NA		10	U	NA	10	U	10	U	10	U
1,1,2-Trichloroethane		NA		10	U	NA	10	U	10	U	10	U
Benzene		NA		10	U	NA	10	U	10	U	10	U
Trans-1,3-Dichloropropene		NA		10	U	NA	10	U	10	U	10	U
Bromoform		NA		10	U	NA	10	U	10	U	10	U
4-Methyl-2-pentanone		NA		10	U	NA	10	U	10	U	10	U
2-Hexanone		NA		10	U	NA	10	U	10	U	10	U
Tetrachloroethene		NA		10	U	NA	10	U	10	U	10	U
1,1,2,2-Tetrachloroethane		NA		10	U	NA	10	U	10	U	10	U
Toluene		NA		10	U	NA	10	U	10	U	10	U

*= Outside of EPA CLP QC limits.

9613403.0136

Cust ID:	B093G4	B093G7	B093G7	VBLK	VBLK	VBLK
RFW#:	003 DL	004	004 DL	93LVB252-MB1	93LVB253-MB1	93LVB263-MB1
Chlorobenzene	NA	10 U	NA	10 U	10 U	10 U
Ethylbenzene	NA	10 U	NA	10 U	10 U	10 U
Styrene	NA	10 U	NA	10 U	10 U	10 U
Xylene (total)	NA	10 U	NA	10 U	10 U	10 U

*= Outside of EPA CLP QC limits.

0026

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B093G1

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9309L094-001

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

Lab File ID: B093030

Level: (low/med) LOW

Date Received: 09/28/93

% Moisture: not dec.

Date Analyzed: 10/01/93

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	1	JB
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	
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		E
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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B093G1

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9309L094-001

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

Lab File ID: B093030

Level: (low/med) LOW

Date Received: 09/28/93

% Moisture: not dec.

Date Analyzed: 10/01/93

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

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

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B093G1DL

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9309L094-001 DL

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

Lab File ID: B100520

Level: (low/med) LOW

Date Received: 09/28/93

% Moisture: not dec.

Date Analyzed: 10/05/93

GC Column: DB624 ID: .53(mm)

Dilution Factor: 10.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	NA	
74-83-9	Bromomethane	NA	
75-01-4	Vinyl Chloride	NA	
75-00-3	Chloroethane	NA	
75-09-2	Methylene Chloride	NA	
67-64-1	Acetone	NA	
75-15-0	Carbon Disulfide	NA	
75-35-4	1,1-Dichloroethene	NA	
75-34-3	1,1-Dichloroethane	NA	
540-59-0	1,2-Dichloroethene (total)	NA	
67-66-3	Chloroform	NA	
107-06-2	1,2-Dichloroethane	NA	
78-93-3	2-Butanone	NA	
71-55-6	1,1,1-Trichloroethane	NA	
56-23-5	Carbon Tetrachloride	1400	
75-27-4	Bromodichloromethane	NA	
78-87-5	1,2-Dichloropropane	NA	
10061-01-5	cis-1,3-Dichloropropene	NA	
79-01-6	Trichloroethene	NA	
124-48-1	Dibromochloromethane	NA	
79-00-5	1,1,2-Trichloroethane	NA	
71-43-2	Benzene	NA	
10061-02-6	Trans-1,3-Dichloropropene	NA	
75-25-2	Bromoform	NA	
108-10-1	4-Methyl-2-pentanone	NA	
591-78-6	2-Hexanone	NA	
127-18-4	Tetrachloroethene	NA	
79-34-5	1,1,2,2-Tetrachloroethane	NA	
108-88-3	Toluene	NA	
108-90-7	Chlorobenzene	NA	
100-41-4	Ethylbenzene	NA	
100-42-5	Styrene	NA	
1330-20-7	Xylene (total)	NA	

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B093G3

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9309L094-002

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

Lab File ID: B093031

Level: (low/med) LOW

Date Received: 09/28/93

% Moisture: not dec.

Date Analyzed: 10/01/93

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	JB
67-64-1	Acetone	5	JB
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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B093G3

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9309L094-002

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

Lab File ID: B093031

Level: (low/med) LOW

Date Received: 09/28/93

% Moisture: not dec.

Date Analyzed: 10/01/93

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

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

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B093G4

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9309L094-003

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

Lab File ID: B093032

Level: (low/med) LOW

Date Received: 09/28/93

% Moisture: not dec.

Date Analyzed: 10/01/93

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	4	JB
67-64-1	Acetone	3	JB
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	15	
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		E
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

1R

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B093G4

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9309L094-003

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

Lab File ID: B093032

Level: (low/med) LOW

Date Received: 09/28/93

% Moisture: not dec.

Date Analyzed: 10/01/93

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

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

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B093G4DL

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9309L094-003 DL

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

Lab File ID: B100515

Level: (low/med) LOW

Date Received: 09/28/93

% Moisture: not dec.

Date Analyzed: 10/05/93

GC Column: DB624 ID: .53(mm)

Dilution Factor: 10.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	NA	
74-83-9	Bromomethane	NA	
75-01-4	Vinyl Chloride	NA	
75-00-3	Chloroethane	NA	
75-09-2	Methylene Chloride	NA	
67-64-1	Acetone	NA	
75-15-0	Carbon Disulfide	NA	
75-35-4	1,1-Dichloroethene	NA	
75-34-3	1,1-Dichloroethane	NA	
540-59-0	1,2-Dichloroethene (total)	NA	
67-66-3	Chloroform	NA	
107-06-2	1,2-Dichloroethane	NA	
78-93-3	2-Butanone	NA	
71-55-6	1,1,1-Trichloroethane	NA	
56-23-5	Carbon Tetrachloride	1300	
75-27-4	Bromodichloromethane	NA	
78-87-5	1,2-Dichloropropane	NA	
10061-01-5	cis-1,3-Dichloropropene	NA	
79-01-6	Trichloroethene	NA	
124-48-1	Dibromochloromethane	NA	
79-00-5	1,1,2-Trichloroethane	NA	
71-43-2	Benzene	NA	
10061-02-6	Trans-1,3-Dichloropropene	NA	
75-25-2	Bromoform	NA	
108-10-1	4-Methyl-2-pentanone	NA	
591-78-6	2-Hexanone	NA	
127-18-4	Tetrachloroethene	NA	
79-34-5	1,1,2,2-Tetrachloroethane	NA	
108-88-3	Toluene	NA	
108-90-7	Chlorobenzene	NA	
100-41-4	Ethylbenzene	NA	
100-42-5	Styrene	NA	
1330-20-7	Xylene (total)	NA	

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B093G7

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9309L094-004

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

Lab File ID: B093033

Level: (low/med) LOW

Date Received: 09/28/93

% Moisture: not dec.

Date Analyzed: 10/01/93

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	4	JB
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	49	
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		E
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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B093G7

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9309L094-004

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

Lab File ID: B093033

Level: (low/med) LOW

Date Received: 09/28/93

% Moisture: not dec.

Date Analyzed: 10/01/93

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

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

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B093G7DL

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9309L094-004 DL

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

Lab File ID: B100610

Level: (low/med) LOW

Date Received: 09/28/93

% Moisture: not dec.

Date Analyzed: 10/06/93

GC Column: DB624 ID: .53(mm)

Dilution Factor: 6.67

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	NA	
74-83-9	Bromomethane	NA	
75-01-4	Vinyl Chloride	NA	
75-00-3	Chloroethane	NA	
75-09-2	Methylene Chloride	NA	
67-64-1	Acetone	NA	
75-15-0	Carbon Disulfide	NA	
75-35-4	1,1-Dichloroethene	NA	
75-34-3	1,1-Dichloroethane	NA	
540-59-0	1,2-Dichloroethene (total)	NA	
67-66-3	Chloroform	NA	
107-06-2	1,2-Dichloroethane	NA	
78-93-3	2-Butanone	NA	
71-55-6	1,1,1-Trichloroethane	NA	
56-23-5	Carbon Tetrachloride	820	
75-27-4	Bromodichloromethane	NA	
78-87-5	1,2-Dichloropropane	NA	
10061-01-5	cis-1,3-Dichloropropene	NA	
79-01-6	Trichloroethene	NA	
124-48-1	Dibromochloromethane	NA	
79-00-5	1,1,2-Trichloroethane	NA	
71-43-2	Benzene	NA	
10061-02-6	Trans-1,3-Dichloropropene	NA	
75-25-2	Bromoform	NA	
108-10-1	4-Methyl-2-pentanone	NA	
591-78-6	2-Hexanone	NA	
127-18-4	Tetrachloroethene	NA	
79-34-5	1,1,2,2-Tetrachloroethane	NA	
108-88-3	Toluene	NA	
108-90-7	Chlorobenzene	NA	
100-41-4	Ethylbenzene	NA	
100-42-5	Styrene	NA	
1330-20-7	Xylene (total)	NA	

9613403.0149

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

Client : WESTINGHOUSE HANFORD
RFW# : 9309L094

W.O. #: 06168-002-001-9999-00
Date Received: 09-28-93

INORGANIC

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

1. All sample holding times as required by 40CFR136 were met with the exception of Nitrate by IC, Nitrite by IC and Phosphate by IC, which were received past hold.

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

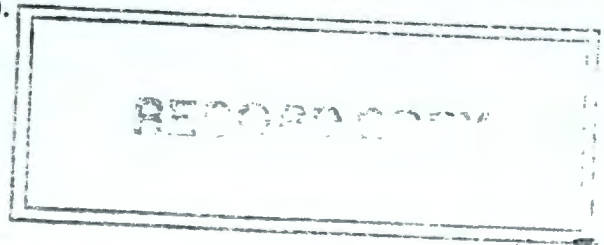
3. All laboratory control standards (blank spikes) were within the control limits of 80-120%. All %RPDs were within the 20% guidance limit.

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

5. Matrix spike recoveries are summarized on the Inorganic Accuracy Report contained within this document. All recoveries were within the 75-125% guidance limits. All %RPD were within the 20% guidance limit.

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

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



10.8.93

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

Date

0001

pas/i09-094

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 10/06/93

CLIENT: WESTINGHOUSE HANFORD WESTON BATCH #: 9309L094

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B093G1	Chloride by IC	30.3		MG/L	1.2	5.0
		Fluoride by IC	0.59		MG/L	0.50	1.0
		Nitrite by IC	0.25	u	MG/L	0.25	1.0
		Nitrate by IC	5.2		MG/L	0.25	1.0
		Phosphate by IC	0.25	u	MG/L	0.25	1.0
		Sulfate by IC	29.7		MG/L	1.2	5.0
-003	B093G4	Chloride by IC	33.5		MG/L	1.2	5.0
		Fluoride by IC	0.63		MG/L	0.50	1.0
		Nitrite by IC	0.25	u	MG/L	0.25	1.0
		Nitrate by IC	5.4		MG/L	0.25	1.0
		Phosphate by IC	0.25	u	MG/L	0.25	1.0
		Sulfate by IC	28.8		MG/L	1.2	5.0
-004	B093G7	Chloride by IC	33.5		MG/L	1.2	5.0
		Fluoride by IC	0.61		MG/L	0.50	1.0
		Nitrite by IC	0.25	u	MG/L	0.25	1.0
		Nitrate by IC	5.3		MG/L	0.25	1.0
		Phosphate by IC	0.25	u	MG/L	0.25	1.0
		Sulfate by IC	30.8		MG/L	1.2	5.0

WESTON Analytics Use Only: 9309L094

PM = J Edwards QA Data Package Yellow WetLab

Custody Transfer Record/Lab Work Request

WESTON

Client: Westinghouse Hanford

Est. Final Proj. Sampling Date:

Work Order #: 06168-002-001-999900

Project Contact/Phone #:

AD Project Manager: Jove Edwards

QC: CLP Del: CLP TAT: 35 Days

Date Rec'd: 9-28-93 Date Due: 11/2/93

Account #: WS-HANFORD

	VOA	BNA	Pest/PCB	Herb	Radiochem		Metal	CN	IC
Refrigerator #	1				6405				4
#/Type Container Liquid	2G				4PL				1PL
#/Type Container Solid									
Volume Liquid	40ml				4L				500ml
Volume Solid									
Preservatives	HCl				HNO3				None

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; Radiochem; INORG: Metal, CN; IC

MATRIX CODES: S - Soil, SE - Sediment, SO - Solid, SL - Sludge, W - Water, O - Oil, A - Air, DS - Drum Solids, DL - Drum Liquids, L - EP/TCLP Leachate, WI - Wipe, X - Other, F - Fish

Lab ID	Client ID/Description	MS	MSD	Matrix	Date Collected	Time Collected	VOA	Radiochem	IC
001	B093G1			W	9/27/93	1230	X	X	X
002	B093G3			W	9/27/93	1230	X		~~X~~ JM 9/29/93
003	B093G4			W	9/27/93	1530	X		X
004	B093G7			W	9/27/93	1800	X	X	X

Radiochem = Gross Alpha/Beta

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
Temp = 4.1°C
SAFH93248

Target Date = 16
Original Rewritten

DATE/REVISIONS:
10/1/93 1. Add IC NO3 to 1,3,4 per SDR93PM116.
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were: 1) Shipped ✓ or Hand Delivered; Airbill # 251900969
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

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
Emery	R. Burnett	9-28-93	12:45				
B.B. 9-28-93				B.B. 9-28-93			

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

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

9613403.0151

9613403.0152

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator

Company Contact PH BUTCHER

Telephone (509) 376-5045

Project Designation/Sampling Locations CCl_4

Collection Date 9-23-93

Ice Chest No. MS 9/27/93 PNL 1001

Field Logbook No. EFL-1104

Bill of Lading/Airbill No. 251900969 91

Offsite Property No. W93-0-0796-S

Method of Shipment EMERY

Shipped to WESTON

Possible Sample Hazards/Remarks 93096094

Sample Identification

001 BO 93G1

~~1; 1L; P; WATER; CLP-ICP/AA METALS & Hg(HNO3 pH<2) UNFILTERED~~ LDW 9-23-93

2; 40ml; Gs; WATER; CLP-VOA(HCl pH<2)

1; 500ml; P/~~G~~; WATER; ~~NO2/NO3(H2SO4 pH<2)~~ Anions LDW 9-23-93

~~1; 1L; P/G; WATER; Tc-99(HCl pH<2)~~

1; ~~1L~~ 4L; P/~~G~~; ~~WATER; TOTAL URANIUM~~(HNO3 pH<2) & Water, Gross Alpha/Beta (HNO_3) LDW 9-23-93

~~BO 93G2~~

~~1; 1L; P; WATER; CLP-ICP/AA METALS & Hg(HNO3 pH<2) FILTERED~~ LDW 9-23-93

CC: BO 93G3

3; 40ml; Gs; WATER; CLP-VOA (HCl pH<2)

Temp = 4c1

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

Relinquished By	Date	Time	Received By	Date	Time
L.D. Walker L.D. Walker	9-23-93	1830	RJ Simpson	9/27/93	0030
RJ Simpson RJ Simpson	9/27/93	0830			
Emery	9-28-93	1245			

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:
Samples placed in refrig # 3c - LDW

A-6000-407 (12/92) WEF061

9613403.0153

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector K. Lee, G. Hamilton Date Sampled 9-23-93 Time 1230 hours

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

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
B093G1	~~1; 1L; P~~	~~WATER~~	~~CLP-ICP/AA METALS & Hg(HNO3 pH<2) UNFILTERED~~
	2; 40ml; Gs	WATER	CLP-VOA(HCl pH<2) LDW 9-23-93
	1; 500ml; ~~P~~/G	WATER	~~NO2/NO3(H2SO4 pH<2)~~ Anions LDW 9-23-93
	~~1; 1L; P/G~~	~~WATER~~	~~Tc-99(HCl pH<2)~~ LDW 9-23-93
	1; ~~1L; P/G~~	WATER	~~TOTAL URANIUM(HNO3 pH<2)~~ LDW 9-23-93
	4L, P		Gross Alpha / Beta (HNO_3)
~~B093G2~~	~~1; 1L; P;~~	~~WATER~~	~~CLP-ICP/AA METALS & Hg(HNO3 pH<2) FILTERED~~
			LDW 9-23-93
B093G3	3; 40ml; Gs	WATER	CLP-VOA
			OPC: W93- 0-0796-5
			BOL: 2519009691
			TASK: 93-248

Field Information**

Special Handling and/or Storage

Possible Sample Hazards

PART II: LABORATORY SECTION

Received by Title Date

Analysis Required

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

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

9613403.0154

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator

Company Contact PH BUTCHER

Telephone (509) 376-5045

Project Designation/Sampling Locations CCl_4

Collection Date 9-23-93

Ice Chest No. PNL 1001

Field Logbook No. EFL-1104

Bill of Lading/Airbill No. 251900961

Offsite Property No. W93-0-0796-5

Method of Shipment EMERY

Shipped to WESTON

Possible Sample Hazards/Remarks

Sample Identification

003 B0 93G4

~~1; 1L; P; WATER; CLP-ICP/AA METALS & Hg(HNO3 pH<2) UNFILTERED~~ LDW 9-23-93

2; 40ml; Gs; WATER; CLP-VOA(HCl pH<2)

1; 500ml; ~~P~~/G; WATER; ~~NO2/NO3(H2SO4 pH<2)~~ Anions LDW 9-23-93

~~1; 1L; P/G; WATER; Tc-99(HCl pH<2)~~ LDW 9-23-93

~~1; 1L; P/G; WATER; TOTAL URANIUM(HNO3 pH<2)~~ LDW 9-23-93

~~B0 93G5~~

~~1; 1L; P; WATER; CLP-ICP/AA METALS & Hg(HNO3 pH<2) FILTERED~~ LDW 9-23-93

~~B0 93G6~~

~~3; 40ml; Gs; WATER; CLP-VOA~~ LDW 9-23-93

Temp: 4.1

[] Field Transfer of Custody

Chain of Possession (Sign and Print Names)

Relinquished By	Date	Time	Received By	Date	Time
L.D. Walker L.D. Walker	9-23-93	1830	AJ Simpson AJSIMPSON	9/27/93	0841
AJ Simpson AJSIMPSON	9/27/93	0841			
EMERY	9-28-93	12:45			

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

Samples Placed in refrig #3c - LDW

A-6000-407 (12/92) WEF061

0018

9613403.0155

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector K. Lee, G. Hamilton Date Sampled 9-23-93 Time 1530 hours

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

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
~~B093G4~~	~~1; 1L; P~~	~~WATER~~	~~CLP-ICP/AA METALS & Hg(HNO3 pH<2) UNFILTERED~~
	2; 40ml; Gs	WATER	CLP-VOA(HCl pH<2) LDW 9-23-93
	1; 500ml; ~~P~~/G	WATER	~~NO2/NO3(H2SO4 pH<2)~~ Anions LDW 9-23-93
	~~1; 1L; P/G~~	~~WATER~~	~~Tc-99(HCl pH<2)~~ LDW 9-23-93
	~~1; 1L; P/G~~	~~WATER~~	~~TOTAL URANIUM(HNO3 pH<2)~~ LDW 9-23-93
~~B093G5~~	~~1; 1L; P;~~	~~WATER~~	~~CLP-ICP/AA METALS & Hg(HNO3 pH<2) FILTERED~~ LDW 9-23-93
~~B093G6~~	~~3; 40ml; Gs~~	~~WATER~~	~~CLP-VOA~~ LDW 9-23-93
			OPC: W93-0-0796-5
			BOL: 251900969 1
			TASK: 93-248

Field Information**

Special Handling and/or Storage

Possible Sample Hazards

PART II: LABORATORY SECTION

Received by Title Date

Analysis Required

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

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

EA-6000-406(05/90)

0019

9613403.0156

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator

Company Contact PH BUTCHER

Telephone (509) 376-5045

Project Designation/Sampling Locations CCL_4

Collection Date 9-23-93

Ice Chest No. PNL 1001

Field Logbook No. EFL-1104

Bill of Lading/Airbill No. 251900961 91

Offsite Property No. WG93-0-0196-5

Method of Shipment EMERY

Shipped to WESTON

Possible Sample Hazards/Remarks

Sample Identification

B0 93G7

~~1; 1L; P; WATER; CLP-ICP/AA METALS & Hg(HNO3 pH<2) UNFILTERED~~ BJ 9/24/93

004 2; 40ml; Gs; WATER; CLP-VOA(HCl pH<2)

1; 500ml; ~~P~~/G; WATER; ~~NO2/NO3(H2SO4 pH<2)~~ Anions LDW 9-23-93

~~1; 1L; P/G; WATER; Tc-99(HCl pH<2)~~ LDW 9-23-93

1; ~~1L~~ 4L; P/~~G~~; WATER; ~~TOTAL URANIUM(HNO3 pH<2)~~ Gross Alpha/Beta (HNO_3) LDW 9-23-93

~~B0 93G8~~

~~1; 1L; P; WATER; CLP-ICP/AA METALS & Hg(HNO3 pH<2) FILTERED~~ BJ 9/23/93

~~B0 93G9~~

~~3; 40ml; Gs; WATER; CLP-VOA~~ BJ 9/23/93

~~Temp~~ = 4.1

[] Field Transfer of Custody

Chain of Possession (Sign and Print Names)

Relinquished By	Date	Time	Received By	Date	Time
L.D. Walker	9-23-93	1830	AJ Simpson AJ SIMPSON	9/27/93	0839
AJ Simpson AJ SIMPSON	9-27-93	0839			
EMERY	9-28-93	12145			

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments: Samples placed in refrig. #3c - LDW

A-6000-407 (12/92) WEF061

9613403.0157

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

PART I: FIELD SECTION

Collector K. Lee, G. Hamilton Date Sampled 9-23-93 Time 1800 hours

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

Sample Number	Number and Type of Sample Containers	Type of Sample*	Analysis Requested
~~B093G7~~	~~1; 1L; P~~	~~WATER~~	~~CLP-ICP/AA METALS & Hg(HNO3 pH<2) UNFILTERED~~
	2; 40ml; Gs	WATER	CLP-VOA(HCl pH<2) LDW 9-23-93
	1; 500ml; ~~P~~/G	WATER	~~NO2/NO3(H2SO4 pH<2)~~ LDW 9-23-93
	~~1; 1L; P/G~~	~~WATER~~	~~Tc-99(HCl pH<2)~~ LDW 9-23-93
	1; ~~1L~~; P/~~G~~ 4L	WATER	~~TOTAL URANIUM(HNO3 pH<2)~~ LDW 9-23-93
~~B093G8~~	~~1; 1L; P;~~	~~WATER~~	~~CLP-ICP/AA METALS & Hg(HNO3 pH<2) FILTERED~~ LDW 9-23-93
~~B093G9~~	~~3; 40ml; Gs~~	~~WATER~~	~~CLP-VOA~~ LDW 9-23-93
			OPC: W93- 0-0796-5
			BOL: 2519009691
			TASK: 93-248

Field Information**

Special Handling and/or Storage

Possible Sample Hazards

PART II: LABORATORY SECTION

Received by Title Date

Analysis Required

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

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

A-6000-406(05/90)

OVERNIGHT DELIVERY — Signature Security Service

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
WHC		W93-0r0796-5

PART I – TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
Env. Eng. & Tech	Geosciences	Geochem. & Hydrochem

The following items are to be shipped from ☐ Contractor ☐ Vendor

Routing ☒ Contractor ☐ Vendor

Emery

Shipped to	Off-site Custodian
Roy F. Weston 256 Welsh Pool Rd. Lyonvill, PA 19341-1313	Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
~1 52 lbs.	Sample #: B09361 B09363 B09367 B09364 Cooler ID: PL1001 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs.	~~Sample #:~~ ADS 9/27/93 Cooler ID: Polycooler with groundwater samples packed in wet ice and vermiculite	N/A

☐ Classified ☒ Unclassified ☐ Shipped Under DOE Contract ☐ Shipped Under Contractor's Use Permit Contract

Necessity for the Off-Site Use of this Property

Sampling supports RI/FS work in the 200 Area.

Bill of lading # 251900969 1

CERTIFICATION OF THE RADIATION MONITORING RELEASE MUST BE SECURED THE SAME DAY THAT MATERIAL IS DELIVERED TO SHIPPING.

RM Clearance for Public Release	RM Survey No	Date
[illegible]	U-15634	9/27/93

Location of Property (Area & Bldg.)	Contact	Phone
[illegible]	PH Butcher	(509) 376-5045

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
9/27/93	WB1232/ P12 BR	NA

Originated By	Date	Authorized By	Date
[illegible]	9/27/93	[illegible]	9/27/93
Signature and Name of Property Control	**Custodian Date**	**Property Management Approval**	**Date**
		[illegible]	9/27/93

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
[illegible]				
Date 9/27/93				

DISTRIBUTION

By Originator	Shipping Operation – Sign all Copies and Forward to:
White, Green, Yellow, Pink – Property Management Goldenrod – Retain	White – Property Management Green – Property Control Custodian (Issuing Office) Yellow – Retain Pink – Originator

0023

FORM OF PAYMENT

Check ☐ GBL ☐ FCCOD ☐

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

9309L094 118

EMERY WORLDWIDE

A CF Company

SERVICES **

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

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

E Shipper's Account Number: 850281585

Date: 09-27-93 Origin: PBC Shipment Number: 251900965 1

From:
WESTINGHOUSE SHIPPING DEPT. (509) 376-6665
U.S. DEPARTMENT OF ENERGY C/O
WESTINGHOUSE HANFORD
MS 1163
2355 STEVENS DRIVE
RICHLAND WA
Canada ☐

To:
RF WESTON INC
RF WESTON INC
256 WELSH POOLR OAD
LIONVILLE PA USA
Hold for Pick Up ☐
Canada ☐

Tariff Dest. Gateway

Check to Shipper $

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

Customer's Reference Numbers: W81232 P12BR W93-0-079695
Zip: 99352

E Consignee's Account Number
Zip: 19341

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

Declared Value $

Description	Pcs.	L	W	H	Total Pieces	Total Weight (In Lbs.)
1 COOLER ID 1001 WATER SAMPLES	1	24	16	17	1	52

Reference

OVERNIGHT DELIVERY SIGNATURE SECURITY SERVICE

Shipper's Signature X

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

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

2 5190096 91

International Shipments: Free Domicile ☐ Commodity Code

Third Party Account Number mandatory for Third Party Billing. E Third Party Account Number

Base Charge

International Customs Value

International Insurance

Total Transportation Charges

Other Charges Advance at Origin: COD ☐ $

3-PHL-A

Terms and Conditions on Back

9309L094

(118)

EMERY WORLDWIDE — A CF Company

SIGNATURE AND TALLY RECORD

60029-46 (8/89) Litho USA

DATE: 09-27-93 SHIPMENT NO.: 251900969 1

SHIPPER: WESTINGHOUSE SHIPPING DEPT. (509) 376-6665

REFERENCE NO.: W93-0-079645

SHIPPER NAME AND ADDRESS

WESTINGHOUSE SHIPPING DEPT. (509) 376-6665
U.S. DEPARTMENT OF ENERGY C/O
WESTINGHOUSE HANFORD COMPANY
2355 STEVENS DRIVE 1163 BUILDING
PO BOX 1970
RICHLAND WA 99352

CONSIGNEE NAME AND ADDRESS

RF WESTON INC
256 WELSH POOL ROAD
LIONVILLE PA 19341

Pieces	Weight	Description/Marks	Emery Authorization No.
1	52 LBS	COOLER 8808 1001 WATER SAMPLES	

EACH PERSON HANDLING OR TAKING CUSTODY OF THIS SHIPMENT MUST SIGN AND COMPLETE THE INFORMATION BELOW

	Name of Person/Company	Transship Point/Destination	Signature of Person Accepting Custody	Time/Date
1.	SHIPPING DEPT DENNIS FINLEY WESTINGHOUSE HANFORD CO	RICHLAND WA		11:30
2.				
3.	K Rowdon, Horizon	PSC	K Rowdon	1233-1/27/93
4.				
5.	Jim MADISON	PHL	Jim Madison	0910/28
6.	W D SNYDER FEWW	PHL	W D Snyder	0910/28
7.	CTI -		TIT	
8.				

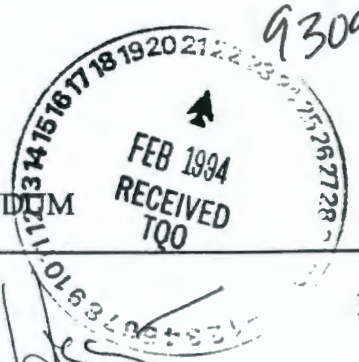
SPECIAL HANDLING INSTRUCTIONS

CONSIGNEE COPY

VALIDATION SUMMARY

9613403.0162

9309L094-WES-1287



MEMORANDUM

TO: 200-UP-1 Project QA Record February 18, 1994

FR: Michael Higgins, Golder Associates Inc.

RE: VOLATILE ORGANICS DATA VALIDATION SUMMARY FOR DATA PACKAGE 9309L094-WES-1287 (923-E417/1287VOA.UP1)

INTRODUCTION

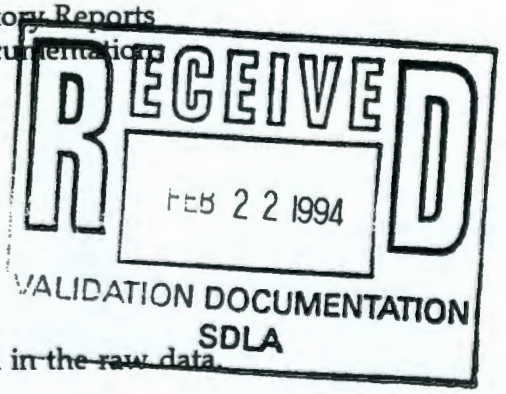
This memorandum presents the results of data validation on data package 9309L094-WES-1287 prepared by Roy F. Weston (Weston), Inc., of Lionville, Pennsylvania. A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B093G1	9/23/93	WATER	SEE NOTE 1
B093G3	9/23/93	WATER	
B093G4	9/23/93	WATER	
B093G7	9/23/93	WATER	

Notes: 1 All samples were analyzed for CLP TCL volatile organics.

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

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

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 referenced analytical method.

Completeness. The data package was complete for all requested analyses. A total of four (4)

samples were validated in this data package with a total of 132 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent which meets normal work plan objectives.

MAJOR DEFICIENCIES

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

MINOR DEFICIENCIES

The following minor deficiencies were identified during data validation which required qualification of data.

Initial Calibration Verification

- The percent relative standard deviation (%RSD) between the initial calibration results for acetone was greater than 40%. Therefore results for acetone in all samples have been qualified as estimated (UJ for non-detects). Attachment 2 provides a summary of the associated samples and data qualification applied.

Laboratory Blanks

- Methylene chloride and acetone were detected at trace levels in the method blank. Therefore all samples less than 10 times (10X) the associated blank value have been qualified as non-dected (U). Attachment 2 provides a summary of the associated samples and data qualification applied.

The sample locations and types were not available for inclusion in the data summary, Attachment 3, at the time of validation.

REFERENCES

WHC 1993a, Validation of 200-UP-1 Data, Statement of Work, Analytical Laboratory Data Validation, Task Order S-94-17, 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.

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 - FORM B-7

SDG: NA	REVIEWER: MCH	DATE: 940219	PAGE 1 OF 1
COMMENTS: 9309L094-WES-1287			
PARAMETER	QUALIFIER	SAMPLES AFFECTED	REASON
Acetone	UJ	All	ICV %RSD > 40%
Methylene Chloride	U	All	Present in blank
Acetone	U	All	Present in blank

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: 9309L094-WES-1287

	Samp#	B093G1		B093G3		B093G4		B093G7	
	Date	9-23-93		9-23-93		9-23-93		9-23-93	
	Location	---		---		---		---	
	Depth	---		---		---		---	
	Type	---		---		---		---	
	Comments	---		---		---		---	
Parameter	Units	Result	Q	Result	Q	Result	Q	Result	Q
CHLOROMETHANE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
BROMOMETHANE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
VINYL CHLORIDE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
CHLOROETHANE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
METHYLENE CHLORIDE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
ACETONE	UG/L	10.000	UJ	10.000	UJ	10.000	UJ	10.000	UJ
CARBON DISULFIDE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
1,1-DICHLOROETHENE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
1,1-DICHLOROETHANE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
1,2-DICHLOROETHENE (TOTAL)	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
CHLOROFORM	UG/L	10.000		10.000	U	15.000		49.000	
1,2-DICHLOROETHANE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
2-BUTANONE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
1,1,1-TRICHLOROETHANE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
CARBON TETRACHLORIDE	UG/L	1400.000	*	10.000	U	1300.000	*	820.000	*
BROMODICHLOROMETHANE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
1,2-DICHLOROPROPANE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
CIS-1,3-DICHLOROPROPENE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
TRICHLOROETHENE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
DIBROMOCHLOROMETHANE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
1,1,2-TRICHLOROETHANE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
BENZENE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
TRANS-1,3-DICHLOROPROPENE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
BROMOFORM	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
4-METHYL-2-PENTANONE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
2-HEXANONE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
TETRACHLOROETHENE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
1,1,2,2-TETRACHLOROETHANE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
TOLUENE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
CHLOROBENZENE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
ETHYLBENZENE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
STYRENE	UG/L	10.000	U	10.000	U	10.000	U	10.000	U
XYLENES (TOTAL)	UG/L	10.000	U	10.000	U	10.000	U	10.000	U

* - Result is from diluted sample analysis

9613403.0170

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B093G1

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9309L094-001

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

Lab File ID: B093030

Level: (low/med) LOW

Date Received: 09/28/93

% Moisture: not dec.

Date Analyzed: 10/01/93

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q	
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10 ~~1~~	~~JB~~	U
67-64-1	Acetone	10	~~B~~	UJ
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		
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		E	
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 9/26/09 MMM

0047 0009

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B093G1

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9309L094-001

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

Lab File ID: B093030

Level: (low/med) LOW

Date Received: 09/28/93

% Moisture: not dec.

Date Analyzed: 10/01/93

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

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

Verified 9/27/09 MH

00 48 10

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B093G1DL

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9309L094-001 DL

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

Lab File ID: B100520

Level: (low/med) LOW

Date Received: 09/28/93

% Moisture: not dec.

Date Analyzed: 10/05/93

GC Column: DB624 ID: .53(mm)

Dilution Factor: 10.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	NA	
74-83-9	Bromomethane	NA	
75-01-4	Vinyl Chloride	NA	
75-00-3	Chloroethane	NA	
75-09-2	Methylene Chloride	NA	
67-64-1	Acetone	NA	
75-15-0	Carbon Disulfide	NA	
75-35-4	1,1-Dichloroethene	NA	
75-34-3	1,1-Dichloroethane	NA	
540-59-0	1,2-Dichloroethene (total)	NA	
67-66-3	Chloroform	NA	
107-06-2	1,2-Dichloroethane	NA	
78-93-3	2-Butanone	NA	
71-55-6	1,1,1-Trichloroethane	NA	
56-23-5	Carbon Tetrachloride	1400	
75-27-4	Bromodichloromethane	NA	
78-87-5	1,2-Dichloropropane	NA	
10061-01-5	cis-1,3-Dichloropropene	NA	
79-01-6	Trichloroethene	NA	
124-48-1	Dibromochloromethane	NA	
79-00-5	1,1,2-Trichloroethane	NA	
71-43-2	Benzene	NA	
10061-02-6	Trans-1,3-Dichloropropene	NA	
75-25-2	Bromoform	NA	
108-10-1	4-Methyl-2-pentanone	NA	
591-78-6	2-Hexanone	NA	
127-18-4	Tetrachloroethene	NA	
79-34-5	1,1,2,2-Tetrachloroethane	NA	
108-88-3	Toluene	NA	
108-90-7	Chlorobenzene	NA	
100-41-4	Ethylbenzene	NA	
100-42-5	Styrene	NA	
1330-20-7	Xylene (total)	NA	

Verified 9/4/2009

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B093G3

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9309L094-002

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

Lab File ID: B093031

Level: (low/med) LOW

Date Received: 09/28/93

% Moisture: not dec.

Date Analyzed: 10/01/93

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q	
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	~~2~~ 10	~~JB~~	U
67-64-1	Acetone	~~5~~ 10	~~JB~~	UJ
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 9/28/93

0012

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B093G3

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER   Lab Sample ID: 9309L094-002

Sample wt/vol: 5.00 (g/mL) ML   Lab File ID: B093031

Level: (low/med) LOW   Date Received: 09/28/93

% Moisture: not dec.   Date Analyzed: 10/01/93

GC Column: DB624 ID: .53(mm)   Dilution Factor: 1.00

Soil Extract Volume: (uL)   Soil Aliquot Volume: (uL)

Number TICs found: 0

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

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

Verified 940209 [initials]

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B093G4

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER — Lab Sample ID: 9309L094-003

Sample wt/vol: 5.00 (g/mL) ML — Lab File ID: B093032

Level: (low/med) LOW — Date Received: 09/28/93

% Moisture: not dec. — Date Analyzed: 10/01/93

GC Column: DB624 ID: .53(mm) — Dilution Factor: 1.00

Soil Extract Volume: (uL) — Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q	
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	~~4~~ 10	~~JB~~	U
67-64-1	Acetone	~~2~~ 10	~~JB~~	UJ
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	15		
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		E	
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 9/20/93 MW

CLIENT SAMPLE NO.

B093G4

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9309L094-003

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

Lab File ID: B093032

Level: (low/med) LOW

Date Received: 09/28/93

% Moisture: not dec.

Date Analyzed: 10/01/93

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

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

FORM 1 VOA-TIC 3/90

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B093G4DL

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9309L094-003 DL

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

Lab File ID: B100515

Level: (low/med) LOW

Date Received: 09/28/93

% Moisture: not dec.

Date Analyzed: 10/05/93

GC Column: DB624 ID: .53(mm)

Dilution Factor: 10.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	NA	
74-83-9	Bromomethane	NA	
75-01-4	Vinyl Chloride	NA	
75-00-3	Chloroethane	NA	
75-09-2	Methylene Chloride	NA	
67-64-1	Acetone	NA	
75-15-0	Carbon Disulfide	NA	
75-35-4	1,1-Dichloroethene	NA	
75-34-3	1,1-Dichloroethane	NA	
540-59-0	1,2-Dichloroethene (total)	NA	
67-66-3	Chloroform	NA	
107-06-2	1,2-Dichloroethane	NA	
78-93-3	2-Butanone	NA	
71-55-6	1,1,1-Trichloroethane	NA	
56-23-5	Carbon Tetrachloride	1300	
75-27-4	Bromodichloromethane	NA	
78-87-5	1,2-Dichloropropane	NA	
10061-01-5	cis-1,3-Dichloropropene	NA	
79-01-6	Trichloroethene	NA	
124-48-1	Dibromochloromethane	NA	
79-00-5	1,1,2-Trichloroethane	NA	
71-43-2	Benzene	NA	
10061-02-6	Trans-1,3-Dichloropropene	NA	
75-25-2	Bromoform	NA	
108-10-1	4-Methyl-2-pentanone	NA	
591-78-6	2-Hexanone	NA	
127-18-4	Tetrachloroethene	NA	
79-34-5	1,1,2,2-Tetrachloroethane	NA	
108-88-3	Toluene	NA	
108-90-7	Chlorobenzene	NA	
100-41-4	Ethylbenzene	NA	
100-42-5	Styrene	NA	
1330-20-7	Xylene (total)	NA	

Verified 940209 [illegible]

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B093G7

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9309L094-004

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

Lab File ID: B093033

Level: (low/med) LOW

Date Received: 09/28/93

% Moisture: not dec.

Date Analyzed: 10/01/93

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q	
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	~~4~~ 10	~~JB~~	u
67-64-1	Acetone	10	~~U~~	uJ
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	49		
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		E	
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 9/4/2009

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B093G7

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9309L094-004

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

Lab File ID: B093033

Level: (low/med) LOW

Date Received: 09/28/93

% Moisture: not dec.

Date Analyzed: 10/01/93

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs found: 0

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

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

Certified

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

B093G7DL

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 9309L094-004 DL

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

Lab File ID: B100610

Level: (low/med) LOW

Date Received: 09/28/93

% Moisture: not dec.

Date Analyzed: 10/06/93

GC Column: DB624 ID: .53(mm)

Dilution Factor: 6.67

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	NA	
74-83-9	Bromomethane	NA	
75-01-4	Vinyl Chloride	NA	
75-00-3	Chloroethane	NA	
75-09-2	Methylene Chloride	NA	
67-64-1	Acetone	NA	
75-15-0	Carbon Disulfide	NA	
75-35-4	1,1-Dichloroethene	NA	
75-34-3	1,1-Dichloroethane	NA	
540-59-0	1,2-Dichloroethene (total)	NA	
67-66-3	Chloroform	NA	
107-06-2	1,2-Dichloroethane	NA	
78-93-3	2-Butanone	NA	
71-55-6	1,1,1-Trichloroethane	NA	
56-23-5	Carbon Tetrachloride	820	
75-27-4	Bromodichloromethane	NA	
78-87-5	1,2-Dichloropropane	NA	
10061-01-5	cis-1,3-Dichloropropene	NA	
79-01-6	Trichloroethene	NA	
124-48-1	Dibromochloromethane	NA	
79-00-5	1,1,2-Trichloroethane	NA	
71-43-2	Benzene	NA	
10061-02-6	Trans-1,3-Dichloropropene	NA	
75-25-2	Bromoform	NA	
108-10-1	4-Methyl-2-pentanone	NA	
591-78-6	2-Hexanone	NA	
127-18-4	Tetrachloroethene	NA	
79-34-5	1,1,2,2-Tetrachloroethane	NA	
108-88-3	Toluene	NA	
108-90-7	Chlorobenzene	NA	
100-41-4	Ethylbenzene	NA	
100-42-5	Styrene	NA	
1330-20-7	Xylene (total)	NA	

Verified 9/20/93 mhw

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 #: 9309L094

W.O. #: 06168-002-001-9999-00
Date Received: 09-28-93

GC/MS VOLATILE

The set of samples consisted of four (4) water samples collected on 09-23-93.

The samples were analyzed according to criteria set forth in CLP SOW 03/90 for TCL Volatile target compounds on 09-30-93 and 10-01,05,06,12,13-93.

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

1. Samples B093G3 MS and B093G3 MSD were inadvertently analyzed outside holding time.

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

3. The following samples required dilution because they contained high levels of target compounds:

Sample ID	Dilution Factor
B093G1	10
B093G4	10
B093G7	6.67

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

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

6. The laboratory blanks contained the common contaminants Methylene Chloride and/or Acetone at levels less than 2x the CRQL.

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

Stewart R Broomhead

10.25.93
Date

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

sma/mmz/sma/voa/09-094v.cn

~~0005~~ 0021 ~~0006~~ 5/93

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator

Company Contact PH BUTCHER — Telephone (509) 376-5045

Project Designation/Sampling Locations CCl_4 — Collection Date 9-23-93

Ice Chest No. PNL 1001 — Field Logbook No. EFL-1104

Bill of Lading/Airbill No. 2519009691 — Offsite Property No. W93-0-0196-5

Method of Shipment EMERY

Shipped to WESTON

Possible Sample Hazards/Remarks

Sample Identification

BO 93G7
~~1; 1L; P; WATER; CLP-ICP/AA METALS & Hg(HNO3 pH<2) UNFILTERED~~ JH 9/23/93
004 2; 40ml; Gs; WATER; CLP-VOA(HCl pH<2)
1; 500ml; ~~P~~/G; WATER; ~~NO2/NO3(H2SO4 pH<2)~~ Anions LDW 9-23-93
~~1; 1L; P/G; WATER; Tc-99(HCl pH<2)~~ LDW 9-23-93
1; ~~1L~~ 4L; P/~~G~~; WATER; ~~TOTAL URANIUM(HNO3 pH<2)~~ Gross Alpha/Beta (HNO_3) LDW 9-23-93

~~BO 93G8~~
~~1; 1L; P; WATER; CLP-ICP/AA METALS & Hg(HNO3 pH<2) FILTERED~~ JH 9/23/93

~~BO 93G9~~
~~3; 40ml; Gs; WATER; CLP-VOA~~ JH 9/23/93

Temp = 4.1

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

Relinquished By	Date	Time	Received By	Date	Time
[signature] L.D. Walker	9-23-93	1830	[signature] AJ SIMPSON	9/27/93	0839
[signature] AJ SIMPSON	9-27-93	0839			
Emery	9-28-93	12:45	[signature]		

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:
Samples placed in refrig. #3c - LDW

A-6000-407 (12/92) WEF061

9613403.0184

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator

Company Contact PH BUTCHER

Telephone (509) 376-5045

Project Designation/Sampling Locations CCl_4

Collection Date 9-23-93

Ice Chest No. PNL 1001

Field Logbook No. EFL-1104

Bill of Lading/Airbill No. 251900961

Offsite Property No. W93-0-0796-5

Method of Shipment EMERY

Shipped to WESTON

Possible Sample Hazards/Remarks

Sample Identification

003 B0 93G4

~~1; 1L; P; WATER; CLP-ICP/AA METALS & Hg(HNO3 pH<2) UNFILTERED~~ LDW 9-23-93

2; 40ml; Gs; WATER; CLP-VOA(HCl pH<2)

1; 500ml; ~~P~~/G; WATER; ~~NO2/NO3(H2SO4 pH<2)~~ Anions LDW 9-23-93

~~1; 1L; P/G; WATER; Tc-99(HCl pH<2)~~ LDW 9-23-93

~~1; 1L; P/G; WATER; TOTAL URANIUM(HNO3 pH<2)~~ LDW 9-23-93

~~B0 93G5~~

~~1; 1L; P; WATER; CLP-ICP/AA METALS & Hg(HNO3 pH<2) FILTERED~~ LDW 9-23-93

~~B0 93G6~~

~~3; 40ml; Gs; WATER; CLP-VOA~~ LDW 9-23-93

Temp = 4.1

[] Field Transfer of Custody

Chain of Possession

(Sign and Print Names)

Relinquished By	Date	Time	Received By	Date	Time
L.D. Walker L.D. Walker	9-23-93	1830	AJ Simpson AJSIMPSON	9/27/93	0841
AJ Simpson AJSIMPSON	9/27/93	0841			
EMERY	9-28-93	1245			

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

Samples Placed in refrig #3c - LDW

A-6000-407 (12/92) WEF061

0023

9613403.0185

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator

Company Contact PH BUTCHER

Telephone (509) 376-5045

Project Designation/Sampling Locations CCl_4

Collection Date 9-23-93

Ice Chest No. MFS 9/27/93 PLT PNL 1001

Field Logbook No. EFL-1104

Bill of Lading/Airbill No. 251900969 91

Offsite Property No. W93-0-0796-S

Method of Shipment EMERY

Shipped to WESTON

Possible Sample Hazards/Remarks 93096094

Sample Identification

001 BO 93G1

~~1; 1L; P; WATER; CLP-ICP/AA METALS & Hg(HNO3 pH<2) UNFILTERED~~ LDW 9-23-93

2; 40ml; Gs; WATER; CLP-VOA(HCl pH<2)

1; 500ml; P/~~G~~; WATER; ~~NO2/NO3(H2SO4 pH<2)~~ Anions LDW 9-23-93

~~1; 1L; P/G; WATER; Tc-99(HCl pH<2)~~

1; ~~1L~~ 4L; P/~~G~~; ~~WATER; TOTAL URANIUM(~~HNO3 pH<2) & Water, Gross Alpha/Beta (HNO_3) LDW 9-23-93

~~BO 93G2~~

~~1; 1L; P; WATER; CLP-ICP/AA METALS & Hg(HNO3 pH<2) FILTERED~~ LDW 9-23-93

002 BO 93G3

3; 40ml; Gs; WATER; CLP-VOA (HCl pH<2)

Temp = 4°C

[] Field Transfer of Custody

Chain of Possession

(Sign and Print Names)

Relinquished By	Date	Time	Received By	Date	Time
L.D. Walker	9-23-93	1830	AJ Simpson	9/27/93	0830
AJ Simpson	9/27/93	0836			
Emery	9-28-93	1214			

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

Samples placed in refrig # 3c - LDW

A-6000-407 (12/92) WEF061

0016 0024

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	(E)
PROJECT: 200-UP-1			DATA PACKAGE: 9309L094-WES.1287		
VALIDATOR: M. HIGGINS		LAB: ROY F. WESTON		DATE: FEB. 8, 1994	
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 4-WATER
B0961
B0964
B0967
B0963

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: _____

MS/MSD SAMPLES WERE ANALYZED PAST HOLD TIME (EXCEEDED MHT BY 6 DAYS). SAMPLE WERE ANALYZED WITHIN HOLD TIME AND WERE ND FOR MS CMPDS. %R OF MS/MSD CMPDS MET CRITERIA - NO ACTION REQUIRED.

n026

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: ALL ICV MET CRITERIA WITH THE EXCEPTION OF ACETONE %RSD=42.4; RSD OF THREE UPPER STDS $RRF_{50,100,200}$ = 18% RSD

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: METHYL CHLORIDE + ~~ACETONE DETECTED~~ IN BLANK.

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:

n027

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:_____

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

SDG: NA		VALIDATOR: M. HIGGINS		DATE: 2/8/94		PAGE 1 OF 1	
COMMENTS: 9309L094·WES·1287							
FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09361	VOA	9/23/93	NA	10/01-06/93	NA	< 14 days	NONE
B09363	↓	↓	↓	↓	↓	↓	↓
B09364	↓	↓	↓	↓	↓	↓	↓
B09367	↓	↓	↓	↓	↓	↓	↓

CALIBRATION DATA SUMMARY

SDG: NA		VALIDATOR: M. HIGGINS		DATE: 2/9/94	PAGE 1 OF 1
COMMENTS: 9309L094-WES-1287					
CALIB. TYPE:	INITIAL	CONTINUING	INSTRUMENT:		
CALIB. DATE	COMPOUND		RF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
9/22-23/93	ACETONE			RSD=42.4	ALL	UJ
						92/18/94

B-2

BLANK AND SAMPLE DATA SUMMARY

SDG: NA	VALIDATOR: M. HIGGINS	DATE: 2/9/94	PAGE 1 OF 1

COMMENTS: 9309L094.WES.1287

SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
VBLK	METHYLENE CHLORIDE	3	J		µg/l		30	ALL	U
VBLK	ACETONE	3	J		µg/l		30	ALL	U

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

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

Case No.: WESTINGHOUSE HANFORD RFW Lot: 9309L094

Instrument ID: 5100B Calibration Date(s): 09/22/93 09/22/93

Heated Purge: (Y/N) N Calibration Time(s): 1330 1605

GC Column: DB624 ID: .53(mm)

LAB FILE ID: RRF10 = B092209 RRF20 = B092210
RRF50 = B092211 RRF100= B092212 RRF200= B092213

COMPOUND	RRF10	RRF20	RRF50	RRF100	RRF200	RRF	% RSD	MIN RRF
Chloromethane	2.633	2.152	1.903	1.723	1.874	2.057	17.4	
Bromomethane *	2.384	2.039	1.815	1.945	2.003	2.037	10.4*	0.100
Vinyl Chloride *	2.810	2.065	1.937	2.032	2.111	2.191	16.1*	0.100
Chloroethane	2.194	2.273	1.703	1.628	1.600	1.880	17.4	
Methylene Chloride	3.839	3.366	2.835	2.358	2.518	2.983	20.6	
Acetone	2.663	2.518	1.502	1.135	1.095	1.783	42.4	
Carbon Disulfide	9.589	9.347	8.449	7.463	7.697	8.509	11.2	
1,1-Dichloroethene *	2.118	2.240	2.042	1.720	1.821	1.988	10.8*	0.100
1,1-Dichloroethane *	4.125	4.319	4.151	3.601	4.063	4.052	6.6*	0.200
1,2-Dichloroethene (total)	1.731	2.116	1.747	1.602	2.283	1.896	15.2	
Chloroform *	3.599	3.819	3.609	3.198	3.491	3.543	6.4*	0.200
1,2-Dichloroethane *	0.559	0.595	0.583	0.491	0.518	0.549	8.0*	0.100
2-Butanone	1.970	2.293	1.781	1.582	1.790	1.883	14.2	
1,1,1-Trichloroethane *	2.663	2.787	2.586	2.299	2.472	2.561	7.3*	0.100
Carbon Tetrachloride *	2.249	2.295	2.171	1.959	2.055	2.146	6.5*	0.100
Bromodichloromethane *	0.496	0.509	0.502	0.433	0.473	0.483	6.4*	0.200
1,2-Dichloropropane	0.439	0.474	0.472	0.419	0.473	0.455	5.5	
cis-1,3-Dichloropropene *	0.697	0.755	0.747	0.651	0.739	0.718	6.1*	0.200
Trichloroethene *	0.311	0.364	0.329	0.292	0.319	0.323	8.2*	0.300
Dibromochloromethane *	0.432	0.456	0.446	0.396	0.444	0.435	5.4*	0.100
1,1,2-Trichloroethane *	0.374	0.405	0.391	0.347	0.394	0.382	5.9*	0.100
Benzene *	1.267	1.373	1.351	1.165	1.320	1.295	6.4*	0.500
Trans-1,3-Dichloropropene *	0.634	0.675	0.670	0.586	0.676	0.648	6.0*	0.100
Bromoform *	0.314	0.340	0.343	0.307	0.342	0.329	5.2*	0.100
4-Methyl-2-pentanone	0.727	0.828	0.826	0.685	0.809	0.775	8.4	
2-Hexanone	0.609	0.768	0.598	0.548	0.615	0.628	13.2	
Tetrachloroethene *	0.286	0.301	0.285	0.257	0.284	0.283	5.6*	0.200
1,1,2,2-Tetrachloroethane *	0.550	0.491	0.603	0.532	0.654	0.566	11.2*	0.500
Toluene *	1.589	1.689	1.677	1.525	1.674	1.631	4.4*	0.400
Chlorobenzene *	0.987	1.049	1.017	0.911	1.015	0.996	5.2*	0.500
Ethylbenzene *	0.506	0.544	0.554	0.518	0.588	0.542	5.9*	0.100
Styrene *	1.025	1.150	1.249	1.179	1.355	1.192	10.2*	0.300
Xylene (total) *	0.615	0.686	0.719	0.680	0.780	0.696	8.7*	0.300
Toluene-d8	1.325	1.414	1.420	1.316	1.338	1.363	3.7	
Bromofluorobenzene *	0.581	0.636	0.682	0.680	0.761	0.668	9.9*	0.200
1,2-Dichloroethane-d4	0.510	0.530	0.508	0.441	0.443	0.486	8.5	

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

FORM VI VOA

3/90

0095

.032

ICV Acetone %RSD > 40%

9613403.0194

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

VBLK

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

Client: WESTINGHOUSE HANFORD

Matrix: (soil/water) WATER

Lab Sample ID: 93LVB252-MB1

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

Lab File ID: B093022

Level: (low/med) LOW

Date Received: 09/30/93

% Moisture: not dec.

Date Analyzed: 09/30/93

GC Column: DB624 ID: .53(mm)

Dilution Factor: 1.00

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	3	J
67-64-1	Acetone	3	J
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

940217

FORM 1 VOA 3/90

Blank Contamination

33

~~0204~~

MEMORANDUM

TO: 200-UP-1 Project QA Record February 18, 1994

FR: Michael Higgins, Golder Associates Inc.

RE: GENERAL CHEMISTRY DATA VALIDATION SUMMARY FOR DATA PACKAGE 9309L094-WES-1287 (923-E417/1287GEN.UP1)

INTRODUCTION

This memorandum presents the results of data validation on data package 9309L094-WES-1287 prepared by Roy F. Weston (Weston), Inc., of Lionville, Pennsylvania. A list of the samples validated is provided in the following table.

SAMPLE ID	SAMPLE DATE	MEDIA	ANALYSIS
B093G1	9/23/93	WATER	SEE NOTE 1
B093G4	9/23/93	WATER	
B093G7	9/23/93	WATER	

NOTES: 1 ALL SAMPLES WERE ANALYZED FOR IC IONS (F, CL, Br, SO4, NO2, NO3, PO4).

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

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

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 referenced analytical method.

Completeness. The data package was complete for all requested analyses. Three (3) samples were validated in this data package with a total of 21 determinations reported, all of which were deemed valid. This results in a completeness of 100 percent which meets the 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.

Holding Times

- The maximum holding times of 48 hours for nitrate, nitrite, and orthophosphate were exceeded. Analyses were performed 120 hours in excess of the maximum holding time of 48 hours from the time of collection. Therefore, all sample results for nitrate, nitrite, and orthophosphate have been qualified as estimated (J for detects, UJ for non-detects).

The sample locations and types were not available for inclusion in the data summary, Attachment 3, at the time of validation.

REFERENCES

WHC 1993a, Validation of 200-UP-1 Data, Statement of Work, Analytical Laboratory Data Validation, Task Order S-94-17, 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 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 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 contract required detection limit (CRDL) but greater than the instrument detection limit (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

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

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: NA	REVIEWER: MCH	DATE: 940208	PAGE 1 OF 1
COMMENTS: 9309L094-WES-1287			
PARAMETER	QUALIFIER	SAMPLES AFFECTED	REASON
NITRATE	J	ALL	MAXIMUM HOLDING TIME OF 48 HR EXCEEDED BY 120 HR
NITRITE	UJ	ALL	MAXIMUM HOLDING TIME OF 48 EXCEEDED BY 120 HR
ORTHOPHOSPHATE	UJ	ALL	MAXIMUM HOLDING TIME OF 48 HR EXCEEDED BY 120 HR

ATTACHMENT 3

QUALIFIED DATA SUMMARY AND ANNOTATED LABORATORY REPORTS

Validated Data Summary, Data Package: 9309L094-WES-1287

	Samp#	B093G1		B093G4		B093G7	
	Date	9-23-93		9-23-93		9-23-93	
	Location	---		---		---	
	Depth	---		---		---	
	Comments	---		---		---	
	Type	---		---		---	
Parameter	Units	Result	Q	Result	Q	Result	Q
CHLORIDE	MG/L	30.300		33.500		33.500	
FLUORIDE	MG/L	0.590		0.630		0.610	
NITRATE	MG/L	5.200	J	5.400	J	5.300	J
NITRITE	MG/L	0.250	UJ	0.250	UJ	0.250	UJ
PHOSPHATE	MG/L	0.250	UJ	0.250	UJ	0.250	UJ
SULFATE	MG/L	29.700		28.800		30.800	

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 10/06/93

CLIENT: WESTINGHOUSE HANFORD

WESTON BATCH #: 9309L094

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B093G1	Chloride by IC	30.3	MG/L	1.2	5.0
		Fluoride by IC	0.59 UJ	MG/L	0.50	1.0
		Nitrite by IC	0.25 UJ	MG/L	0.25	1.0
		Nitrate by IC	5.2 J	MG/L	0.25	1.0
		Phosphate by IC	0.25 UJ	MG/L	0.25	1.0
		Sulfate by IC	29.7	MG/L	1.2	5.0
-003	B093G4	Chloride by IC	33.5	MG/L	1.2	5.0
		Fluoride by IC	0.63	MG/L	0.50	1.0
		Nitrite by IC	0.25 UJ	MG/L	0.25	1.0
		Nitrate by IC	5.4 J	MG/L	0.25	1.0
		Phosphate by IC	0.25 UJ	MG/L	0.25	1.0
		Sulfate by IC	28.8	MG/L	1.2	5.0
-004	B093G7	Chloride by IC	33.5	MG/L	1.2	5.0
		Fluoride by IC	0.61	MG/L	0.50	1.0
		Nitrite by IC	0.25 UJ	MG/L	0.25	1.0
		Nitrate by IC	5.3 J	MG/L	0.25	1.0
		Phosphate by IC	0.25 UJ	MG/L	0.25	1.0
		Sulfate by IC	30.8	MG/L	1.2	5.0

Verified 94078

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# : 9309L094

W.O. #: 06168-002-001-9999-00
Date Received: 09-28-93

INORGANIC

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

1. All sample holding times as required by 40CFR136 were met with the exception of Nitrate by IC, Nitrite by IC and Phosphate by IC, which were received past hold.

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 %RPDs were within the 20% guidance limit.

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

5. Matrix spike recoveries are summarized on the Inorganic Accuracy Report contained within this document. All recoveries were within the 75-125% guidance limits. All %RPD were within the 20% guidance limit.

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

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

RECORD COPY

10.8.93

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

Date

pas/i09-094

Westinghouse Hanford Company

9613403.0206

CHAIN OF CUSTODY

Custody Form Initiator

Company Contact PH BUTCHER

Telephone (509) 376-5045

Project Designation/Sampling Locations CCL4

Collection Date 9-23-93

Ice Chest No. PNL 1001

Field Logbook No. EFL-1104

Bill of Lading/Airbill No. 251900968 91

Offsite Property No. WG93-0-0196-5

Method of Shipment EMERY

Shipped to WESTON

Possible Sample Hazards/Remarks

Sample Identification

B0 93G7

~~1; 1L; P; WATER; CLP-ICP/AA METALS & Hg(HNO3 pH<2) UNFILTERED~~ BH 9/23/93

004 2; 40ml; Gs; WATER; CLP-VOA(HCl pH<2)

1; 500ml; ~~P~~/G; WATER; ~~NO2/NO3(H2SO4 pH<2)~~ Anions LDW 9-23-93

~~1; 1L; P/G; WATER; Tc-99(HCl pH<2)~~ LDW 9-23-93

1; ~~1L~~ 4L; P/~~G~~; WATER; ~~TOTAL URANIUM(HNO3 pH<2)~~ Gross Alpha/Beta (HNO_3) LDW 9-23-93

~~B0 93G8~~

~~1; 1L; P; WATER; CLP-ICP/AA METALS & Hg(HNO3 pH<2) FILTERED~~ BH 9/23/93

~~B0 93G9~~

~~3; 40ml; Gs; WATER; CLP-VOA~~ BH 9/23/93

Temp = 4.1

[] Field Transfer of Custody

Chain of Possession

(Sign and Print Names)

Relinquished By	Date	Time	Received By	Date	Time
PH Butcher L.D. Wallker	9-23-93	1830	AJ Simpson AJ SIMPSON	9/27/93	0839
AJ Simpson AJ SIMPSON	9-27-93	0839			
Emery	9-28-93	12145			

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

Samples placed in refrig. #3c - LDW

9613403.0207

Westinghouse Hanford Company	CHAIN OF CUSTODY

Custody Form Initiator

Company Contact PH BUTCHER

Telephone (509) 376-5045

Project Designation/Sampling Locations CCl_4

Collection Date 9-23-93

Ice Chest No. PNL 1001

Field Logbook No. EFL-1104

Bill of Lading/Airbill No. 251900961

Offsite Property No. W93-0-0796-5

Method of Shipment EMERY

Shipped to WESTON

Possible Sample Hazards/Remarks

Sample Identification

003 BO 93G4

~~1; 1L; P; WATER; CLP-ICP/AA METALS & Hg(HNO3 pH<2) UNFILTERED~~ LDW 9-23-93

2; 40ml; Gs; WATER; CLP-VOA(HCl pH<2)

1; 500ml; ~~P~~/G; WATER; ~~NO2/NO3(H2SO4 pH<2)~~ Anions LDW 9-23-93

~~1; 1L; P/G; WATER; Tc-99(HCl pH<2)~~ LDW 9-23-93

~~1; 1L; P/G; WATER; TOTAL URANIUM(HNO3 pH<2)~~ LDW 9-23-93

~~BO 93G5~~

~~1; 1L; P; WATER; CLP-ICP/AA METALS & Hg(HNO3 pH<2) FILTERED~~ LDW 9-23-93

~~BO 93G6~~

~~3; 40ml; Gs; WATER; CLP-VOA~~ LDW 9-23-93

Temp = 4.1

[] Field Transfer of Custody

Chain of Possession (Sign and Print Names)

Relinquished By	Date	Time	Received By	Date	Time
L.D. Walker L.D. Walker	9-23-93	1830	AJ Simpson AJSIMPSON	9/27/93	0841
AJ Simpson AJSIMPSON	9/27/93	0841			
EMERY	9-28-93	12:45			

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

Samples placed in refrig #3c - LDW

A-6000-407 (12/92) WEF061

0018 0013

9613403.0208

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator

Company Contact PH BUTCHER

Telephone (509) 376-5045

Project Designation/Sampling Locations CCl_4

Collection Date 9-23-93

Ice Chest No. MSS 9/27/93 PLT PNL 1001

Field Logbook No. EFL-1104

Bill of Lading/Airbill No. 251900961 91

Offsite Property No. W93-0-0796-S

Method of Shipment EMERY

Shipped to WESTON

Possible Sample Hazards/Remarks 93096094

Sample Identification

001 BO 93G1

~~1; 1L; P; WATER; CLP-ICP/AA METALS & Hg(HNO3 pH<2) UNFILTERED~~ LDW 9-23-93

2; 40ml; Gs; WATER; CLP-VOA(HCl pH<2)

1; 500ml; P/~~G~~; WATER; ~~NO2/NO3(H2SO4 pH<2)~~ Anions LDW 9-23-93

~~1; 1L; P/G; WATER; Tc-99(HCl pH<2)~~

1; ~~1L~~ 4L; P/~~G; WATER; TOTAL URANIUM~~(HNO3 pH<2) & Water, Gross Alpha/Beta (HNO_3) LDW 9-23-93

~~BO 93G2~~

~~1; 1L; P; WATER; CLP-ICP/AA METALS & Hg(HNO3 pH<2) FILTERED~~ LDW 9-23-93

CC BO 93G3

3; 40ml; Gs; WATER; CLP-VOA (HCl pH<2)

Temp = 4°C

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

Relinquished By	Date	Time	Received By	Date	Time
L.D. Walker L.D. Walker	9-23-93	1830	RJ Simpson	9/27/93	0830
RJ Simpson RJ Simpson	9/27/93	0836			
Emery	9-28-93	1245			

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

Samples placed in refrig # 3c - LDW

A-6000-407 (12/92) WEF061

0014

~~0016~~

ATTACHMENT 5

DATA VALIDATION SUPPORTING DOCUMENTATION

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	(E)
PROJECT:			DATA PACKAGE: 9309L094-WES-1287		
VALIDATOR: M. HIGGINS		LAB: ROY F. WESTON		DATE: FEB 8, 1993	
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	☐	☐
☐	☐	☐	☐	☐	☐

SAMPLES/MATRIX 3. WATER
B09G31
B09G34
B09G37

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: NO3 + NO2 WERE UNPRESERVED AND EXCEEDED MHT OF 48 HRS. (SEE FORM B-1)

PO4 EXCEEDED MHT OF 48 HRS (SEE FORM B-1)

0016

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: _____

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)

0017

GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

Comments:_____

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:_____

0018

HOLDING TIME SUMMARY

SDG: NA	VALIDATOR: M. HIGGINS	DATE: FEB 8, 1994	PAGE 1 OF 1
COMMENTS: 9309L094 · WES-1287			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B09361	ICIONS	9/23/93	NA	9/30/93	NA	< 28 days	NONE
B09364	↓	↓	↓	↓	↓	↓	↓
B09367	↓	↓	↓	↓	↓	↓	↓
~~SEE~~ ALL	NO_3/NO_2	9/23/93	↓	9/30/93	↓	> 48 HR	J/UJ
ALL	PO4	9/23/93	↓	9/30/93	↓	> 48 HR	J/UJ