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WSRC-TR-92-415

ANALYSIS OF WATER AND SOIL FROM THE WETLANDS OF UPPER THREE RUNS CREEK - VOLUMES 1, 2A, 2B, & 3

RECEIVED
JUL 12 1994
OSTI

by
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Westinghouse Savannah River Company
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January/February 1992

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ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WSRC-TASK 12
RFW #: 9201L129
W.O. #: 0345-31-12

SAMPLES RECEIVED: 02-04-92

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. Sample holding times as required by 40CFR136 were met for water samples with the exception of nitrite by IC, nitrate by IC, phosphate by IC and specific conductance which were received past hold.

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

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

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

5. Matrix spike recoveries are summarized on the Inorganics Accuracy Report contained within this document. All recoveries were within the 75-125% guidance limit. 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) and Standard Methods for the Examination of Water and Wastewater 16 ed. Methods for the analysis of solid samples are derived from Test Methods for Evaluating Solid Waste (USEPA SW846).

Margaret M. Diaz 3-20-92

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

pas\i01-129

ROY F. WESTON, INC.
GLOSSARY OF TERMS - INORGANIC REPORTS

DATA QUALIFIERS

U - Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* - Indicates that the original sample result is greater than 4x the spike amount added. The USEPA-CLP has determined that spike results on samples where this occurs may be unreliable and therefore, the control limits are not applicable.

ABBREVIATIONS

MB - Method or preparation blank
MS - Matrix Spike
MSD - Matrix Spike Duplicate.
REP - Sample Replicate.
LC - Indicates a method LCS or Blank Spike.
NC - Not calculable, result below the detection limit.

A suffix of -R and -S following these codes indicates a replicate and spike analysis respectively.

ANALYTICAL METAL METHODS

As :	EPA 206.2	Se :	EPA 270.2
Pb :	EPA 239.2	ICP Scan :	EPA 200.7
Hg :	EPA 245.1	All Others :	EPA 200.7
Tl :	EPA 279.2	EP Leachates (except Hg) :	200.7

The analytical methods applied by the laboratory for the determination of drinking water is 5.2.1.

NOTES

The laboratory prepares a matrix spike at one per 20 frequency for TCLP samples. The Federal Register recommends that all matrix spikes be prepared at greater than 50% of the indigenous analyte concentration. A matrix duplicate is also prepared.

Holding times for soil samples have not been promulgated by the USEPA.

For solid samples, all results are reported on a dry weight basis.

The range for mercury solid laboratory control standards is 66.9% to 133.8%.

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/20/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L129

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	STATION 15	Acidity	48.0		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	2.2		MG/L	1.0
		Nitrate, as N	0.10		MG-N/L	0.10
		pH	4.3		PH UNITS	0.010
		Sulfate	5.0	u	MG/L	5.0
		Specific Conductance	23.9		UMHOS/CM	1.0
-002	STATION 22	Acidity	48.0		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	22.0		MG/L	1.0
		Nitrate, as N	0.16		MG-N/L	0.10
		pH	5.1		PH UNITS	0.010
		Sulfate	7.9		MG/L	5.0
		Specific Conductance	39.5		UMHOS/CM	1.0
-003	STATION 23	Acidity	46.0		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	3.0		MG/L	1.0
		Nitrate, as N	0.46		MG-N/L	0.10
		pH	5.1		PH UNITS	0.010
		Sulfate	5.0	u	MG/L	5.0
		Specific Conductance	22.1		UMHOS/CM	1.0
-004	STATION 24	Acidity	232		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	12.0		MG/L	1.0
		Nitrate, as N	0.37		MG-N/L	0.10
		pH	4.3		PH UNITS	0.010
		Sulfate	10.7		MG/L	5.0
		Specific Conductance	65.5		UMHOS/CM	1.0
-005	STATION 65	Acidity	36.0		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	6.2		MG/L	1.0
		Nitrate, as N	0.16		MG-N/L	0.10
		pH	6.0		PH UNITS	0.010
		Sulfate	5.0	u	MG/L	5.0
		Specific Conductance	19.8		UMHOS/CM	1.0
-006	STATION 66	Acidity	56.0		MG/L	2.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/20/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L129

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-006	STATION 66	Chloride	5.0	u	MG/L	5.0
		Hardness	3.0		MG/L	1.0
		Nitrate, as N	0.22		MG-N/L	0.10
		pH	5.1		PH UNITS	0.010
		Sulfate	5.0	u	MG/L	5.0
		Specific Conductance	18.3		UMHOS/CM	1.0
-007	STATION 68	Acidity	46.0		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	2.5		MG/L	1.0
		Nitrate, as N	0.28		MG-N/L	0.10
		pH	5.1		PH UNITS	0.010
		Sulfate	5.0	u	MG/L	5.0
		Specific Conductance	11.4		UMHOS/CM	1.0
-008	STATION 71	Acidity	70.0		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	7.5		MG/L	1.0
		Nitrate, as N	0.10	u	MG-N/L	0.10
		pH	4.5		PH UNITS	0.010
		Sulfate	5.0	u	MG/L	5.0
		Specific Conductance	16.8		UMHOS/CM	1.0

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 03/20/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L129

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
BLANK10	92LAC001-MB1	Acidity	10.0		MG/L	2.0
BLANK20	92LAC001-MB2	Acidity	10.0		MG/L	2.0
BLANK10	92LCL004-MB1	Chloride	5.0	u	MG/L	5.0
BLANK20	92LCL004-MB2	Chloride	5.0	u	MG/L	5.0
BLANK30	92LCL004-MB3	Chloride	5.0	u	MG/L	5.0
BLANK10	92LHD003-MB1	Hardness	1.0	u	MG/L	1.0
BLANK20	92LHD003-MB2	Hardness	1.0	u	MG/L	1.0
BLANK10	92LNO013-MB1	Nitrate, as N	0.10	u	MG-N/L	0.10
BLANK20	92LNO013-MB2	Nitrate, as N	0.10	u	MG-N/L	0.10
BLANK10	92LS4005-MB1	Sulfate	5.0	u	MG/L	5.0

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 03/20/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L129

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
BLANK20	92LS4005-MB2	Sulfate	5.0	u	MG/L	5.0
BLANK10	92LSP008-MB1	Specific Conductance	1.0	u	UMHOS/CM	1.0

ROY F. WESTON INC.

INORGANIC ACCURACY REPORT 03/20/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9201L129

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV
-006	STATION 66	Hardness	102	3.0	100	99.0
-007	STATION 68	Hardness	105	2.5	100	102
BLANK10	92LCL004-MB1	Chloride	24.0	5.0 u	25.0	96.0
		Chloride MSD	24.1	5.0 u	25.0	96.2
BLANK20	92LCL004-MB2	Chloride	24.2	5.0 u	25.0	97.0
BLANK30	92LCL004-MB3	Chloride	24.1	5.0 u	25.0	96.4
BLANK10	92LHD003-MB1	Hardness	101	1.0 u	100	101
		Hardness MSD	329	1.0 u	330	99.6
BLANK20	92LHD003-MB2	Hardness	102	1.0 u	100	102
BLANK10	92LNO013-MB1	Nitrate, as N	0.38	0.10u	0.40	95.0
		Nitrate, as N MSD	0.40	0.10u	0.40	99.0
BLANK20	92LNO013-MB2	Nitrate, as N	0.41	0.10u	0.40	103
BLANK10	92LS4005-MB1	Sulfate	21.0	5.0 u	20.0	105
		Sulfate	20.9	5.0 u	20.0	105

ROY F. WESTON INC.

INORGANIC ACCURACY REPORT 03/20/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9201L129

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV
BLANK20	92LS4005-MB2	Sulfate	29.7	5.0 u	30.0	99.1
BLANK10	92LSP008-MB1	Specific Conductance	142	1.0 u	147	96.6
		Specific Conductance M	142	1.0 u	147	96.6

ROY F. WESTON INC.

INORGANIC DUPLICATE SPIKE REPORT 03/20/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9201L129

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%RPD
BLANK10	92LCL004-MB1	Chloride	96.0	96.2	0.20
BLANK10	92LHD003-MB1	Hardness	101	99.6	1.6
BLANK10	92LNO013-MB1	Nitrate, as N	95.0	99.0	4.5
BLANK10	92LS4005-MB1	Sulfate	105	105	0.60
BLANK10	92LSP008-MB1	Specific Conductance	96.6	96.6	0.00

ROY F. WESTON INC.

INORGANIC PRECISION REPORT 03/20/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9201L129

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	%RPD
-001REP	STATION 15	Nitrate, as N	0.10	0.10u	NC
		pH	4.3	4.3	0.47
		Specific Conductance	23.9	23.9	0.00
-002REP	STATION 22	Sulfate	7.9	7.9	0.96
-003REP	STATION 23	Chloride	5.0 u	5.0 u	NC
-007REP	STATION 68	Hardness	2.5	3.0	18.2
-008REP	STATION 71	Acidity	70.0	72.0	2.8

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/25/92 RFW LOT # :9201L129

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 15						
ACIDITY	001	W	92LAC001	01/24/92	01/30/92	01/30/92
CHLORIDE	001	W	92LCL004	01/24/92	01/31/92	01/31/92
HARDNESS	001	W	92LHD003	01/24/92	01/28/92	01/28/92
NITRATE	001	W	92LNO013	01/24/92	02/04/92	02/04/92
NITRATE	001 REP	W	92LNO013	01/24/92	02/04/92	02/04/92
PH	001	W	92LPH013	01/24/92	01/25/92	01/25/92
PH	001 REP	W	92LPH013	01/24/92	01/25/92	01/25/92
SULFATE	001	W	92LS4005	01/24/92	01/28/92	01/28/92
SPECIFIC CONDUCTANCE	001	W	92LSP008	01/24/92	01/25/92	01/25/92
SPECIFIC CONDUCTANCE	001 REP	W	92LSP008	01/24/92	01/25/92	01/25/92
SUB-OUT TEST FOR SUB	001	W		01/24/92		
STATION 22						
ACIDITY	002	W	92LAC001	01/24/92	01/30/92	01/30/92
CHLORIDE	002	W	92LCL004	01/24/92	01/31/92	01/31/92
HARDNESS	002	W	92LHD003	01/24/92	01/28/92	01/28/92
NITRATE	002	W	92LNO013	01/24/92	02/04/92	02/04/92
PH	002	W	92LPH013	01/24/92	01/25/92	01/25/92
SULFATE	002	W	92LS4005	01/24/92	01/28/92	01/28/92
SULFATE	002 REP	W	92LS4005	01/24/92	01/28/92	01/28/92
SPECIFIC CONDUCTANCE	002	W	92LSP008	01/24/92	01/25/92	01/25/92
SUB-OUT TEST FOR SUB	002	W		01/24/92		
STATION 23						
ACIDITY	003	W	92LAC001	01/24/92	01/30/92	01/30/92
CHLORIDE	003	W	92LCL004	01/24/92	01/31/92	01/31/92
CHLORIDE	003 REP	W	92LCL004	01/24/92	01/31/92	01/31/92
HARDNESS	003	W	92LHD003	01/24/92	01/28/92	01/28/92
NITRATE	003	W	92LNO013	01/24/92	02/04/92	02/04/92
PH	003	W	92LPH013	01/24/92	01/25/92	01/25/92
SULFATE	003	W	92LS4005	01/24/92	01/28/92	01/28/92
SPECIFIC CONDUCTANCE	003	W	92LSP008	01/24/92	01/25/92	01/25/92
SUB-OUT TEST FOR SUB	003	W		01/24/92		
STATION 24						
ACIDITY	004	W	92LAC001	01/24/92	01/30/92	01/30/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/25/92 RFW LOT # :9201L129

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHLORIDE	004	W	92LCL004	01/24/92	01/31/92	01/31/92
HARDNESS	004	W	92LHD003	01/24/92	01/28/92	01/28/92
NITRATE	004	W	92LNO013	01/24/92	02/04/92	02/04/92
PH	004	W	92LPH013	01/24/92	01/25/92	01/25/92
SULFATE	004	W	92LS4005	01/24/92	01/28/92	01/28/92
SPECIFIC CONDUCTANCE	004	W	92LSP008	01/24/92	01/25/92	01/25/92
SUB-OUT TEST FOR SUB	004	W		01/24/92		
STATION 65						
ACIDITY	005	W	92LAC001	01/24/92	01/30/92	01/30/92
CHLORIDE	005	W	92LCL004	01/24/92	01/31/92	01/31/92
HARDNESS	005	W	92LHD003	01/24/92	01/28/92	01/28/92
NITRATE	005	W	92LNO013	01/24/92	02/04/92	02/04/92
PH	005	W	92LPH013	01/24/92	01/25/92	01/25/92
SULFATE	005	W	92LS4005	01/24/92	01/28/92	01/28/92
SPECIFIC CONDUCTANCE	005	W	92LSP008	01/24/92	01/25/92	01/25/92
SUB-OUT TEST FOR SUB	005	W		01/24/92		
STATION 66						
ACIDITY	006	W	92LAC001	01/24/92	01/30/92	01/30/92
CHLORIDE	006	W	92LCL004	01/24/92	01/31/92	01/31/92
HARDNESS	006	W	92LHD003	01/24/92	01/28/92	01/28/92
HARDNESS	006 MS	W	92LHD003	01/24/92	01/28/92	01/28/92
NITRATE	006	W	92LNO013	01/24/92	02/04/92	02/04/92
PH	006	W	92LPH013	01/24/92	01/25/92	01/25/92
SULFATE	006	W	92LS4005	01/24/92	01/28/92	01/28/92
SPECIFIC CONDUCTANCE	006	W	92LSP008	01/24/92	01/25/92	01/25/92
SUB-OUT TEST FOR SUB	006	W		01/24/92		
STATION 68						
ACIDITY	007	W	92LAC001	01/24/92	01/30/92	01/30/92
CHLORIDE	007	W	92LCL004	01/24/92	01/31/92	01/31/92
HARDNESS	007	W	92LHD003	01/24/92	01/28/92	01/28/92
HARDNESS	007 REP	W	92LHD003	01/24/92	01/28/92	01/28/92
HARDNESS	007 MS	W	92LHD003	01/24/92	01/28/92	01/28/92
NITRATE	007	W	92LNO013	01/24/92	02/04/92	02/04/92
PH	007	W	92LPH013	01/24/92	01/25/92	01/25/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/25/92 RFW LOT # :9201L129

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SULFATE	007	W	92LS4005	01/24/92	01/28/92	01/28/92
SPECIFIC CONDUCTANCE	007	W	92LSP008	01/24/92	01/25/92	01/25/92
SUB-OUT TEST FOR SUB	007	W		01/24/92		
STATION 71						
ACIDITY	008	W	92LAC001	01/24/92	01/30/92	01/30/92
ACIDITY	008 REP	W	92LAC001	01/24/92	01/30/92	01/30/92
CHLORIDE	008	W	92LCL004	01/24/92	01/31/92	01/31/92
HARDNESS	008	W	92LHD003	01/24/92	01/28/92	01/28/92
NITRATE	008	W	92LNO013	01/24/92	02/04/92	02/04/92
PH	008	W	92LPH013	01/24/92	01/25/92	01/25/92
SULFATE	008	W	92LS4005	01/24/92	01/28/92	01/28/92
SPECIFIC CONDUCTANCE	008	W	92LSP008	01/24/92	01/25/92	01/25/92
SUB-OUT TEST FOR SUB	008	W		01/24/92		

LAB QC:

ACIDITY	MB1	W	92LAC001	N/A	01/30/92	01/30/92
ACIDITY	MB2	W	92LAC001	N/A	01/30/92	01/30/92
CHLORIDE	MB1	W	92LCL004	N/A	01/31/92	01/31/92
CHLORIDE	MB1 BS	W	92LCL004	N/A	01/31/92	01/31/92
CHLORIDE	MB1 BSD	W	92LCL004	N/A	01/31/92	01/31/92
CHLORIDE	MB2	W	92LCL004	N/A	01/31/92	01/31/92
CHLORIDE	MB2 BS	W	92LCL004	N/A	01/31/92	01/31/92
CHLORIDE	MB3	W	92LCL004	N/A	01/31/92	01/31/92
CHLORIDE	MB3 BS	W	92LCL004	N/A	01/31/92	01/31/92
HARDNESS	MB1	W	92LHD003	N/A	01/28/92	01/28/92
HARDNESS	MB1 BS	W	92LHD003	N/A	01/28/92	01/28/92
HARDNESS	MB1 BSD	W	92LHD003	N/A	01/28/92	01/28/92
HARDNESS	MB2	W	92LHD003	N/A	01/28/92	01/28/92
HARDNESS	MB2 BS	W	92LHD003	N/A	01/28/92	01/28/92
NITRATE	MB1	W	92LNO013	N/A	02/04/92	02/04/92
NITRATE	MB1 BS	W	92LNO013	N/A	02/04/92	02/04/92
NITRATE	MB1 BSD	W	92LNO013	N/A	02/04/92	02/04/92
NITRATE	MB2	W	92LNO013	N/A	02/04/92	02/04/92
NITRATE	MB2 BS	W	92LNO013	N/A	02/04/92	02/04/92
SULFATE	MB1	W	92LS4005	N/A	01/28/92	01/28/92
SULFATE	MB1 BS	W	92LS4005	N/A	01/28/92	01/28/92
SULFATE	MB1 BSD	W	92LS4005	N/A	01/28/92	01/28/92

Roy F. Weston, Inc. - Lionville Laboratory
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DATE RECEIVED: 01/25/92 RFW LOT # :9201L129

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SULFATE	MB2	W	92LS4005	N/A	01/28/92	01/28/92
SULFATE	MB2 BS	W	92LS4005	N/A	01/28/92	01/28/92
SPECIFIC CONDUCTANCE	MB1	W	92LSP008	N/A	01/25/92	01/25/92
SPECIFIC CONDUCTANCE	MB1 BS	W	92LSP008	N/A	01/25/92	01/25/92
SPECIFIC CONDUCTANCE	MB1 BSD	W	92LSP008	N/A	01/25/92	01/25/92

Metals yellow data QA Dthomas

WESTON Analytics Use Only
9201L129

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WSRC-Task 12
Est. Final Proj. Sampling Date: 0000
Work Order #: 0345-31-12 ~~0000~~
Project Contact/Phone #:
AD Project Manager: Diane Thomas
QC: Std Del: Std TAT: 30 Day
Date Rec'd: 1/25/92 Date Due: 2/24/92
Account #: WSRC 125-TD

Refrigerator #																	
#/Type Container	Liquid	1/6					1/P	1/P		1/P		1/P	1/P	1/P	1/P		
	Solid																
Volume	Liquid	40					4/1L	4L		4L		250	250	4L			
	Solid																
Preservatives		none					none	none		HCl		none	HCl	none			
ANALYSES REQUESTED		ORGANIC								INORG							
		VOA	BNA	Pest/PCB	Herb		Radio chem	Tritium		Metal	CN	SO4 PH	NO3 Hard	Phos Acid	Cl Spec		

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only: 8240				ISOB		See Below		ISO4 IPH	NO3 HARD	PHOS ACID	ICL ISPEC		
S - Soil	001	Station 15			W	1/24/92		✓				✓	✓	✓		✓	✓	✓	✓		
SE - Sediment	2	22																			
SO - Solid	3	23																			
SL - Sludge	4	24																			
W - Water	5	65																			
O - Oil	6	66																			
A - Air	7	68																			
DS - Drum Solids	8	71																			
DL - Drum Liquids	9	TripBlank																			
L - EP/TCLP Leachate																					
WI - Wipe																					
X - Other																					
F - Fish																					

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: only (1) VOA Recd for each sample.

Metals = Ag, AL, As, Ba, Cd, CR, Cu, Hg, Ni, Na, Pb, Se, ZN, Fe, MN

DATE/REVISIONS:
1/27/92 1. Metals List Reflected.
2. Use UTTREX for digestion
~~1/30/92 3. WO changed~~ PG 1/30/92
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) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES: PH, SPC Dour by lab

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
[illegible]	[illegible]	1/25/92	9:30 am		PG	1/25/92	
	PG	1/25/92					

RFW 21-21-001/ ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ___ Cooler# ___ 201-596a

recieved [illegible] #1852748143 Temp 13°C

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WSRC-TASK 12
RFW #: 9201L129
W.O. #: 0345-31-12

SAMPLES RECEIVED: 01-25-92

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

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

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

4. All calibration verification checks were within the required control limits of 90-110% (80-120% for Hg). Calibration verification is performed using independent standards from Inorganic Ventures, Inc.

2.14.92

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

kls\m01-129

ROY F. WESTON, INC.
GLOSSARY OF TERMS - INORGANIC REPORTS

DATA QUALIFIERS

U - Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* - Indicates that the original sample result is greater than 4x the spike amount added. The USEPA-CLP has determined that spike results on samples where this occurs may be unreliable and therefore the control limits are not applicable.

ABBREVIATIONS

MB - Method or preparation blank
MS - Matrix Spike
MSD - Matrix Spike Duplicate.
REP - Sample Replicate.
LC - Indicates a method LCS or Blank Spike.
NC - Not calculable, result below the detection limit.

A suffix of -R and -S following these codes indicates a replicate and spike analysis respectively.

ANALYTICAL METAL METHODS

As :	EPA 206.2	Se :	EPA 270.2
Pb :	EPA 239.2	ICP Scan :	EPA 200.7
Hg :	EPA 245.1	All Others :	EPA 200.7
Tl :	EPA 279.2	EP Leachates (except Hg) :	200.7

The analytical methods applied by the laboratory for the determination of drinking water is 5.2.1.

NOTES

The laboratory prepares a matrix spike at one per 20 frequency for TCLP samples. The Federal Register recommends that all matrix spikes be prepared at greater than 50% of the indigenous analyte concentration. A matrix duplicate is also prepared.

Holding times for soil samples have not been promulgated by the USEPA.

For solid samples, all results are reported on a dry weight basis.

The range for mercury solid laboratory control standards is 66.9% to 133.8%.

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 02/13/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L129

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	STATION 15	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	230		UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	290		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	44.1		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	20.5		UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	146		UG/L	20.0

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 02/13/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L129

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-002	STATION 22	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	926		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	320		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.7		UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	188		UG/L	20.0

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 02/13/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L129

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-003	STATION 23	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	235		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	37.2		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	51.3		UG/L	40.0
		Lead, Total	62.1		UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	200		UG/L	20.0

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 02/13/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L129

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-004	STATION 24	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	183		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	37.2		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	81.0		UG/L	20.0

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 02/13/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L129

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-005	STATION 65	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	111		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	26.2		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	4.6		UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	38.4		UG/L	20.0

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 02/13/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L129

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-006	STATION 66	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	34.3		UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	129		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	16.1		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	30.0		UG/L	20.0

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 02/13/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L129

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-007	STATION 68	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	149		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	47.0		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	4.9		UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	36.3		UG/L	20.0

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 02/13/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L129

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-008	STATION 71	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	391		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	71.5		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	59.9		UG/L	20.0

ROY F. WESTON INC.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/13/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L129

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
BLANK1	92L0407-MB1	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Zinc, Total	20.0	u	UG/L	20.0
BLANK1	92L0406-MB1	Arsenic, Total	10.0	u	UG/L	10.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
BLANK1	92C0040-MB1	Mercury, Total	0.20	u	UG/L	0.20
BLANK2	92C0040-MB2	Mercury, Total	0.20	u	UG/L	0.20

ROY F. WESTON INC.

INORGANICS DUPLICATE SPIKE REPORT 02/13/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L129

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
LCS2	92L0407-LC2	Silver, LCS	94.9	92.9	2.1
		Aluminum, LCS	104	101	2.4
		Barium, LCS	100	97.3	2.7
		Cadmium, LCS	109	109	0.37
		Chromium, LCS	100	99.7	0.50
		Copper, LCS	99.2	100	1.1
		Iron, LCS	102	101	0.49
		Manganese, LCS	103	102	0.59
		Sodium, LCS	100	105	5.2
		Nickel, LCS	102	102	0.49
		Zinc, LCS	105	104	0.29
LCS2	92L0406-LC2	Arsenic, LCS	99.0	101	1.7
		Lead, LCS	102	103	0.98
		Selenium, LCS	101	100	1.0
LCS2	92C0040-LC2	Mercury, LCS	106	97.8	8.5

ROY F. WESTON INC.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 02/13/92

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	92L0407-LC1	Silver, LCS	474	500	UG/L	94.9
		Aluminum, LCS	5200	5000	UG/L	104
		Barium, LCS	5000	5000	UG/L	100
		Cadmium, LCS	274	250	UG/L	109
		Chromium, LCS	501	500	UG/L	100
		Copper, LCS	1240	1250	UG/L	99.2
		Iron, LCS	5070	5000	UG/L	102
		Manganese, LCS	770	750	UG/L	103
		Sodium, LCS	25000	25000	UG/L	100
		Nickel, LCS	2040	2000	UG/L	102
		Zinc, LCS	1050	1000	UG/L	105
LCS2	92L0407-LC2	Silver, LCS	465	500	UG/L	92.9
		Aluminum, LCS	5070	5000	UG/L	101
		Barium, LCS	4860	5000	UG/L	97.3
		Cadmium, LCS	272	250	UG/L	109
		Chromium, LCS	498	500	UG/L	99.7
		Copper, LCS	1250	1250	UG/L	100
		Iron, LCS	5050	5000	UG/L	101
		Manganese, LCS	765	750	UG/L	102
		Sodium, LCS	26300	25000	UG/L	105
		Nickel, LCS	2030	2000	UG/L	102
		Zinc, LCS	1040	1000	UG/L	104
LCS1	92L0406-LC1	Arsenic, LCS	29.7	30.0	UG/L	99.0
		Lead, LCS	30.6	30.0	UG/L	102
		Selenium, LCS	30.3	30.0	UG/L	101
LCS2	92L0406-LC2	Arsenic, LCS	30.2	30.0	UG/L	101
		Lead, LCS	30.9	30.0	UG/L	103
		Selenium, LCS	30.0	30.0	UG/L	100
LCS1	92C0040-LC1	Mercury, LCS	5.3	5.0	UG/L	106
LCS2	92C0040-LC2	Mercury, LCS	4.9	5.0	UG/L	97.8

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/25/92 RFW LOT # :9201L129

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 15						
SILVER, TOTAL	001	W	92L0407	01/24/92	02/05/92	02/12/92
ALUMINUM, TOTAL	001	W	92L0407	01/24/92	02/05/92	02/12/92
ARSENIC, TOTAL	001	W	92L0406	01/24/92	02/05/92	02/10/92
BARIUM, TOTAL	001	W	92L0407	01/24/92	02/05/92	02/12/92
CADMIUM, TOTAL	001	W	92L0407	01/24/92	02/05/92	02/12/92
CHROMIUM, TOTAL	001	W	92L0407	01/24/92	02/05/92	02/12/92
COPPER, TOTAL	001	W	92L0407	01/24/92	02/05/92	02/12/92
IRON, TOTAL	001	W	92L0407	01/24/92	02/05/92	02/12/92
MERCURY, TOTAL	001	W	92C0040	01/24/92	02/07/92	02/10/92
MANGANESE, TOTAL	001	W	92L0407	01/24/92	02/05/92	02/12/92
SODIUM, TOTAL	001	W	92L0407	01/24/92	02/05/92	02/12/92
NICKEL, TOTAL	001	W	92L0407	01/24/92	02/05/92	02/12/92
LEAD, TOTAL	001	W	92L0406	01/24/92	02/05/92	02/10/92
SELENIUM, TOTAL	001	W	92L0406	01/24/92	02/05/92	02/11/92
ZINC, TOTAL	001	W	92L0407	01/24/92	02/05/92	02/12/92
STATION 22						
SILVER, TOTAL	002	W	92L0407	01/24/92	02/05/92	02/12/92
ALUMINUM, TOTAL	002	W	92L0407	01/24/92	02/05/92	02/12/92
ARSENIC, TOTAL	002	W	92L0406	01/24/92	02/05/92	02/10/92
BARIUM, TOTAL	002	W	92L0407	01/24/92	02/05/92	02/12/92
CADMIUM, TOTAL	002	W	92L0407	01/24/92	02/05/92	02/12/92
CHROMIUM, TOTAL	002	W	92L0407	01/24/92	02/05/92	02/12/92
COPPER, TOTAL	002	W	92L0407	01/24/92	02/05/92	02/12/92
IRON, TOTAL	002	W	92L0407	01/24/92	02/05/92	02/12/92
MERCURY, TOTAL	002	W	92C0040	01/24/92	02/07/92	02/10/92
MANGANESE, TOTAL	002	W	92L0407	01/24/92	02/05/92	02/12/92
SODIUM, TOTAL	002	W	92L0407	01/24/92	02/05/92	02/12/92
NICKEL, TOTAL	002	W	92L0407	01/24/92	02/05/92	02/12/92
LEAD, TOTAL	002	W	92L0406	01/24/92	02/05/92	02/10/92
SELENIUM, TOTAL	002	W	92L0406	01/24/92	02/05/92	02/11/92
ZINC, TOTAL	002	W	92L0407	01/24/92	02/05/92	02/12/92
STATION 23						
SILVER, TOTAL	003	W	92L0407	01/24/92	02/05/92	02/12/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/25/92 RFW LOT # :9201L129

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	003	W	92L0407	01/24/92	02/05/92	02/12/92
ARSENIC, TOTAL	003	W	92L0406	01/24/92	02/05/92	02/10/92
BARIUM, TOTAL	003	W	92L0407	01/24/92	02/05/92	02/12/92
CADMIUM, TOTAL	003	W	92L0407	01/24/92	02/05/92	02/12/92
CHROMIUM, TOTAL	003	W	92L0407	01/24/92	02/05/92	02/12/92
COPPER, TOTAL	003	W	92L0407	01/24/92	02/05/92	02/12/92
IRON, TOTAL	003	W	92L0407	01/24/92	02/05/92	02/12/92
MERCURY, TOTAL	003	W	92C0040	01/24/92	02/07/92	02/10/92
MANGANESE, TOTAL	003	W	92L0407	01/24/92	02/05/92	02/12/92
SODIUM, TOTAL	003	W	92L0407	01/24/92	02/05/92	02/12/92
NICKEL, TOTAL	003	W	92L0407	01/24/92	02/05/92	02/12/92
LEAD, TOTAL	003	W	92L0406	01/24/92	02/05/92	02/10/92
SELENIUM, TOTAL	003	W	92L0406	01/24/92	02/05/92	02/11/92
ZINC, TOTAL	003	W	92L0407	01/24/92	02/05/92	02/12/92
STATION 24						
SILVER, TOTAL	004	W	92L0407	01/24/92	02/05/92	02/12/92
ALUMINUM, TOTAL	004	W	92L0407	01/24/92	02/05/92	02/12/92
ARSENIC, TOTAL	004	W	92L0406	01/24/92	02/05/92	02/10/92
BARIUM, TOTAL	004	W	92L0407	01/24/92	02/05/92	02/12/92
CADMIUM, TOTAL	004	W	92L0407	01/24/92	02/05/92	02/12/92
CHROMIUM, TOTAL	004	W	92L0407	01/24/92	02/05/92	02/12/92
COPPER, TOTAL	004	W	92L0407	01/24/92	02/05/92	02/12/92
IRON, TOTAL	004	W	92L0407	01/24/92	02/05/92	02/12/92
MERCURY, TOTAL	004	W	92C0040	01/24/92	02/07/92	02/10/92
MANGANESE, TOTAL	004	W	92L0407	01/24/92	02/05/92	02/12/92
SODIUM, TOTAL	004	W	92L0407	01/24/92	02/05/92	02/12/92
NICKEL, TOTAL	004	W	92L0407	01/24/92	02/05/92	02/12/92
LEAD, TOTAL	004	W	92L0406	01/24/92	02/05/92	02/10/92
SELENIUM, TOTAL	004	W	92L0406	01/24/92	02/05/92	02/11/92
ZINC, TOTAL	004	W	92L0407	01/24/92	02/05/92	02/12/92
STATION 65						
SILVER, TOTAL	005	W	92L0407	01/24/92	02/05/92	02/12/92
ALUMINUM, TOTAL	005	W	92L0407	01/24/92	02/05/92	02/12/92
ARSENIC, TOTAL	005	W	92L0406	01/24/92	02/05/92	02/10/92
BARIUM, TOTAL	005	W	92L0407	01/24/92	02/05/92	02/12/92
CADMIUM, TOTAL	005	W	92L0407	01/24/92	02/05/92	02/12/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/25/92 RFW LOT # :9201L129

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	005	W	92L0407	01/24/92	02/05/92	02/12/92
COPPER, TOTAL	005	W	92L0407	01/24/92	02/05/92	02/12/92
IRON, TOTAL	005	W	92L0407	01/24/92	02/05/92	02/12/92
MERCURY, TOTAL	005	W	92C0040	01/24/92	02/07/92	02/10/92
MANGANESE, TOTAL	005	W	92L0407	01/24/92	02/05/92	02/12/92
SODIUM, TOTAL	005	W	92L0407	01/24/92	02/05/92	02/12/92
NICKEL, TOTAL	005	W	92L0407	01/24/92	02/05/92	02/12/92
LEAD, TOTAL	005	W	92L0406	01/24/92	02/05/92	02/10/92
SELENIUM, TOTAL	005	W	92L0406	01/24/92	02/05/92	02/11/92
ZINC, TOTAL	005	W	92L0407	01/24/92	02/05/92	02/12/92
STATION 66						
SILVER, TOTAL	006	W	92L0407	01/24/92	02/05/92	02/12/92
ALUMINUM, TOTAL	006	W	92L0407	01/24/92	02/05/92	02/12/92
ARSENIC, TOTAL	006	W	92L0406	01/24/92	02/05/92	02/10/92
BARIUM, TOTAL	006	W	92L0407	01/24/92	02/05/92	02/12/92
CADMIUM, TOTAL	006	W	92L0407	01/24/92	02/05/92	02/12/92
CHROMIUM, TOTAL	006	W	92L0407	01/24/92	02/05/92	02/12/92
COPPER, TOTAL	006	W	92L0407	01/24/92	02/05/92	02/12/92
IRON, TOTAL	006	W	92L0407	01/24/92	02/05/92	02/12/92
MERCURY, TOTAL	006	W	92C0040	01/24/92	02/07/92	02/10/92
MANGANESE, TOTAL	006	W	92L0407	01/24/92	02/05/92	02/12/92
SODIUM, TOTAL	006	W	92L0407	01/24/92	02/05/92	02/12/92
NICKEL, TOTAL	006	W	92L0407	01/24/92	02/05/92	02/12/92
LEAD, TOTAL	006	W	92L0406	01/24/92	02/05/92	02/10/92
SELENIUM, TOTAL	006	W	92L0406	01/24/92	02/05/92	02/11/92
ZINC, TOTAL	006	W	92L0407	01/24/92	02/05/92	02/12/92
STATION 68						
SILVER, TOTAL	007	W	92L0407	01/24/92	02/05/92	02/12/92
ALUMINUM, TOTAL	007	W	92L0407	01/24/92	02/05/92	02/12/92
ARSENIC, TOTAL	007	W	92L0406	01/24/92	02/05/92	02/10/92
BARIUM, TOTAL	007	W	92L0407	01/24/92	02/05/92	02/12/92
CADMIUM, TOTAL	007	W	92L0407	01/24/92	02/05/92	02/12/92
CHROMIUM, TOTAL	007	W	92L0407	01/24/92	02/05/92	02/12/92
COPPER, TOTAL	007	W	92L0407	01/24/92	02/05/92	02/12/92
IRON, TOTAL	007	W	92L0407	01/24/92	02/05/92	02/12/92
MERCURY, TOTAL	007	W	92C0040	01/24/92	02/07/92	02/10/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/25/92 RFW LOT # :9201L129

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MANGANESE, TOTAL	007	W	92L0407	01/24/92	02/05/92	02/12/92
SODIUM, TOTAL	007	W	92L0407	01/24/92	02/05/92	02/12/92
NICKEL, TOTAL	007	W	92L0407	01/24/92	02/05/92	02/12/92
LEAD, TOTAL	007	W	92L0406	01/24/92	02/05/92	02/10/92
SELENIUM, TOTAL	007	W	92L0406	01/24/92	02/05/92	02/11/92
ZINC, TOTAL	007	W	92L0407	01/24/92	02/05/92	02/12/92
STATION 71						
SILVER, TOTAL	008	W	92L0407	01/24/92	02/05/92	02/12/92
ALUMINUM, TOTAL	008	W	92L0407	01/24/92	02/05/92	02/12/92
ARSENIC, TOTAL	008	W	92L0406	01/24/92	02/05/92	02/10/92
BARIUM, TOTAL	008	W	92L0407	01/24/92	02/05/92	02/12/92
CADMIUM, TOTAL	008	W	92L0407	01/24/92	02/05/92	02/12/92
CHROMIUM, TOTAL	008	W	92L0407	01/24/92	02/05/92	02/12/92
COPPER, TOTAL	008	W	92L0407	01/24/92	02/05/92	02/12/92
IRON, TOTAL	008	W	92L0407	01/24/92	02/05/92	02/12/92
MERCURY, TOTAL	008	W	92C0040	01/24/92	02/07/92	02/10/92
MANGANESE, TOTAL	008	W	92L0407	01/24/92	02/05/92	02/12/92
SODIUM, TOTAL	008	W	92L0407	01/24/92	02/05/92	02/12/92
NICKEL, TOTAL	008	W	92L0407	01/24/92	02/05/92	02/12/92
LEAD, TOTAL	008	W	92L0406	01/24/92	02/05/92	02/10/92
SELENIUM, TOTAL	008	W	92L0406	01/24/92	02/05/92	02/11/92
ZINC, TOTAL	008	W	92L0407	01/24/92	02/05/92	02/12/92

LAB QC:

SILVER LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
ALUMINUM LABORTORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
BORON LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
BARIUM LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
BERYLLIUM LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
CADMIUM LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
COBALT LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
CHROMIUM LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
COPPER LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
IRON LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
MANGANESE LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
SODIUM LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
NICKEL LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/25/92 RFW LOT # :9201L129

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ANTIMONY LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
TIN LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
VANADIUM LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
ZINC LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
SILVER LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
ALUMINUM LABORTORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
BORON LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
BARIUM LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
BERYLLIUM LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
CADMIUM LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
COBALT LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
CHROMIUM LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
COPPER LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
IRON LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
MANGANESE LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
SODIUM LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
NICKEL LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
ANTIMONY LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
TIN LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
VANADIUM LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
ZINC LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
SILVER, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
ALUMINUM, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
BORON, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
BARIUM, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
BERYLLIUM, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
CADMIUM, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
COBALT, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
CHROMIUM, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
COPPER, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
IRON, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
MANGANESE, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
SODIUM, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
NICKEL, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
ANTIMONY, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
TIN, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
VANADIUM, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
ZINC, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
ARSENIC LABORATORY	LC1 BS	W	92L0406	N/A	02/05/92	02/10/92
LEAD LABORATORY	LC1 BS	W	92L0406	N/A	02/05/92	02/10/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/25/92 RFW LOT # :9201L129

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM LABORATORY	LC1 BS	W	92L0406	N/A	02/05/92	02/11/92
THALLIUM LABORATORY	LC1 BS	W	92L0406	N/A	02/05/92	02/11/92
ARSENIC LABORATORY	LC2 BS	W	92L0406	N/A	02/05/92	02/10/92
LEAD LABORATORY	LC2 BS	W	92L0406	N/A	02/05/92	02/10/92
SELENIUM LABORATORY	LC2 BS	W	92L0406	N/A	02/05/92	02/11/92
THALLIUM LABORATORY	LC2 BS	W	92L0406	N/A	02/05/92	02/11/92
ARSENIC, TOTAL	MB1	W	92L0406	N/A	02/05/92	02/10/92
LEAD, TOTAL	MB1	W	92L0406	N/A	02/05/92	02/10/92
SELENIUM, TOTAL	MB1	W	92L0406	N/A	02/05/92	02/11/92
THALLIUM, TOTAL	MB1	W	92L0406	N/A	02/05/92	02/11/92
MERCURY LABORATORY	LC1 BS	W	92C0040	N/A	02/07/92	02/10/92
MERCURY LABORATORY	LC2 BS	W	92C0040	N/A	02/07/92	02/10/92
MERCURY, TOTAL	MB1	W	92C0040	N/A	02/07/92	02/10/92
MERCURY, TOTAL	MB2	W	92C0040	N/A	02/07/92	02/10/92

WESTON Analytics Use Only: 9201L129

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WSRC-Task 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12 ~~0000~~ V 11/30/92
Project Contact/Phone #:
AD Project Manager: Diane Thomas
QC: Del: TAT: 30 day
Date Rec'd: 1/25/92 Date Due: 2/24/92
Account #: WSRC 12ED

Refrigerator #																		
#/Type Container	Liquid	1/P					1/P	1/P		1/P		1/P	1/P	1/P				
	Solid																	
Volume	Liquid	40					1/1L	1L		1L		250	250	1L				
	Solid																	
Preservatives		NONE					NONE	NONE		NONE		NONE	NONE	NONE				
ANALYSES REQUESTED		ORGANIC: VOA	BNA	Pest/PCB	Herb		Radio Chem	Tritium		INORG: Metal	CN	SW Prep	NO3 Hard	Alk Acid	Cl Spec			

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only: 8021W				ISW	ISB		See Below		ISW IPH	INOR EMAL	INOR ALK	INOR ICL
S - Soil, SE - Sediment, SO - Solid, SL - Sludge, W - Water, O - Oil, A - Air, DS - Drum Solids, DL - Drum Liquids, L - EP/TCLP Leachate, WI - Wipe, X - Other, F - Fish	001	Station 15			W	1/24/92		✓				✓	✓		✓		✓	✓	✓	✓
	2	22																		
	3	23																		
	4	24																		
	5	65																		
	6	66																		
	7	68																		
	8	71																		
	9	Trip Blank																		

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: only (1) VOA Recd for each sample.

Metals = Ag, AL, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, Zn, Fe, Mn

DATE/REVISIONS:
1/27/92 1. Metals List Reflected.
2. Use UTTREX for digestion
1/30/92 3. ~~work changed to 11/30/92~~
2/3/92 4. ~~was changed to Stockton~~
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) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was: 1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES: PH SPC Doubly [illegible]

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	1/25/92	930 am
	[illegible]	1/25/92	

Relinquished by	Received by	Date	Time
	[illegible]	1/25/92	

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

WESTON
MANAGERS DESIGNERS/CONSULTANTS
212 FRANK WEST CIRCLE
SUITE A
STOCKTON, CA 95206
PHONE: (209) 983-1340
FAX: 209-983-0304

18 February 1992

Roy F. Weston, Inc.
208 Welsh Pool Road
Lionville, PA 19341

RFW#:9201L129
WSRC RI/FS TASK 12

Attention: Ms. Diane Thomas

Subject: Final Report

Dear Ms. Thomas:

Enclosed are the laboratory results for samples submitted to Weston Analytics Division.

Non-hazardous samples will be disposed of by the laboratory 30 days after the final report is issued at no charge. Hazardous samples which are inconsistent with laboratory waste streams will be returned to you.

If you have any questions, please call me at (209) 983-1340.

Very truly yours,

Lynda W. Kelly
Project Manager

LWK/pmw

Enclosure

Laboratory Report For

Ms. Diane Thomas
Roy F. Weston, Inc.
208 Welsh Pool Road
Lionville, PA 19341

18 February 1992

By

Roy F. Weston, Inc.
212 Frank West Circle, Suite A
Stockton, CA 95206
(209) 983-1340

RFW#: 9201L129

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

Client: WSRC RI/FS TASK12
RFW #: 9201L129

Test: GC/MS Volatiles

1. This narrative covers the analysis of 9 water samples for volatiles in accordance with EPA SW-846 Method 8240.

2. All required hold times were met.

3. The method blank associated with these samples was free from target analyte interferences at or above the reporting limits.

4. The tuning and standard calibrations were within QC guidelines.

5. The internal standard areas and retention times were all within QC guidelines.

6. The surrogate recoveries were within laboratory limits.

7. The matrix spike recoveries and RPDs were within laboratory limits.

Walter McCurdy
W.C. McCurdy
Unit Leader

2-18-92
Date

WESTON

Roy F. Weston, Inc. - Stockton Laboratory
VOA ANALYTICAL DATA PACKAGE FOR
WSRC RI/FS TASK 12

DATE RECEIVED: 02/04/92 RFW LOT # :9201L129

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 15	001	W	92SMA026	01/24/92	N/A	02/06/92
STATION 22	002	W	92SMA026	01/24/92	N/A	02/06/92
STATION 23	003	W	92SMA026	01/24/92	N/A	02/06/92
STATION 24	004	W	92SMA026	01/24/92	N/A	02/06/92
STATION 65	005	W	92SMA026	01/24/92	N/A	02/06/92
STATION 66	006	W	92SMA026	01/24/92	N/A	02/06/92
STATION 68	007	W	92SMA027	01/24/92	N/A	02/07/92
STATION 71	008	W	92SMA027	01/24/92	N/A	02/07/92
TRIP BLANK	009	W	92SMA026	01/24/92	N/A	02/06/92
LAB QC:						
VBLK	MB1	W	92SMA026	N/A	N/A	02/06/92
VBLK	MB1 BS	W	92SMA026	N/A	N/A	02/06/92
VBLK	MB1 BSD	W	92SMA026	N/A	N/A	02/06/92
VBLK	MB1	W	92SMA027	N/A	N/A	02/07/92

WESTON

Flag Data Qualifiers

The seven EPA-defined qualifiers to be used are as follows:

U	Indicates compound was analyzed for but not detected.
J	Indicates an estimated value.
C	This flag applies to pesticide results where the identification has been confirmed by GC/MS.
B	This flag is used when the analyte is found in the associated blank as well as in the sample.
E	This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
A	This flag indicates that a TIC is a suspected aldol-condensation product.
X	Other specific flags may be required to properly define the results.

Roy F. Weston, Inc. Stockton Laboratory
Volatiles by GC/MS, HSL List
Report Date: 02/18/[illegible] 11:38

RFW Batch Number: 9201L129 Client: WSRC RI/FS TASK 12 Work Order: 0345-31-12 Page: 1a

	Cust ID:	STATION 15		STATION 22		STATION 23		STATION 24		STATION 65		STATION 66	
Sample Information	RFW#:	001		002		003		004		005		006	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Surrogate Recovery	Toluene-d8	100	%	101	%	95	%	101	%	103	%	99	%
	Bromofluorobenzene	97	%	100	%	99	%	101	%	100	%	101	%
	1,2-Dichloroethane-d4	106	%	108	%	108	%	109	%	112	%	111	%
			fl		fl		fl		fl		fl		fl
Chloromethane		10	U	10	U	10	U	10	U	10	U	10	U
Bromomethane		10	U	10	U	10	U	10	U	10	U	10	U
Vinyl Chloride		10	U	10	U	10	U	10	U	10	U	10	U
Chloroethane		10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride		3	J	3	J	3	J	3	J	3	J	5	
Acetone		10	U	10	U	10	U	10	U	10	U	10	U
Carbon Disulfide		5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene		5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethene (total)		8		5	U	3	J	5	U	5	U	5	U
Chloroform		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
2-Butanone		10	U	10	U	10	U	10	U	10	U	10	U
1,1,1-Trichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Carbon Tetrachloride		5	U	5	U	5	U	5	U	5	U	5	U
Vinyl Acetate		10	U	10	U	10	U	10	U	10	U	10	U
Bromodichloromethane		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloropropane		5	U	5	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U	5	U
Trichloroethene		2	J	5	U	8		5	U	5	U	5	U
Dibromochloromethane		5	U	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Benzene		5	U	5	U	5	U	5	U	5	U	5	U
Trans-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U	5	U
Bromoform		5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone		10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone		10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene		5	U	5	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U	5	U	5	U	5	U

*= Outside of Advisory limits.

RFW Ba[illegible] Number: 9201L129 Client: WSRC RI/FS TA[illegible]2 Work Order: 0345-31-12 P[illegible] 1b

Cust ID:	STATION 15	STATION 22	STATION 23	STATION 24	STATION 65	STATI[illegible]66
RFW#:	001	002	003	004	005	006
Toluene	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U

*= Outside of Advisory limits.

Roy F. Weston, Inc. Stockton Laboratory
Volatiles by GC/MS, HSL List
RFW Batch Number: 9201L129 Client: WSRC RI/FS TASK 12 Work Order: 0345-31-12 Report Date: 02/18/92 11:38 Page: 2a

	Cust ID:	STATION 68		STATION 71		TRIP BLANK		VBLK		VBLK BS		VBLK BSD	
Sample Information	RFW#:	007		008		009		92SMA026-MB1		92SMA026-MB1		92SMA026-MB1	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Surrogate Recovery	Toluene-d8	102	%	95	%	100	%	100	%	101	%	100	%
	Bromofluorobenzene	101	%	92	%	99	%	100	%	103	%	100	%
	1,2-Dichloroethane-d4	103	%	98	%	106	%	103	%	102	%	102	%
			fl		fl		fl		fl		fl		fl
Chloromethane		10	U	10	U	10	U	10	U	10	U	10	U
Bromomethane		10	U	10	U	10	U	10	U	10	U	10	U
Vinyl Chloride		10	U	10	U	10	U	10	U	10	U	10	U
Chloroethane		10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride		3	J	5	U	5		5	U	3	J	5	U
Acetone		10	U	10	U	10	U	10	U	10	U	10	U
Carbon Disulfide		5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene		5	U	5	U	5	U	5	U	114	%	118	%
1,1-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethene (total)		5	U	5	U	5	U	5	U	5	U	5	U
Chloroform		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
2-Butanone		10	U	10	U	10	U	10	U	10	U	10	U
1,1,1-Trichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Carbon Tetrachloride		5	U	5	U	5	U	5	U	5	U	5	U
Vinyl Acetate		10	U	10	U	10	U	10	U	10	U	10	U
Bromodichloromethane		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloropropane		5	U	5	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U	5	U
Trichloroethene		5	U	5	U	5	U	5	U	108	%	112	%
Dibromochloromethane		5	U	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Benzene		5	U	5	U	5	U	5	U	122	%	123	%
Trans-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U	5	U
Bromoform		5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone		10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone		10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene		5	U	5	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U	5	U	5	U	5	U

*= Outside of Advisory limits.

RFW Ba[redacted] Number: 9201L129 Client: WSRC RI/FS TA[redacted]2 Work Order: 0345-31-12 [redacted]: 2b

Cust ID:	STATION 68	STATION 71	TRIP BLANK	VBLK	VBLK BS	VBLK BSD
RFW#:	007	008	009	92SMA026-MB1	92SMA026-MB1	92SMA026-MB1
Toluene	5 U	5 U	5 U	5 U	113 %	111 %
Chlorobenzene	5 U	5 U	5 U	5 U	113 %	115 %
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U

*= Outside of Advisory limits.

Cust ID: VBLK

Sample Information

RFW#: 92SMA027-MB1
Matrix: WATER
D.F.: 1.00
Units: ug/L

Surrogate Recovery	Toluene-d8	100	%
	Bromofluorobenzene	101	%
	1,2-Dichloroethane-d4	100	%

Chloromethane	10	U
Bromomethane	10	U
Vinyl Chloride	10	U
Chloroethane	10	U
Methylene Chloride	5	U
Acetone	10	U
Carbon Disulfide	5	U
1,1-Dichloroethene	5	U
1,1-Dichloroethane	5	U
1,2-Dichloroethene (total)	5	U
Chloroform	5	U
1,2-Dichloroethane	5	U
2-Butanone	10	U
1,1,1-Trichloroethane	5	U
Carbon Tetrachloride	5	U
Vinyl Acetate	10	U
Bromodichloromethane	5	U
1,2-Dichloropropane	5	U
cis-1,3-Dichloropropene	5	U
Trichloroethene	5	U
Dibromochloromethane	5	U
1,1,2-Trichloroethane	5	U
Benzene	5	U
Trans-1,3-Dichloropropene	5	U
Bromoform	5	U
4-Methyl-2-pentanone	10	U
2-Hexanone	10	U
Tetrachloroethene	5	U
1,1,2,2-Tetrachloroethane	5	U

*= Outside of Advisory limits.

Cust ID: VBLK

RFW#: 92SMA027-MB1

Toluene	5	U
Chlorobenzene	5	U
Ethylbenzene	5	U
Styrene	5	U
Xylene (total)	5	U

*= Outside of Advisory limits.

Metals yellow data QA Dithomas

WESTON Analytics Use Only
9201L129

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WSRC-TAAK12
Est. Final Proj. Sampling Date: 0000
Work Order #: 0345-31-12 ~~0000~~
Project Contact/Phone #:
AD Project Manager: Diane Thomas
QC: Del TAT: 30 day
Date Rec'd: 1/25/92 Date Due: 2/24/92
Account #: WSRC125TD

Refrigerator #: 4 4 4
#/Type Container: Liquid 1L 1P 1P 1P 1P 1P 1P 1P 1P 1P 1P 1P
#/Type Container: Solid
Volume: Liquid 1L 1L 1L 1L 1L 250 250 1L 1
Volume: Solid
Preservatives: HNO3 HNO3 HNO3 HNO3 HNO3 HNO3 HNO3 HNO3 1

ANALYSES REQUESTED →

ORGANIC						INORG					
VOA	BNA	Pest/PCB	Herb	Radio chem	12 Lithium	Metal	CN	SOW PH	MS Hand	Fluor Acid	Cl Spec

WESTON Analytics Use Only

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA 624	BNA	Pest/PCB	Herb	Radio chem	12 Lithium	Metal	CN	SOW PH	MS Hand	Fluor Acid	Cl Spec
												ISOB		See Below		ISOW IPH	INORG EMMD	FALKE ACID	ICL ISPED
S - Soil	001	Station 15			W	1/24/92		✓				✓	✓	✓		✓	✓	✓	✓
SE - Sediment	2	22																	
SO - Solid	3	23																	
SL - Sludge	4	24																	
W - Water	5	65																	
O - Oil	6	66																	
A - Air	7	68																	
DS - Drum Solids	8	71																	
DL - Drum Liquids	9	TripBlank																	
L - EP/TCLP Leachate																			
WI - Wipe																			
X - Other																			
F - Fish																			

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: only (1) VOA Recd for each sample.

Metals = Ag, AL, As, Ba, Cd, CR, Cu, Hg, Ni, Na, Pb, Se, Zn, Fe, Mn

DATE/REVISIONS:
1/27/92 1. Metals List Reflected.
2. Use UTTRAX for digestion
~~1/30/92 3. WO changed~~ 1/30/92
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) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was: 1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec'd Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES: PH, SPC Doubly Preserved

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	1/25/92	9:30 am
	[illegible]	1/25/92	

Relinquished by	Received by	Date	Time
	[illegible]	1/25/92	

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

Recieved 09:00 [illegible] No Custody seal on cooler Fedex #1852748143 Temp 13°C

BARRINGER LABORATORIES, INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

17-Sep-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Release Order #12

Page: 1
Copy: 1 of 2

Attn:
Project: Batch 9201L129

Received: 19-Feb-92 09:04
PO #: LSA #LL-1006-F4

Job: 923323E Status: Final

AMENDED REPORT

Sample Type: Water

Sample Id	Gross Alpha Total pCi/l	Error 2σ	Gross Beta Total pCi/l	Error 2σ	Gamma Spec* Total pCi/l	Error 2σ
Station 15	1.1	±1.5	3.2	±1.8	NAD	NAD
Station 22	6.9	±2.0	7.9	±1.9	NAD	NAD
Station 23	0.0	±1.2	3.1	±1.8	NAD	NAD
Station 24	50	±9	53	±7	NAD	NAD
Station 65	0.3	±1.0	6.0	±1.9	NAD	NAD
Station 66	4.8	±1.8	3.4	±1.9	NAD	NAD
Station 68	2.6	±1.8	5.8	±1.9	NAD	NAD
Station 71	0.8	±1.5	2.6	±1.8	NAD	NAD

Sample Id	Tritium pCi/l	Error 2σ	I-129 pCi/l	Error 2σ	Pu-238 pCi/l	Error 2σ
Station 15	17900	±700	0	±14	0.0	±1.0
Station 22	87000	±1000	0.0	±9.4	0.0	±0.7
Station 23	105000	±1000	3	±20	0.0	±0.8
Station 24	33800	±900	0	±10	0.0	±1.4
Station 65	86000	±1000	0	±26	0.0	±1.1
Station 66	20600	±700	0	±18	0.0	±1.6
Station 68	58000	±1000	1	±36	0.0	±1.0
Station 71	13100	±600	0	±37	0.0	±1.1

Sample Id	Pu-239/240 pCi/l	Error 2σ	Sr-89 pCi/l	Error 2σ	Sr-90 pCi/l	Error 2σ
Station 15	0.0	±0.8	0.0	0.9	0.7	±2.9
Station 22	0.0	±0.6	3.6	±1.7	0.0	±2.4
Station 23	0.0	±0.8	2.4	±2.6	0.8	±4.4
Station 24	0.0	±1.0	8.4	±2.0	0.6	±3.5
Station 65	0.0	±0.8	4.1	±2.7	0.0	±5.9

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Attn:
Received: 19-Feb-92 09:04
Project: Batch 9201L129
PO #: LSA #LL-1006-F4

Job: 923323E
Status: Final

AMENDED REPORT

Sample Type: Water

Sample Id	Pu-239/240 pCi/l	Error 2σ	Sr-89 pCi/l	Error 2σ	Sr-90 pCi/l	Error 2σ
Station 66	0.0	±1.0	4.2	±3.1	0.0	±6.1
Station 68	0.0	±0.8	3.1	±1.4	0.0	±3.0
Station 71	0.0	±0.8	2.5	±2.0	0.0	±4.6

Sample Id	Tc-99 pCi/l	Error 2σ	U-234 Total pCi/l	Error 2σ	U-235 Total pCi/l	Error 2σ
Station 15	2.4	±1.9	0.6	±1.1	0.0	±0.6
Station 22	2.0	±2.1	1.5	±1.1	0.0	±0.4
Station 23	0.5	±3.5	0.9	±0.9	0.0	±0.4
Station 24	1.3	±2.0	1.9	±1.2	0.0	±0.4
Station 65	2.0	±4.0	1.2	±1.0	0.0	±0.5
Station 66	1.9	±2.3	0.9	±0.9	0.0	±0.4
Station 68	3.6	±4.6	0.8	±0.9	0.0	±0.5
Station 71	4.6	±4.7	0.2	±1.5	0.0	±1.1

Sample Id	U-238 Total pCi/l	Error 2σ	Am-241 pCi/l	Error 2σ	C-14 pCi/l	Error 2σ
Station 15	1.3	±1.3	0	±0.5	5	±11
Station 22	1.0	±1.0	0	±0.6	4	±10
Station 23	0.5	±0.8	0	±0.8	43	±13
Station 24	1.3	±1.1	0	±0.7	3	±13
Station 65	1.0	±1.0	0	±0.6	0	±11
Station 66	0.4	±0.8	0	±0.5	51	±15
Station 68	0.2	±0.7	0	±0.9	7	±11
Station 71	0.6	±1.8	0	±0.5	22	±12

BARRINGER LABORATORIES, INC.
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Project: Batch 9201L129
PO #: LSA #LL-1006-F4

Job: 923323E
Status: Final

AMENDED REPORT

Sample Type: Water

Sample Id	Radium Total pCi/l	Error 2σ
Station 15	1.4	±0.4
Station 22	9.1	±2.1
Station 23	1.1	±0.7
Station 24	12	±2
Station 65	8.2	±2.1
Station 66	4.7	±1.7
Station 68	4.6	±1.6
Station 71	4.6	±1.7

BARRINGER LABORATORIES, INC.
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17-Sep-92

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208 Welsh Pool Road
Lionville, PA 19353

Attn:
Project: Batch 9201L129

Received: 19-Feb-92 09:04
PO #: LSA #LL-1006-F4

Job: 923323E

Status: Final

AMENDED REPORT

Abbreviations:

Parameters:

Gamma Spec*	: Gamma Spectralanalysis-MDA'S Reported at 1.645 sigma
I-129	: Iodine-129
Pu-238	: Plutonium-238
Pu-239/240	: Plutonium-239/240
Sr-89	: Strontium-89
Sr-90	: Strontium -90
Tc-99	: Technetium-99
U-234	: Uranium-234
U-235	: Uranium-235
U-238	: Uranium-238
Am-241	: Americium-241
C-14	: Carbon-14

Units:

pCi/l	: picoCuries per liter
2σ	: Counting error at the 95% confidence level, 2σ

Quality codes:

NAD	: No Activity Detected

BARRINGER LABORATORIES, INC.
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17-Sep-92

Diane Thomas
WESTON
208 Welsh Pool Road
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Page: 1
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Attn:
Received: 19-Feb-92 09:04
Project: Batch 9201L129
PO #: LSA #LL-1006-F4

Job: 923323E
Status: Final

QUALITY CONTROL REPORT

Sample Type: Water

Sample Id	Gross Alpha Total pCi/l	Error 2σ	Gross Beta Total pCi/l	Error 2σ
Duplicate	1.2	±1.6	3.1	±1.8
Duplicate	0.4	±1.4	2.0	±1.8
Duplicate % diff.	50	---	22	---
Std (found value)	191	±5	118	±2
Std (true value)	206	---	120	---
Std % diff.	a7.3	---	a1.7	---
Std % rec.	93	---	98	---
Blank	0.2	±0.2	0.2	±0.4
Spike % rec.	a107	---	a82	---

Sample Id	Gamma Spec* Total pCi/l	Error 2σ	Tritium pCi/l	Error 2σ	I-129 pCi/l	Error 2σ
Duplicate	NAD	NAD	13400	±600	0	±38
Duplicate	NAD	NAD	12800	±600	2	±34
Duplicate % diff.	0	---	2.3	---	100	---
Std (found value)	18	±1	20548	±703	867	±19
Std (true value)	19	---	20111	---	993	---
Std % diff.	5.3	---	a2.2	---	a13	---
Std % rec.	a95	---	102	---	87	---
Blank	---	---	30	±280	0.0	±3.6
Spike % rec.	---	---	94	---	---	---

Sample Id	Pu-238 pCi/l	Error 2σ	Pu-239/240 pCi/l	Error 2σ	Sr-89 pCi/l	Error 2σ
Duplicate	0.0	±1.6	0.0	±1.1	3.1	±1.4
Duplicate	0.0	±1.1	0.0	±0.9	3.6	±1.9
Duplicate % diff.	0.0	---	0.0	---	7.5	---

BARRINGER LABORATORIES, INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

17-Sep-92

Diane Thomas
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208 Welsh Pool Road
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Page: 2
Copy: 1 of 2

Attn:
Project: Batch 9201L129

Received: 19-Feb-92 09:04
PO #: LSA #LL-1006-F4

Job: 923323E Status: Final

QUALITY CONTROL REPORT

Sample Type: Water

Sample Id	Pu-238 pCi/l	Error 2σ	Pu-239/240 pCi/l	Error 2σ	Sr-89 pCi/l	Error 2σ
Std (found value)	106	±4	106	±4	24	±1
Std (true value)	104	---	104	---	20	---
Std % diff.	1.9	---	1.9	---	20	---
Std % rec.	102	---	102	---	120	---
Blank	0.0	±0.3	0.0	±0.2	1.0	±0.6
Spike % rec.	---	---	82	---	122	---

Sample Id	Sr-90 pCi/l	Error 2σ	Tc-99 pCi/l	Error 2σ	U-234 Total pCi/l	Error 2σ
Duplicate	0.0	±3.0	1.2	±4.5	0.4	±1.7
Duplicate	0.0	±4.3	6.1	±4.8	0.0	±1.3
Duplicate % diff.	0.0	---	67	---	100	---
Std (found value)	19	±2	100	±3	198	±5
Std (true value)	20	---	100	---	192	---
Std % diff.	5.0	---	a0.0	---	3.1	---
Std % rec.	95	---	100	---	103	---
Blank	0.0	±1.1	0.1	±0.7	0.1	±0.2
Spike % rec.	92	---	---	---	99	---

Sample Id	U-235 Total pCi/l	Error 2σ	U-238 Total pCi/l	Error 2σ	Am-241 pCi/l	Error 2σ
Duplicate	0.0	±1.1	0.4	±1.7	0	±0.8
Duplicate	0.0	±1.1	0.8	±1.9	0	±0.6
Duplicate % diff.	0.0	---	33	---	0.0	---
Std (found value)	9.0	±1.2	210	±6	96	±4
Std (true value)	8.8	---	192	---	103	---
Std % diff.	2.3	---	9.4	---	6.8	---

BARRINGER LABORATORIES, INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

17-Sep-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

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Attn:
Received: 19-Feb-92 09:04
Project: Batch 9201L129
PO #: LSA #LL-1006-F4

Job: 923323E
Status: Final

QUALITY CONTROL REPORT

Sample Type: Water

Sample Id	U-235 Total pCi/l	Error 2σ	U-238 Total pCi/l	Error 2σ	Am-241 pCi/l	Error 2σ
Std % rec.	102	---	109	---	93	---
Blank	0.0	±0.1	0.0	±0.1	0.0	±0.3
Spike % rec.	102	---	101	---	114	---

Sample Id	C-14 pCi/l	Error 2σ	Radium Total pCi/l	Error 2σ
Duplicate	7	±11	1.3	±1.0
Duplicate	10	±11	1.9	±1.1
Duplicate % diff.	34.	---	19	---
Std (found value)	989	±19	124	±3
Std (true value)	992	---	126	---
Std % diff.	0.3	---	1.6	---
Std % rec.	99.7	---	a98	---
Blank	0.0	±2.5	0.0	±0.1
Spike % rec.	96.5	---	86	---

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Project: Batch 9201L129
PO #: LSA #LL-1006-F4

Job: 923323E
Status: Final

QUALITY CONTROL REPORT

Abbreviations:

Parameters:

Gamma Spec*	: Gamma Spectralanalysis-MDA'S Reported at 1.645 sigma
I-129	: Iodine-129
Pu-238	: Plutonium-238
Pu-239/240	: Plutonium-239/240
Sr-89	: Strontium-89
Sr-90	: Strontium -90
Tc-99	: Technetium-99
U-234	: Uranium-234
U-235	: Uranium-235
U-238	: Uranium-238
Am-241	: Americium-241
C-14	: Carbon-14

Units:

pCi/l	: picoCuries per liter
2σ	: Counting error at the 95% confidence level, 2σ

Quality codes:

NAD	: No Activity Detected
a	: Amended Value

BARRINGER LABORATORIES, INC.
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17-Sep-92

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Received: 19-Feb-92 09:04
Project: Batch 9201L129
PO #: LSA #LL-1006-F4

Job: 923323E
Status: Final

QUALITY CONTROL REPORT

QUALITY CONTROL DATA SHEET

Received by: gr
Via: Federal Express

Sample Container Type: Pl L btl, pl gal
Sample Type: Water
Preservative When Received: none
Additional Lab Preparation: none

Parameter	Method	LLD	Preservative	Analyst	Date(s) of Analysis
Gross Alpha	900.0	2 pCi/l	none	Seidel	4/21- 4/25
Gross Beta	900.0	4 pCi/l	none	Seidel	4/21- 4/25
Tritium	906.0	460 pCi/l	none	Eggleston	4/14- 4/17
I-129	901.1	25 pCi/l	none	Hebel	4/ 7- 4/18
Pu-238	907.0	0.5 pCi/l	none	Preston	4/ 7- 4/14
Pu-239/240	907.0	0.5 pCi/l	none	Preston	4/ 7- 4/14
Sr-89	901.1	--- pCi/l	none	Kidwell	4/29- 5/ 5
Sr-90	901.1	--- pCi/l	none	Kidwell	4/29- 5/ 5
Tc-99	901.1	--- pCi/l	none	Hebel	4/ 6- 4/18
U-234	908.0	0.4 pCi/l	none	Tonning	4/ 4- 4/29
U-235	908.0	0.4 pCi/l	none	Tonning	4/ 4- 4/29
U-238	908.0	0.4 pCi/l	none	Tonning	4/ 4- 4/29
Am-241	907.0	0.5 pCi/l	none	Eggleston	3/28- 5/19
C-14	520-84-006	0.5 pCi/l	none	Eggleston	3/10- 4/ 1
Radium	900.1	1 pCi/l	none	Pingilley	2/28- 3/19
Gamma Spec*	901.1	--- pCi/l	none	La Riviere	4/29

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17-Sep-92

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Page: 6
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Attn:
Received: 19-Feb-92 09:04
Project: Batch 9201L129
PO #: LSA #LL-1006-F4

Job: 923323E
Status: Final

QUALITY CONTROL REPORT

Signed: .....
Laboratory Manager(s)

Signed: .....
Quality Assurance Department

Signed: for Steven Sincoff
.....
Steven L. Sincoff, Ph.D.
Director of Operations

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WSRC-TASK 12 **SAMPLES RECEIVED:** 01-28-92
RFW #: 9201L151
W.O. #: 0345-31-12

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 sample holding times as required by 40CFR136 were met.

2. Preparation blank results were below the required detection limit with the exception of acidity.

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 limits.

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).

Margaret M. Seely 3-6-92
Jack R. Tuschall, Ph.D. Date
Laboratory Manager
Lionville Analytical Laboratory

kls\i01-151

ROY F. WESTON, INC.
GLOSSARY OF TERMS - INORGANIC REPORTS

DATA QUALIFIERS

U - Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* - Indicates that the original sample result is greater than 4x the spike amount added. The USEPA-CLP has determined that spike results on samples where this occurs may be unreliable and therefore, the control limits are not applicable.

ABBREVIATIONS

MB - Method or preparation blank
MS - Matrix Spike
MSD - Matrix Spike Duplicate.
REP - Sample Replicate.
LC - Indicates a method LCS or Blank Spike.
NC - Not calculable, result below the detection limit.

A suffix of -R and -S following these codes indicates a replicate and spike analysis respectively.

ANALYTICAL METAL METHODS

As :	EPA 206.2	Se :	EPA 270.2
Pb :	EPA 239.2	ICP Scan :	EPA 200.7
Hg :	EPA 245.1	All Others :	EPA 200.7
Tl :	EPA 279.2	EP Leachates (except Hg) :	200.7

The analytical methods applied by the laboratory for the determination of drinking water is 5.2.1.

NOTES

The laboratory prepares a matrix spike at one per 20 frequency for TCLP samples. The Federal Register recommends that all matrix spikes be prepared at greater than 50% of the indigenous analyte concentration. A matrix duplicate is also prepared.

Holding times for soil samples have not been promulgated by the USEPA.

For solid samples, all results are reported on a dry weight basis.

The range for mercury solid laboratory control standards is 66.9% to 133.8%.

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/02/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L151

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	STATION 77	Acidity	48.0		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	14.0		MG/L	1.0
		Nitrate, as N	0.10	u	MG-N/L	0.10
		pH	5.9		PHUNITS	0.010
		Sulfate	5.0	u	MG/L	5.0
		Specific Conductance	38.8		UMHOS/CM	1.0
-002	STATION 114	Acidity	56.0		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	5.5		MG/L	1.0
		Nitrate, as N	0.10	u	MG-N/L	0.10
		pH	5.1		PHUNITS	0.010
		Sulfate	5.0	u	MG/L	5.0
		Specific Conductance	21.6		UMHOS/CM	1.0
-003	STATION 115	Acidity	60.0		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	5.0		MG/L	1.0
		Nitrate, as N	0.27		MG-N/L	0.10
		pH	5.0		PHUNITS	0.010
		Sulfate	5.0	u	MG/L	5.0
		Specific Conductance	22.9		UMHOS/CM	1.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/02/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L151

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-004	STATION 116	Acidity	214		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	6.5		MG/L	1.0
		Nitrate, as N	0.10	u	MG-N/L	0.10
		pH	5.3		PHUNITS	0.010
		Sulfate	5.0	u	MG/L	5.0
		Specific Conductance	18.5		UMHOS/CM	1.0
-005	STATION 117	Acidity	40.0		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	3.5		MG/L	1.0
		Nitrate, as N	0.17		MG-N/L	0.10
		pH	5.3		PHUNITS	0.010
		Sulfate	5.0	u	MG/L	5.0
		Specific Conductance	21.4		UMHOS/CM	1.0
-006	STATION 118	Acidity	48.0		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	4.5		MG/L	1.0
		Nitrate, as N	0.10	u	MG-N/L	0.10
		pH	5.3		PHUNITS	0.010
		Sulfate	5.0	u	MG/L	5.0
		Specific Conductance	20.7		UMHOS/CM	1.0

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 02/28/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L151

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
BLANK10	92LAC002-MB1	Acidity	11.0		MG/L	2.0
BLANK20	92LAC002-MB2	Acidity	10.0		MG/L	2.0
BLANK10	92LCL004-MB1	Chloride	5.0	u	MG/L	5.0
BLANK20	92LCL004-MB2	Chloride	5.0	u	MG/L	5.0
BLANK30	92LCL004-MB3	Chloride	5.0	u	MG/L	5.0
BLANK10	92LHD004-MB1	Hardness	1.0	u	MG/L	1.0
BLANK20	92LHD004-MB2	Hardness	1.0	u	MG/L	1.0
BLANK30	92LHD004-MB3	Hardness	1.0	u	MG/L	1.0
BLANK10	92LNO014-MB1	Nitrate, as N	0.10	u	MG-N/L	0.10
BLANK20	92LNO014-MB2	Nitrate, as N	0.10	u	MG-N/L	0.10

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 02/28/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L151

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
BLANK10	92LS4006-MB1	Sulfate	5.0	u	MG/L	5.0
BLANK20	92LS4006-MB2	Sulfate	5.0	u	MG/L	5.0
BLANK30	92LS4006-MB3	Sulfate	5.0	u	MG/L	5.0
BLANK10	92LSP009-MB1	Specific Conductance	1.0	u	UMHOS/CM	1.0

ROY F. WESTON INC.

INORGANIC ACCURACY REPORT 02/28/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L151

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV
-006	STATION 118	Hardness *	106	4.5	100	102
BLANK10	92LCL004-MB1	Chloride	24.0	5.0 u	25.0	96.0
		Chloride MSD	24.1	5.0 u	25.0	96.2
BLANK20	92LCL004-MB2	Chloride	24.2	5.0 u	25.0	97.0
BLANK30	92LCL004-MB3	Chloride	24.1	5.0 u	25.0	96.4
BLANK10	92LHD004-MB1	Hardness	101	1.0 u	100	101
		Hardness MSD	328	1.0 u	330	99.4
BLANK20	92LHD004-MB2	Hardness	102	1.0 u	100	102
BLANK30	92LHD004-MB3	Hardness	330	1.0 u	330	100
BLANK10	92LNO014-MB1	Nitrate, as N	0.38	0.10u	0.40	95.8
		Nitrate, as N MSD	0.40	0.10u	0.40	101
BLANK20	92LNO014-MB2	Nitrate, as N	0.37	0.10u	0.40	92.0
BLANK10	92LS4006-MB1	Sulfate	21.4	5.0 u	20.0	107
		Sulfate	21.2	5.0 u	20.0	106

ROY F. WESTON INC.

INORGANIC ACCURACY REPORT 02/28/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9201L151

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE		SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV
BLANK20	92LS4006-MB2	Sulfate		31.2	5.0 u	30.0	104
BLANK30	92LS4006-MB3	Sulfate		40.1	5.0 u	40.0	100
BLANK10	92LSP009-MB1	Specific Conductance		143	1.0 u	147	97.3
		Specific Conductance	M	144	1.0 u	147	98.0

ROY F. WESTON INC.

INORGANIC DUPLICATE SPIKE REPORT 02/28/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9201L151

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%RPD
BLANK10	92LCL004-MB1	Chloride	96.0	96.2	0.20
BLANK10	92LHD004-MB1	Hardness	101	99.4	1.4
BLANK10	92LNO014-MB1	Nitrate, as N	95.8	101	5.5
BLANK10	92LS4006-MB1	Sulfate	107	106	1.1
BLANK10	92LSP009-MB1	Specific Conductance	97.3	98.0	0.70

ROY F. WESTON INC.

INORGANIC PRECISION REPORT 02/28/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9201L151

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	%RPD
-001REP	STATION 77	Acidity	48.0	56.0	15.4
		Nitrate, as N	0.10u	0.10u	NC
		Sulfate	5.0 u	5.0 u	NC
		Specific Conductance	38.8	38.8	0.00
-003REP	STATION 115	Chloride	5.0 u	5.0 u	NC
-006REP	STATION 118	Hardness	4.5	4.5	0.00
		pH	5.3	5.3	0.00

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/28/92 RFW LOT # :9201L151

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 77						
ACIDITY	001	W	92LAC002	01/27/92	01/31/92	01/31/92
ACIDITY	001 REP	W	92LAC002	01/27/92	01/31/92	01/31/92
CHLORIDE	001	W	92LCL004	01/27/92	01/31/92	01/31/92
HARDNESS	001	W	92LHD004	01/27/92	02/03/92	02/03/92
NITRATE	001	W	92LNO014	01/27/92	02/05/92	02/05/92
NITRATE	001 REP	W	92LNO014	01/27/92	02/05/92	02/05/92
PH	001	W	92LPH015	01/27/92	01/28/92	01/28/92
SULFATE	001	W	92LS4006	01/27/92	02/06/92	02/06/92
SULFATE	001 REP	W	92LS4006	01/27/92	02/06/92	02/06/92
SPECIFIC CONDUCTANCE	001	W	92LSP009	01/27/92	01/28/92	01/28/92
SPECIFIC CONDUCTANCE	001 REP	W	92LSP009	01/27/92	01/28/92	01/28/92
SUB-OUT TEST FOR SUB	001	W		01/27/92		
STATION 114						
ACIDITY	002	W	92LAC002	01/27/92	01/31/92	01/31/92
CHLORIDE	002	W	92LCL004	01/27/92	01/31/92	01/31/92
HARDNESS	002	W	92LHD004	01/27/92	02/03/92	02/03/92
NITRATE	002	W	92LNO014	01/27/92	02/05/92	02/05/92
PH	002	W	92LPH015	01/27/92	01/28/92	01/28/92
SULFATE	002	W	92LS4006	01/27/92	02/06/92	02/06/92
SPECIFIC CONDUCTANCE	002	W	92LSP009	01/27/92	01/28/92	01/28/92
SUB-OUT TEST FOR SUB	002	W		01/27/92		
STATION 115						
ACIDITY	003	W	92LAC002	01/27/92	01/31/92	01/31/92
CHLORIDE	003	W	92LCL004	01/27/92	01/31/92	01/31/92
CHLORIDE	003 REP	W	92LCL004	01/27/92	01/31/92	01/31/92
HARDNESS	003	W	92LHD004	01/27/92	02/03/92	02/03/92
NITRATE	003	W	92LNO014	01/27/92	02/05/92	02/05/92
PH	003	W	92LPH015	01/27/92	01/28/92	01/28/92
SULFATE	003	W	92LS4006	01/27/92	02/06/92	02/06/92
SPECIFIC CONDUCTANCE	003	W	92LSP009	01/27/92	01/28/92	01/28/92
SUB-OUT TEST FOR SUB	003	W		01/27/92		
STATION 116						
ACIDITY	004	W	92LAC002	01/27/92	01/31/92	01/31/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/28/92 RFW LOT # :9201L151

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHLORIDE	004	W	92LCL004	01/27/92	01/31/92	01/31/92
HARDNESS	004	W	92LHD004	01/27/92	02/03/92	02/03/92
NITRATE	004	W	92LNO014	01/27/92	02/05/92	02/05/92
PH	004	W	92LPH015	01/27/92	01/28/92	01/28/92
SULFATE	004	W	92LS4006	01/27/92	02/06/92	02/06/92
SPECIFIC CONDUCTANCE	004	W	92LSP009	01/27/92	01/28/92	01/28/92
SUB-OUT TEST FOR SUB	004	W		01/27/92		
STATION 117						
ACIDITY	005	W	92LAC002	01/27/92	01/31/92	01/31/92
CHLORIDE	005	W	92LCL004	01/27/92	01/31/92	01/31/92
HARDNESS	005	W	92LHD004	01/27/92	02/03/92	02/03/92
NITRATE	005	W	92LNO014	01/27/92	02/05/92	02/05/92
PH	005	W	92LPH015	01/27/92	01/28/92	01/28/92
SULFATE	005	W	92LS4006	01/27/92	02/06/92	02/06/92
SPECIFIC CONDUCTANCE	005	W	92LSP009	01/27/92	01/28/92	01/28/92
SUB-OUT TEST FOR SUB	005	W		01/27/92		
STATION 118						
ACIDITY	006	W	92LAC002	01/27/92	01/31/92	01/31/92
CHLORIDE	006	W	92LCL004	01/27/92	01/31/92	01/31/92
HARDNESS	006	W	92LHD004	01/27/92	02/03/92	02/03/92
HARDNESS	006 REP	W	92LHD004	01/27/92	02/03/92	02/03/92
HARDNESS	006 MS	W	92LHD004	01/27/92	02/03/92	02/03/92
NITRATE	006	W	92LNO014	01/27/92	02/05/92	02/05/92
PH	006	W	92LPH015	01/27/92	01/28/92	01/28/92
PH	006 REP	W	92LPH015	01/27/92	01/28/92	01/28/92
SULFATE	006	W	92LS4006	01/27/92	02/06/92	02/06/92
SPECIFIC CONDUCTANCE	006	W	92LSP009	01/27/92	01/28/92	01/28/92
SUB-OUT TEST FOR SUB	006	W		01/27/92		

LAB QC:

ACIDITY	MB1	W	92LAC002	N/A	01/31/92	01/31/92
ACIDITY	MB2	W	92LAC002	N/A	01/31/92	01/31/92
CHLORIDE	MB1	W	92LCL004	N/A	01/31/92	01/31/92
CHLORIDE	MB1 BS	W	92LCL004	N/A	01/31/92	01/31/92
CHLORIDE	MB1 BSD	W	92LCL004	N/A	01/31/92	01/31/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/28/92 RFW LOT # :9201L151

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHLORIDE	MB2	W	92LCL004	N/A	01/31/92	01/31/92
CHLORIDE	MB2 BS	W	92LCL004	N/A	01/31/92	01/31/92
CHLORIDE	MB3	W	92LCL004	N/A	01/31/92	01/31/92
CHLORIDE	MB3 BS	W	92LCL004	N/A	01/31/92	01/31/92
HARDNESS	MB1	W	92LHD004	N/A	02/03/92	02/03/92
HARDNESS	MB1 BS	W	92LHD004	N/A	02/03/92	02/03/92
HARDNESS	MB1 BSD	W	92LHD004	N/A	02/03/92	02/03/92
HARDNESS	MB2	W	92LHD004	N/A	02/03/92	02/03/92
HARDNESS	MB2 BS	W	92LHD004	N/A	02/03/92	02/03/92
HARDNESS	MB3	W	92LHD004	N/A	02/03/92	02/03/92
HARDNESS	MB3 BS	W	92LHD004	N/A	02/03/92	02/03/92
NITRATE	MB1	W	92LNO014	N/A	02/05/92	02/05/92
NITRATE	MB1 BS	W	92LNO014	N/A	02/05/92	02/05/92
NITRATE	MB1 BSD	W	92LNO014	N/A	02/05/92	02/05/92
NITRATE	MB2	W	92LNO014	N/A	02/05/92	02/05/92
NITRATE	MB2 BS	W	92LNO014	N/A	02/05/92	02/05/92
SULFATE	MB1	W	92LS4006	N/A	02/06/92	02/06/92
SULFATE	MB1 BS	W	92LS4006	N/A	02/06/92	02/06/92
SULFATE	MB1 BSD	W	92LS4006	N/A	02/06/92	02/06/92
SULFATE	MB2	W	92LS4006	N/A	02/06/92	02/06/92
SULFATE	MB2 BS	W	92LS4006	N/A	02/06/92	02/06/92
SULFATE	MB3	W	92LS4006	N/A	02/06/92	02/06/92
SULFATE	MB3 BS	W	92LS4006	N/A	02/06/92	02/06/92
SPECIFIC CONDUCTANCE	MB1	W	92LSP009	N/A	01/28/92	01/28/92
SPECIFIC CONDUCTANCE	MB1 BS	W	92LSP009	N/A	01/28/92	01/28/92
SPECIFIC CONDUCTANCE	MB1 BSD	W	92LSP009	N/A	01/28/92	01/28/92

WESTON Analytics Use Only

9201L151

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WSRC-Tank 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12
Project Contact/Phone #:
AD Project Manager: D Thomas
QC: Std Del Std TAT: 30 day
Date Rec'd: 1/28/92 Date Due: 2/27/92
Account #: WSRC125TD

Refrigerator #		1				Sub	Sub		4		4	4		4			
#/Type Container	Liquid	1G				1P	1P		1P		1P	1P	—	1P			
	Solid																
Volume	Liquid	4oz				4L	1L		1L		250	250	—	1L			
	Solid																
Preservatives		—				None	None		HNO3		None	Freeze	—	None			
ANALYSES REQUESTED →		ORGANIC							INORG								
		VOA	BNA	Pest/PCB	Herb	Radio Chem	Tritium		Metal	CN	SO4 pH	NO3 NH3	Alk Acid	Cl Sp			

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

WESTON Analytics Use Only

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	Radio Chem	Tritium		Metal	CN	SO4 pH	NO3 NH3	Alk Acid	Cl Sp		
							0/2 wk				ISUB	ISUB		See below		ISW IPH	ISW IMHD	IMHD IPH 320	ICL ISPD		
001	Station 77			W	1/27/92		✓				✓	✓		✓		✓	✓	✓	✓		
2	114																				
3	115																				
4	116																				
5	117																				
6	118																				
7	Trip Blank																				
	RAD info to follow.					Run NO3 from preserved															

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: original rewritten

Metals = Ag, Al, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, Zn, Fe, Mn

Use Ultper

DATE/REVISIONS:
2/3/92 1. VOA's mailed to Stockton
2/20/92 2. Cancel all samples for acid per SDR 4th
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # 2366437447
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

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

COC Record Present Upon Sample Rec't Y or N

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

Relinquished by	Received by	Date	Time
Emery	P Bergin	1/28/92	1337
	P9 1/28/92		

Relinquished by	Received by	Date	Time
	P9 1/28/92		

RFW 21-21-0[illegible] 7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# 5600 Cooler# 423 [illegible] 596a

5684

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WSRC-TASK 12
RFW #: 9201L151
W.O. #: 0345-31-12

SAMPLES RECEIVED: 01-28-92

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

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

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

4. All calibration verification checks were within the required control limits of 90-110% (80-120% for Hg). Calibration verification is performed using independent standards from Inorganic Ventures, Inc.

2.14.92

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

kls\m01-15

ROY F. WESTON, INC.
GLOSSARY OF TERMS - INORGANIC REPORTS

DATA QUALIFIERS

U - Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* - Indicates that the original sample result is greater than 4x the spike amount added. The USEPA-CLP has determined that spike results on samples where this occurs may be unreliable and therefore, the control limits are not applicable.

ABBREVIATIONS

MB - Method or preparation blank
MS - Matrix Spike
MSD - Matrix Spike Duplicate.
REP - Sample Replicate.
LC - Indicates a method LCS or Blank Spike.
NC - Not calculable, result below the detection limit.

A suffix of -R and -S following these codes indicates a replicate and spike analysis respectively.

ANALYTICAL METAL METHODS

As :	EPA 206.2	Se :	EPA 270.2
Pb :	EPA 239.2	ICP Scan :	EPA 200.7
Hg :	EPA 245.1	All Others :	EPA 200.7
Tl :	EPA 279.2	EP Leachates (except Hg) :	200.7

The analytical methods applied by the laboratory for the determination of drinking water is 5.2.1.

NOTES

The laboratory prepares a matrix spike at one per 20 frequency for TCLP samples. The Federal Register recommends that all matrix spikes be prepared at greater than 50% of the indigenous analyte concentration. A matrix duplicate is also prepared.

Holding times for soil samples have not been promulgated by the USEPA.

For solid samples, all results are reported on a dry weight basis.

The range for mercury solid laboratory control standards is 66.9% to 133.8%.

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 02/13/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L151

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	STATION 77	Silver, Total *	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	11000		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	350		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	119		UG/L	20.0

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 02/13/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L151

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-002	STATION 114	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	5350		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	66.2		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	110		UG/L	20.0

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 02/13/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L151

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-003	STATION 115	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	378		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	32.2		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	4.4		UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	113		UG/L	20.0

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 02/13/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L151

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-004	STATION 116	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	450		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	59.2		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	72.0		UG/L	20.0

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 02/13/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L151

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-005	STATION 117	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	2370		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	95.7		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	46.4		UG/L	20.0

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 02/13/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L151

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-006	STATION 118	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	1510		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	41.4		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	39.7		UG/L	20.0

ROY F. WESTON INC.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/13/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9201L151
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
BLANK1	92L0407-MB1	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Zinc, Total	20.0	u	UG/L	20.0
BLANK1	92L0406-MB1	Arsenic, Total	10.0	u	UG/L	10.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
BLANK1	92C0040-MB1	Mercury, Total	0.20	u	UG/L	0.20
BLANK2	92C0040-MB2	Mercury, Total	0.20	u	UG/L	0.20

ROY F. WESTON INC.

INORGANICS DUPLICATE SPIKE REPORT 02/13/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9201L151

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
LCS2	92L0407-LC2	Silver, LCS	94.9	92.9	2.1
		Aluminum, LCS	104	101	2.4
		Barium, LCS	100	97.3	2.7
		Cadmium, LCS	109	109	0.37
		Chromium, LCS	100	99.7	0.50
		Copper, LCS	99.2	100	1.1
		Iron, LCS	102	101	0.49
		Manganese, LCS	103	102	0.59
		Sodium, LCS	100	105	5.2
		Nickel, LCS	102	102	0.49
		Zinc, LCS	105	104	0.29
LCS2	92L0406-LC2	Arsenic, LCS	99.0	101	1.7
		Lead, LCS	102	103	0.98
		Selenium, LCS	101	100	1.0
LCS2	92C0040-LC2	Mercury, LCS	106	97.8	8.5

ROY F. WESTON INC.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 02/13/92

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	92L0407-LC1	Silver, LCS	474	500	UG/L	94.9
		Aluminum, LCS	5200	5000	UG/L	104
		Barium, LCS	5000	5000	UG/L	100
		Cadmium, LCS	274	250	UG/L	109
		Chromium, LCS	501	500	UG/L	100
		Copper, LCS	1240	1250	UG/L	99.2
		Iron, LCS	5070	5000	UG/L	102
		Manganese, LCS	770	750	UG/L	103
		Sodium, LCS	25000	25000	UG/L	100
		Nickel, LCS	2040	2000	UG/L	102
		Zinc, LCS	1050	1000	UG/L	105
LCS2	92L0407-LC2	Silver, LCS	465	500	UG/L	92.9
		Aluminum, LCS	5070	5000	UG/L	101
		Barium, LCS	4860	5000	UG/L	97.3
		Cadmium, LCS	272	250	UG/L	109
		Chromium, LCS	498	500	UG/L	99.7
		Copper, LCS	1250	1250	UG/L	100
		Iron, LCS	5050	5000	UG/L	101
		Manganese, LCS	765	750	UG/L	102
		Sodium, LCS	26300	25000	UG/L	105
		Nickel, LCS	2030	2000	UG/L	102
		Zinc, LCS	1040	1000	UG/L	104
LCS1	92L0406-LC1	Arsenic, LCS	29.7	30.0	UG/L	99.0
		Lead, LCS	30.6	30.0	UG/L	102
		Selenium, LCS	30.3	30.0	UG/L	101
LCS2	92L0406-LC2	Arsenic, LCS	30.2	30.0	UG/L	101
		Lead, LCS	30.9	30.0	UG/L	103
		Selenium, LCS	30.0	30.0	UG/L	100
LCS1	92C0040-LC1	Mercury, LCS	5.3	5.0	UG/L	106
LCS2	92C0040-LC2	Mercury, LCS	4.9	5.0	UG/L	97.8

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/28/92 RFW LOT # :9201L151

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 77						
SILVER, TOTAL	001	W	92L0407	01/27/92	02/05/92	02/12/92
ALUMINUM, TOTAL	001	W	92L0407	01/27/92	02/05/92	02/12/92
ARSENIC, TOTAL	001	W	92L0406	01/27/92	02/05/92	02/10/92
BARIUM, TOTAL	001	W	92L0407	01/27/92	02/05/92	02/12/92
CADMIUM, TOTAL	001	W	92L0407	01/27/92	02/05/92	02/12/92
CHROMIUM, TOTAL	001	W	92L0407	01/27/92	02/05/92	02/12/92
COPPER, TOTAL	001	W	92L0407	01/27/92	02/05/92	02/12/92
IRON, TOTAL	001	W	92L0407	01/27/92	02/05/92	02/12/92
MERCURY, TOTAL	001	W	92C0040	01/27/92	02/07/92	02/10/92
MANGANESE, TOTAL	001	W	92L0407	01/27/92	02/05/92	02/12/92
SODIUM, TOTAL	001	W	92L0407	01/27/92	02/05/92	02/12/92
NICKEL, TOTAL	001	W	92L0407	01/27/92	02/05/92	02/12/92
LEAD, TOTAL	001	W	92L0406	01/27/92	02/05/92	02/10/92
SELENIUM, TOTAL	001	W	92L0406	01/27/92	02/05/92	02/11/92
ZINC, TOTAL	001	W	92L0407	01/27/92	02/05/92	02/12/92
STATION 114						
SILVER, TOTAL	002	W	92L0407	01/27/92	02/05/92	02/12/92
ALUMINUM, TOTAL	002	W	92L0407	01/27/92	02/05/92	02/12/92
ARSENIC, TOTAL	002	W	92L0406	01/27/92	02/05/92	02/10/92
BARIUM, TOTAL	002	W	92L0407	01/27/92	02/05/92	02/12/92
CADMIUM, TOTAL	002	W	92L0407	01/27/92	02/05/92	02/12/92
CHROMIUM, TOTAL	002	W	92L0407	01/27/92	02/05/92	02/12/92
COPPER, TOTAL	002	W	92L0407	01/27/92	02/05/92	02/12/92
IRON, TOTAL	002	W	92L0407	01/27/92	02/05/92	02/12/92
MERCURY, TOTAL	002	W	92C0040	01/27/92	02/07/92	02/10/92
MANGANESE, TOTAL	002	W	92L0407	01/27/92	02/05/92	02/12/92
SODIUM, TOTAL	002	W	92L0407	01/27/92	02/05/92	02/12/92
NICKEL, TOTAL	002	W	92L0407	01/27/92	02/05/92	02/12/92
LEAD, TOTAL	002	W	92L0406	01/27/92	02/05/92	02/10/92
SELENIUM, TOTAL	002	W	92L0406	01/27/92	02/05/92	02/11/92
ZINC, TOTAL	002	W	92L0407	01/27/92	02/05/92	02/12/92
STATION 115						
SILVER, TOTAL	003	W	92L0407	01/27/92	02/05/92	02/12/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/28/92 RFW LOT # :9201L151

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	003	W	92L0407	01/27/92	02/05/92	02/12/92
ARSENIC, TOTAL	003	W	92L0406	01/27/92	02/05/92	02/10/92
BARIUM, TOTAL	003	W	92L0407	01/27/92	02/05/92	02/12/92
CADMIUM, TOTAL	003	W	92L0407	01/27/92	02/05/92	02/12/92
CHROMIUM, TOTAL	003	W	92L0407	01/27/92	02/05/92	02/12/92
COPPER, TOTAL	003	W	92L0407	01/27/92	02/05/92	02/12/92
IRON, TOTAL	003	W	92L0407	01/27/92	02/05/92	02/12/92
MERCURY, TOTAL	003	W	92C0040	01/27/92	02/07/92	02/10/92
MANGANESE, TOTAL	003	W	92L0407	01/27/92	02/05/92	02/12/92
SODIUM, TOTAL	003	W	92L0407	01/27/92	02/05/92	02/12/92
NICKEL, TOTAL	003	W	92L0407	01/27/92	02/05/92	02/12/92
LEAD, TOTAL	003	W	92L0406	01/27/92	02/05/92	02/10/92
SELENIUM, TOTAL	003	W	92L0406	01/27/92	02/05/92	02/11/92
ZINC, TOTAL	003	W	92L0407	01/27/92	02/05/92	02/12/92
STATION 116						
SILVER, TOTAL	004	W	92L0407	01/27/92	02/05/92	02/12/92
ALUMINUM, TOTAL	004	W	92L0407	01/27/92	02/05/92	02/12/92
ARSENIC, TOTAL	004	W	92L0406	01/27/92	02/05/92	02/10/92
BARIUM, TOTAL	004	W	92L0407	01/27/92	02/05/92	02/12/92
CADMIUM, TOTAL	004	W	92L0407	01/27/92	02/05/92	02/12/92
CHROMIUM, TOTAL	004	W	92L0407	01/27/92	02/05/92	02/12/92
COPPER, TOTAL	004	W	92L0407	01/27/92	02/05/92	02/12/92
IRON, TOTAL	004	W	92L0407	01/27/92	02/05/92	02/12/92
MERCURY, TOTAL	004	W	92C0040	01/27/92	02/07/92	02/10/92
MANGANESE, TOTAL	004	W	92L0407	01/27/92	02/05/92	02/12/92
SODIUM, TOTAL	004	W	92L0407	01/27/92	02/05/92	02/12/92
NICKEL, TOTAL	004	W	92L0407	01/27/92	02/05/92	02/12/92
LEAD, TOTAL	004	W	92L0406	01/27/92	02/05/92	02/10/92
SELENIUM, TOTAL	004	W	92L0406	01/27/92	02/05/92	02/11/92
ZINC, TOTAL	004	W	92L0407	01/27/92	02/05/92	02/12/92
STATION 117						
SILVER, TOTAL	005	W	92L0407	01/27/92	02/05/92	02/12/92
ALUMINUM, TOTAL	005	W	92L0407	01/27/92	02/05/92	02/12/92
ARSENIC, TOTAL	005	W	92L0406	01/27/92	02/05/92	02/10/92
BARIUM, TOTAL	005	W	92L0407	01/27/92	02/05/92	02/12/92
CADMIUM, TOTAL	005	W	92L0407	01/27/92	02/05/92	02/12/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/28/92 RFW LOT # :9201L151

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	005	W	92L0407	01/27/92	02/05/92	02/12/92
COPPER, TOTAL	005	W	92L0407	01/27/92	02/05/92	02/12/92
IRON, TOTAL	005	W	92L0407	01/27/92	02/05/92	02/12/92
MERCURY, TOTAL	005	W	92C0040	01/27/92	02/07/92	02/10/92
MANGANESE, TOTAL	005	W	92L0407	01/27/92	02/05/92	02/12/92
SODIUM, TOTAL	005	W	92L0407	01/27/92	02/05/92	02/12/92
NICKEL, TOTAL	005	W	92L0407	01/27/92	02/05/92	02/12/92
LEAD, TOTAL	005	W	92L0406	01/27/92	02/05/92	02/10/92
SELENIUM, TOTAL	005	W	92L0406	01/27/92	02/05/92	02/11/92
ZINC, TOTAL	005	W	92L0407	01/27/92	02/05/92	02/12/92
STATION 118						
SILVER, TOTAL	006	W	92L0407	01/27/92	02/05/92	02/12/92
ALUMINUM, TOTAL	006	W	92L0407	01/27/92	02/05/92	02/12/92
ARSENIC, TOTAL	006	W	92L0406	01/27/92	02/05/92	02/10/92
BARIUM, TOTAL	006	W	92L0407	01/27/92	02/05/92	02/12/92
CADMIUM, TOTAL	006	W	92L0407	01/27/92	02/05/92	02/12/92
CHROMIUM, TOTAL	006	W	92L0407	01/27/92	02/05/92	02/12/92
COPPER, TOTAL	006	W	92L0407	01/27/92	02/05/92	02/12/92
IRON, TOTAL	006	W	92L0407	01/27/92	02/05/92	02/12/92
MERCURY, TOTAL	006	W	92C0040	01/27/92	02/07/92	02/10/92
MANGANESE, TOTAL	006	W	92L0407	01/27/92	02/05/92	02/12/92
SODIUM, TOTAL	006	W	92L0407	01/27/92	02/05/92	02/12/92
NICKEL, TOTAL	006	W	92L0407	01/27/92	02/05/92	02/12/92
LEAD, TOTAL	006	W	92L0406	01/27/92	02/05/92	02/10/92
SELENIUM, TOTAL	006	W	92L0406	01/27/92	02/05/92	02/11/92
ZINC, TOTAL	006	W	92L0407	01/27/92	02/05/92	02/12/92

LAB QC:

SILVER LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
ALUMINUM LABORTORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
BORON LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
BARIUM LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
BERYLLIUM LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
CADMIUM LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
COBALT LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
CHROMIUM LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
COPPER LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/28/92 RFW LOT # :9201L151

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
IRON LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
MANGANESE LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
SODIUM LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
NICKEL LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
ANTIMONY LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
TIN LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
VANADIUM LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
ZINC LABORATORY	LC1 BS	W	92L0407	N/A	02/05/92	02/12/92
SILVER LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
ALUMINUM LABORTORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
BORON LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
BARIUM LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
BERYLLIUM LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
CADMIUM LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
COBALT LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
CHROMIUM LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
COPPER LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
IRON LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
MANGANESE LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
SODIUM LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
NICKEL LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
ANTIMONY LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
TIN LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
VANADIUM LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
ZINC LABORATORY	LC2 BS	W	92L0407	N/A	02/05/92	02/12/92
SILVER, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
ALUMINUM, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
BORON, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
BARIUM, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
BERYLLIUM, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
CADMIUM, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
COBALT, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
CHROMIUM, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
COPPER, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
IRON, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
MANGANESE, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
SODIUM, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
NICKEL, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
ANTIMONY, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
TIN, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/28/92 RFW LOT # :9201L151

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
VANADIUM, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
ZINC, TOTAL	MB1	W	92L0407	N/A	02/05/92	02/12/92
ARSENIC LABORATORY	LC1 BS	W	92L0406	N/A	02/05/92	02/10/92
LEAD LABORATORY	LC1 BS	W	92L0406	N/A	02/05/92	02/10/92
SELENIUM LABORATORY	LC1 BS	W	92L0406	N/A	02/05/92	02/11/92
THALLIUM LABORATORY	LC1 BS	W	92L0406	N/A	02/05/92	02/11/92
ARSENIC LABORATORY	LC2 BS	W	92L0406	N/A	02/05/92	02/10/92
LEAD LABORATORY	LC2 BS	W	92L0406	N/A	02/05/92	02/10/92
SELENIUM LABORATORY	LC2 BS	W	92L0406	N/A	02/05/92	02/11/92
THALLIUM LABORATORY	LC2 BS	W	92L0406	N/A	02/05/92	02/11/92
ARSENIC, TOTAL	MB1	W	92L0406	N/A	02/05/92	02/10/92
LEAD, TOTAL	MB1	W	92L0406	N/A	02/05/92	02/10/92
SELENIUM, TOTAL	MB1	W	92L0406	N/A	02/05/92	02/11/92
THALLIUM, TOTAL	MB1	W	92L0406	N/A	02/05/92	02/11/92
MERCURY LABORATORY	LC1 BS	W	92C0040	N/A	02/07/92	02/10/92
MERCURY LABORATORY	LC2 BS	W	92C0040	N/A	02/07/92	02/10/92
MERCURY, TOTAL	MB1	W	92C0040	N/A	02/07/92	02/10/92
MERCURY, TOTAL	MB2	W	92C0040	N/A	02/07/92	02/10/92

WESTON Analytics Use Only

9201L151

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WSRC-Task 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12
Project Contact/Phone #:
AD Project Manager: D Thomas
QC: Std Del: Std TAT: 30 day
Date Rec'd: 1/28/92 Date Due: 2/27/92
Account #: WSRC12STD

Refrigerator #		1					SUB	SUB		4		4	4		4			
#/Type Container	Liquid	1G					1P	1P		1P		1P	1P		1P			
	Solid																	
Volume	Liquid	4oz					4L	1L		1L		250	250		1L			
	Solid																	
Preservatives		—					none	none		HNO3		none	H2SO4		none			
ANALYSES REQUESTED →		ORGANIC								INORG								
		VOA	BNA	Pest/PCB	Herb		Radio Chem	Petrol		Metal	CN	SO4 PH	NO3 NO2	Alk Acidity	Spec	Hardness		

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	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only: 624/VOA				ISUB	ISUB		See below		ISOV IPH	ISOV IMPAC	INORG IMPAC	ICP ISPEC		
001	Station 77			W	1/27/92		✓				✓	✓		✓		✓	✓	✓	✓		
2	114																				
3	115																				
4	116																				
5	117																				
6	118																				
7	Trip Blank						✓														
	RAD info to follow.						Run NO3 from preserved														

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: original rewritten

metals = Ag, Al, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, Zn, Fe, Mn

Use Ultra

DATE/REVISIONS:

2/3/92 1. voas subbed to Stockton

2.

3.

4.

5.

6.

WESTON Analytics Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # 2366437497
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

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

Relinquished by	Received by	Date	Time
Emery	Pleigh	1/28/92	1337
	PA 1/28/92		

Relinquished by	Received by	Date	Time
	PA 1/28/92		

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# 5600 Cooler# 423

5684

381-596a

WESTON
MANAGERS DESIGNERS CONSULTANTS
212 FRANK WEST CIRCLE
SUITE A
STOCKTON, CA 95206
PHONE: (209) 983-1340
FAX: 209-983-0304

13 February 1992

Roy F. Weston, Inc.
208 Welsh Pool Road
Lionville, PA 19341-1313

RFW#:9201L151
WSRC TASK 12

Attention: Ms. Diane Thomas

Subject: Final Report

Dear Ms. Thomas:

Enclosed are the laboratory results for samples submitted to Weston Analytics Division.

Non-hazardous samples will be disposed of by the laboratory 30 days after the final report is issued at no charge. Hazardous samples which are inconsistent with laboratory waste streams will be returned to you.

If you have any questions, please call me at (209) 983-1340.

Very truly yours,

Lynda W. Kelly
Project Manager

LWK/pmw

Enclosure.

Laboratory Report For

Ms. Diane Thomas
Roy F. Weston, Inc.
208 Welsh Pool Road
Lionville, PA 19341-1313

13 February 1992

By

Roy F. Weston, Inc.
212 Frank West Circle, Suite A
Stockton, CA 95206
(209) 983-1340

RFW#: 9201L151

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

Client: WSRC-TASK 12
RFW #: 9201L151

Test: GC/MS Volatiles

1. This narrative covers the analysis of 7 water samples for volatiles in accordance with EPA SW-846 Method 8240.

2. All required hold times were met.

3. The method blank associated with these samples was free from target analyte interferences at or above the reporting limits with the exception of methylene chloride which was less than 5x the reporting limit.

4. The tuning and standard calibrations were within QC guidelines.

5. The internal standard areas and retention times were all within QC guidelines.

6. The surrogate recoveries were within laboratory limits.

7. The matrix spike recoveries and RPDs were within laboratory limits.

Walter McCurdy
W.C. McCurdy
Unit Leader

2-13-92
Date

WESTON

Roy F. Weston, Inc. - Stockton Laboratory
VOA ANALYTICAL DATA PACKAGE FOR
WSRC RI/FS TASK 12

DATE RECEIVED: 02/04/92 RFW LOT # :9201L151

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 77	001	W	92SMC036	01/27/92	N/A	02/06/92
STATION 114	002	W	92SMC036	01/27/92	N/A	02/06/92
STATION 115	003	W	92SMC036	01/27/92	N/A	02/07/92
STATION 116	004	W	92SMC036	01/27/92	N/A	02/07/92
STATION 117	005	W	92SMC036	01/27/92	N/A	02/07/92
STATION 118	006	W	92SMC036	01/27/92	N/A	02/07/92
TRIP BLANK	007	W	92SMC036	01/27/92	N/A	02/06/92

LAB QC:

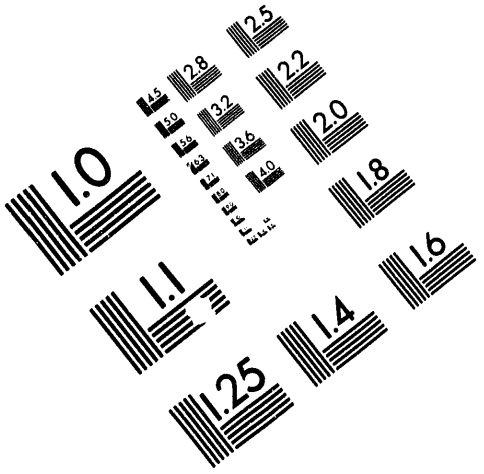
VBLKC036	MB1	W	92SMC036	N/A	N/A	02/06/92
VBLKC036	MB1 BS	W	92SMC036	N/A	N/A	02/06/92
VBLKC036	MB1 BSD	W	92SMC036	N/A	N/A	02/06/92

WESTON

Flag Data Qualifiers

The seven EPA-defined qualifiers to be used are as follows:

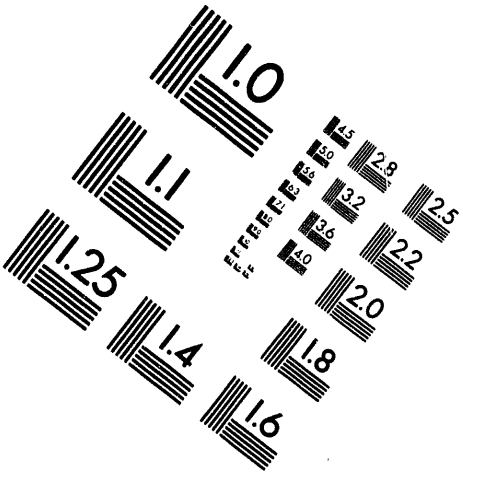
U	Indicates compound was analyzed for but not detected.
J	Indicates an estimated value.
C	This flag applies to pesticide results where the identification has been confirmed by GC/MS.
B	This flag is used when the analyte is found in the associated blank as well as in the sample.
E	This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
A	This flag indicates that a TIC is a suspected aldol-condensation product.
X	Other specific flags may be required to properly define the results.



Association for Information and Image Management

1100 Wayne Avenue, Suite 1100
Silver Spring, Maryland 20910

301/587-8202



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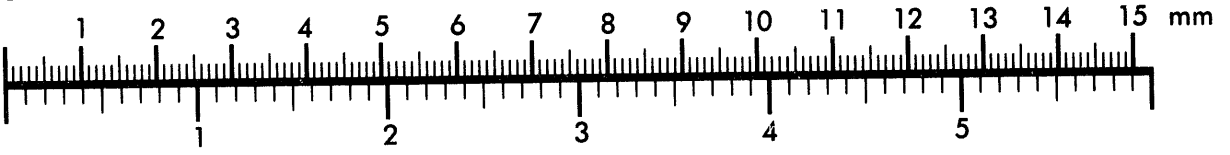

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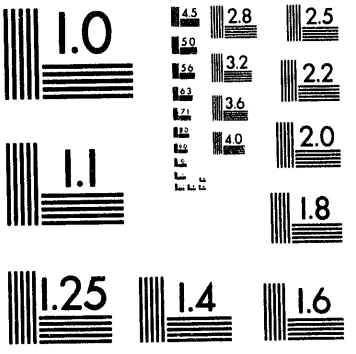

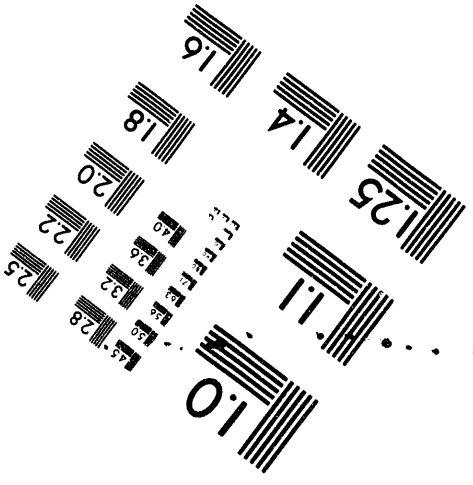

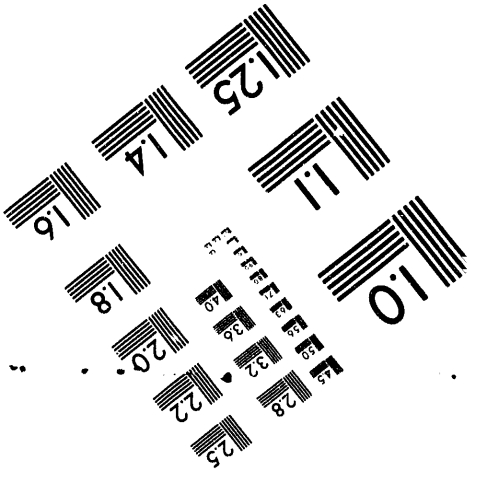

MANUFACTURED TO AIIM STANDARDS
BY APPLIED IMAGE, INC.

2 of 5

Roy F. Weston, Inc. Stockton Laboratory
Volatiles by GC/MS, HSL List
Report Date: 02/12/92 16:55

RFW Batch Number: 9201L151 Client: WSRC RI/FS TASK 12 Work Order: 0345-31-12 Page: 1a

	Cust ID:	STATION 77		STATION 114		STATION 115		STATION 116		STATION 117		STATION 118	
Sample Information	RFW#:	001		002		003		004		005		006	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Surrogate Recovery	Toluene-d8	97	%	101	%	102	%	100	%	100	%	99	%
	Bromofluorobenzene	95	%	100	%	101	%	99	%	99	%	98	%
	1,2-Dichloroethane-d4	104	%	109	%	110	%	108	%	108	%	106	%
			fl		fl		fl		fl		fl		fl
Chloromethane		10	U	10	U	10	U	10	U	10	U	10	U
Bromomethane		10	U	10	U	10	U	10	U	10	U	10	U
Vinyl Chloride		10	U	10	U	10	U	10	U	10	U	10	U
Chloroethane		10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride		26	B	23	B	25	B	25	B	25	B	25	B
Acetone		10	U	10	U	10	U	10	U	10	U	10	U
Carbon Disulfide		5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene		5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethene (total)		5	U	5	U	5	U	5	U	5	U	5	U
Chloroform		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
2-Butanone		10	U	10	U	10	U	10	U	10	U	10	U
1,1,1-Trichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Carbon Tetrachloride		5	U	5	U	5	U	5	U	5	U	5	U
Vinyl Acetate		10	U	10	U	10	U	10	U	10	U	10	U
Bromodichloromethane		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloropropane		5	U	5	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U	5	U
Trichloroethene		5	U	5	U	5	U	5	U	5	U	5	U
Dibromochloromethane		5	U	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Benzene		5	U	5	U	5	U	5	U	5	U	5	U
Trans-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U	5	U
Bromoform		5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone		10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone		10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene		5	U	5	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U	5	U	5	U	5	U

*= Outside of Advisory limits.

RFW Ba[illegible] Number: 9201L151 Client: WSRC RI/FS TA[illegible]2 Work Order: 0345-31-12 [illegible]: 1b

Cust ID:	STATION 77	STATION 114	STATION 115	STATION 116	STATION 117	STATION 118
RFW#:	001	002	003	004	005	006
Toluene	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U

*= Outside of Advisory limits.

Roy F. Weston, Inc. Stockton Laboratory
Volatiles by GC/MS, HSL List
Report Date: 02/12/92 16:55
RFW Batch Number: 9201L151 Client: WSRC RI/FS TASK 12 Work Order: 0345-31-12 Page: 2a

	Cust ID:	TRIP BLANK	VBLKC036	VBLKC036 BS	VBLKC036 BSD
Sample Information	RFW#:	007	92SMC036-MB1	92SMC036-MB1	92SMC036-MB1
	Matrix:	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L
Surrogate Recovery	Toluene-d8	100 %	99 %	99 %	98 %
	Bromofluorobenzene	98 %	97 %	97 %	89 %
	1,2-Dichloroethane-d4	104 %	103 %	103 %	103 %
Chloromethane		10 U	10 U	10 U	10 U
Bromomethane		10 U	10 U	10 U	10 U
Vinyl Chloride		10 U	10 U	10 U	10 U
Chloroethane		10 U	10 U	10 U	10 U
Methylene Chloride		26 B	7	6 B	11 B
Acetone		10 U	10 U	10 U	10 U
Carbon Disulfide		5 U	5 U	5 U	5 U
1,1-Dichloroethene		5 U	5 U	99 %	101 %
1,1-Dichloroethane		5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)		5 U	5 U	5 U	5 U
Chloroform		5 U	5 U	5 U	5 U
1,2-Dichloroethane		5 U	5 U	5 U	5 U
2-Butanone		10 U	10 U	10 U	10 U
1,1,1-Trichloroethane		5 U	5 U	5 U	5 U
Carbon Tetrachloride		5 U	5 U	5 U	5 U
Vinyl Acetate		10 U	10 U	10 U	10 U
Bromodichloromethane		5 U	5 U	5 U	5 U
1,2-Dichloropropane		5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene		5 U	5 U	5 U	5 U
Trichloroethene		5 U	5 U	106 %	105 %
Dibromochloromethane		5 U	5 U	5 U	5 U
1,1,2-Trichloroethane		5 U	5 U	5 U	5 U
Benzene		5 U	5 U	106 %	106 %
Trans-1,3-Dichloropropene		5 U	5 U	5 U	5 U
Bromoform		5 U	5 U	5 U	5 U
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U
2-Hexanone		10 U	10 U	10 U	10 U
Tetrachloroethene		5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		5 U	5 U	5 U	5 U

*= Outside of Advisory limits.

RFW Ba[illegible] Number: 9201L151 Client: WSRC RI/FS TA[illegible]12 Work Order: 0345-31-12 [illegible]e: 2b

Cust ID:	TRIP BLANK	VBLKC036	VBLKC036 BS	VBLKC036 BSD
RFW#:	007	92SMC036-MB1	92SMC036-MB1	92SMC036-MB1
Toluene	5 U	5 U	101 %	106 %
Chlorobenzene	5 U	5 U	107 %	108 %
Ethylbenzene	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U

*= Outside of Advisory limits.

WESTON Analytics Use Only
9201L151

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WSRC-TA01C.12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12
Project Contact/Phone #:
AD Project Manager: D Thomas
QC: Std Del: Std TAT: 30 day
Date Rec'd: 1/28/92 Date Due: 2/27/92
Account #: WSRC125TD

Refrigerator #		1					SUB	SUB		4		4	4		4			
#/Type Container	Liquid	1G					1P	1P		1P		1P	1P		1P			
	Solid																	
Volume	Liquid	40ml					4L	1L		1L		250	250		1L			
	Solid																	
Preservatives		—					none	none		HNO3		none	none		none			
ANALYSES REQUESTED		ORGANIC								INORG								
		VOA	BNA	Pest/PCB	Herb		Radio Chem	TPH		Metal	CN	SO4 PH	NO3 NH3	Mix Acid	CL Sol			

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	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only: OVA/VOA				ISUB	ISUB		See Below		ISOV IPH	INOV INH3	IMXC IACID	ICL ISPD		
001	Station 77			W	1/27/92		✓				✓	✓		✓		✓	✓	✓	✓		
2	114																				
3	115																				
4	116																				
5	117																				
6	118																				
7	Trip Blank																				
	RAD info to follow.						Run NO3 from preserved														

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: original rewritten
metals = Ag, Al, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, Zn, Fe, Mn
Use Vitrex

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___ Airbill # 2366437497
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was: 1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

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

Relinquished by	Received by	Date	Time
Emery	P Reign	1/28/92	1335
	P9	1/28/92	

Relinquished by	Received by	Date	Time
	P9	1/28/92	

RFW-21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# 5600 Cooler# 423 381-596a

Received 2/4/92 No custody seal Fedex # 1562748143

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

28-May-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

9201L151
9201L159
9201L177

Page: 1
Copy: 1 of 2
Set : 1

Attn: Diane Thomas
Project: WO #0345-31-12

Received: 3-Mar-92 16:34
PO #: LSA #LL-1006-F4

Job: 923417E Status: Final

Sample Type: Water

Sample Id	Gross Alpha Total pCi/l	Error 2σ	Gross Beta Total pCi/l	Error 2σ
Station 77	2.7	±1.7	4.9	±2.2
Station 114	3.9	±1.7	2.9	±1.8
Station 115	11	±3	11	±2
Station 116	13	±3	13	±3
Station 117	0.0	±1.1	0.4	±1.7
Station 118	0.0	±1.1	4.7	±1.9
Station 134	64	±14	59	±11
Station 135	9.4	±2.7	12	±2
Station 137	80	±17	62	±12
Station 140	8.8	±2.2	11	±2
Station 142	78	±20	83	±14
Station 155	7.4	±2.7	14	±2
Station 155 Duplicate	5.7	±2.3	11	±2
Station 156	48	±7	120	±10
Station 157	1.3	±1.5	6.2	±1.9
Station 160	8.4	±2.5	210	±10
Station 161	1.2	±1.4	26	±3
Station 164	1.9	±1.3	5.6	±1.9

Sample Id	Gamma Spec* pCi/l	Error 2σ	Tritium pCi/l	Error 2σ	I-129 pCi/l	Error 2σ
Station 77	ND	ND	32000	±1000	0	±10
Station 114	ND	ND	75000	±1000	0	±14
Station 115	ND	ND	141000	±2000	0	±11
Station 116	ND	ND	81000	±1000	0	±11
Station 117	ND	ND	26000	±1000	4	±18
Station 118	ND	ND	129000	±2000	0	±13
Station 134	ND	ND	3500	±400	0	±19
Station 135	ND	ND	56000	±1000	0	±14

BARRINGER LABORATORIES INC.
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28-May-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 2
Copy: 1 of 2
Set : 1

Attn: Diane Thomas
Project: WO #0345-31-12

Received: 3-Mar-92 16:34
PO #: LSA #LL-1006-F4

Job: 923417E

Status: Final

Sample Type: Water

Sample Id	Gamma Spec* pCi/l	Error 2σ	Tritium pCi/l	Error 2σ	I-129 pCi/l	Error 2σ
Station 137	ND	ND	76000	±1000	0	±11
Station 140	ND	ND	75000	±1000	0	±12
Station 142	ND	ND	7300	±500	0	±14
Station 155	ND	ND	108000	±1000	0	±12
Station 155 Duplicate	ND	ND	104000	±1000	0	±13
Station 156	ND	ND	64000	±1000	6.7	±2.5
Station 157	ND	ND	49000	±1000	0	±10
Station 160	ND	ND	263000	±2000	0	±11
Station 161	ND	ND	197000	±2000	0	±12
Station 164	ND	ND	22000	±1000	0	±12

Sample Id	Pu-238 pCi/l	Error 2σ	Pu-239/240 pCi/l	Error 2σ	Sr-89 pCi/l	Error 2σ
Station 77	0.0	±0.4	0.0	±0.4	5.0	±2.2
Station 114	0.0	±0.5	0.0	±0.4	0.5	±1.9
Station 115	0.0	±0.5	0.2	±0.6	0.0	±1.7
Station 116	0.0	±0.5	0.0	±0.4	1.0	±1.6
Station 117	0.0	±0.9	0.0	±0.9	0.8	±2.7
Station 118	0.0	±0.5	0.0	±0.4	0.0	±2.8
Station 134	0.0	±0.6	0.0	±0.4	1.1	±1.5
Station 135	0.0	±0.5	0.0	±0.4	0.0	±1.7
Station 137	0.0	±0.5	0.5	±0.7	1.6	±3.4
Station 140	0.0	±0.5	0.0	±0.6	0.7	±1.8
Station 142	0.0	±0.5	0.0	±0.5	0.5	±1.7
Station 155	0.0	±0.4	0.0	±0.4	0.0	±1.6
Station 155 Duplicate	0.0	±0.5	0.0	±0.5	0.0	±1.5
Station 156	0.0	±0.4	0.0	±0.3	23	±3
Station 157	0.0	±1.0	0.6	±1.3	1.1	±1.8
Station 160	0.0	±0.9	0.0	±0.8	0.0	±4.0

BARRINGER LABORATORIES INC.
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28-May-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 3
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Set : 1

Attn: Diane Thomas
Project: WO #0345-31-12

Received: 3-Mar-92 16:34
PO #: LSA #LL-1006-F4

Job: 923417E

Status: Final

Sample Type: Water

Sample Id	Pu-238 pCi/l	Error 2σ	Pu-239/240 pCi/l	Error 2σ	Sr-89 pCi/l	Error 2σ
Station 161	0.0	±0.8	0.0	±0.7	0.0	±3.5
Station 164	0.0	±0.7	0.0	±0.8	2.0	±3.2

Sample Id	Sr-90 pCi/l	Error 2σ	Tc-99 pCi/l	Error 2σ	Am-241 pCi/l	Error 2σ
Station 77	2.7	±4.7	1.6	±1.8	0.0	±1.2
Station 114	0.5	±1.9	3.4	±1.9	0.0	±0.9
Station 115	0.0	±1.7	1.4	±1.7	0.0	±2.4
Station 116	1.0	±1.6	1.7	±1.8	0.0	±1.1
Station 117	0.8	±2.7	3.7	±1.9	0.0	±1.0
Station 118	0.0	±2.8	2.9	±2.4	0.0	±0.9
Station 134	1.1	±1.5	1.0	±2.5	1.0	±1.4
Station 135	0.0	±1.7	1.1	±2.1	0.0	±0.9
Station 137	1.6	±3.4	0.0	±2.0	0.0	±1.6
Station 140	0.7	±1.8	0.0	±2.0	0.0	±1.2
Station 142	0.5	±1.7	0.9	±2.0	0.2	±1.3
Station 155	0.0	±1.6	10	±3	0.0	±0.9
Station 155 Duplicate	0.0	±1.5	*7.6	±3.8	0.0	±1.4
Station 156	0.0	±3.2	*52	±7	0.0	±1.0
Station 157	1.1	±1.8	2.8	±2.1	0.2	±2.1
Station 160	100	±10	*18	±4	0.0	±1.0
Station 161	11	±6	3.8	±2.1	0.0	±0.6
Station 164	2.0	±3.2	3.9	±2.0	0.0	±0.8

Sample Id	C-14 pCi/l	Error 2σ	Radium pCi/l	Error 2σ	U-234 Total pCi/l	Error 2σ
Station 77	0	±10	1.6	±0.5	1.0	±0.8

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28-May-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 4
Copy: 1 of 2
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Attn: Diane Thomas
Project: WO #0345-31-12

Received: 3-Mar-92 16:34
PO #: LSA #LL-1006-F4

Job: 923417E

Status: Final

Sample Type: Water

Sample Id	C-14 pCi/l	Error 2σ	Radium pCi/l	Error 2σ	U-234 Total pCi/l	Error 2σ
Station 114	4	±10	1.8	±0.5	0.4	±0.6
Station 115	2	±21	1.9	±0.5	0.8	±0.8
Station 116	4	±27	4.4	±0.8	0.4	±0.8
Station 117	0.0	±9.7	1.6	±0.5	0.6	±0.7
Station 118	0.0	±9.4	1.7	±0.5	0.6	±0.7
Station 134	3	±20	6.8	±0.9	2.6	±1.2
Station 135	2	±10	2.4	±0.6	4.6	±1.6
Station 137	3	±12	8.4	±1.5	3.7	±1.6
Station 140	7	±11	2.2	±0.6	0.0	±0.4
Station 142	6	±18	9.5	±1.6	1.0	±0.9
Station 155	7	±22	0.9	±1.4	0.2	±0.6
Station 155 Duplicate	7	±12	2.2	±1.2	0.0	±0.4
Station 156	0	±11	11	±2	2.3	±1.2
Station 157	0	±12	1.7	±1.0	0.0	±0.4
Station 160	0	±13	2.0	±1.4	1.5	±1.1
Station 161	0	±12	1.2	±1.2	0.5	±0.8
Station 164	3	±24	0.3	±0.9	0.2	±0.7

Sample Id	U-235 Total pCi/l	Error 2σ	U-238 Total pCi/l	Error 2σ
Station 77	0.0	±0.3	1.0	±0.8
Station 114	0.0	±0.3	0.0	±0.5
Station 115	0.0	±0.3	1.0	±0.8
Station 116	0.0	±0.4	1.0	±1.0
Station 117	0.1	±0.5	0.5	±0.7
Station 118	0.0	±0.3	0.1	±0.5
Station 134	0.0	±0.4	3.3	±1.4
Station 135	0.0	±0.3	3.0	±1.3
Station 137	0.1	±0.7	4.6	±1.7

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15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

28-May-92

Diane Thomas
WESTON
208 Welsh Pool Road
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Page: 5
Copy: 1 of 2
Set : 1

Attn: Diane Thomas
Project: WO #0345-31-12

Received: 3-Mar-92 16:34
PO #: LSA #LL-1006-F4

Job: 923417E

Status: Final

Sample Type: Water

Sample Id	U-235 Total pCi/l	Error 2σ	U-238 Total pCi/l	Error 2σ
Station 140	0.0	±0.3	0.0	±0.4
Station 142	0.0	±0.3	0.1	±0.6
Station 155	0.0	±0.4	0.2	±0.7
Station 155 Duplicate	0.0	±0.3	0.0	±0.4
Station 156	0.0	±0.4	2.6	±1.2
Station 157	0.0	±0.5	0.0	±0.5
Station 160	0.0	±0.4	0.0	±0.5
Station 161	0.0	±0.4	0.0	±0.5
Station 164	0.0	±0.5	0.0	±0.4

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

28-May-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 6
Copy: 1 of 2
Set : 2

Attn: Diane Thomas
Project: WO #0345-31-12

Received: 3-Mar-92 16:34
PO #: LSA #LL-1006-F4

Job: 923417E

Status: Final

Abbreviations:

Parameters:

Gamma Spec*	: Gamma Spectralanalysis-MDA'S Reported at 1.645 sigma
I-129	: Iodine-129
Pu-238	: Plutonium-238
Pu-239/240	: Plutonium-239/240
Sr-89	: Strontium-89
Sr-90	: Strontium -90
Tc-99	: Technetium-99
Am-241	: Americium-241
C-14	: Carbon-14
U-234	: Uranium-234
U-235	: Uranium-235
U-238	: Uranium-238

Units:

pCi/l	: picoCuries per liter
2σ	: Counting error at the 95% confidence level, 2σ

Quality codes:

ND	: Not detected
*	: Verified by reanalysis.

Job approved by:

Signed: Margie Kidwell for Ellen La Riviere
Ellen La Riviere
Radiochemistry Laboratory Manager

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

28-May-92

Diane Thomas
WESTON
208 Welsh Pool Road
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Page: 1
Copy: 1 of 2
Set : 1

Attn: Diane Thomas
Project: WO #0345-31-12

Received: 3-Mar-92 16:34
PO #: LSA #LL-1006-F4

Job: 923417E

Status: Final

QUALITY CONTROL REPORT

Sample Type: Water

Sample Id	Gross Alpha Total pCi/l	Error 2σ	Gross Beta Total pCi/l	Error 2σ
Duplicate	9.1	±2.8	12	±2
Duplicate	9.6	±2.6	11	±2
Duplicate % diff.	2.7		4.3	
Std (found value)	191	±5	118	±2
Std (true value)	206		120	
Std % diff.				
Std % rec.	93		98	
Blank	0.2	±0.2	0.2	±0.4
Spike % rec.				
Station 155 Dup (Rerun)				
Station 156 (Rerun)				
Station 160 (Rerun)				

Sample Id	Gamma Spec* pCi/l	Error 2σ	Tritium pCi/l	Error 2σ
Duplicate	ND	ND	75000	±1000
Duplicate	ND	ND	76000	±1000
Duplicate % diff.	ND	ND	0.7	
Std (found value)	17	±1	19821	±685
Std (true value)	19		20111	
Std % diff.	10			
Std % rec.	ND	ND	98	
Blank	ND	ND	20	±280
Spike % rec.	ND			
Station 155 Dup (Rerun)				
Station 156 (Rerun)				
Station 160 (Rerun)				

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

28-May-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 2
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Attn: Diane Thomas
Project: WO #0345-31-12

Received: 3-Mar-92 16:34
PO #: LSA #LL-1006-F4

Job: 923417E Status: Final

QUALITY CONTROL REPORT

Sample Type: Water

Sample Id	I-129 pCi/l	Error 2σ	Pu-238 pCi/l	Error 2σ	Pu-239/240 pCi/l	Error 2σ
Duplicate	0	±24	0.0	±0.8	0.0	±1.0
Duplicate	7	±25	0.0	±1.3	0.0	±0.7
Duplicate % diff.	100		0.0		0.0	
Std (found value)	908	±18	122	±5	122	±5
Std (true value)	923		104		104	
Std % diff.	8.6		17		17	
Std % rec.	91		117		117	
Blank	0.0	±3.7	0.0	±0.3	0.4	±0.4
Spike % rec.	66		95		95	
Station 155 Dup (Rerun)						
Station 156 (Rerun)						
Station 160 (Rerun)						

Sample Id	Sr-89 pCi/l	Error 2σ	Sr-90 pCi/l	Error 2σ	Tc-99 pCi/l	Error 2σ
Duplicate	2.6	±3.5	10	±7	1.4	±2.4
Duplicate	0.5	±3.2	12	±6	0.5	±2.6
Duplicate % diff.	68		9.1		47	
Std (found value)	23	±2	21	±2	100	±3
Std (true value)	20		20		100	
Std % diff.						
Std % rec.	113		105		100	
Blank	0.2	±0.6	0.5	±1.4	1.2	±0.7
Spike % rec.	100				97	
Station 155 Dup (Rerun)					8.6	±5.4
Station 156 (Rerun)					65	±11
Station 160 (Rerun)					20	±6

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

28-May-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 3
Copy: 1 of 2
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Attn: Diane Thomas
Project: WO #0345-31-12

Received: 3-Mar-92 16:34
PO #: LSA #LL-1006-F4

Job: 923417E

Status: Final

QUALITY CONTROL REPORT

Sample Type: Water

Sample Id	Am-241 pCi/l	Error 2σ	C-14 pCi/l	Error 2σ	Radium pCi/l	Error 2σ
Duplicate	0.0	±2.1	6.7	±22	2.5	±1.4
Duplicate	0.4	±2.1	6.3	±21	1.6	±1.4
Duplicate % diff.	100		6.2		22	
Std (found value)	120	±6	992	±18	102	±4
Std (true value)	102		992		126	
Std % diff.	18		0.0			
Std % rec.			100		81	
Blank	0.0	±0.4	0.0	±2.3	0.0	±0.1
Spike % rec.	98		100			
Station 155 Dup (Rerun)						
Station 156 (Rerun)						
Station 160 (Rerun)						

Sample Id	U-234 Total pCi/l	Error 2σ	U-235 Total pCi/l	Error 2σ	U-238 Total pCi/l	Error 2σ
Duplicate	0.4	±1.7	0.0	±1.1	0.4	±1.7
Duplicate	0.0	±1.3	0.0	±1.1	0.8	±1.9
Duplicate % diff.	100		0.0		33	
Std (found value)	198	±3	9.0	±1.2	210	±6
Std (true value)	192		8.8		192	
Std % diff.	3.1		2.3		9.4	
Std % rec.	103		102		109	
Blank	0.1	±0.2	0.0	±0.1	0.0	±0.1
Spike % rec.	103		99		109	
Station 155 Dup (Rerun)						
Station 156 (Rerun)						
Station 160 (Rerun)						

BARRINGER LABORATORIES INC.
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28-May-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 4
Copy: 1 of 2
Set : 2

Attn: Diane Thomas
Project: WO #0345-31-12

Received: 3-Mar-92 16:34
PO #: LSA #LL-1006-F4

Job: 923417E Status: Final

QUALITY CONTROL REPORT

Abbreviations:

Parameters:

Gamma Spec*	: Gamma Spectralanalysis-MDA'S Reported at 1.645 sigma
I-129	: Iodine-129
Pu-238	: Plutonium-238
Pu-239/240	: Plutonium-239/240
Sr-89	: Strontium-89
Sr-90	: Strontium -90
Tc-99	: Technetium-99
Am-241	: Americium-241
C-14	: Carbon-14
U-234	: Uranium-234
U-235	: Uranium-235
U-238	: Uranium-238

Units:

pCi/l	: picoCuries per liter
2σ	: Counting error at the 95% confidence level, 2σ

Quality codes:

ND	: Not detected

Job approved by:

Signed:
.....
Approved
Quality Assurance Department

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

28-May-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Attn: Diane Thomas
Project: WO #0345-31-12

Received: 3-Mar-92 16:34
PO #: LSA #LL-1006-F4

Job: 923417E

Status: Final

QUALITY CONTROL REPORT

QUALITY CONTROL DATA SHEET

Received by: gm Via: Fed Ex

Sample Container Type: pl gal, pl .5L
Sample Type: Water
Preservative When Received: 1. HNO3 2. None
Additional Lab Preparation: none

Parameter	Method	LLD	Preser-vative	Analyst	Date(s) of Analysis
Gross Alpha	900.0	2 pCi/l	1	Seidel	4/21- 5/ 1
Gross Beta	900.0	2 pCi/l	1	Seidel	4/21- 5/ 1
Gamma Spec	901.1	--- pCi/l	1	La Riviere	4/17- 4/22
Tritium	906.0	460 pCi/l	1	Eggleston	4/20- 4/22
I-129	901.1	25 pCi/l	1	Hebel	4/ 7- 5/11
Pu-238	907.0	0.5 pCi/l	1	Preston	4/ 6- 4/30
Pu-239/240	907.0	0.5 pCi/l	1	Preston	4/ 6- 4/30
Sr-89	901.1	--- pCi/l	1	Kidwell	4/11- 5/21
Sr-90	901.1	--- pCi/l	1	Kidwell	4/11- 5/21
Tc-99	901.1	--- pCi/l	1	Hebel	4/ 6- 4/18
Am-241	907.0	0.5 pCi/l	1	Preston	4/ 6- 5/27
C-14	520-84-006	0.5 pCi/l	1	Eggleston	4/22- 5/ 7
Radium	900.1	1 pCi/l	1	Pingilley	4/ 1- 4/25
U-234	908.0	0.4 pCi/l	1	Tonning	4/ 4- 4/29
U-235	908.0	0.4 pCi/l	1	Tonning	4/ 4- 4/29
U-238	908.0	0.4 pCi/l	1	Tonning	4/ 4- 4/29

3417

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Client: Weston-Task 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12
Project Contact/Phone #:
AD Project Manager: Thomas
QC: Std Del: Std TAT:
Date Rec'd: Date Due:
Account #:

Refrigerator #																	
#/Type Container	Liquid					1/P	1/P										
	Solid																
Volume	Liquid					1LTR	1LTR										
	Solid																
Preservatives						none	none										
ANALYSES REQUESTED →									ORGANIC					INORG			
									VOA	BNA	Pest/PCB	Herb	Rels Chem	Metal	CN		
WESTON Analytics Use Only																	
													See Below				

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	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected									RFW #
	Station 77			W	1/27/92						✓	✓			92014151-001
	114														-002
	115														-003
	116														-004
	117														-005
	118														-006
	Station 134			W	1/28/92						✓	✓			92014159-001
	135														-002
	137														-003
	140														-004

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

DATE/REVISIONS:
1.
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) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

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

COC Record Present Upon Sample Rec't Y or N

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

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time

___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ___ Cooler# ___

RFW 21 01-001/A-7/91

381-596a

3417

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Client
Est. Final Proj. Sampling Date
Work Order #
Project Contact/Phone #
AD Project Manager
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account #

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

ORGANIC							INORG	
VOA	BNA	Pest/PCB	Herb	Radio Chem			Metal	CN

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	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only														RFW#
	~~Station-142~~			W	1/28/92						✓	✓									9202415 9-005
	~~Station-155~~			W	1/29/92						✓	✓									9202417 7-001
	155 Dup																				-002
	156																				-003
	157																				-004
	160																				-005
	161																				-006
	164																				-007
	~~Station 186~~			W	1/30/92						✓	✓									~~9202[illegible]~~ ~~-00~~
	198																				

pa 2/27/92
pa 2/27/92

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

DATE/REVISIONS:
1.
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) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

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

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time

RFW 21-[illegible] '91 ____ L372 ____ L373 ____ L37[illegible] ____ L377 ____ L378 Ref# ____ Cooler# ____

3P1-596a

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WSRC-TASK 12
RFW #: 9201L159
W.O. #: 0345-31-12

SAMPLES RECEIVED: 01-29-92

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 sample holding times as required by 40CFR136 were met.

2. Preparation blank results were below the required detection limit with the exception of acidity.

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

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

5. 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).

2.27.92

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

ncc\i01-159

ROY F. WESTON, INC.
GLOSSARY OF TERMS - INORGANIC REPORTS

DATA QUALIFIERS

U - Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* - Indicates that the original sample result is greater than 4x the spike amount added. The USEPA-CLP has determined that spike results on samples where this occurs may be unreliable and therefore, the control limits are not applicable.

ABBREVIATIONS

MB - Method or preparation blank
MS - Matrix Spike
MSD - Matrix Spike Duplicate.
REP - Sample Replicate.
LC - Indicates a method LCS or Blank Spike.
NC - Not calculable, result below the detection limit.

A suffix of -R and -S following these codes indicates a replicate and spike analysis respectively.

ANALYTICAL METAL METHODS

As :	EPA 206.2	Se :	EPA 270.2
Pb :	EPA 239.2	ICP Scan :	EPA 200.7
Hg :	EPA 245.1	All Others :	EPA 200.7
Tl :	EPA 279.2	EP Leachates (except Hg) :	200.7

The analytical methods applied by the laboratory for the determination of drinking water is 5.2.1.

NOTES

The laboratory prepares a matrix spike at one per 20 frequency for TCLP samples. The Federal Register recommends that all matrix spikes be prepared at greater than 50% of the indigenous analyte concentration. A matrix duplicate is also prepared.

Holding times for soil samples have not been promulgated by the USEPA.

For solid samples, all results are reported on a dry weight basis.

The range for mercury solid laboratory control standards is 66.9% to 133.8%.

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 02/25/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L159

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	STATION 134	Acidity	62.0		MG/L	2.0
		Chloride	6.8		MG/L	5.0
		Hardness	30.0		MG/L	1.0
		Nitrate, as N	0.17		MG-N/L	0.10
		pH	5.5		PH UNITS	0.010
		Sulfate	9.5		MG/L	5.0
		Specific Conductance	43.8		UMHOS/CM	1.0
-002	STATION 135	Acidity	46.0		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	31.5		MG/L	1.0
		Nitrate, as N	0.14		MG-N/L	0.10
		pH	5.1		PH UNITS	0.010
		Sulfate	11.5		MG/L	5.0
		Specific Conductance	71.9		UMHOS/CM	1.0
-003	STATION 137	Acidity	66.0		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	18.5		MG/L	1.0
		Nitrate, as N	0.27		MG-N/L	0.10
		pH	4.9		PH UNITS	0.010
		Sulfate	9.4		MG/L	5.0
		Specific Conductance	44.1		UMHOS/CM	1.0
-004	STATION 140	Acidity	72.0		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	23.0		MG/L	1.0
		Nitrate, as N	0.16		MG-N/L	0.10
		pH	5.7		PH UNITS	0.010
		Sulfate	20.3		MG/L	5.0
		Specific Conductance	64.5		UMHOS/CM	1.0
-005	STATION 142	Acidity	90.0		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	19.0		MG/L	1.0
		Nitrate, as N	0.15		MG-N/L	0.10
		pH	5.5		PH UNITS	0.010
		Sulfate	16.9		MG/L	5.0
		Specific Conductance	62.3		UMHOS/CM	1.0

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 02/25/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9201L159
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
BLANK10	92LAC002-MB1	Acidity	11.0		MG/L	2.0
BLANK20	92LAC002-MB2	Acidity	10.0		MG/L	2.0
BLANK10	92LCL004-MB1	Chloride	5.0	u	MG/L	5.0
BLANK20	92LCL004-MB2	Chloride	5.0	u	MG/L	5.0
BLANK30	92LCL004-MB3	Chloride	5.0	u	MG/L	5.0
BLANK10	92LHD004-MB1	Hardness	1.0	u	MG/L	1.0
BLANK20	92LHD004-MB2	Hardness	1.0	u	MG/L	1.0
BLANK30	92LHD004-MB3	Hardness	1.0	u	MG/L	1.0
BLANK10	92LNO014-MB1	Nitrate, as N	0.10	u	MG-N/L	0.10
BLANK20	92LNO014-MB2	Nitrate, as N	0.10	u	MG-N/L	0.10

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 02/25/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L159

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
BLANK10	92LS4006-MB1	Sulfate	5.0	u	MG/L	5.0
BLANK20	92LS4006-MB2	Sulfate	5.0	u	MG/L	5.0
BLANK30	92LS4006-MB3	Sulfate	5.0	u	MG/L	5.0
BLANK10	92LSP010-MB1	Specific Conductance	1.0	u	UMHOS/CM	1.0

ROY F. WESTON INC.

INORGANIC ACCURACY REPORT 02/25/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L159

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV
BLANK10	92LCL004-MB1	Chloride	24.0	5.0 u	25.0	96.0
		Chloride MSD	24.1	5.0 u	25.0	96.2
BLANK20	92LCL004-MB2	Chloride	24.2	5.0 u	25.0	97.0
BLANK30	92LCL004-MB3	Chloride	24.1	5.0 u	25.0	96.4
BLANK10	92LHD004-MB1	Hardness	101	1.0 u	100	101
		Hardness MSD	328	1.0 u	330	99.4
BLANK20	92LHD004-MB2	Hardness	102	1.0 u	100	102
BLANK30	92LHD004-MB3	Hardness	330	1.0 u	330	100
BLANK10	92LNO014-MB1	Nitrate, as N	0.38	0.10u	0.40	95.8
		Nitrate, as N MSD	0.40	0.10u	0.40	101
BLANK20	92LNO014-MB2	Nitrate, as N	0.37	0.10u	0.40	92.0
BLANK10	92LS4006-MB1	Sulfate	21.4	5.0 u	20.0	107
		Sulfate	21.2	5.0 u	20.0	106
BLANK20	92LS4006-MB2	Sulfate	31.2	5.0 u	30.0	104

ROY F. WESTON INC.

INORGANIC ACCURACY REPORT 02/25/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L159

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV
BLANK30	92LS4006-MB3	Sulfate	40.1	5.0 u	40.0	100
BLANK10	92LSP010-MB1	Specific Conductance	143	1.0 u	147	97.3
		Specific Conductance M	142	1.0 u	147	96.6

ROY F. WESTON INC.

INORGANIC DUPLICATE SPIKE REPORT 02/25/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9201L159
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%RPD
BLANK10	92LCL004-MB1	Chloride	96.0	96.2	0.20
BLANK10	92LHD004-MB1	Hardness	101	99.4	1.4
BLANK10	92LNO014-MB1	Nitrate, as N	95.8	101	5.5
BLANK10	92LS4006-MB1	Sulfate	107	106	1.1
BLANK10	92LSP010-MB1	Specific Conductance	97.3	96.6	0.70

ROY F. WESTON INC.

INORGANIC PRECISION REPORT 02/25/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L159

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	%RPD
-001REP	STATION 134	Acidity	62.0	62.0	0.00
		Nitrate, as N	0.17	0.17	0.00

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/29/92 RFW LOT # :9201L159

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 134						
ACIDITY	001	W	92LAC002	01/28/92	01/31/92	01/31/92
ACIDITY	001 REP	W	92LAC002	01/28/92	01/31/92	01/31/92
CHLORIDE	001	W	92LCL004	01/28/92	01/31/92	01/31/92
HARDNESS	001	W	92LHD004	01/28/92	02/03/92	02/03/92
NITRATE	001	W	92LNO014	01/28/92	02/05/92	02/05/92
NITRATE	001 REP	W	92LNO014	01/28/92	02/05/92	02/05/92
PH	001	W	92LPH017	01/28/92	01/29/92	01/29/92
SULFATE	001	W	92LS4006	01/28/92	02/06/92	02/06/92
SPECIFIC CONDUCTANCE	001	W	92LSP010	01/28/92	01/29/92	01/29/92
SUB-OUT TEST FOR SUB	001	W		01/28/92		
STATION 135						
ACIDITY	002	W	92LAC002	01/28/92	01/31/92	01/31/92
CHLORIDE	002	W	92LCL004	01/28/92	01/31/92	01/31/92
HARDNESS	002	W	92LHD004	01/28/92	02/03/92	02/03/92
NITRATE	002	W	92LNO014	01/28/92	02/05/92	02/05/92
PH	002	W	92LPH017	01/28/92	01/29/92	01/29/92
SULFATE	002	W	92LS4006	01/28/92	02/06/92	02/06/92
SPECIFIC CONDUCTANCE	002	W	92LSP010	01/28/92	01/29/92	01/29/92
SUB-OUT TEST FOR SUB	002	W		01/28/92		
STATION 137						
ACIDITY	003	W	92LAC002	01/28/92	01/31/92	01/31/92
CHLORIDE	003	W	92LCL004	01/28/92	01/31/92	01/31/92
HARDNESS	003	W	92LHD004	01/28/92	02/03/92	02/03/92
NITRATE	003	W	92LNO014	01/28/92	02/05/92	02/05/92
PH	003	W	92LPH017	01/28/92	01/29/92	01/29/92
SULFATE	003	W	92LS4006	01/28/92	02/06/92	02/06/92
SPECIFIC CONDUCTANCE	003	W	92LSP010	01/28/92	01/29/92	01/29/92
SUB-OUT TEST FOR SUB	003	W		01/28/92		
STATION 140						
ACIDITY	004	W	92LAC002	01/28/92	01/31/92	01/31/92
CHLORIDE	004	W	92LCL004	01/28/92	01/31/92	01/31/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/29/92 RFW LOT # :9201L159

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
HARDNESS	004	W	92LHD004	01/28/92	02/03/92	02/03/92
NITRATE	004	W	92LNO014	01/28/92	02/05/92	02/05/92
PH	004	W	92LPH017	01/28/92	01/29/92	01/29/92
SULFATE	004	W	92LS4006	01/28/92	02/06/92	02/06/92
SPECIFIC CONDUCTANCE	004	W	92LSP010	01/28/92	01/29/92	01/29/92
SUB-OUT TEST FOR SUB	004	W		01/28/92		
STATION 142						
ACIDITY	005	W	92LAC002	01/28/92	01/31/92	01/31/92
CHLORIDE	005	W	92LCL004	01/28/92	01/31/92	01/31/92
HARDNESS	005	W	92LHD004	01/28/92	02/03/92	02/03/92
NITRATE	005	W	92LNO014	01/28/92	02/05/92	02/05/92
PH	005	W	92LPH017	01/28/92	01/29/92	01/29/92
SULFATE	005	W	92LS4006	01/28/92	02/06/92	02/06/92
SPECIFIC CONDUCTANCE	005	W	92LSP010	01/28/92	01/29/92	01/29/92
SUB-OUT TEST FOR SUB	005	W		01/28/92		

LAB QC:

ACIDITY	MB1	W	92LAC002	N/A	01/31/92	01/31/92
ACIDITY	MB2	W	92LAC002	N/A	01/31/92	01/31/92
CHLORIDE	MB1	W	92LCL004	N/A	01/31/92	01/31/92
CHLORIDE	MB1 BS	W	92LCL004	N/A	01/31/92	01/31/92
CHLORIDE	MB1 BSD	W	92LCL004	N/A	01/31/92	01/31/92
CHLORIDE	MB2	W	92LCL004	N/A	01/31/92	01/31/92
CHLORIDE	MB2 BS	W	92LCL004	N/A	01/31/92	01/31/92
CHLORIDE	MB3	W	92LCL004	N/A	01/31/92	01/31/92
CHLORIDE	MB3 BS	W	92LCL004	N/A	01/31/92	01/31/92
HARDNESS	MB1	W	92LHD004	N/A	02/03/92	02/03/92
HARDNESS	MB1 BS	W	92LHD004	N/A	02/03/92	02/03/92
HARDNESS	MB1 BSD	W	92LHD004	N/A	02/03/92	02/03/92
HARDNESS	MB2	W	92LHD004	N/A	02/03/92	02/03/92
HARDNESS	MB2 BS	W	92LHD004	N/A	02/03/92	02/03/92
HARDNESS	MB3	W	92LHD004	N/A	02/03/92	02/03/92
HARDNESS	MB3 BS	W	92LHD004	N/A	02/03/92	02/03/92
NITRATE	MB1	W	92LNO014	N/A	02/05/92	02/05/92
NITRATE	MB1 BS	W	92LNO014	N/A	02/05/92	02/05/92
NITRATE	MB1 BSD	W	92LNO014	N/A	02/05/92	02/05/92
NITRATE	MB2	W	92LNO014	N/A	02/05/92	02/05/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/29/92 RFW LOT # :9201L159

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRATE	MB2 BS	W	92LNO014	N/A	02/05/92	02/05/92
SULFATE	MB1	W	92LS4006	N/A	02/06/92	02/06/92
SULFATE	MB1 BS	W	92LS4006	N/A	02/06/92	02/06/92
SULFATE	MB1 BSD	W	92LS4006	N/A	02/06/92	02/06/92
SULFATE	MB2	W	92LS4006	N/A	02/06/92	02/06/92
SULFATE	MB2 BS	W	92LS4006	N/A	02/06/92	02/06/92
SULFATE	MB3	W	92LS4006	N/A	02/06/92	02/06/92
SULFATE	MB3 BS	W	92LS4006	N/A	02/06/92	02/06/92
SPECIFIC CONDUCTANCE	MB1	W	92LSP010	N/A	01/29/92	01/29/92
SPECIFIC CONDUCTANCE	MB1 BS	W	92LSP010	N/A	01/29/92	01/29/92
SPECIFIC CONDUCTANCE	MB1 BSD	W	92LSP010	N/A	01/29/92	01/29/92

WESTON Analytics Use Only

9201L159

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WSRC-TASK 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12-0000
Project Contact/Phone #:
AD Project Manager: D. Thomas
QC: Del: TAT: 30 day
Date Rec'd: 1-29-92 Date Due: 2-28-92
Account #: WSRC 125TD

Refrigerator #		1				SUB	SUB		4		4	4	4	1			
#/Type Container	Liquid	1G				1P	1P		1P		1P	1P	1P	1			
	Solid																
Volume	Liquid	4L				4L	1L		1L		2L	2L	1L	1			
	Solid																
Preservatives		—				None	None		HNO3		None	HNO3	None	—			
ANALYSES REQUESTED		ORGANIC							INORG								
		VOA	BNA	Pest/PCB	Herb	Gamma	Tritium		Metal	CN	SO4 Th	NO3 HARD	NH4 ACID	CL SPEC			
WESTON Analytics Use Only																	
		1234H				ISOB	ISOB		Hg Below		ISO4 Th	INORGN HARD	INHL HARDS	ICL SPEC			

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	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	1234H				ISOB	ISOB		Hg Below		ISO4 Th	INORGN HARD	INHL HARDS	ICL SPEC		
001	STATION 134			W	1-28-92		✓				✓	✓		✓		✓	✓	✓	✓		
002	135						✓				✓	✓		✓		✓	✓	✓	✓		
003	137						✓				✓	✓		✓		✓	✓	✓	✓		
004	#40						✓				✓	✓		✓		✓	✓	✓	✓		
005	142						✓				✓	✓		✓		✓	✓	✓	✓		
006	Field Blank						✓														

Bill info to Sullivan.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Original Requisition

metals = Ag, Al, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, Zn, Fe, Mn.

use Ultrex for digestion

DATE/REVISIONS:
2/3/92 1. was switched to Stockton
2/2/92 2. Cancel all samples for ACID on SD0004
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered
Airbill # 2366 1374 69
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
Emery	[signature]	1-28-92	1310
[signature]		1-29-92	

Relinquished by	Received by	Date	Time
	[signature]	1-29-92	

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

Ph.

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# 464 478 381-596a

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WSRC-TASK 12 **SAMPLES RECEIVED:** 01-29-92
RFW #: 9201L159
W.O. #: 0345-31-12

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

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

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

4. All calibration verification checks were within the required control limits of 90-110% (80-120% for Hg). Calibration verification is performed using independent standards from Inorganic Ventures, Inc.

Margaret M. Leahy 3-2-92
Jack R. Tuschall, Ph.D. Date
Laboratory Manager
Lionville Analytical Laboratory

pas\m01-159

ROY F. WESTON, INC.
GLOSSARY OF TERMS - INORGANIC REPORTS

DATA QUALIFIERS

U - Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* - Indicates that the original sample result is greater than 4x the spike amount added. The USEPA-CLP has determined that spike results on samples where this occurs may be unreliable and therefore, the control limits are not applicable.

ABBREVIATIONS

MB - Method or preparation blank
MS - Matrix Spike
MSD - Matrix Spike Duplicate.
REP - Sample Replicate.
LC - Indicates a method LCS or Blank Spike.
NC - Not calculable, result below the detection limit.

A suffix of -R and -S following these codes indicates a replicate and spike analysis respectively.

ANALYTICAL METAL METHODS

As :	EPA 206.2	Se :	EPA 270.2
Pb :	EPA 239.2	ICP Scan :	EPA 200.7
Hg :	EPA 245.1	All Others :	EPA 200.7
Tl :	EPA 279.2	EP Leachates (except Hg) :	200.7

The analytical methods applied by the laboratory for the determination of drinking water is 5.2.1.

NOTES

The laboratory prepares a matrix spike at one per 20 frequency for TCLP samples. The Federal Register recommends that all matrix spikes be prepared at greater than 50% of the indigenous analyte concentration. A matrix duplicate is also prepared.

Holding times for soil samples have not been promulgated by the USEPA.

For solid samples, all results are reported on a dry weight basis.

The range for mercury solid laboratory control standards is 66.9% to 133.8%.

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 02/28/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L159

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	STATION 134	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	1170		UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	1480		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	19.2		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	75.7		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 02/28/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L159

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-002	STATION 135	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	30.8		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 02/28/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L159

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-003	STATION 137	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	31.6		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	62.1		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 02/28/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L159

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-004	STATION 140	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	209		UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	111		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	136		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 02/28/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L159

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-005	STATION 142	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	1960		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	429		UG/L	15.0
		Sodium, Total	7200		UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	353		UG/L	20.0

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 02/28/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L159

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
BLANK1	92L0411-MB1	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Zinc, Total	20.0	u	UG/L	20.0
BLANK1	92L0410-MB1	Arsenic, Total	10.0	u	UG/L	10.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
BLANK1	92C0040-MB1	Mercury, Total	0.20	u	UG/L	0.20
BLANK2	92C0040-MB2	Mercury, Total	0.20	u	UG/L	0.20

ROY F. WESTON INC.

INORGANIC DUPLICATE SPIKE REPORT 02/28/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9201L159
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%RPD
LCS2	92L0411-LC2	Silver, LCS	86.6	86.2	0.46
		Aluminum, LCS	100	98.8	1.7
		Barium, LCS	99.8	98.5	1.3
		Cadmium, LCS	109	107	2.4
		Chromium, LCS	99.6	98.7	0.91
		Copper, LCS	101	99.2	1.7
		Iron, LCS	102	100	1.1
		Manganese, LCS	103	101	1.2
		Sodium, LCS	98.6	96.7	1.9
		Nickel, LCS	102	101	1.3
		Zinc, LCS	105	104	1.2
LCS2	92L0410-LC2	Arsenic, LCS	83.7	85.3	1.9
		Lead, LCS	94.0	94.0	0.00
		Selenium, LCS	95.0	95.7	0.73
LCS2	92C0040-LC2	Mercury, LCS	106	97.8	8.5

ROY F. WESTON INC.

INORGANIC LABORATORY CONTROL STANDARDS REPORT 02/28/92

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	92L0411-LC1	Silver, LCS	433	500	UG/L	86.6
		Aluminum, LCS	5020	5000	UG/L	100
		Barium, LCS	4990	5000	UG/L	99.8
		Cadmium, LCS	273	250	UG/L	109
		Chromium, LCS	498	500	UG/L	99.6
		Copper, LCS	1260	1250	UG/L	101
		Iron, LCS	5080	5000	UG/L	102
		Manganese, LCS	769	750	UG/L	103
		Sodium, LCS	24700	25000	UG/L	98.6
		Nickel, LCS	2040	2000	UG/L	102
		Zinc, LCS	1050	1000	UG/L	105
LCS2	92L0411-LC2	Silver, LCS	431	500	UG/L	86.2
		Aluminum, LCS	4940	5000	UG/L	98.8
		Barium, LCS	4930	5000	UG/L	98.5
		Cadmium, LCS	267	250	UG/L	107
		Chromium, LCS	494	500	UG/L	98.7
		Copper, LCS	1240	1250	UG/L	99.2
		Iron, LCS	5020	5000	UG/L	100
		Manganese, LCS	760	750	UG/L	101
		Sodium, LCS	24200	25000	UG/L	96.7
		Nickel, LCS	2020	2000	UG/L	101
		Zinc, LCS	1040	1000	UG/L	104
LCS1	92L0410-LC1	Arsenic, LCS	25.1	30.0	UG/L	83.7
		Lead, LCS	28.2	30.0	UG/L	94.0
		Selenium, LCS	28.5	30.0	UG/L	95.0
LCS2	92L0410-LC2	Arsenic, LCS	25.6	30.0	UG/L	85.3
		Lead, LCS	28.2	30.0	UG/L	94.0
		Selenium, LCS	28.7	30.0	UG/L	95.7
LCS1	92C0040-LC1	Mercury, LCS	5.3	5.0	UG/L	106
LCS2	92C0040-LC2	Mercury, LCS	4.9	5.0	UG/L	97.8

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/29/92 RFW LOT # :9201L159

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 134						
SILVER, TOTAL	001	W	92L0411	01/28/92	02/06/92	02/27/92
ALUMINUM, TOTAL	001	W	92L0411	01/28/92	02/06/92	02/27/92
ARSENIC, TOTAL	001	W	92L0410	01/28/92	02/06/92	02/11/92
BARIUM, TOTAL	001	W	92L0411	01/28/92	02/06/92	02/27/92
CADMIUM, TOTAL	001	W	92L0411	01/28/92	02/06/92	02/27/92
CHROMIUM, TOTAL	001	W	92L0411	01/28/92	02/06/92	02/27/92
COPPER, TOTAL	001	W	92L0411	01/28/92	02/06/92	02/27/92
IRON, TOTAL	001	W	92L0411	01/28/92	02/06/92	02/27/92
MERCURY, TOTAL	001	W	92C0040	01/28/92	02/07/92	02/10/92
MANGANESE, TOTAL	001	W	92L0411	01/28/92	02/06/92	02/27/92
SODIUM, TOTAL	001	W	92L0411	01/28/92	02/06/92	02/27/92
NICKEL, TOTAL	001	W	92L0411	01/28/92	02/06/92	02/27/92
LEAD, TOTAL	001	W	92L0410	01/28/92	02/06/92	02/11/92
SELENIUM, TOTAL	001	W	92L0410	01/28/92	02/06/92	02/10/92
ZINC, TOTAL	001	W	92L0411	01/28/92	02/06/92	02/27/92
STATION 135						
SILVER, TOTAL	002	W	92L0411	01/28/92	02/06/92	02/27/92
ALUMINUM, TOTAL	002	W	92L0411	01/28/92	02/06/92	02/27/92
ARSENIC, TOTAL	002	W	92L0410	01/28/92	02/06/92	02/11/92
BARIUM, TOTAL	002	W	92L0411	01/28/92	02/06/92	02/27/92
CADMIUM, TOTAL	002	W	92L0411	01/28/92	02/06/92	02/27/92
CHROMIUM, TOTAL	002	W	92L0411	01/28/92	02/06/92	02/27/92
COPPER, TOTAL	002	W	92L0411	01/28/92	02/06/92	02/27/92
IRON, TOTAL	002	W	92L0411	01/28/92	02/06/92	02/27/92
MERCURY, TOTAL	002	W	92C0040	01/28/92	02/07/92	02/10/92
MANGANESE, TOTAL	002	W	92L0411	01/28/92	02/06/92	02/27/92
SODIUM, TOTAL	002	W	92L0411	01/28/92	02/06/92	02/27/92
NICKEL, TOTAL	002	W	92L0411	01/28/92	02/06/92	02/27/92
LEAD, TOTAL	002	W	92L0410	01/28/92	02/06/92	02/11/92
SELENIUM, TOTAL	002	W	92L0410	01/28/92	02/06/92	02/10/92
ZINC, TOTAL	002	W	92L0411	01/28/92	02/06/92	02/27/92
STATION 137						
SILVER, TOTAL	003	W	92L0411	01/28/92	02/06/92	02/27/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/29/92 RFW LOT # :9201L159

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	003	W	92L0411	01/28/92	02/06/92	02/27/92
ARSENIC, TOTAL	003	W	92L0410	01/28/92	02/06/92	02/11/92
BARIUM, TOTAL	003	W	92L0411	01/28/92	02/06/92	02/27/92
CADMIUM, TOTAL	003	W	92L0411	01/28/92	02/06/92	02/27/92
CHROMIUM, TOTAL	003	W	92L0411	01/28/92	02/06/92	02/27/92
COPPER, TOTAL	003	W	92L0411	01/28/92	02/06/92	02/27/92
IRON, TOTAL	003	W	92L0411	01/28/92	02/06/92	02/27/92
MERCURY, TOTAL	003	W	92C0040	01/28/92	02/07/92	02/10/92
MANGANESE, TOTAL	003	W	92L0411	01/28/92	02/06/92	02/27/92
SODIUM, TOTAL	003	W	92L0411	01/28/92	02/06/92	02/27/92
NICKEL, TOTAL	003	W	92L0411	01/28/92	02/06/92	02/27/92
LEAD, TOTAL	003	W	92L0410	01/28/92	02/06/92	02/11/92
SELENIUM, TOTAL	003	W	92L0410	01/28/92	02/06/92	02/10/92
ZINC, TOTAL	003	W	92L0411	01/28/92	02/06/92	02/27/92
STATION 140						
SILVER, TOTAL	004	W	92L0411	01/28/92	02/06/92	02/27/92
ALUMINUM, TOTAL	004	W	92L0411	01/28/92	02/06/92	02/27/92
ARSENIC, TOTAL	004	W	92L0410	01/28/92	02/06/92	02/11/92
BARIUM, TOTAL	004	W	92L0411	01/28/92	02/06/92	02/27/92
CADMIUM, TOTAL	004	W	92L0411	01/28/92	02/06/92	02/27/92
CHROMIUM, TOTAL	004	W	92L0411	01/28/92	02/06/92	02/27/92
COPPER, TOTAL	004	W	92L0411	01/28/92	02/06/92	02/27/92
IRON, TOTAL	004	W	92L0411	01/28/92	02/06/92	02/27/92
MERCURY, TOTAL	004	W	92C0040	01/28/92	02/07/92	02/10/92
MANGANESE, TOTAL	004	W	92L0411	01/28/92	02/06/92	02/27/92
SODIUM, TOTAL	004	W	92L0411	01/28/92	02/06/92	02/27/92
NICKEL, TOTAL	004	W	92L0411	01/28/92	02/06/92	02/27/92
LEAD, TOTAL	004	W	92L0410	01/28/92	02/06/92	02/11/92
SELENIUM, TOTAL	004	W	92L0410	01/28/92	02/06/92	02/10/92
ZINC, TOTAL	004	W	92L0411	01/28/92	02/06/92	02/27/92
STATION 142						
SILVER, TOTAL	005	W	92L0411	01/28/92	02/06/92	02/27/92
ALUMINUM, TOTAL	005	W	92L0411	01/28/92	02/06/92	02/27/92
ARSENIC, TOTAL	005	W	92L0410	01/28/92	02/06/92	02/11/92
BARIUM, TOTAL	005	W	92L0411	01/28/92	02/06/92	02/27/92
CADMIUM, TOTAL	005	W	92L0411	01/28/92	02/06/92	02/27/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/29/92 RFW LOT # :9201L159

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	005	W	92L0411	01/28/92	02/06/92	02/27/92
COPPER, TOTAL	005	W	92L0411	01/28/92	02/06/92	02/27/92
IRON, TOTAL	005	W	92L0411	01/28/92	02/06/92	02/27/92
MERCURY, TOTAL	005	W	92C0040	01/28/92	02/07/92	02/10/92
MANGANESE, TOTAL	005	W	92L0411	01/28/92	02/06/92	02/27/92
SODIUM, TOTAL	005	W	92L0411	01/28/92	02/06/92	02/27/92
NICKEL, TOTAL	005	W	92L0411	01/28/92	02/06/92	02/27/92
LEAD, TOTAL	005	W	92L0410	01/28/92	02/06/92	02/11/92
SELENIUM, TOTAL	005	W	92L0410	01/28/92	02/06/92	02/10/92
ZINC, TOTAL	005	W	92L0411	01/28/92	02/06/92	02/27/92

LAB QC:

SILVER LABORATORY	LC1 BS	W	92L0411	N/A	02/06/92	02/27/92
ALUMINUM LABORTORY	LC1 BS	W	92L0411	N/A	02/06/92	02/27/92
BARIUM LABORATORY	LC1 BS	W	92L0411	N/A	02/06/92	02/27/92
CADMIUM LABORATORY	LC1 BS	W	92L0411	N/A	02/06/92	02/27/92
CHROMIUM LABORATORY	LC1 BS	W	92L0411	N/A	02/06/92	02/27/92
COPPER LABORATORY	LC1 BS	W	92L0411	N/A	02/06/92	02/27/92
IRON LABORATORY	LC1 BS	W	92L0411	N/A	02/06/92	02/27/92
MANGANESE LABORATORY	LC1 BS	W	92L0411	N/A	02/06/92	02/27/92
SODIUM LABORATORY	LC1 BS	W	92L0411	N/A	02/06/92	02/27/92
NICKEL LABORATORY	LC1 BS	W	92L0411	N/A	02/06/92	02/27/92
ZINC LABORATORY	LC1 BS	W	92L0411	N/A	02/06/92	02/27/92
SILVER LABORATORY	LC2 BS	W	92L0411	N/A	02/06/92	02/27/92
ALUMINUM LABORTORY	LC2 BS	W	92L0411	N/A	02/06/92	02/27/92
BARIUM LABORATORY	LC2 BS	W	92L0411	N/A	02/06/92	02/27/92
CADMIUM LABORATORY	LC2 BS	W	92L0411	N/A	02/06/92	02/27/92
CHROMIUM LABORATORY	LC2 BS	W	92L0411	N/A	02/06/92	02/27/92
COPPER LABORATORY	LC2 BS	W	92L0411	N/A	02/06/92	02/27/92
IRON LABORATORY	LC2 BS	W	92L0411	N/A	02/06/92	02/27/92
MANGANESE LABORATORY	LC2 BS	W	92L0411	N/A	02/06/92	02/27/92
SODIUM LABORATORY	LC2 BS	W	92L0411	N/A	02/06/92	02/27/92
NICKEL LABORATORY	LC2 BS	W	92L0411	N/A	02/06/92	02/27/92
ZINC LABORATORY	LC2 BS	W	92L0411	N/A	02/06/92	02/27/92
SILVER, TOTAL	MB1	W	92L0411	N/A	02/06/92	02/27/92
ALUMINUM, TOTAL	MB1	W	92L0411	N/A	02/06/92	02/27/92
BARIUM, TOTAL	MB1	W	92L0411	N/A	02/06/92	02/27/92
CADMIUM, TOTAL	MB1	W	92L0411	N/A	02/06/92	02/27/92
CHROMIUM, TOTAL	MB1	W	92L0411	N/A	02/06/92	02/27/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/29/92 RFW LOT # :9201L159

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	MB1	W	92L0411	N/A	02/06/92	02/27/92
IRON, TOTAL	MB1	W	92L0411	N/A	02/06/92	02/27/92
MANGANESE, TOTAL	MB1	W	92L0411	N/A	02/06/92	02/27/92
SODIUM, TOTAL	MB1	W	92L0411	N/A	02/06/92	02/27/92
NICKEL, TOTAL	MB1	W	92L0411	N/A	02/06/92	02/27/92
ZINC, TOTAL	MB1	W	92L0411	N/A	02/06/92	02/27/92
ARSENIC LABORATORY	LC1 BS	W	92L0410	N/A	02/06/92	02/11/92
LEAD LABORATORY	LC1 BS	W	92L0410	N/A	02/06/92	02/11/92
SELENIUM LABORATORY	LC1 BS	W	92L0410	N/A	02/06/92	02/10/92
ARSENIC LABORATORY	LC2 BS	W	92L0410	N/A	02/06/92	02/11/92
LEAD LABORATORY	LC2 BS	W	92L0410	N/A	02/06/92	02/11/92
SELENIUM LABORATORY	LC2 BS	W	92L0410	N/A	02/06/92	02/10/92
ARSENIC, TOTAL	MB1	W	92L0410	N/A	02/06/92	02/11/92
LEAD, TOTAL	MB1	W	92L0410	N/A	02/06/92	02/11/92
SELENIUM, TOTAL	MB1	W	92L0410	N/A	02/06/92	02/10/92
MERCURY LABORATORY	LC1 BS	W	92C0040	N/A	02/07/92	02/10/92
MERCURY LABORATORY	LC2 BS	W	92C0040	N/A	02/07/92	02/10/92
MERCURY, TOTAL	MB1	W	92C0040	N/A	02/07/92	02/10/92
MERCURY, TOTAL	MB2	W	92C0040	N/A	02/07/92	02/10/92

WESTON Analytics Use Only

9201L159

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WSRC-TASK 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12-0000
Project Contact/Phone #:
AD Project Manager: D. Thomas
QC: Del TAT: 30 day
Date Rec'd: 1-29-92 Date Due: 2-28-92
Account #: WSRC 125TD

Refrigerator #		1				SUB	SUB		4		4	4	4	1			
#/Type Container	Liquid	1G				1P	1P		1P		1P	1P	1P	1			
	Solid																
Volume	Liquid	4L				4L	1L		1L		2L	2L	1L	1			
	Solid																
Preservatives		—				None	None		HNO3		None	H2SO4	None	4			
ANALYSES REQUESTED		ORGANIC							INORG								
		VOA	BNA	Pest/PCB	Herb	Gamma	Tritium		Metal	CN	SO4 PO4	NO3 NH3	NH4 PCD	CL SPCD			
WESTON Analytics Use Only																	
		8240H				8260B	8260B		Metals		300.0 IPB	300.0N 353.2HMD	350.1 353.2HMD	300.0 325.2SPCD			

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8240H				8260B	8260B		Metals		300.0 IPB	300.0N 353.2HMD	350.1 353.2HMD	300.0 325.2SPCD			
S - Soil	001	STATION 134			W	1-28-92		✓				✓	✓		✓		✓	✓	✓	✓			
SE - Sediment	002	135						✓				✓	✓		✓		✓	✓	✓	✓			
SO - Solid	003	137						✓				✓	✓		✓		✓	✓	✓	✓			
SL - Sludge	004	140						✓				✓	✓		✓		✓	✓	✓	✓			
W - Water	005	142						✓				✓	✓		✓		✓	✓	✓	✓			
O - Oil	006	Field Blank						✓															
A - Air																							
DS - Drum Solids																							
DL - Drum Liquids																							
L - EP/TCLP Leachate																							
Wi - Wipe																							
X - Other																							
F - Fish																							

Bill info to D. Thomas

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Original Chemistry

Metals = Ag, Al, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, Zn, Fe, Mn.

Use Ultrex for digestion

DATE/REVISIONS:

2/1/92 1 was emailed to Stockton

2/2/92 2 Cancel all samples for ACID on SD8244

3

4

5

6

Relinquished by	Received by	Date	Time
Emery	[signature]	1-29-92	1310
[signature] 1-29-92			

Relinquished by	Received by	Date	Time
	[signature] 1-29-92		

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

WESTON Analytics Use Only

Samples were: 1) Shipped ___ or Hand Delivered
Airbill # 2366137469
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

Pb.

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# 464 478 381-596a

WESTON
MANAGERS DESIGNERS CONSULTANTS
212 FRANK WEST CIRCLE
SUITE A
STOCKTON, CA 95206
PHONE: (209) 983-1340
FAX: 209-983-0304

13 February 1992

Roy F. Weston, Inc.
208 Welsh Pool Road
Lionville, PA 19341-1313

RFW#:9201L159
WSRC TASK 12

Attention: Ms. Diane Thomas

Subject: Final Report

Dear Ms. Thomas:

Enclosed are the laboratory results for samples submitted to Weston Analytics Division.

Non-hazardous samples will be disposed of by the laboratory 30 days after the final report is issued at no charge. Hazardous samples which are inconsistent with laboratory waste streams will be returned to you.

If you have any questions, please call me at (209) 983-1340.

Very truly yours,

Lynda W. Kelly
Project Manager

LWK/pmw

Enclosure

Laboratory Report For

Ms. Diane Thomas
Roy F. Weston, Inc.
208 Welsh Pool Road
Lionville, PA 19341-1313

13 February 1992

By

Roy F. Weston, Inc.
212 Frank West Circle, Suite A
Stockton, CA 95206
(209) 983-1340

RFW#: 9201L159

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

Client: WSRC-TASK 12
RFW #: 9201L159

Test: GC/MS Volatiles

1. This narrative covers the analysis of 6 water samples for volatiles in accordance with EPA SW-846 Method 8240.

2. All required hold times were met.

3. The method blank associated with these samples was free from target analyte interferences at or above the reporting limits with the exception of methylene chloride which was less than 5x the reporting limit.

4. The tuning and standard calibrations were within QC guidelines.

5. The internal standard areas and retention times were all within QC guidelines.

6. The surrogate recoveries were within laboratory limits.

7. The matrix spike recoveries and RPDs were within laboratory limits.

Walter McCurdy
W.C. McCurdy
Unit Leader

2-13-92
Date

WESTON

Roy F. Weston, Inc. - Stockton Laboratory
VOA ANALYTICAL DATA PACKAGE FOR
WSRC RI/FS TASK 12

DATE RECEIVED: 02/04/92 RFW LOT # :9201L159

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 134	001	W	92SMC036	01/28/92	N/A	02/07/92
STATION 135	002	W	92SMC036	01/28/92	N/A	02/07/92
STATION 137	003	W	92SMC036	01/28/92	N/A	02/07/92
STATION 140	004	W	92SMC036	01/28/92	N/A	02/07/92
STATION 142	005	W	92SMC036	01/28/92	N/A	02/07/92
FIELD BLANK	006	W	92SMC036	01/28/92	N/A	02/06/92
LAB QC:						
VBLKC036	MB1	W	92SMC036	N/A	N/A	02/06/92
VBLKC036	MB1 BS	W	92SMC036	N/A	N/A	02/06/92
VBLKC036	MB1 BSD	W	92SMC036	N/A	N/A	02/06/92

WESTON

Flag Data Qualifiers

The seven EPA-defined qualifiers to be used are as follows:

U	Indicates compound was analyzed for but not detected.
J	Indicates an estimated value.
C	This flag applies to pesticide results where the identification has been confirmed by GC/MS.
B	This flag is used when the analyte is found in the associated blank as well as in the sample.
E	This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
A	This flag indicates that a TIC is a suspected aldol-condensation product.
X	Other specific flags may be required to properly define the results.

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

RFW Batch Number: 9201L159 Client: WSRC RI/FS TASK 12 Work Order: 0345-31-12 Report Date: 02/12/92 17:17 Page: 1a

	Cust ID:	STATION 134	STATION 135	STATION 137	STATION 140	STATION 142	FIELD BLANK
Sample Information	RFW#:	001	002	003	004	005	006
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Surrogate Recovery	Toluene-d8	98 %	99 %	100 %	99 %	102 %	101 %
	Bromofluorobenzene	100 %	97 %	102 %	99 %	99 %	99 %
	1,2-Dichloroethane-d4	109 %	109 %	107 %	107 %	110 %	104 %
		fl	fl	fl	fl	fl	fl
Chloromethane		10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane		10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride		10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride		25 B	26 B	26 B	24 B	9 B	25 B
Acetone		10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide		5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene		5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)		5 U	5 U	5 U	5 U	5 U	5 U
Chloroform		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone		10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride		5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate		10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane		5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene		5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane		5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
Benzene		5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	5 U
Bromoform		5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone		10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene		5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		5 U	5 U	5 U	5 U	5 U	5 U

*= Outside of Advisory limits.

RFW Ba[redacted] Number: 9201L159 Client: WSRC RI/FS TA[redacted]2 Work Order: 0345-31-12 [redacted]: 1b

Cust ID:	STATION 134	STATION 135	STATION 137	STATION 140	STATION 142	FIELD BLANK
RFW#:	001	002	003	004	005	006
Toluene	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U

*= Outside of Advisory limits.

Roy F. Weston, Inc. Stockton Laboratory
Volatiles by GC/MS, HSL List
Report Date: 02/12/92 17:17.

RFW Batch Number: 9201L159 Client: WSRC RI/FS TASK 12 Work Order: 0345-31-12 Page: 2a

	Cust ID:	VBLKC036		VBLKC036 BS		VBLKC036 BSD	
Sample Information	RFW#:	92SMC036-MB1		92SMC036-MB1		92SMC036-MB1	
	Matrix:	WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L	
Surrogate Recovery	Toluene-d8	99	%	99	%	98	%
	Bromofluorobenzene	97	%	97	%	89	%
	1,2-Dichloroethane-d4	103	%	103	%	103	%
Chloromethane		10	U	10	U	10	U
Bromomethane		10	U	10	U	10	U
Vinyl Chloride		10	U	10	U	10	U
Chloroethane		10	U	10	U	10	U
Methylene Chloride		7		6	B	11	B
Acetone		10	U	10	U	10	U
Carbon Disulfide		5	U	5	U	5	U
1,1-Dichloroethene		5	U	99	%	101	%
1,1-Dichloroethane		5	U	5	U	5	U
1,2-Dichloroethene (total)		5	U	5	U	5	U
Chloroform		5	U	5	U	5	U
1,2-Dichloroethane		5	U	5	U	5	U
2-Butanone		10	U	10	U	10	U
1,1,1-Trichloroethane		5	U	5	U	5	U
Carbon Tetrachloride		5	U	5	U	5	U
Vinyl Acetate		10	U	10	U	10	U
Bromodichloromethane		5	U	5	U	5	U
1,2-Dichloropropane		5	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U	5	U
Trichloroethene		5	U	106	%	105	%
Dibromochloromethane		5	U	5	U	5	U
1,1,2-Trichloroethane		5	U	5	U	5	U
Benzene		5	U	106	%	106	%
Trans-1,3-Dichloropropene		5	U	5	U	5	U
Bromoform		5	U	5	U	5	U
4-Methyl-2-pentanone		10	U	10	U	10	U
2-Hexanone		10	U	10	U	10	U
Tetrachloroethene		5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U

*= Outside of Advisory limits.

RFW Ba[illegible] Number: 9201L159 Client: WSRC RI/FS TA[illegible]12 Work Order: 0345-31-12 [illegible]e: 2b

Cust ID:	VBLKC036	VBLKC036 BS	VBLKC036 BSD
RFW#:	92SMC036-MB1	92SMC036-MB1	92SMC036-MB1
Toluene	5 U	101 %	106 %
Chlorobenzene	5 U	107 %	108 %
Ethylbenzene	5 U	5 U	5 U
Styrene	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U

*= Outside of Advisory limits.

WESTON Analytics Use Only

9201L159

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WSRC-TASK 12
Est. Final Proj. Sampling Date:
Work Order #: 03457-31-12-0UP0
Project Contact/Phone #:
AD Project Manager: D. Thomas
QC: Del: TAT: 30 day
Date Rec'd: 1-29-92 Date Due: 2-28-92
Account #: WSRC 12 STD

Refrigerator #		1				SUB	SUB		4		4	4	4	1		
#/Type Container	Liquid	P6				1P	1P		1P		1P	1P	1P	1		
	Solid															
Volume	Liquid	1L				1L	1L		1L		250	250	1L	1		
	Solid															
Preservatives		—				None	None		None		None	None	None	—		

ANALYSES REQUESTED →

ORGANIC								INORG							
VOA	BNA	Pest/PCB	Herb	Cyanide	Tritium			Metal	CN	504 Pb	903 HARD	ALK RED	CL SPED		

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	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only: Lab Id				TSS	TDS	Lab Cyanide		504 Pb	903 HARD	ALK RED	CL SPED		
001	STATION 134			W	1-28-92		✓				✓	✓	✓		✓	✓	✓	✓		
002	135						✓				✓	✓	✓		✓	✓	✓	✓		
003	137						✓				✓	✓	✓		✓	✓	✓	✓		
004	140						✓				✓	✓	✓		✓	✓	✓	✓		
005	142						✓				✓	✓	✓		✓	✓	✓	✓		
006	Field Blank						✓													

Bad info to follow.

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Original Chemistry

metals = Ag, Al, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, Zn, Fe, Mn.

Use Ultrex for digestion

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were: 1) Shipped ✓ or Hand Delivered
Airbill # 2366137469
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 Recon Upon Sam

Relinquished by	Received by	Date	Time
Emery	[signature]	1-29-92	1310
[signature]		1-29-92	

Relinquished by	Received by	Date	Time
	[signature]	1-29-92	

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

Pb.

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# 464 478

Recieved 2/4/92 NO custody Folder # 1852748112

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WSRC-TASK 12 **SAMPLES RECEIVED:** 01-30-92
RFW #: 9201L177
W.O. #: 0345-31-12

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 sample holding times as required by 40CFR136 were met.

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

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

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

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

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) 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).

03.03.92

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

kls\i01-177

ROY F. WESTON, INC.
GLOSSARY OF TERMS - INORGANIC REPORTS

DATA QUALIFIERS

U - Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* - Indicates that the original sample result is greater than 4x the spike amount added. The USEPA-CLP has determined that spike results on samples where this occurs may be unreliable and therefore, the control limits are not applicable.

ABBREVIATIONS

MB - Method or preparation blank
MS - Matrix Spike
MSD - Matrix Spike Duplicate.
REP - Sample Replicate.
LC - Indicates a method LCS or Blank Spike.
NC - Not calculable, result below the detection limit.

A suffix of -R and -S following these codes indicates a replicate and spike analysis respectively.

ANALYTICAL METAL METHODS

As :	EPA 206.2	Se :	EPA 270.2
Pb :	EPA 239.2	ICP Scan :	EPA 200.7
Hg :	EPA 245.1	All Others :	EPA 200.7
Tl :	EPA 279.2	EP Leachates (except Hg) :	200.7

The analytical methods applied by the laboratory for the determination of drinking water is 5.2.1.

NOTES

The laboratory prepares a matrix spike at one per 20 frequency for TCLP samples. The Federal Register recommends that all matrix spikes be prepared at greater than 50% of the indigenous analyte concentration. A matrix duplicate is also prepared.

Holding times for soil samples have not been promulgated by the USEPA.

For solid samples, all results are reported on a dry weight basis.

The range for mercury solid laboratory control standards is 66.9% to 133.8%.

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/02/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L177

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	STATION 155	Acidity	10.0		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	8.0		MG/L	1.0
		Nitrate, as N	4.6		MG-N/L	1.0
		pH	4.9		PH UNITS	0.010
		Sulfate	5.0	u	MG/L	5.0
		Specific Conductance	55.2		UMHOS/CM	1.0
-002	STATION 155 DUP	Acidity	10.0		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	7.0		MG/L	1.0
		Nitrate, as N	4.7		MG-N/L	1.0
		pH	5.2		PH UNITS	0.010
		Sulfate	5.0	u	MG/L	5.0
		Specific Conductance	50.2		UMHOS/CM	1.0
-003	STATION 156	Acidity	24.0		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	14.5		MG/L	1.0
		Nitrate, as N	5.6		MG-N/L	1.0
		pH	5.3		PH UNITS	0.010
		Sulfate	5.0	u	MG/L	5.0
		Specific Conductance	56.9		UMHOS/CM	1.0
-004	STATION 157	Acidity	12.0		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	17.0		MG/L	1.0
		Nitrate, as N	0.58		MG-N/L	0.10
		pH	5.8		PH UNITS	0.010
		Sulfate	5.0	u	MG/L	5.0
		Specific Conductance	36.0		UMHOS/CM	1.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/02/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L177

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-005	STATION 160	Acidity	20.0		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	39.5		MG/L	1.0
		Nitrate, as N	16.0		MG-N/L	2.5
		pH	4.8		PH UNITS	0.010
		Sulfate	5.0	u	MG/L	5.0
		Specific Conductance	141		UMHOS/CM	1.0
-006	STATION 161	Alkalinity	24.0		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	27.5		MG/L	1.0
		Nitrate, as N	4.1		MG-N/L	1.0
		pH	5.5		PH UNITS	0.010
		Sulfate	6.6		MG/L	5.0
		Specific Conductance	85.8		UMHOS/CM	1.0
07	STATION 164	Acidity	2.0		MG/L	2.0
		Chloride	5.0	u	MG/L	5.0
		Hardness	2.0		MG/L	1.0
		Nitrate, as N	0.52		MG-N/L	0.10
		pH	5.7		PH UNITS	0.010
		Sulfate	5.0	u	MG/L	5.0
		Specific Conductance	33.7		UMHOS/CM	1.0

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 03/02/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9201L177
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
BLANK10	92LAC003-MB1	Acidity	2.0	u	MG/L	2.0
BLANK20	92LAC003-MB2	Acidity	2.0	u	MG/L	2.0
BLANK10	92LCL004-MB1	Chloride	5.0	u	MG/L	5.0
BLANK20	92LCL004-MB2	Chloride	5.0	u	MG/L	5.0
BLANK30	92LCL004-MB3	Chloride	5.0	u	MG/L	5.0
BLANK10	92LHD004-MB1	Hardness	1.0	u	MG/L	1.0
BLANK20	92LHD004-MB2	Hardness	1.0	u	MG/L	1.0
BLANK30	92LHD004-MB3	Hardness	1.0	u	MG/L	1.0
BLANK10	92LNO014-MB1	Nitrate, as N	0.10	u	MG-N/L	0.10
BLANK20	92LNO014-MB2	Nitrate, as N	0.10	u	MG-N/L	0.10

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 03/02/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L177

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
BLANK10	92LS4006-MB1	Sulfate *	5.0	u	MG/L	5.0
BLANK20	92LS4006-MB2	Sulfate	5.0	u	MG/L	5.0
BLANK30	92LS4006-MB3	Sulfate	5.0	u	MG/L	5.0
BLANK10	92LSP011-MB1	Specific Conductance	1.0	u	UMHOS/CM	1.0
BLANK10	92LAL004-MB1	Alkalinity	0.50	u	MG/L	0.50
BLANK20	92LAL004-MB2	Alkalinity	0.50	u	MG/L	0.50

ROY F. WESTON INC.

INORGANIC ACCURACY REPORT 03/02/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9201L177

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV
-002	STATION 155 DUP	Hardness	107	7.0	100	100
BLANK10	92LCL004-MB1	Chloride	24.0	5.0 u	25.0	96.0
		Chloride MSD	24.1	5.0 u	25.0	96.2
BLANK20	92LCL004-MB2	Chloride	24.2	5.0 u	25.0	97.0
BLANK30	92LCL004-MB3	Chloride	24.1	5.0 u	25.0	96.4
BLANK10	92LHD004-MB1	Hardness	101	1.0 u	100	101
		Hardness MSD	328	1.0 u	330	99.4
BLANK20	92LHD004-MB2	Hardness	102	1.0 u	100	102
BLANK30	92LHD004-MB3	Hardness	330	1.0 u	330	100
BLANK10	92LNO014-MB1	Nitrate, as N	0.38	0.10u	0.40	95.8
		Nitrate, as N MSD	0.40	0.10u	0.40	101
BLANK20	92LNO014-MB2	Nitrate, as N	0.37	0.10u	0.40	92.0
BLANK10	92LS4006-MB1	Sulfate	21.4	5.0 u	20.0	107
		Sulfate	21.2	5.0 u	20.0	106

ROY F. WESTON INC.

INORGANIC ACCURACY REPORT 03/02/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9201L177

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV
BLANK20	92LS4006-MB2	Sulfate	31.2	5.0 u	30.0	104
BLANK30	92LS4006-MB3	Sulfate	40.1	5.0 u	40.0	100
BLANK10	92LSP011-MB1	Specific Conductance	144	1.0 u	147	98.0
		Specific Conductance M	145	1.0 u	147	98.6
BLANK10	92LAL004-MB1	Alkalinity	96.0	0.50u	100	96.0
		Alkalinity MSD	96.0	0.50u	100	96.0
BLANK20	92LAL004-MB2	Alkalinity	96.0	0.50u	100	96.0

ROY F. WESTON INC.

INORGANIC DUPLICATE SPIKE REPORT 03/02/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9201L177

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%RPD
BLANK10	92LCL004-MB1	Chloride	96.0	96.2	0.20
BLANK10	92LHD004-MB1	Hardness	101	99.4	1.4
BLANK10	92LNO014-MB1	Nitrate, as N	95.8	101	5.5
BLANK10	92LS4006-MB1	Sulfate	107	106	1.1
BLANK10	92LSP011-MB1	Specific Conductance	98.0	98.6	0.70
BLANK10	92LAL004-MB1	Alkalinity	96.0	96.0	0.00

ROY F. WESTON INC.

INORGANIC PRECISION REPORT 03/02/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9201L177

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	%RPD
-001REP	STATION 155	Acidity	10.0	10.0	0.00
		Nitrate, as N	4.6	4.7	0.84
		Specific Conductance	55.2	55.2	0.00
-002REP	STATION 155 DUP	Hardness	7.0	7.2	2.8
-004REP	STATION 157	Chloride	5.0 u	5.0 u	NC

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/30/92 RFW LOT # :9201L177

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 155						
ACIDITY	001	W	92LAC003	01/29/92	02/03/92	02/03/92
ACIDITY	001 REP	W	92LAC003	01/29/92	02/03/92	02/03/92
CHLORIDE	001	W	92LCL004	01/29/92	01/31/92	01/31/92
HARDNESS	001	W	92LHD004	01/29/92	02/03/92	02/03/92
NITRATE	001	W	92LNO014	01/29/92	02/05/92	02/05/92
NITRATE	001 REP	W	92LNO014	01/29/92	02/05/92	02/05/92
PH	001	W	92LPH018	01/29/92	01/30/92	01/30/92
SULFATE	001	W	92LS4006	01/29/92	02/06/92	02/06/92
SPECIFIC CONDUCTANCE	001	W	92LSP011	01/29/92	01/30/92	01/30/92
SPECIFIC CONDUCTANCE	001 REF	W	92LSP011	01/29/92	01/30/92	01/30/92
SUB-OUT TEST FOR SUB	001	W		01/29/92		
STATION 155 DUP						
ACIDITY	002	W	92LAC003	01/29/92	02/03/92	02/03/92
CHLORIDE	002	W	92LCL004	01/29/92	01/31/92	01/31/92
HARDNESS	002	W	92LHD004	01/29/92	02/03/92	02/03/92
HARDNESS	002 REP	W	92LHD004	01/29/92	02/03/92	02/03/92
HARDNESS	002 MS	W	92LHD004	01/29/92	02/03/92	02/03/92
NITRATE	002	W	92LNO014	01/29/92	02/05/92	02/05/92
PH	002	W	92LPH018	01/29/92	01/30/92	01/30/92
SULFATE	002	W	92LS4006	01/29/92	02/06/92	02/06/92
SPECIFIC CONDUCTANCE	002	W	92LSP011	01/29/92	01/30/92	01/30/92
SUB-OUT TEST FOR SUB	002	W		01/29/92		
STATION 156						
ACIDITY	003	W	92LAC003	01/29/92	02/03/92	02/03/92
CHLORIDE	003	W	92LCL004	01/29/92	01/31/92	01/31/92
HARDNESS	003	W	92LHD004	01/29/92	02/03/92	02/03/92
NITRATE	003	W	92LNO014	01/29/92	02/05/92	02/05/92
PH	003	W	92LPH018	01/29/92	01/30/92	01/30/92
SULFATE	003	W	92LS4006	01/29/92	02/06/92	02/06/92
SPECIFIC CONDUCTANCE	003	W	92LSP011	01/29/92	01/30/92	01/30/92
SUB-OUT TEST FOR SUB	003	W		01/29/92		
STATION 157						
ACIDITY	004	W	92LAC003	01/29/92	02/03/92	02/03/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/30/92 RFW LOT # :9201L177

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHLORIDE	004	W	92LCL004	01/29/92	01/31/92	01/31/92
CHLORIDE	004 REP	W	92LCL004	01/29/92	01/31/92	01/31/92
HARDNESS	004	W	92LHD004	01/29/92	02/03/92	02/03/92
NITRATE	004	W	92LNO014	01/29/92	02/05/92	02/05/92
PH	004	W	92LPH018	01/29/92	01/30/92	01/30/92
SULFATE	004	W	92LS4006	01/29/92	02/06/92	02/06/92
SPECIFIC CONDUCTANCE	004	W	92LSP011	01/29/92	01/30/92	01/30/92
SUB-OUT TEST FOR SUB	004	W		01/29/92		
STATION 160						
ACIDITY	005	W	92LAC003	01/29/92	02/03/92	02/03/92
CHLORIDE	005	W	92LCL004	01/29/92	01/31/92	01/31/92
HARDNESS	005	W	92LHD004	01/29/92	02/03/92	02/03/92
NITRATE	005	W	92LNO014	01/29/92	02/05/92	02/05/92
PH	005	W	92LPH018	01/29/92	01/30/92	01/30/92
SULFATE	005	W	92LS4006	01/29/92	02/06/92	02/06/92
SPECIFIC CONDUCTANCE	005	W	92LSP011	01/29/92	01/30/92	01/30/92
SUB-OUT TEST FOR SUB	005	W		01/29/92		
STATION 161						
ALKALINITY	006	W	92LAL004	01/29/92	02/04/92	02/04/92
CHLORIDE	006	W	92LCL004	01/29/92	01/31/92	01/31/92
HARDNESS	006	W	92LHD004	01/29/92	02/03/92	02/03/92
NITRATE	006	W	92LNO014	01/29/92	02/05/92	02/05/92
PH	006	W	92LPH018	01/29/92	01/30/92	01/30/92
SULFATE	006	W	92LS4006	01/29/92	02/06/92	02/06/92
SPECIFIC CONDUCTANCE	006	W	92LSP011	01/29/92	01/30/92	01/30/92
SUB-OUT TEST FOR SUB	006	W		01/29/92		
STATION 164						
ACIDITY	007	W	92LAC003	01/29/92	02/03/92	02/03/92
CHLORIDE	007	W	92LCL004	01/29/92	01/31/92	01/31/92
HARDNESS	007	W	92LHD004	01/29/92	02/03/92	02/03/92
NITRATE	007	W	92LNO014	01/29/92	02/05/92	02/05/92
PH	007	W	92LPH018	01/29/92	01/30/92	01/30/92
SULFATE	007	W	92LS4006	01/29/92	02/06/92	02/06/92
SPECIFIC CONDUCTANCE	007	W	92LSP011	01/29/92	01/30/92	01/30/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/30/92 RFW LOT # :9201L177

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SUB-OUT TEST FOR SUB	007	W		01/29/92		

LAB QC:

ACIDITY	MB1	W	92LAC003	N/A	02/03/92	02/03/92
ACIDITY	MB2	W	92LAC003	N/A	02/03/92	02/03/92
CHLORIDE	MB1	W	92LCL004	N/A	01/31/92	01/31/92
CHLORIDE	MB1 BS	W	92LCL004	N/A	01/31/92	01/31/92
CHLORIDE	MB1 BSD	W	92LCL004	N/A	01/31/92	01/31/92
CHLORIDE	MB2	W	92LCL004	N/A	01/31/92	01/31/92
CHLORIDE	MB2 BS	W	92LCL004	N/A	01/31/92	01/31/92
CHLORIDE	MB3	W	92LCL004	N/A	01/31/92	01/31/92
CHLORIDE	MB3 BS	W	92LCL004	N/A	01/31/92	01/31/92
HARDNESS	MB1	W	92LHD004	N/A	02/03/92	02/03/92
HARDNESS	MB1 BS	W	92LHD004	N/A	02/03/92	02/03/92
HARDNESS	MB1 BSD	W	92LHD004	N/A	02/03/92	02/03/92
HARDNESS	MB2	W	92LHD004	N/A	02/03/92	02/03/92
HARDNESS	MB2 BS	W	92LHD004	N/A	02/03/92	02/03/92
HARDNESS	MB3	W	92LHD004	N/A	02/03/92	02/03/92
HARDNESS	MB3 BS	W	92LHD004	N/A	02/03/92	02/03/92
NITRATE	MB1	W	92LNO014	N/A	02/05/92	02/05/92
NITRATE	MB1 BS	W	92LNO014	N/A	02/05/92	02/05/92
NITRATE	MB1 BSD	W	92LNO014	N/A	02/05/92	02/05/92
NITRATE	MB2	W	92LNO014	N/A	02/05/92	02/05/92
NITRATE	MB2 BS	W	92LNO014	N/A	02/05/92	02/05/92
SULFATE	MB1	W	92LS4006	N/A	02/06/92	02/06/92
SULFATE	MB1 BS	W	92LS4006	N/A	02/06/92	02/06/92
SULFATE	MB1 BSD	W	92LS4006	N/A	02/06/92	02/06/92
SULFATE	MB2	W	92LS4006	N/A	02/06/92	02/06/92
SULFATE	MB2 BS	W	92LS4006	N/A	02/06/92	02/06/92
SULFATE	MB3	W	92LS4006	N/A	02/06/92	02/06/92
SULFATE	MB3 BS	W	92LS4006	N/A	02/06/92	02/06/92
SPECIFIC CONDUCTANCE	MB1	W	92LSP011	N/A	01/30/92	01/30/92
SPECIFIC CONDUCTANCE	MB1 BS	W	92LSP011	N/A	01/30/92	01/30/92
SPECIFIC CONDUCTANCE	MB1 BSD	W	92LSP011	N/A	01/30/92	01/30/92
ALKALINITY	MB1	W	92LAL004	N/A	02/04/92	02/04/92
ALKALINITY	MB1 BS	W	92LAL004	N/A	02/04/92	02/04/92
ALKALINITY	MB1 BSD	W	92LAL004	N/A	02/04/92	02/04/92
ALKALINITY	MB2	W	92LAL004	N/A	02/04/92	02/04/92
ALKALINITY	MB2 BS	W	92LAL004	N/A	02/04/92	02/04/92

WESTON Analytics Use Only

9201L177

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WSRC - TASK 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12-0000
Project Contact/Phone #:
AD Project Manager: D. Thomas
QC: Del: TAT: 30 day
Date Rec'd: 1-30-92 Date Due: 2-29-92
Account #: WSRC 12 STD

Refrigerator #			1					Sub	Sub		4		4		4	1			
#/Type Container	Liquid		1G					1P	1P		1P		1P	1P	1P	1			
	Solid																		
Volume	Liquid		40ml					4L	1L		1L		250	250	1L	1			
	Solid																		
Preservatives								None	None		None		None	None	None	1			
ANALYSES REQUESTED			ORGANIC					Pesticides Herbicides	Return		INORG		SO4 Ph	NO3 NO2	Al, K, Ca, Mg	Cl SPCD			
			VOA	BNA	Pest/ PCB	Herb					Metal	CN							
WESTON Analytics Use Only																			
			0244					25 Sub	25 Sub		See Below		1504 Ph	DW3 INORG	Al, K, Ca, Mg	ICP SPCD			

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected														
S - Soil	001	STATION 155			W	1-29-92		✓				✓	✓		✓		✓	✓	✓	✓	
SE - Sediment	002	155 DUP																			
SO - Solid	003	156																			
SL - Sludge	004	157																			
W - Water	005	160																			
O - Oil	006	161																			
A - Air	007	164																			
DS - Drum Solids	008	FIELD BLANK																			
DL - Drum Liquids																					
L - EP/TCLP Leachate																					
WI - Wipe																					
X - Other																					
F - Fish																					

Red Ink to follow

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Original Requisition

Metals = Ag, Al, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, Zn, Fe, Mn

Use Retrep

DATE/REVISIONS:

2/3/92 1. was switched to stock tank

2-7-92 2. Cancel ACID on all samples per SDC

3.

4.

5.

6.

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # 236643748
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

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

Relinquished by	Received by	Date	Time
Emery	[signature]	1-30-92	14:18
	[signature]	1-30-92	

Relinquished by	Received by	Date	Time
	[signature]	1-30-92	

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

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WSRC-TASK 12
RFW #: 9201L177
W.O. #: 0345-31-12

SAMPLES RECEIVED: 01-30-92

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

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

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

4. All calibration verification checks were within the required control limits of 90-110% (80-120% for Hg). Calibration verification is performed using independent standards from Inorganic Ventures, Inc.

3.02.92

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

Date

kls\m01-177

ROY F. WESTON, INC.
GLOSSARY OF TERMS - INORGANIC REPORTS

DATA QUALIFIERS

U - Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* - Indicates that the original sample result is greater than 4x the spike amount added. The USEPA-CLP has determined that spike results on samples where this occurs may be unreliable and therefore, the control limits are not applicable.

ABBREVIATIONS

MB - Method or preparation blank
MS - Matrix Spike
MSD - Matrix Spike Duplicate.
REP - Sample Replicate.
LC - Indicates a method LCS or Blank Spike.
NC - Not calculable, result below the detection limit.

A suffix of -R and -S following these codes indicates a replicate and spike analysis respectively.

ANALYTICAL METAL METHODS

As :	EPA 206.2	Se :	EPA 270.2
Pb :	EPA 239.2	ICP Scan :	EPA 200.7
Hg :	EPA 245.1	All Others :	EPA 200.7
Tl :	EPA 279.2	EP Leachates (except Hg) :	200.7

The analytical methods applied by the laboratory for the determination of drinking water is 5.2.1.

NOTES

The laboratory prepares a matrix spike at one per 20 frequency for TCLP samples. The Federal Register recommends that all matrix spikes be prepared at greater than 50% of the indigenous analyte concentration. A matrix duplicate is also prepared.

Holding times for soil samples have not been promulgated by the USEPA.

For solid samples, all results are reported on a dry weight basis.

The range for mercury solid laboratory control standards is 66.9% to 133.8%.

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 02/28/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L177

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	STATION 155	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	44.9		UG/L	15.0
		Sodium, Total	7730		UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	28.5		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 02/28/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L177

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-002	STATION 155 DUP	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	50.8		UG/L	15.0
		Sodium, Total	7910		UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	20.7		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 02/28/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9201L177
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-003	STATION 156	Silver, Total *	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	62.8		UG/L	15.0
		Sodium, Total	6090		UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	32.5		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 02/28/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9201L177
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-004	STATION 157	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	132		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	46.3		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	20.0	u	UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 02/28/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L177

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-005	STATION 160	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	1480		UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	646		UG/L	15.0
		Sodium, Total	9410		UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	93.3		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 02/28/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L177

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-006	STATION 161	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	7440		UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	44.8		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 02/28/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L177

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-007	STATION 164	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	194		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	5280		UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	20.7		UG/L	20.0

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 02/28/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9201L177

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
BLANK1	92L0411-MB1	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Zinc, Total	20.0	u	UG/L	20.0
BLANK1	92L0410-MB1	Arsenic, Total	10.0	u	UG/L	10.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
ANK1	92C0040-MB1	Mercury, Total	0.20	u	UG/L	0.20
BLANK2	92C0040-MB2	Mercury, Total	0.20	u	UG/L	0.20

ROY F. WESTON INC.

INORGANIC DUPLICATE SPIKE REPORT 02/28/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9201L177
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%RPD
LCS2	92L0411-LC2	Silver, LCS	86.6	86.2	0.46
		Aluminum, LCS	100	98.8	1.7
		Barium, LCS	99.8	98.5	1.3
		Cadmium, LCS	109	107	2.4
		Chromium, LCS	99.6	98.7	0.91
		Copper, LCS	101	99.2	1.7
		Iron, LCS	102	100	1.1
		Manganese, LCS	103	101	1.2
		Sodium, LCS	98.6	96.7	1.9
		Nickel, LCS	102	101	1.3
		Zinc, LCS	105	104	1.2
LCS2	92L0410-LC2	Arsenic, LCS	83.7	85.3	1.9
		Lead, LCS	94.0	94.0	0.00
		Selenium, LCS	95.0	95.7	0.73
LCS2	92C0040-LC2	Mercury, LCS	106	97.8	8.5

ROY F. WESTON INC.

INORGANIC LABORATORY CONTROL STANDARDS REPORT 02/28/92

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	92L0411-LC1	Silver, LCS *	433	500	UG/L	86.6
		Aluminum, LCS	5020	5000	UG/L	100
		Barium, LCS	4990	5000	UG/L	99.8
		Cadmium, LCS	273	250	UG/L	109
		Chromium, LCS	498	500	UG/L	99.6
		Copper, LCS	1260	1250	UG/L	101
		Iron, LCS	5080	5000	UG/L	102
		Manganese, LCS	769	750	UG/L	103
		Sodium, LCS	24700	25000	UG/L	98.6
		Nickel, LCS	2040	2000	UG/L	102
		Zinc, LCS	1050	1000	UG/L	105
LCS2	92L0411-LC2	Silver, LCS	431	500	UG/L	86.2
		Aluminum, LCS	4940	5000	UG/L	98.8
		Barium, LCS	4930	5000	UG/L	98.5
		Cadmium, LCS	267	250	UG/L	107
		Chromium, LCS	494	500	UG/L	98.7
		Copper, LCS	1240	1250	UG/L	99.2
		Iron, LCS	5020	5000	UG/L	100
		Manganese, LCS	760	750	UG/L	101
		Sodium, LCS	24200	25000	UG/L	96.7
		Nickel, LCS	2020	2000	UG/L	101
		Zinc, LCS	1040	1000	UG/L	104
LCS1	92L0410-LC1	Arsenic, LCS	25.1	30.0	UG/L	83.7
		Lead, LCS	28.2	30.0	UG/L	94.0
		Selenium, LCS	28.5	30.0	UG/L	95.0
LCS2	92L0410-LC2	Arsenic, LCS	25.6	30.0	UG/L	85.3
		Lead, LCS	28.2	30.0	UG/L	94.0
		Selenium, LCS	28.7	30.0	UG/L	95.7
LCS1	92C0040-LC1	Mercury, LCS	5.3	5.0	UG/L	106
LCS2	92C0040-LC2	Mercury, LCS	4.9	5.0	UG/L	97.8

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/30/92 RFW LOT # :9201L177

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 155						
SILVER, TOTAL	001	W	92L0411	01/29/92	02/06/92	02/27/92
ALUMINUM, TOTAL	001	W	92L0411	01/29/92	02/06/92	02/27/92
ARSENIC, TOTAL	001	W	92L0410	01/29/92	02/06/92	02/11/92
BARIUM, TOTAL	001	W	92L0411	01/29/92	02/06/92	02/27/92
CADMIUM, TOTAL	001	W	92L0411	01/29/92	02/06/92	02/27/92
CHROMIUM, TOTAL	001	W	92L0411	01/29/92	02/06/92	02/27/92
COPPER, TOTAL	001	W	92L0411	01/29/92	02/06/92	02/27/92
IRON, TOTAL	001	W	92L0411	01/29/92	02/06/92	02/27/92
MERCURY, TOTAL	001	W	92C0040	01/29/92	02/07/92	02/10/92
MANGANESE, TOTAL	001	W	92L0411	01/29/92	02/06/92	02/27/92
SODIUM, TOTAL	001	W	92L0411	01/29/92	02/06/92	02/27/92
NICKEL, TOTAL	001	W	92L0411	01/29/92	02/06/92	02/27/92
LEAD, TOTAL	001	W	92L0410	01/29/92	02/06/92	02/11/92
SELENIUM, TOTAL	001	W	92L0410	01/29/92	02/06/92	02/10/92
ZINC, TOTAL	001	W	92L0411	01/29/92	02/06/92	02/27/92
STATION 155 DUP						
SILVER, TOTAL	002	W	92L0411	01/29/92	02/06/92	02/27/92
ALUMINUM, TOTAL	002	W	92L0411	01/29/92	02/06/92	02/27/92
ARSENIC, TOTAL	002	W	92L0410	01/29/92	02/06/92	02/11/92
BARIUM, TOTAL	002	W	92L0411	01/29/92	02/06/92	02/27/92
CADMIUM, TOTAL	002	W	92L0411	01/29/92	02/06/92	02/27/92
CHROMIUM, TOTAL	002	W	92L0411	01/29/92	02/06/92	02/27/92
COPPER, TOTAL	002	W	92L0411	01/29/92	02/06/92	02/27/92
IRON, TOTAL	002	W	92L0411	01/29/92	02/06/92	02/27/92
MERCURY, TOTAL	002	W	92C0040	01/29/92	02/07/92	02/10/92
MANGANESE, TOTAL	002	W	92L0411	01/29/92	02/06/92	02/27/92
SODIUM, TOTAL	002	W	92L0411	01/29/92	02/06/92	02/27/92
NICKEL, TOTAL	002	W	92L0411	01/29/92	02/06/92	02/27/92
LEAD, TOTAL	002	W	92L0410	01/29/92	02/06/92	02/11/92
SELENIUM, TOTAL	002	W	92L0410	01/29/92	02/06/92	02/10/92
ZINC, TOTAL	002	W	92L0411	01/29/92	02/06/92	02/27/92
STATION 156						
SILVER, TOTAL	003	W	92L0411	01/29/92	02/06/92	02/27/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/30/92 RFW LOT # :9201L177

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	003	W	92L0411	01/29/92	02/06/92	02/27/92
ARSENIC, TOTAL	003	W	92L0410	01/29/92	02/06/92	02/11/92
BARIUM, TOTAL	003	W	92L0411	01/29/92	02/06/92	02/27/92
CADMIUM, TOTAL	003	W	92L0411	01/29/92	02/06/92	02/27/92
CHROMIUM, TOTAL	003	W	92L0411	01/29/92	02/06/92	02/27/92
COPPER, TOTAL	003	W	92L0411	01/29/92	02/06/92	02/27/92
IRON, TOTAL	003	W	92L0411	01/29/92	02/06/92	02/27/92
MERCURY, TOTAL	003	W	92C0040	01/29/92	02/07/92	02/10/92
MANGANESE, TOTAL	003	W	92L0411	01/29/92	02/06/92	02/27/92
SODIUM, TOTAL	003	W	92L0411	01/29/92	02/06/92	02/27/92
NICKEL, TOTAL	003	W	92L0411	01/29/92	02/06/92	02/27/92
LEAD, TOTAL	003	W	92L0410	01/29/92	02/06/92	02/11/92
SELENIUM, TOTAL	003	W	92L0410	01/29/92	02/06/92	02/10/92
ZINC, TOTAL	003	W	92L0411	01/29/92	02/06/92	02/27/92
STATION 157						
SILVER, TOTAL	004	W	92L0411	01/29/92	02/06/92	02/27/92
ALUMINUM, TOTAL	004	W	92L0411	01/29/92	02/06/92	02/27/92
ARSENIC, TOTAL	004	W	92L0410	01/29/92	02/06/92	02/11/92
BARIUM, TOTAL	004	W	92L0411	01/29/92	02/06/92	02/27/92
CADMIUM, TOTAL	004	W	92L0411	01/29/92	02/06/92	02/27/92
CHROMIUM, TOTAL	004	W	92L0411	01/29/92	02/06/92	02/27/92
COPPER, TOTAL	004	W	92L0411	01/29/92	02/06/92	02/27/92
IRON, TOTAL	004	W	92L0411	01/29/92	02/06/92	02/27/92
MERCURY, TOTAL	004	W	92C0040	01/29/92	02/07/92	02/10/92
MANGANESE, TOTAL	004	W	92L0411	01/29/92	02/06/92	02/27/92
SODIUM, TOTAL	004	W	92L0411	01/29/92	02/06/92	02/27/92
NICKEL, TOTAL	004	W	92L0411	01/29/92	02/06/92	02/27/92
LEAD, TOTAL	004	W	92L0410	01/29/92	02/06/92	02/11/92
SELENIUM, TOTAL	004	W	92L0410	01/29/92	02/06/92	02/10/92
ZINC, TOTAL	004	W	92L0411	01/29/92	02/06/92	02/27/92
STATION 160						
SILVER, TOTAL	005	W	92L0411	01/29/92	02/06/92	02/27/92
ALUMINUM, TOTAL	005	W	92L0411	01/29/92	02/06/92	02/27/92
ARSENIC, TOTAL	005	W	92L0410	01/29/92	02/06/92	02/11/92
BARIUM, TOTAL	005	W	92L0411	01/29/92	02/06/92	02/27/92
CADMIUM, TOTAL	005	W	92L0411	01/29/92	02/06/92	02/27/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/30/92 RFW LOT # :9201L177

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	005	W	92L0411	01/29/92	02/06/92	02/27/92
COPPER, TOTAL	005	W	92L0411	01/29/92	02/06/92	02/27/92
IRON, TOTAL	005	W	92L0411	01/29/92	02/06/92	02/27/92
MERCURY, TOTAL	005	W	92C0040	01/29/92	02/07/92	02/10/92
MANGANESE, TOTAL	005	W	92L0411	01/29/92	02/06/92	02/27/92
SODIUM, TOTAL	005	W	92L0411	01/29/92	02/06/92	02/27/92
NICKEL, TOTAL	005	W	92L0411	01/29/92	02/06/92	02/27/92
LEAD, TOTAL	005	W	92L0410	01/29/92	02/06/92	02/11/92
SELENIUM, TOTAL	005	W	92L0410	01/29/92	02/06/92	02/10/92
ZINC, TOTAL	005	W	92L0411	01/29/92	02/06/92	02/27/92
STATION 161						
SILVER, TOTAL	006	W	92L0411	01/29/92	02/06/92	02/27/92
ALUMINUM, TOTAL	006	W	92L0411	01/29/92	02/06/92	02/27/92
ARSENIC, TOTAL	006	W	92L0410	01/29/92	02/06/92	02/11/92
BARIUM, TOTAL	006	W	92L0411	01/29/92	02/06/92	02/27/92
CADMIUM, TOTAL	006	W	92L0411	01/29/92	02/06/92	02/27/92
CHROMIUM, TOTAL	006	W	92L0411	01/29/92	02/06/92	02/27/92
COPPER, TOTAL	006	W	92L0411	01/29/92	02/06/92	02/27/92
IRON, TOTAL	006	W	92L0411	01/29/92	02/06/92	02/27/92
MERCURY, TOTAL	006	W	92C0040	01/29/92	02/07/92	02/10/92
MANGANESE, TOTAL	006	W	92L0411	01/29/92	02/06/92	02/27/92
SODIUM, TOTAL	006	W	92L0411	01/29/92	02/06/92	02/27/92
NICKEL, TOTAL	006	W	92L0411	01/29/92	02/06/92	02/27/92
LEAD, TOTAL	006	W	92L0410	01/29/92	02/06/92	02/11/92
SELENIUM, TOTAL	006	W	92L0410	01/29/92	02/06/92	02/10/92
ZINC, TOTAL	006	W	92L0411	01/29/92	02/06/92	02/27/92
STATION 164						
SILVER, TOTAL	007	W	92L0411	01/29/92	02/06/92	02/27/92
ALUMINUM, TOTAL	007	W	92L0411	01/29/92	02/06/92	02/27/92
ARSENIC, TOTAL	007	W	92L0410	01/29/92	02/06/92	02/11/92
BARIUM, TOTAL	007	W	92L0411	01/29/92	02/06/92	02/27/92
CADMIUM, TOTAL	007	W	92L0411	01/29/92	02/06/92	02/27/92
CHROMIUM, TOTAL	007	W	92L0411	01/29/92	02/06/92	02/27/92
COPPER, TOTAL	007	W	92L0411	01/29/92	02/06/92	02/27/92
IRON, TOTAL	007	W	92L0411	01/29/92	02/06/92	02/27/92
MERCURY, TOTAL	007	W	92C0040	01/29/92	02/07/92	02/10/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/30/92 RFW LOT # :9201L177

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MANGANESE, TOTAL	007	W	92L0411	01/29/92	02/06/92	02/27/92
SODIUM, TOTAL	007	W	92L0411	01/29/92	02/06/92	02/27/92
NICKEL, TOTAL	007	W	92L0411	01/29/92	02/06/92	02/27/92
LEAD, TOTAL	007	W	92L0410	01/29/92	02/06/92	02/11/92
SELENIUM, TOTAL	007	W	92L0410	01/29/92	02/06/92	02/10/92
ZINC, TOTAL	007	W	92L0411	01/29/92	02/06/92	02/27/92

LAB QC:

SILVER LABORATORY	LC1 BS	W	92L0411	N/A	02/06/92	02/27/92
ALUMINUM LABORTORY	LC1 BS	W	92L0411	N/A	02/06/92	02/27/92
BARIUM LABORATORY	LC1 BS	W	92L0411	N/A	02/06/92	02/27/92
CADMIUM LABORATORY	LC1 BS	W	92L0411	N/A	02/06/92	02/27/92
CHROMIUM LABORATORY	LC1 BS	W	92L0411	N/A	02/06/92	02/27/92
COPPER LABORATORY	LC1 BS	W	92L0411	N/A	02/06/92	02/27/92
IRON LABORATORY	LC1 BS	W	92L0411	N/A	02/06/92	02/27/92
MANGANESE LABORATORY	LC1 BS	W	92L0411	N/A	02/06/92	02/27/92
SODIUM LABORATORY	LC1 BS	W	92L0411	N/A	02/06/92	02/27/92
NICKEL LABORATORY	LC1 BS	W	92L0411	N/A	02/06/92	02/27/92
ZINC LABORATORY	LC1 BS	W	92L0411	N/A	02/06/92	02/27/92
SILVER LABORATORY	LC2 BS	W	92L0411	N/A	02/06/92	02/27/92
ALUMINUM LABORTORY	LC2 BS	W	92L0411	N/A	02/06/92	02/27/92
BARIUM LABORATORY	LC2 BS	W	92L0411	N/A	02/06/92	02/27/92
CADMIUM LABORATORY	LC2 BS	W	92L0411	N/A	02/06/92	02/27/92
CHROMIUM LABORATORY	LC2 BS	W	92L0411	N/A	02/06/92	02/27/92
COPPER LABORATORY	LC2 BS	W	92L0411	N/A	02/06/92	02/27/92
IRON LABORATORY	LC2 BS	W	92L0411	N/A	02/06/92	02/27/92
MANGANESE LABORATORY	LC2 BS	W	92L0411	N/A	02/06/92	02/27/92
SODIUM LABORATORY	LC2 BS	W	92L0411	N/A	02/06/92	02/27/92
NICKEL LABORATORY	LC2 BS	W	92L0411	N/A	02/06/92	02/27/92
ZINC LABORATORY	LC2 BS	W	92L0411	N/A	02/06/92	02/27/92
SILVER, TOTAL	MB1	W	92L0411	N/A	02/06/92	02/27/92
ALUMINUM, TOTAL	MB1	W	92L0411	N/A	02/06/92	02/27/92
BARIUM, TOTAL	MB1	W	92L0411	N/A	02/06/92	02/27/92
CADMIUM, TOTAL	MB1	W	92L0411	N/A	02/06/92	02/27/92
CHROMIUM, TOTAL	MB1	W	92L0411	N/A	02/06/92	02/27/92
COPPER, TOTAL	MB1	W	92L0411	N/A	02/06/92	02/27/92
IRON, TOTAL	MB1	W	92L0411	N/A	02/06/92	02/27/92
MANGANESE, TOTAL	MB1	W	92L0411	N/A	02/06/92	02/27/92
SODIUM, TOTAL	MB1	W	92L0411	N/A	02/06/92	02/27/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 01/30/92 RFW LOT # :9201L177

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NICKEL, TOTAL	MB1	W	92L0411	N/A	02/06/92	02/27/92
ZINC, TOTAL	MB1	W	92L0411	N/A	02/06/92	02/27/92
ARSENIC LABORATORY	LC1 BS	W	92L0410	N/A	02/06/92	02/11/92
LEAD LABORATORY	LC1 BS	W	92L0410	N/A	02/06/92	02/11/92
SELENIUM LABORATORY	LC1 BS	W	92L0410	N/A	02/06/92	02/10/92
ARSENIC LABORATORY	LC2 BS	W	92L0410	N/A	02/06/92	02/11/92
LEAD LABORATORY	LC2 BS	W	92L0410	N/A	02/06/92	02/11/92
SELENIUM LABORATORY	LC2 BS	W	92L0410	N/A	02/06/92	02/10/92
ARSENIC, TOTAL	MB1	W	92L0410	N/A	02/06/92	02/11/92
LEAD, TOTAL	MB1	W	92L0410	N/A	02/06/92	02/11/92
SELENIUM, TOTAL	MB1	W	92L0410	N/A	02/06/92	02/10/92
MERCURY LABORATORY	LC1 BS	W	92C0040	N/A	02/07/92	02/10/92
MERCURY LABORATORY	LC2 BS	W	92C0040	N/A	02/07/92	02/10/92
MERCURY, TOTAL	MB1	W	92C0040	N/A	02/07/92	02/10/92
MERCURY, TOTAL	MB2	W	92C0040	N/A	02/07/92	02/10/92

WESTON Analytics Use Only

9201L177

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WSRC - TASK 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12-0000
Project Contact/Phone #:
AD Project Manager: D. Thomas
QC: Del: TAT: 30 day
Date Rec'd: 1-30-92 Date Due: 2-29-92
Account #: WSRC 12 STD

Refrigerator #		1				SUB	SUB		4		4		4	1		
#/Type Container	Liquid	1G				1P	1P		1P		1P	1P	1P	1		
	Solid															
Volume	Liquid	40ml				4L	1L		1L		250	250	1L	1		
	Solid															
Preservatives						None	None		HNO3		None	NaOH	None	1		
ANALYSES REQUESTED		ORGANIC				Cyanide Phenol	RCRA		INORG		SO4 Ph	NO3 HARD	ALK ACID	Cl SPCD		
		VOA	BNA	Pest/PCB	Herb				Metal	CN						
WESTON Analytics Use Only		0234H				DSUB	DSUB		Cyanide Phenol		ISO4 IPh	DNO3 IHARD	DALK IACID	ICL ISPCD		

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	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0234H				DSUB	DSUB		Cyanide Phenol		ISO4 IPh	DNO3 IHARD	DALK IACID	ICL ISPCD		
001	STATION 155			W	1-29-92		✓				✓	✓		✓		✓	✓	✓	✓		
002	155 DUP																				
003	156																				
004	157																				
005	160																				
006	161																				
007	164																				
008	FIELD BLANK																				

Real Info to Follow

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Original Quantities

Metals = Ag, Al, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, ZN, Fe, MN

Use Filtered

DATE/REVISIONS:

2/3/92 1. VOA subscribed to stock text

2-7-92 2. Cancel ACID on all Samples Per SDL lab

3.

4.

5.

6.

Relinquished by	Received by	Date	Time
Emery	[signature]	1-30-92	14:18
	[signature]	1-30-92	

Relinquished by	Received by	Date	Time
	[signature]	1-30-92	

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # 2366437480
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec'd Y or N

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

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

WESTON
MANAGERS DESIGNERS/CONSULTANTS
212 FRANK WEST CIRCLE
SUITE A
STOCKTON, CA 95206
PHONE: (209) 983-1340
FAX: 209-983-0304

19 February 1992

Roy F. Weston, Inc.
208 Welsh Pool Road
Lionville, PA 19341-1313

RFW#:9201L177
WSRC RI/FS TASK 12

Attention: Ms. Diane Thomas

Subject: Final Report

Dear Ms. Thomas:

Enclosed are the laboratory results for samples submitted to Weston Analytics Division.

Non-hazardous samples will be disposed of by the laboratory 30 days after the final report is issued at no charge. Hazardous samples which are inconsistent with laboratory waste streams will be returned to you.

If you have any questions, please call me at (209) 983-1340.

Very truly yours,

Lynda W. Kelly
Project Manager

LWK/pmw

Enclosure

Laboratory Report For

Ms. Diane Thomas
Roy F. Weston,Inc.
208 Welsh Pool Road
Lionville, PA 19341-1313

19 February 1992

By

Roy F. Weston, Inc.
212 Frank West Circle, Suite A
Stockton, CA 95206
(209) 983-1340

RFW#: 9201L177

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

Client: WSRC RI/FS TASK 12
RFW #: 9201L177

Test: GC/MS Volatiles

1. This narrative covers the analysis of 8 water samples for volatiles in accordance with EPA SW-846 Method 8240.

2. All required hold times were met.

3. The method blank associated with these samples was free from target analyte interferences at or above the reporting limits.

4. The tuning and standard calibrations were within QC guidelines.

5. The internal standard areas and retention times were all within QC guidelines.

6. The surrogate recoveries were within laboratory limits with the exception of 1,2-dichloroethene in sample 9201L177-007 (station 164) which was high out of range by 1.0%.

7. The matrix spike recoveries and RPDs were within laboratory limits.

Walter McCurdy
W.C. McCurdy
Unit Leader

2-18-92
Date

WESTON

Roy F. Weston, Inc. - Stockton Laboratory
VOA ANALYTICAL DATA PACKAGE FOR
WSRC RI/FS TASK 12

DATE RECEIVED: 02/04/92 RFW LOT # :9201L177

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 155	001	W	92SMA027	01/29/92	N/A	02/07/92
STATION 155 DUP	002	W	92SMA027	01/29/92	N/A	02/07/92
STATION 156	003	W	92SMA027	01/29/92	N/A	02/07/92
STATION 157	004	W	92SMA027	01/29/92	N/A	02/07/92
STATION 160	005	W	92SMA027	01/29/92	N/A	02/07/92
STATION 161	006	W	92SMA027	01/29/92	N/A	02/07/92
STATION 164	007	W	92SMA027	01/29/92	N/A	02/07/92
FIELD BLANK	008	W	92SMA027	01/29/92	N/A	02/07/92
LAB QC:						
VBLK	MB1	W	92SMA027	N/A	N/A	02/07/92
VBLK	MB1 BS	W	92SMA027	N/A	N/A	02/07/92
VBLK	MB1 BSD	W	92SMA027	N/A	N/A	02/07/92

WESTON

Flag Data Qualifiers

The seven EPA-defined qualifiers to be used are as follows:

U	Indicates compound was analyzed for but not detected.
J	Indicates an estimated value.
C	This flag applies to pesticide results where the identification has been confirmed by GC/MS.
B	This flag is used when the analyte is found in the associated blank as well as in the sample.
E	This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
A	This flag indicates that a TIC is a suspected aldol-condensation product.
X	Other specific flags may be required to properly define the results.

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

RFW Batch Number: 9201L177 Client: WSRC RI/FS TASK 12 Work Order: 0345-31-12 Report Date: 02/18/92 13:59 Page: 1a

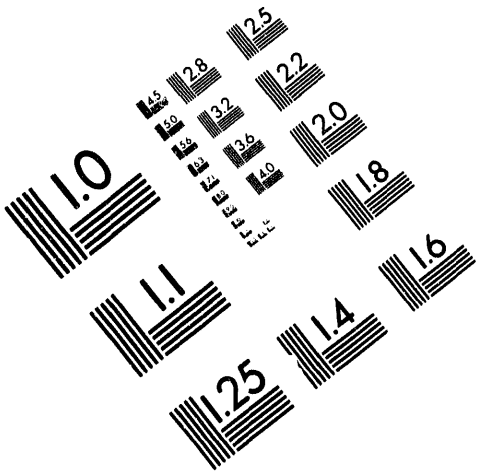
	Cust ID:	STATION 155		STATION 155 DUP		STATION 156		STATION 157		STATION 160		STATION 161	
Sample Information	RFW#:	001		002		003		004		005		006	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Surrogate Recovery	Toluene-d8	98	%	104	%	105	%	104	%	104	%	105	%
	Bromofluorobenzene	102	%	103	%	102	%	102	%	102	%	101	%
	1,2-Dichloroethane-d4	107	%	109	%	105	%	110	%	112	%	112	%
			fl		fl		fl		fl		fl		fl
Chloromethane		10	U	10	U	10	U	10	U	10	U	10	U
Bromomethane		10	U	10	U	10	U	10	U	10	U	10	U
Vinyl Chloride		10	U	10	U	10	U	10	U	10	U	10	U
Chloroethane		10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride		5	U	4	J	5	U	5	U	5	U	5	U
Acetone		6	J	8	J	10	U	10	U	10	U	10	U
Carbon Disulfide		5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene		5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethene (total)		5	U	5	U	5	U	5	U	5	U	5	U
Chloroform		5	U	5	U	5	U	5	U *	5	U	5	U
1,2-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
2-Butanone		12		18		10	U	10	U	10	U	10	U
1,1,1-Trichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Carbon Tetrachloride		5	U	5	U	5	U	5	U	5	U	5	U
Vinyl Acetate		10	U	10	U	10	U	10	U	10	U	10	U
Bromodichloromethane		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloropropane		5	U	5	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U	5	U
Trichloroethene		10		9		5		5	U	5	U	5	U
Dibromochloromethane		5	U	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Benzene		5	U	5	U	5	U	5	U	5	U	5	U
Trans-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U	5	U
Bromoform		5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone		10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone		10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene		5	U	5	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U	5	U	5	U	5	U

*= Outside of Advisory limits.

RFW [illegible] Number: 9201L177 Client: WSRC RI/FS [illegible] 12 Work Order: 0345-31-12 [illegible]e: 1b

Cust ID:	STATION 155	STATION 155 DUP	STATION 156	STATION 157	STATION 160	STATION 161
RFW#:	001	002	003	004	005	006
Toluene	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U

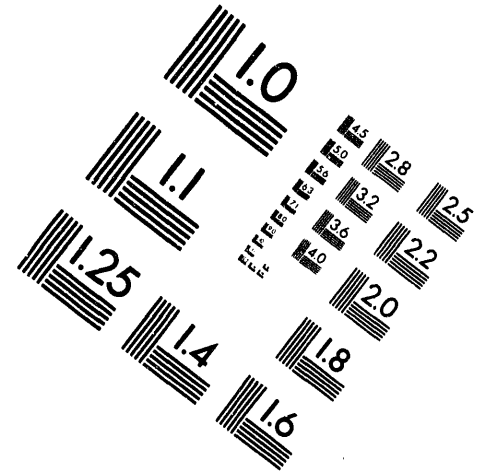
*= Outside of Advisory limits.



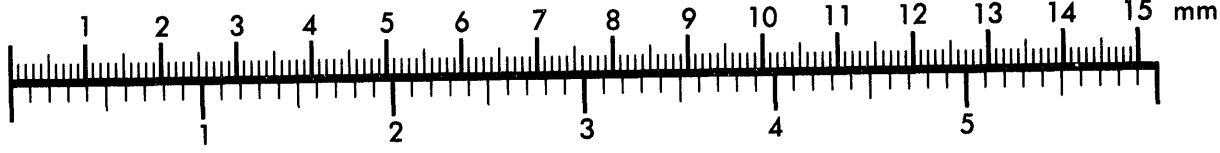
Association for Information and Image Management

1100 Wayne Avenue, Suite 1100
Silver Spring, Maryland 20910

301/587-8202



Centimeter



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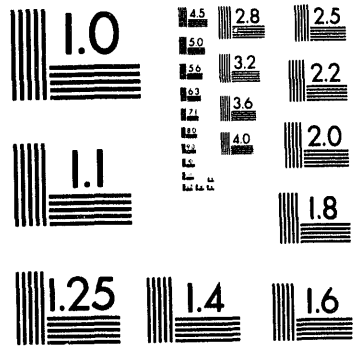

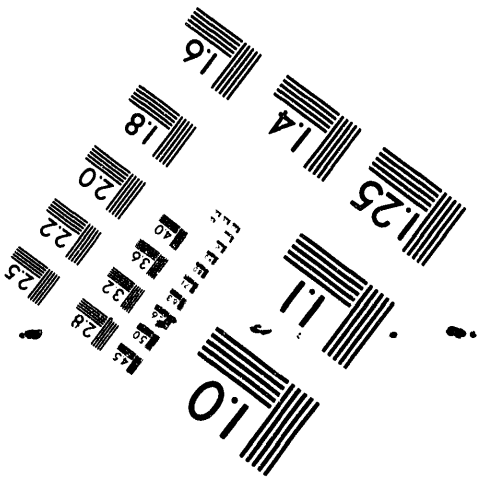

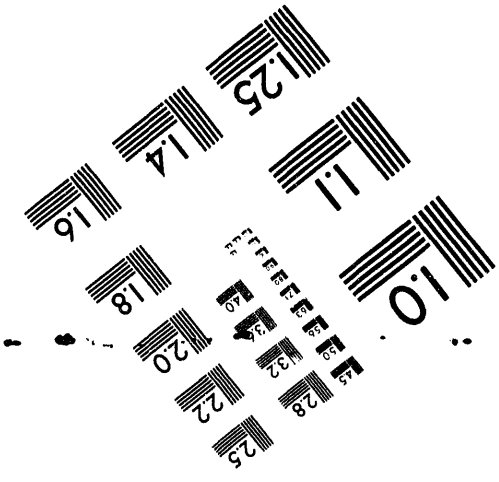

MANUFACTURED TO AIIM STANDARDS
BY APPLIED IMAGE, INC.

3 of 5

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

RFW Batch Number: 9201L177 Client: WSRC RI/FS TASK 12 Work Order: 0345-31-12 Report Date: 02/18/92 13:59 Page: 2a

	Cust ID:	STATION 164	FIELD BLANK	VBLK	VBLK BS	VBLK BSD
Sample Information	RFW#:	007	008	92SMA027-MB1	92SMA027-MB1	92SMA027-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L
Surrogate Recovery	Toluene-d8	108 %	110 %	100 %	100 %	95 %
	Bromofluorobenzene	109 %	106 %	101 %	99 %	99 %
	1,2-Dichloroethane-d4	115 * %	114 %	100 %	97 %	98 %
Chloromethane		10 U	10 U	10 U	10 U	10 U
Bromomethane		10 U	10 U	10 U	10 U	10 U
Vinyl Chloride		10 U	10 U	10 U	10 U	10 U
Chloroethane		10 U	10 U	10 U	10 U	10 U
Methylene Chloride		5 U	5	5 U	5 U	5 U
Acetone		10 U	10 U	10 U	10 U	10 U
Carbon Disulfide		5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene		5 U	5 U	5 U	103 %	103 %
1,1-Dichloroethane		5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)		5 U	5 U	5 U	5 U	5 U
Chloroform		5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane		5 U	5 U	5 U	5 U	5 U
2-Butanone		10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane		5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride		5 U	5 U	5 U	5 U	5 U
Vinyl Acetate		10 U	10 U	10 U	10 U	10 U
Bromodichloromethane		5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane		5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U
Trichloroethene		5 U	5 U	5 U	100 %	104 %
Dibromochloromethane		5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane		5 U	5 U	5 U	5 U	5 U
Benzene		5 U	5 U	5 U	106 %	107 %
Trans-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U
Bromoform		5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U	10 U
2-Hexanone		10 U	10 U	10 U	10 U	10 U
Tetrachloroethene		5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		5 U	5 U	5 U	5 U	5 U

*= Outside of Advisory limits.

RFW [illegible]ch Number: 9201L177 Client: WSRC RI/FS [illegible]K 12 Work Order: 0345-31-12 [illegible]ge: 2b

Cust ID:	STATION 164	FIELD BLANK	VBLK	VBLK BS	VBLK BSD
RFW#:	007	008	92SMA027-MB1	92SMA027-MB1	92SMA027-MB1
Toluene	5 U	5 U	5 U	102 %	103 %
Chlorobenzene	5 U	5 U	5 U	108 %	109 %
Ethylbenzene	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U

*= Outside of Advisory limits.

WESTON Analytics Use Only

9201L177

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: 225 RC - TASK 12
Est. Final Proj. Sampling Date:
Work Order #: 02345-31-12-0000
Project Contact/Phone #: D. Thomas
AD Project Manager:
QC: Del: TAT: 30 day
Date Rec'd: 1-30-92 Date Due: 2-29-92
Account #: WSRC12STD

Refrigerator #		1					SUB	SUB		4		4		4	1			
#/Type Container	Liquid	1G					1l	1l		1l		1l	1l	1l	1			
	Solid																	
Volume	Liquid						4l	1l		1l		250	250	1l	1			
	Solid																	
Preservatives							None	None		None		None	None	None	1			

ANALYSES REQUESTED →

ORGANIC								INORG						
VOA	BNA	Pest/PCB	Herb	Total Phenols	Pesticides			Metal	CN	SO4 Ph	NO3 NO2	Alk Acid	Cl SPCD	

WESTON Analytics Use Only

MATRIX CODES:		Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected												
									Class VOA				ICP Sub	ICP Sub		Lab Phenols		ISO4 IPH	DNO3 INO2	IALK IACD	ICL ISPCD
S - Soil		001	STATION 155			W	1-29-92		✓				✓	✓		✓		✓	✓	✓	✓
SE - Sediment		002	155 DUP																		
SO - Solid		003	156																		
SL - Sludge		004	157																		
W - Water		005	160																		
O - Oil		006	161																		
A - Air		007	164																		
DS - Drum Solids		008	FIELD BLANK																		
DL - Drum Liquids																					
L - EP/TCLP Leachate																					
WI - Wipe																					
X - Other																					
F - Fish																					

Real Info to Follow

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Original Quantities

Metals = Ag, Al, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, ZN, Fe, MN

Use Ultrep

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # 2366437480
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

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

Relinquished by	Received by	Date	Time
Emery	[signature]	1-30-92	14:18
	[signature]	1-30-92	

Relinquished by	Received by	Date	Time
	[signature]	1-30-92	—

RFW 21-21-001/A-7/91

___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# _____ Cooler# _____

381-596a

Recieved 2/4/92 NO custody Seal E.N. #

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WSRC-TASK 12
RFW #: 9202L300
W.O. #: 0345-31-12

SAMPLES RECEIVED: 02-11-92

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 sample holding times as required by 40CFR136 were met.

2. All preparation blank results were below the required detection limit with the exception of acidity.

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

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

5. 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).

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

03.11.92
Date

kls\i02-300

ROY F. WESTON, INC.
GLOSSARY OF TERMS - INORGANIC REPORTS

DATA QUALIFIERS

U - Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* - Indicates that the original sample result is greater than 4x the spike amount added. The USEPA-CLP has determined that spike results on samples where this occurs may be unreliable and therefore, the control limits are not applicable.

ABBREVIATIONS

MB - Method or preparation blank
MS - Matrix Spike
MSD - Matrix Spike Duplicate.
REP - Sample Replicate.
LC - Indicates a method LCS or Blank Spike.
NC - Not calculable, result below the detection limit.

A suffix of -R and -S following these codes indicates a replicate and spike analysis respectively.

ANALYTICAL METAL METHODS

As :	EPA 206.2	Se :	EPA 270.2
Pb :	EPA 239.2	ICP Scan :	EPA 200.7
Hg :	EPA 245.1	All Others :	EPA 200.7
Tl :	EPA 279.2	EP Leachates (except Hg) :	200.7

The analytical methods applied by the laboratory for the determination of drinking water is 5.2.1.

NOTES

The laboratory prepares a matrix spike at one per 20 frequency for TCLP samples. The Federal Register recommends that all matrix spikes be prepared at greater than 50% of the indigenous analyte concentration. A matrix duplicate is also prepared.

Holding times for soil samples have not been promulgated by the USEPA.

For solid samples, all results are reported on a dry weight basis.

The range for mercury solid laboratory control standards is 66.9% to 133.8%.

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/09/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L300

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-001	STATION 186	Acidity	22.0	MG/L	2.0
		Chloride	4.6	MG/L	0.25
		Hardness	23.0	MG/L	1.0
		Nitrate, as N	0.22	MG-N/L	0.050
		pH	5.4	PH UNITS	0.010
		Sulfate	9.0	MG/L	1.0
		Specific Conductance	21.1	UMHOS/CM	1.0
-002	STATION 190	Acidity	18.0	MG/L	2.0
		Chloride	3.6	MG/L	0.25
		Hardness	4.4	MG/L	1.0
		Nitrate, as N	0.27	MG-N/L	0.050
		pH	5.2	PH UNITS	0.010
		Sulfate	0.80	MG/L	0.10
		Specific Conductance	14.6	UMHOS/CM	1.0
-003	STATION 191	Acidity	8.0	MG/L	2.0
		Chloride	4.0	MG/L	0.25
		Hardness	3.0	MG/L	1.0
		Nitrate, as N	0.13	MG-N/L	0.050
		pH	5.2	PH UNITS	0.010
		Sulfate	0.54	MG/L	0.10
		Specific Conductance	16.1	UMHOS/CM	1.0
-004	STATION 192	Acidity	16.0	MG/L	2.0
		Chloride	4.1	MG/L	0.25
		Hardness	6.4	MG/L	1.0
		Nitrate, as N	0.18	MG-N/L	0.050
		pH	5.4	PH UNITS	0.010
		Sulfate	2.5	MG/L	0.10
		Specific Conductance	21.1	UMHOS/CM	1.0
-005	STATION 196	Acidity	24.0	MG/L	2.0
		Chloride	6.5	MG/L	0.25
		Hardness	5.0	MG/L	1.0
		Nitrate, as N	0.28	MG-N/L	0.050
		pH	6.1	PH UNITS	0.010
		Sulfate	0.59	MG/L	0.10
		Specific Conductance	24.2	UMHOS/CM	1.0

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 03/09/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9202L300
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
BLANK10	92LAC004-MB1	Acidity	2.0	MG/L	2.0
BLANK20	92LAC004-MB2	Acidity	4.0	MG/L	2.0
BLANK10	92LCL010-MB1	Chloride	0.25 u	MG/L	0.25
BLANK20	92LCL010-MB2	Chloride	0.25 u	MG/L	0.25
BLANK10	92LHD007-MB1	Hardness	1.0 u	MG/L	1.0
BLANK20	92LHD007-MB2	Hardness	1.0 u	MG/L	1.0
BLANK30	92LHD007-MB3	Hardness	1.0 u	MG/L	1.0
BLANK40	92LHD007-MB4	Hardness	1.0 u	MG/L	1.0
BLANK10	92LNB020-MB1	Nitrate, as N	0.050u	MG-N/L	0.050
BLANK20	92LNB020-MB2	Nitrate, as N	0.050u	MG-N/L	0.050

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 03/09/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L300

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
BLANK10	92LIC037-MB1	Sulfate	0.10 u	MG/L	0.10
BLANK10	92LSP016-MB1	Specific Conductance	1.0 u	UMHOS/CM	1.0

ROY F. WESTON INC.

INORGANIC ACCURACY REPORT 03/09/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L300

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV
BLANK10	92LCL010-MB1	Chloride	5.5	0.25u	5.0	109
		Chloride MSD	5.4	0.25u	5.0	109
BLANK20	92LCL010-MB2	Chloride	5.6	0.25u	5.0	112
BLANK10	92LHD007-MB1	Hardness	99.7	1.0 u	100	99.7
		Hardness MSD	330	1.0 u	330	99.9
BLANK20	92LHD007-MB2	Hardness	100	1.0 u	100	100
BLANK30	92LHD007-MB3	Hardness	99.6	1.0 u	100	99.6
BLANK40	92LHD007-MB4	Hardness	100	1.0 u	100	100
BLANK10	92LNB020-MB1	Nitrate, as N	0.48	0.05u	0.50	96.8
		Nitrate, as N MSD	0.54	0.05u	0.50	107
BLANK20	92LNB020-MB2	Nitrate, as N	0.49	0.05u	0.50	97.6
BLANK10	92LIC037-MB1	Sulfate	0.90	0.10u	1.0	90.3
		Sulfate	0.92	0.10u	1.0	92.3
BLANK10	92LSP016-MB1	Specific Conductance	146	1.0 u	147	99.3
		Specific Conductance M	145	1.0 u	147	98.6

ROY F. WESTON INC.

INORGANIC DUPLICATE SPIKE REPORT 03/09/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9202L300

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%RPD
BLANK10	92LCL010-MB1	Chloride	109	109	0.20
BLANK10	92LHD007-MB1	Hardness	99.7	99.9	0.20
BLANK10	92LNB020-MB1	Nitrate, as N	96.8	107	10.5
BLANK10	92LIC037-MB1	Sulfate	90.3	92.3	2.2
BLANK10	92LSP016-MB1	Specific Conductance	99.3	98.6	0.70

ROY F. WESTON INC.

INORGANIC PRECISION REPORT 03/09/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9202L300

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	%RPD
-001REP	STATION 186	Acidity	22.0	26.0	16.7
-002REP	STATION 190	Hardness	4.4	4.6	4.4

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/11/92 RFW LOT # :9202L300

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 186						
ACIDITY	001	W	92LAC004	02/10/92	02/24/92	02/24/92
ACIDITY	001 REP	W	92LAC004	02/10/92	02/24/92	02/24/92
CHLORIDE	001	W	92LCL010	02/10/92	03/05/92	03/05/92
HARDNESS	001	W	92LHD007	02/10/92	02/21/92	02/21/92
NITRATE	001	W	92LNB020	02/10/92	02/20/92	02/20/92
PH	001	W	92LPH027	02/10/92	02/11/92	02/11/92
SULFATE	001	W	92LIC037	02/10/92	03/03/92	03/03/92
SPECIFIC CONDUCTANCE	001	W	92LSP016	02/10/92	02/11/92	02/11/92
SUB-OUT TEST FOR SUB	001	W		02/10/92		
STATION 190						
ACIDITY	002	W	92LAC004	02/10/92	02/24/92	02/24/92
CHLORIDE	002	W	92LCL010	02/10/92	03/05/92	03/05/92
HARDNESS	002	W	92LHD007	02/10/92	02/21/92	02/21/92
HARDNESS	002 REP	W	92LHD007	02/10/92	02/21/92	02/21/92
NITRATE	002	W	92LNB020	02/10/92	02/20/92	02/20/92
PH	002	W	92LPH027	02/10/92	02/11/92	02/11/92
SULFATE	002	W	92LIC037	02/10/92	03/03/92	03/03/92
SPECIFIC CONDUCTANCE	002	W	92LSP016	02/10/92	02/11/92	02/11/92
SUB-OUT TEST FOR SUB	002	W		02/10/92		
STATION 191						
ACIDITY	003	W	92LAC004	02/10/92	02/24/92	02/24/92
CHLORIDE	003	W	92LCL010	02/10/92	03/05/92	03/05/92
HARDNESS	003	W	92LHD007	02/10/92	02/21/92	02/21/92
NITRATE	003	W	92LNB020	02/10/92	02/20/92	02/20/92
PH	003	W	92LPH027	02/10/92	02/11/92	02/11/92
SULFATE	003	W	92LIC037	02/10/92	03/03/92	03/03/92
SPECIFIC CONDUCTANCE	003	W	92LSP016	02/10/92	02/11/92	02/11/92
SUB-OUT TEST FOR SUB	003	W		02/10/92		
STATION 192						
ACIDITY	004	W	92LAC004	02/10/92	02/24/92	02/24/92
CHLORIDE	004	W	92LCL010	02/10/92	03/05/92	03/05/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/11/92 RFW LOT # :9202L300

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
HARDNESS	004	W	92LHD007	02/10/92	02/21/92	02/21/92
NITRATE	004	W	92LNB020	02/10/92	02/20/92	02/20/92
PH	004	W	92LPH027	02/10/92	02/11/92	02/11/92
SULFATE	004	W	92LIC037	02/10/92	03/03/92	03/03/92
SPECIFIC CONDUCTANCE	004	W	92LSP016	02/10/92	02/11/92	02/11/92
SUB-OUT TEST FOR SUB	004	W		02/10/92		
STATION 196						
ACIDITY	005	W	92LAC004	02/10/92	02/24/92	02/24/92
CHLORIDE	005	W	92LCL010	02/10/92	03/05/92	03/05/92
HARDNESS	005	W	92LHD007	02/10/92	02/21/92	02/21/92
NITRATE	005	W	92LNB020	02/10/92	02/20/92	02/20/92
PH	005	W	92LPH027	02/10/92	02/11/92	02/11/92
SULFATE	005	W	92LIC037	02/10/92	03/03/92	03/03/92
SPECIFIC CONDUCTANCE	005	W	92LSP016	02/10/92	02/11/92	02/11/92
SUB-OUT TEST FOR SUB	005	W		02/10/92		

LAB QC:

ACIDITY	MB1	W	92LAC004	N/A	02/24/92	02/24/92
ACIDITY	MB2	W	92LAC004	N/A	02/24/92	02/24/92
CHLORIDE	MB1	W	92LCL010	N/A	03/05/92	03/05/92
CHLORIDE	MB1 BS	W	92LCL010	N/A	03/05/92	03/05/92
CHLORIDE	MB1 BSD	W	92LCL010	N/A	03/05/92	03/05/92
CHLORIDE	MB2	W	92LCL010	N/A	03/05/92	03/05/92
CHLORIDE	MB2 BS	W	92LCL010	N/A	03/05/92	03/05/92
HARDNESS	MB1	W	92LHD007	N/A	02/21/92	02/21/92
HARDNESS	MB1 BS	W	92LHD007	N/A	02/21/92	02/21/92
HARDNESS	MB1 BSD	W	92LHD007	N/A	02/21/92	02/21/92
HARDNESS	MB2	W	92LHD007	N/A	02/21/92	02/21/92
HARDNESS	MB2 BS	W	92LHD007	N/A	02/21/92	02/21/92
HARDNESS	MB3	W	92LHD007	N/A	02/21/92	02/21/92
HARDNESS	MB3 BS	W	92LHD007	N/A	02/21/92	02/21/92
HARDNESS	MB4	W	92LHD007	N/A	02/21/92	02/21/92
HARDNESS	MB4 BS	W	92LHD007	N/A	02/21/92	02/21/92
NITRATE	MB1	W	92LNB020	N/A	02/20/92	02/20/92
NITRATE	MB1 BS	W	92LNB020	N/A	02/20/92	02/20/92
NITRATE	MB1 BSD	W	92LNB020	N/A	02/20/92	02/20/92
NITRATE	MB2	W	92LNB020	N/A	02/20/92	02/20/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/11/92 RFW LOT # :9202L300

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRATE	MB2 BS	W	92LNB020	N/A	02/20/92	02/20/92
BROMIDE BY IC	MB1	W	92LIC037	N/A	03/03/92	03/03/92
BROMIDE BY IC	MB1 BS	W	92LIC037	N/A	03/03/92	03/03/92
BROMIDE BY IC	MB1 BSD	W	92LIC037	N/A	03/03/92	03/03/92
CHLORIDE BY IC	MB1	W	92LIC037	N/A	03/03/92	03/03/92
CHLORIDE BY IC	MB1 BS	W	92LIC037	N/A	03/03/92	03/03/92
CHLORIDE BY IC	MB1 BSD	W	92LIC037	N/A	03/03/92	03/03/92
FLUORIDE BY IC	MB1	W	92LIC037	N/A	03/03/92	03/03/92
FLUORIDE BY IC	MB1 BS	W	92LIC037	N/A	03/03/92	03/03/92
FLUORIDE BY IC	MB1 BSD	W	92LIC037	N/A	03/03/92	03/03/92
SULFATE	MB1	W	92LIC037	N/A	03/03/92	03/03/92
SULFATE	MB1 BS	W	92LIC037	N/A	03/03/92	03/03/92
SULFATE	MB1 BSD	W	92LIC037	N/A	03/03/92	03/03/92
SPECIFIC CONDUCTANCE	MB1	W	92LSP016	N/A	02/11/92	02/11/92
SPECIFIC CONDUCTANCE	MB1 BS	W	92LSP016	N/A	02/11/92	02/11/92
SPECIFIC CONDUCTANCE	MB1 BSD	W	92LSP016	N/A	02/11/92	02/11/92

Diane Thomas = Jim Data Yellow OK with lab Mary J.

WESTON Analytics Use Only
92021300

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WSRC - TASK 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12-0000
Project Contact/Phone #:
AD Project Manager: Diane Thomas
QC: [illegible] Del: [illegible] TAT: 30 day
Date Rec'd: 2-11-92 Date Due: 3-12-92
Account #: WSRC12STD

Refrigerator #		1				SUB	SUB		4		4	4	4				
#/Type Container	Liquid	1G				1P	1P		1P		1P	1P	1P				
	Solid																
Volume	Liquid	40m				4L	1L		1L		1L	250	250				
	Solid																
Preservatives		HCL				NONE	NONE		NONE		NONE	HNO3	NONE				
ANALYSES REQUESTED →		ORGANIC							INORG								
		VOA	BNA	Pest/PCB	Herb	Tyler Alum O	Tyler Alum (2) Tyler		Metal	CN	ALK ACID CL SPCD	NO3 NO2	PH SO4				
WESTON Analytics Use Only		0044				ISUB	ISUB		See Below		TALKL FACID ICL ISPCD	INNO3 INNO2	IPH ISO4				

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected													
S - Soil	001	Station 186			W	2-10-92		✓				✓	✓		✓		✓	✓	✓	
SE - Sediment	002	190																		
SO - Solid	003	191																		
SL - Sludge	004	192																		
W - Water	005	196																		
O - Oil	006	~~Field~~ Trip Blank 2-11-92																		
A - Air																				
DS - Drum Solids																				
DL - Drum Liquids																				
L - EP/TCLP Leachate																				
WI - Wipe																				
X - Other																				
F - Fish																				
		RAD info to follow																		

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: original Rewritten

metals = Ag, AL, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, ZN, Fe, MN

Use Ultrex

DATE/REVISIONS:

2-26-92 1. Cancel Alkalinity per SDE Job.
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ✓ or
Hand Delivered
Airbill # 2513422154
2) Ambient or Chilled
3) Received in Good Condition (Y) or N
4) Labels Indicate Properly Preserved (Y) or N
5) Received Within Holding Times Y or N

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

COC Record Present Upon Sample Rec'd (Y) or N

Relinquished by	Received by	Date	Time
Emery	[illegible]	2-11-92	13:00
	[illegible]	2-11-92	

Relinquished by	Received by	Date	Time
	[illegible]		

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

NOTES: Sample Rec'd for #006 was a TRIP Blank NOT Field Blank.

RFW [illegible]1-001/A-7/91 ____ L372 ____ L373 ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

RFW 9202L300

EMERY WORLDWIDE — A CF Company

FORM OF PAYMENT

Check ☐ GBL ☐ FCCOD ☐

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

E Shipper's Account Number: 850282237

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 ☐

Date: 2-10-92 | Origin: CAE | Shipment Number: 2513423154

Tariff Dest. | Gateway

From:
LAURA BASELAN 404-821-7891
USDOE WESTINGHOUSE
SAVANNAH RIVER CO
SAVANNAH RIVER SITE
AIKEN SC
Canada ☐

To:
DIANE THOMAS 215-524-7360
WESTON ANALYTICS
208 WELSH POOL RD
LIONVILLE PA 19341
Canada ☐
Hold for Pick Up ☐

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: SRM 5540-14 | 29808

E Consignee's Account Number

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

Declared Value $

Description	Pcs	L	W	H	Total Pieces	Total Weight
LABORATORY SAMPLES	2	34	16	17	2	188#

Remarks: Pat Pergatherg

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 ☐

Shipper's Signature X LAURA BASELAN

International Shipments: Free Domicile ☐ Commodity Code

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

International Customs Value | International Insurance

Base Charge | Total Transportation Charges | Other Charges/Advance at Origin ☐ OCAO- $

2513423154

3·PHL A

Terms and Conditions on Back

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WSRC-TASK 12 **SAMPLES RECEIVED:** 02-11-92
RFW #: 9202L300
W.O. #: 0345-31-12

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

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

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

4. Usual rounding rules are followed. If the figure following those to be retained is less than 5, the figure is dropped, and the retained figures are kept unchanged. As an example, 11.443 is rounded off to 11.44.

   If the figure following those to be retained is greater than 5, the figure is dropped, and the last retained figure is raised by 1. As an example, 11.446 is rounded off to 11.45.

   If the figure following those to be retained is 5, and if there are no figures other than zeros beyond the five, the figure 5 is dropped, and the last place figure retained is increased by 1 if it is an odd number or it is kept unchanged if an even number. As an example, 11.435 is rounded off to 11.44, while 11.425 is rounded off to 11.42.

WESTON

5. All calibration verification checks were within the required control limits of 90-110% (80-120% for Hg). Calibration verification is performed using independent standards from Inorganic Ventures, Inc.

03.13.92

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

kls\m02-300

ROY F. WESTON, INC.
GLOSSARY OF TERMS - INORGANIC REPORTS

DATA QUALIFIERS

U - Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* - Indicates that the original sample result is greater than 4x the spike amount added. The USEPA-CLP has determined that spike results on samples where this occurs may be unreliable and therefore, the control limits are not applicable.

ABBREVIATIONS

MB - Method or preparation blank
MS - Matrix Spike
MSD - Matrix Spike Duplicate.
REP - Sample Replicate.
LC - Indicates a method LCS or Blank Spike.
NC - Not calculable, result below the detection limit.

A suffix of -R and -S following these codes indicates a replicate and spike analysis respectively.

ANALYTICAL METAL METHODS

As :	EPA 206.2	Se :	EPA 270.2
Pb :	EPA 239.2	ICP Scan :	EPA 200.7
Hg :	EPA 245.1	All Others :	EPA 200.7
Tl :	EPA 279.2	EP Leachates (except Hg) :	200.7

The analytical methods applied by the laboratory for the determination of drinking water is 5.2.1.

NOTES

The laboratory prepares a matrix spike at one per 20 frequency for TCLP samples. The Federal Register recommends that all matrix spikes be prepared at greater than 50% of the indigenous analyte concentration. A matrix duplicate is also prepared.

Holding times for soil samples have not been promulgated by the USEPA.

For solid samples, all results are reported on a dry weight basis.

The range for mercury solid laboratory control standards is 66.9% to 133.8%.

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/11/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L300

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	STATION 186	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	116		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	36.8		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	26.3		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/11/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L300

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-002	STATION 190	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	142		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	42.5		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/11/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L300

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-003	STATION 191	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	28.7		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/11/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L300

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-004	STATION 192	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	21.0		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/11/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L300

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-005	STATION 196	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	814		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	30.2		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	43.5		UG/L	20.0

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 03/11/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9202L300
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
BLANK1	92L0604-MB1	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Zinc, Total	20.0	u	UG/L	20.0
BLANK1	92L0603-MB1	Arsenic, Total	10.0	u	UG/L	10.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
BLANK1	92C0055-MB1	Mercury, Total	0.20	u	UG/L	0.20

ROY F. WESTON INC.

INORGANIC DUPLICATE SPIKE REPORT 03/11/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9202L300

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%RPD
LCS2	92L0604-LC2	Silver, LCS	83.5	79.7	4.7
		Aluminum, LCS	99.5	97.9	1.6
		Barium, LCS	97.5	95.9	1.7
		Cadmium, LCS	96.3	94.4	2.0
		Chromium, LCS	94.2	92.6	1.7
		Copper, LCS	95.0	93.3	1.8
		Iron, LCS	95.1	93.3	1.9
		Manganese, LCS	95.7	94.1	1.7
		Sodium, LCS	97.6	96.4	1.2
		Nickel, LCS	95.9	93.3	2.7
		Zinc, LCS	94.3	92.8	1.6
LCS2	92L0603-LC2	Arsenic, LCS	92.0	91.3	0.76
		Lead, LCS	100	99.3	1.0
		Selenium, LCS	81.7	82.7	1.2
LCS2	92C0055-LC2	Mercury, LCS	105	98.2	6.7

ROY F. WESTON INC.

INORGANIC LABORATORY CONTROL STANDARDS REPORT 03/11/92

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	92L0604-LC1	Silver, LCS	418	500	UG/L	83.5
		Aluminum, LCS	4970	5000	UG/L	99.5
		Barium, LCS	4880	5000	UG/L	97.5
		Cadmium, LCS	241	250	UG/L	96.3
		Chromium, LCS	471	500	UG/L	94.2
		Copper, LCS	1190	1250	UG/L	95.0
		Iron, LCS	4760	5000	UG/L	95.1
		Manganese, LCS	718	750	UG/L	95.7
		Sodium, LCS	24400	25000	UG/L	97.6
		Nickel, LCS	1920	2000	UG/L	95.9
		Zinc, LCS	944	1000	UG/L	94.3
LCS2	92L0604-LC2	Silver, LCS	399	500	UG/L	79.7
		Aluminum, LCS	4900	5000	UG/L	97.9
		Barium, LCS	4790	5000	UG/L	95.9
		Cadmium, LCS	236	250	UG/L	94.4
		Chromium, LCS	463	500	UG/L	92.6
		Copper, LCS	1170	1250	UG/L	93.3
		Iron, LCS	4670	5000	UG/L	93.3
		Manganese, LCS	706	750	UG/L	94.1
		Sodium, LCS	24100	25000	UG/L	96.4
		Nickel, LCS	1870	2000	UG/L	93.3
		Zinc, LCS	928	1000	UG/L	92.8
LCS1	92L0603-LC1	Arsenic, LCS	27.6	30.0	UG/L	92.0
		Lead, LCS	30.1	30.0	UG/L	100
		Selenium, LCS	24.5	30.0	UG/L	81.7
LCS2	92L0603-LC2	Arsenic, LCS	27.4	30.0	UG/L	91.3
		Lead, LCS	29.8	30.0	UG/L	99.3
		Selenium, LCS	24.8	30.0	UG/L	82.7
LCS1	92C0055-LC1	Mercury, LCS	5.3	5.0	UG/L	105
LCS2	92C0055-LC2	Mercury, LCS	4.9	5.0	UG/L	98.2

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/11/92 RFW LOT # :9202L300

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 186						
SILVER, TOTAL	001	W	92L0604	02/10/92	02/27/92	03/10/92
ALUMINUM, TOTAL	001	W	92L0604	02/10/92	02/27/92	03/10/92
ARSENIC, TOTAL	001	W	92L0603	02/10/92	02/27/92	02/28/92
BARIUM, TOTAL	001	W	92L0604	02/10/92	02/27/92	03/10/92
CADMIUM, TOTAL	001	W	92L0604	02/10/92	02/27/92	03/10/92
CHROMIUM, TOTAL	001	W	92L0604	02/10/92	02/27/92	03/10/92
COPPER, TOTAL	001	W	92L0604	02/10/92	02/27/92	03/10/92
IRON, TOTAL	001	W	92L0604	02/10/92	02/27/92	03/10/92
MERCURY, TOTAL	001	W	92C0055	02/10/92	02/27/92	03/02/92
MANGANESE, TOTAL	001	W	92L0604	02/10/92	02/27/92	03/10/92
SODIUM, TOTAL	001	W	92L0604	02/10/92	02/27/92	03/10/92
NICKEL, TOTAL	001	W	92L0604	02/10/92	02/27/92	03/10/92
LEAD, TOTAL	001	W	92L0603	02/10/92	02/27/92	02/28/92
SELENIUM, TOTAL	001	W	92L0603	02/10/92	02/27/92	02/28/92
ZINC, TOTAL	001	W	92L0604	02/10/92	02/27/92	03/10/92
STATION 190						
SILVER, TOTAL	002	W	92L0604	02/10/92	02/27/92	03/10/92
ALUMINUM, TOTAL	002	W	92L0604	02/10/92	02/27/92	03/10/92
ARSENIC, TOTAL	002	W	92L0603	02/10/92	02/27/92	02/28/92
BARIUM, TOTAL	002	W	92L0604	02/10/92	02/27/92	03/10/92
CADMIUM, TOTAL	002	W	92L0604	02/10/92	02/27/92	03/10/92
CHROMIUM, TOTAL	002	W	92L0604	02/10/92	02/27/92	03/10/92
COPPER, TOTAL	002	W	92L0604	02/10/92	02/27/92	03/10/92
IRON, TOTAL	002	W	92L0604	02/10/92	02/27/92	03/10/92
MERCURY, TOTAL	002	W	92C0055	02/10/92	02/27/92	03/02/92
MANGANESE, TOTAL	002	W	92L0604	02/10/92	02/27/92	03/10/92
SODIUM, TOTAL	002	W	92L0604	02/10/92	02/27/92	03/10/92
NICKEL, TOTAL	002	W	92L0604	02/10/92	02/27/92	03/10/92
LEAD, TOTAL	002	W	92L0603	02/10/92	02/27/92	02/28/92
SELENIUM, TOTAL	002	W	92L0603	02/10/92	02/27/92	02/28/92
ZINC, TOTAL	002	W	92L0604	02/10/92	02/27/92	03/10/92
STATION 191						
SILVER, TOTAL	003	W	92L0604	02/10/92	02/27/92	03/10/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/11/92 RFW LOT # :9202L300

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	003	W	92L0604	02/10/92	02/27/92	03/10/92
ARSENIC, TOTAL	003	W	92L0603	02/10/92	02/27/92	02/28/92
BARIUM, TOTAL	003	W	92L0604	02/10/92	02/27/92	03/10/92
CADMIUM, TOTAL	003	W	92L0604	02/10/92	02/27/92	03/10/92
CHROMIUM, TOTAL	003	W	92L0604	02/10/92	02/27/92	03/10/92
COPPER, TOTAL	003	W	92L0604	02/10/92	02/27/92	03/10/92
IRON, TOTAL	003	W	92L0604	02/10/92	02/27/92	03/10/92
MERCURY, TOTAL	003	W	92C0055	02/10/92	02/27/92	03/02/92
MANGANESE, TOTAL	003	W	92L0604	02/10/92	02/27/92	03/10/92
SODIUM, TOTAL	003	W	92L0604	02/10/92	02/27/92	03/10/92
NICKEL, TOTAL	003	W	92L0604	02/10/92	02/27/92	03/10/92
LEAD, TOTAL	003	W	92L0603	02/10/92	02/27/92	02/28/92
SELENIUM, TOTAL	003	W	92L0603	02/10/92	02/27/92	02/28/92
ZINC, TOTAL	003	W	92L0604	02/10/92	02/27/92	03/10/92
STATION 192						
SILVER, TOTAL	004	W	92L0604	02/10/92	02/27/92	03/10/92
ALUMINUM, TOTAL	004	W	92L0604	02/10/92	02/27/92	03/10/92
ARSENIC, TOTAL	004	W	92L0603	02/10/92	02/27/92	02/28/92
BARIUM, TOTAL	004	W	92L0604	02/10/92	02/27/92	03/10/92
CADMIUM, TOTAL	004	W	92L0604	02/10/92	02/27/92	03/10/92
CHROMIUM, TOTAL	004	W	92L0604	02/10/92	02/27/92	03/10/92
COPPER, TOTAL	004	W	92L0604	02/10/92	02/27/92	03/10/92
IRON, TOTAL	004	W	92L0604	02/10/92	02/27/92	03/10/92
MERCURY, TOTAL	004	W	92C0055	02/10/92	02/27/92	03/02/92
MANGANESE, TOTAL	004	W	92L0604	02/10/92	02/27/92	03/10/92
SODIUM, TOTAL	004	W	92L0604	02/10/92	02/27/92	03/10/92
NICKEL, TOTAL	004	W	92L0604	02/10/92	02/27/92	03/10/92
LEAD, TOTAL	004	W	92L0603	02/10/92	02/27/92	02/28/92
SELENIUM, TOTAL	004	W	92L0603	02/10/92	02/27/92	02/28/92
ZINC, TOTAL	004	W	92L0604	02/10/92	02/27/92	03/10/92
STATION 196						
SILVER, TOTAL	005	W	92L0604	02/10/92	02/27/92	03/10/92
ALUMINUM, TOTAL	005	W	92L0604	02/10/92	02/27/92	03/10/92
ARSENIC, TOTAL	005	W	92L0603	02/10/92	02/27/92	02/28/92
BARIUM, TOTAL	005	W	92L0604	02/10/92	02/27/92	03/10/92
CADMIUM, TOTAL	005	W	92L0604	02/10/92	02/27/92	03/10/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/11/92 RFW LOT # :9202L300

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	005	W	92L0604	02/10/92	02/27/92	03/10/92
COPPER, TOTAL	005	W	92L0604	02/10/92	02/27/92	03/10/92
IRON, TOTAL	005	W	92L0604	02/10/92	02/27/92	03/10/92
MERCURY, TOTAL	005	W	92C0055	02/10/92	02/27/92	03/02/92
MANGANESE, TOTAL	005	W	92L0604	02/10/92	02/27/92	03/10/92
SODIUM, TOTAL	005	W	92L0604	02/10/92	02/27/92	03/10/92
NICKEL, TOTAL	005	W	92L0604	02/10/92	02/27/92	03/10/92
LEAD, TOTAL	005	W	92L0603	02/10/92	02/27/92	02/28/92
SELENIUM, TOTAL	005	W	92L0603	02/10/92	02/27/92	02/28/92
ZINC, TOTAL	005	W	92L0604	02/10/92	02/27/92	03/10/92

LAB QC:

SILVER LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
ALUMINUM LABORTORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
BARIUM LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
CADMIUM LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
CHROMIUM LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
COPPER LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
IRON LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
MANGANESE LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
SODIUM LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
NICKEL LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
ZINC LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
SILVER LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
ALUMINUM LABORTORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
BARIUM LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
CADMIUM LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
CHROMIUM LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
COPPER LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
IRON LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
MANGANESE LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
SODIUM LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
NICKEL LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
ZINC LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
SILVER, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
ALUMINUM, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
BARIUM, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
CADMIUM, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
CHROMIUM, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/11/92 RFW LOT # :9202L300

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
IRON, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
MANGANESE, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
SODIUM, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
NICKEL, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
ZINC, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
ARSENIC LABORATORY	LC1 BS	W	92L0603	N/A	02/27/92	02/28/92
LEAD LABORATORY	LC1 BS	W	92L0603	N/A	02/27/92	02/28/92
SELENIUM LABORATORY	LC1 BS	W	92L0603	N/A	02/27/92	02/28/92
ARSENIC LABORATORY	LC2 BS	W	92L0603	N/A	02/27/92	02/28/92
LEAD LABORATORY	LC2 BS	W	92L0603	N/A	02/27/92	02/28/92
SELENIUM LABORATORY	LC2 BS	W	92L0603	N/A	02/27/92	02/28/92
ARSENIC, TOTAL	MB1	W	92L0603	N/A	02/27/92	02/28/92
LEAD, TOTAL	MB1	W	92L0603	N/A	02/27/92	02/28/92
SELENIUM, TOTAL	MB1	W	92L0603	N/A	02/27/92	02/28/92
MERCURY LABORATORY	LC1 BS	W	92C0055	N/A	02/27/92	03/02/92
MERCURY LABORATORY	LC2 BS	W	92C0055	N/A	02/27/92	03/02/92
MERCURY, TOTAL	MB1	W	92C0055	N/A	02/27/92	03/02/92

WESTON Analytics Use Only

92021300

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WSRC - TASK 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12-0000
Project Contact/Phone #:
AD Project Manager: Diane Thomas
QC: STB Del: STB TAT: 30 Day
Date Rec'd: 2-11-92 Date Due: 3-12-92
Account #: WSRC12STD

Refrigerator #		1				SUB	SUB		4		4	4	4			
#.Type Container	Liquid	16				1P	1P		1P		1P	1P	1P			
	Solid															
Volume	Liquid	40m				4L	1L		1L		1L	250	250			
	Solid															
Preservatives		HCL				None	None		HNO3		None	HNO3	None			
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb	Tyler Blank ①	Tyler Blank ②	TPH	Metal	CN	NH3 TKN NO2 NO3	NO3 NO2	PH SO4			

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only: 0624H				ISUB	ISUB		See Below		INKL FACID ICL ISUB	INKL INORG	IPH ISUB			
S - Soil	001	Station 186			W	2-10-92		✓				✓	✓		✓		✓	✓	✓			
SE - Sediment	002	190																				
SO - Solid	003	191																				
SL - Sludge	004	192																				
W - Water	005	196																				
O - Oil	006	~~Field~~ TRIP Blank 2-11-92																				
A - Air																						
DS - Drum Solids																						
DL - Drum Liquids																						
L - EP/TCLP Leachate		RAD info to follow																				
Wi - Wipe																						
X - Other																						
F - Fish																						

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: original Requisition
metals = Ag, AL, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, ZN, Fe, MN

Use Ultrep

DATE/REVISIONS:
2-26-92 1. Cancel Alkalinity per SDR Jack
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # 251242315 4
2) Ambient ~~or Chilled~~
3) Received in Good Condition (Y) or N
4) Labels Indicate Properly Preserved (Y) or N
5) Received Within Holding Times Y or N

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

COC Record Present Upon Sample Rec'd (Y) or N

Discrepancies Between Samples Labels and COC Record? (Y) or N
NOTES: Sample Rec'd for #006 was TRIP Blank NOT Field Blank.

Relinquished by	Received by	Date	Time
Emery J.	[signature]	2-11-92	13:00
	[signature] 2-11-92		

Relinquished by	Received by	Date	Time
	[signature]		

RFW 2[illegible]201/A-7/91 ____ L372 ____ L373 ____ ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

RFW 9202L300

EMERY WORLDWIDE — A CF Company

FORM OF PAYMENT

Check ☐ GBL ☐ FCCOD ☐

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

E Shipper's Account Number: 850282237

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 ☐

Date	Origin	Shipment Number
2-10-92	CAE	2513423154

Tariff Dest. | Gateway

From:
LAURA BASELAN 404-821-7891
USDOE WESTINGHOUSE
SAVANNAH RIVER CO
SAVANNAH RIVER SITE
AIKEN SC
Canada ☐

To:
DIANE THOMAS 215-524-7360
WESTON ANALYTICS
208 WELSH POOL RD
LIONVILLE PA 19341
Hold for Pick Up ☐ Canada ☐

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: SEM 5540-14

Zip: 29808

E Consignee's Account Number

Declared Value $

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

Description	Pcs.	L	W	H	Total Pieces	Total Weight (in lbs.)
LABORATORY SAMPLES	2	34	16	17	2	188#

2513423154

Remarks: by Pat Brightwell

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 ☐

Shipper's Signature X LAURA BASELAN

International Shipments: Free Domicile ☐ Commodity Code

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

International Customs Value | International Insurance

Base Charge

Total Transportation Charges

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

3·PHL A

Terms and Conditions on Back

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WSRC-TASK 12 **SAMPLES RECEIVED:** 02-11-92
RFW #: 9202L300, GC/MS VOLATILE
W.O. #: 0345-31-12

NARRATIVE

The set of samples consisted of six (6) water samples collected on 02-10-92.

The samples were analyzed according to criteria set forth in SW 846 Method 8240 for TCL Volatile target compounds on 02-13-92.

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

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

2. All surrogate recoveries were within EPA QC limits.

3. Matrix spike recoveries are associated with RFW lot 9201L177.

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

Margaret D. Daty 3/18/92

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

WESTON

GLOSSARY OF VOA DATA

DATA QUALIFIERS

U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero; for example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

I = Interference.

X = Additional qualifiers used as required are explained in the case narrative.

NQ = Result qualitatively confirmed but not able to quantify.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Indicates that surrogate recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not applicable.

DF = Dilution factor.

NR = Not required.

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

Report Date: 02/27/92 09:59

RFW Batch Number: 9202L300 Client: WSRC-TASK 12 Work Order: 0345-31-12-0000

	Cust ID:	STATION 186		STATION 190		STATION 191		STATION 192		STATION 196		TRIP BLANK	
Sample Information	RFW#:	001		002		003		004		005		006	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Surrogate Recovery	Toluene-d8	98	%	97	%	97	%	98	%	97	%	99	%
	Bromofluorobenzene	102	%	99	%	100	%	100	%	99	%	98	%
	1,2-Dichloroethane-d4	110	%	105	%	106	%	108	%	109	%	107	%
			fl		fl		fl		fl		fl		fl
Chloromethane		10	U	10	U	10	U	10	U	10	U	10	U
Bromomethane		10	U	10	U	10	U	10	U	10	U	10	U
Vinyl Chloride		10	U	10	U	10	U	10	U	10	U	10	U
Chloroethane		10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride		2	JB	2	JB	2	JB	2	JB	5	U	5	U
Acetone		10	U	10	U	10	U	10	U	10	U	10	U
Carbon Disulfide	*	5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene		5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethene (total)		5	U	5	U	5	U	5	U	5	U	5	U
Chloroform		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
2-Butanone		10	U	10	U	10	U	10	U	10	U	10	U
1,1,1-Trichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Carbon Tetrachloride		5	U	5	U	5	U	5	U	5	U	5	U
Vinyl Acetate		10	U	10	U	10	U	10	U	10	U	10	U
Bromodichloromethane		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloropropane		5	U	5	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U	5	U
Trichloroethene		5	U	5	U	5	U	5	U	5	U	5	U
Dibromochloromethane		5	U	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Benzene		5	U	5	U	5	U	5	U	5	U	5	U
Trans-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U	5	U
Bromoform		5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone		10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone		10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene		5	U	5	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U	5	U	5	U	5	U

*= Outside of EPA CLP QC limits.

Cust ID:	STATION 186	STATION 190	STATION 191	STATION 192	STATION 196	TRIP BLANK
RFW#:	001	002	003	004	005	006
Toluene	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

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

Report Date: 02/27/92 09:59

RFW Batch Number: 9202L300 Client: WSRC-TASK 12 Work Order: 0345-31-12-0000 Page: 2a

Cust ID: VBLK

Sample Information

RFW#: 92LVK026-MB1
Matrix: WATER
D.F.: 1.00
Units: ug/L

Surrogate Recovery	Toluene-d8	99	%
	Bromofluorobenzene	101	%
	1,2-Dichloroethane-d4	98	%

Chloromethane	10	U
Bromomethane	10	U
Vinyl Chloride	10	U
Chloroethane	10	U
Methylene Chloride	2	J
Acetone	7	J
Carbon Disulfide *	5	U
1,1-Dichloroethene	5	U
1,1-Dichloroethane	5	U
1,2-Dichloroethene (total)	5	U
Chloroform	5	U
1,2-Dichloroethane	5	U
2-Butanone	10	U
1,1,1-Trichloroethane	5	U
Carbon Tetrachloride	5	U
Vinyl Acetate	10	U
Bromodichloromethane	5	U
1,2-Dichloropropane	5	U
cis-1,3-Dichloropropene	5	U
Trichloroethene	5	U
Dibromochloromethane	5	U
1,1,2-Trichloroethane	5	U
Benzene	5	U
Trans-1,3-Dichloropropene	5	U
Bromoform	5	U
4-Methyl-2-pentanone	10	U
2-Hexanone	10	U
Tetrachloroethene	5	U
1,1,2,2-Tetrachloroethane	5	U

*= Outside of EPA CLP QC limits.

Cust ID: VBLK

RFW#: 92LVK026-MB1

Toluene	5	U
Chlorobenzene	5	U
Ethylbenzene	5	U
Styrene	5	U
Xylene (total)	5	U

*= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
VOA ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/11/92 RFW LOT # :9202L300

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 186	001	W	92LVK026	02/10/92	N/A	02/13/92
STATION 190	002	W	92LVK026	02/10/92	N/A	02/13/92
STATION 191	003	W	92LVK026	02/10/92	N/A	02/13/92
STATION 192	004	W	92LVK026	02/10/92	N/A	02/13/92
STATION 196	005	W	92LVK026	02/10/92	N/A	02/13/92
TRIP BLANK	006	W	92LVK026	02/10/92	N/A	02/13/92

LAB QC:

VBLK	MB1	W	92LVK026	N/A	N/A	02/13/92

Diane Thomas — Jim — Date — Yellow — OK — with Lab — Mary J.

WESTON Analytics Use Only
92021300

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WSRC - TASK 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12-0000
Project Contact/Phone #:
AD Project Manager: Diane Thomas
QC: Stb Del: Stb TAT: 30 Day
Date Rec'd: 2-11-92 Date Due: 3-12-92
Account #: WSRC12STD

Refrigerator #		1				SUB	SUB		4		4	4	4					
#/Type Container	Liquid	1G				1P	1P		1P		1P	1P	1P					
	Solid																	
Volume	Liquid	40m				4L	1L		1L		1L	250	250					
	Solid																	
Preservatives		HCL				none	none		none		none	NaOH	none					
ANALYSES REQUESTED →		ORGANIC							INORG									
		VOA	BNA	Pest/PCB	Herb	Tyler Flam ①	Tyler Flam ②	TCLP	Metal	CN	NH3 Acid Cl SPCD	NO3 NO2	PO4 SO4					
		WESTON Analytics Use Only																
		0624H				ISUB	ISUB		See Below		TALK1 FACID ICL ISPCD	INORG	INORG IM ISO4					

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	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	Tyler Flam ①	Tyler Flam ②	TCLP	Metal	CN	NH3 Acid Cl SPCD	NO3 NO2	PO4 SO4			
001	Station 186			W	2-10-92		✓				✓	✓		✓		✓	✓	✓			
002	190																				
003	191																				
004	192																				
005	196																				
006	~~Field~~ Blank 2-11-92																				
	RAD info to follow																				

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Original Rewritten

metals = Ag, AL, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, Zn, Fe, Mn

Use Ultrex

DATE/REVISIONS:
2-26-92 1. Cancel Alkalinity per SDR Jeff
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # 2513423154
2) Ambient ~~or Chilled~~
3) Received in Good Condition (Y) or N
4) Labels Indicate Properly Preserved (Y) or N
5) Received Within Holding Times Y or N

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

COC Record Present Upon Sample Rec't (Y) or N

Discrepancies Between Samples Labels and COC Record? (Y) or N
NOTES: Sample Rec'd for #006 was a TRIP Blank NOT Field Blank.

Relinquished by	Received by	Date	Time
Emery	Jeff Billings	2-11-92	13:00
	JM	2-11-92	

Relinquished by	Received by	Date	Time
	Jeff Billings		

RFW 2[illegible]001/A-7/91 ____ L372 ____ L373 ____ ____ L377 ____ L378 Ref# ____ Cooler# ____ 381-596a

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

30-Jun-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 1
Copy: 1 of 2
Set : 1

Attn: Diane C. Thomas
Received: 20-Mar-92 09:30
Project: WO# 0345-31-12-0000
PO #: LSA: LL-1006-F4

Job: 923607E
Status: Final

Sample Type: Water

Sample Id	Gross Alpha Total pCi/l	Error 2σ	Gross Beta Total pCi/l	Error 2σ	Radium Total pCi/l	Error 2σ
Station 186	13	±4	23	±2	4.0	±1.9
Station 190	2.6	±1.5	28	±2	0.5	±1.2
Station 191	2.8	±1.6	8.5	±2.0	1.1	±1.4
Station 192	5.0	±1.9	32	±3	4.3	±2.3
Station 196	52	±5	8.6	±2.0	0.0	±1.5
Station 205	48	±12	45	±9	7.7	±2.4
Station 206	2.3	±1.1	7.7	±2.0	3.1	±1.8
Station 207	3.4	±1.6	2.9	±1.8	1.0	±1.4
Station 208	7.8	±2.6	3.4	±1.8	2.5	±2.8
Station 209	13	±5	18	±4	2.7	±1.6
Station 220	10	±3	5.5	±2.0	2.2	±1.0
Station 221	19	±4	24	±3	1.8	±0.9
Station 222	6.5	±2.5	5.8	±2.0	3.2	±1.2
Station 225	3.7	±1.8	3.9	±1.9	3.9	±1.2
Station 230	31	±11	42	±9	4.2	±1.2
Station 230 DUP	64	±20	65	±14	6.3	±1.4
Station 271	22	±7	12	±6	1.8	±1.6
Station 254	0.1	±1.3	3.9	±1.8	0.9	±1.0
Station 258	4.5	±2.6	7.5	±2.1	1.9	±1.5
Station 259	3.6	±2.1	58	±4	1.8	±1.0
Station 262	2.9	±1.9	4.2	±1.9	1.2	±0.8
Station 263	2.2	±1.7	3.1	±1.8	2.2	±1.0
Station 266	8.7	±3.2	5.7	±2.1	2.3	±1.2
Station 267	7.5	±2.8	8.2	±2.1	1.1	±1.0
Station 268	1.9	±1.6	5.4	±1.9	0.5	±0.9
Station 269	1.0	±1.5	2.0	±1.8	0.7	±0.8
Station 269 DUP	3.3	±1.8	3.3	±1.8	2.4	±1.0

BARRINGER LABORATORIES INC.
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30-Jun-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 2
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Attn: Diane C. Thomas
Project: WO# 0345-31-12-0000

Received: 20-Mar-92 09:30
PO #: LSA: LL-1006-F4

Job: 923607E

Status: Final

Sample Type: Water

Sample Id	U-234 Total pCi/l	Error 2σ	U-235 Total pCi/l	Error 2σ	U-238 Total pCi/l	Error 2σ	Gamma Spec pCi/l	Error 2σ
Station 186	0.8	±0.9	0.0	±0.4	0.0	±0.5	NAD	---
Station 190	0.5	±0.8	0.0	±0.4	0.0	±0.6	NAD	---
Station 191	5.1	±1.9	0.2	±0.7	5.0	±1.8	NAD	---
Station 192	0.2	±0.7	0.0	±0.4	0.0	±0.6	NAD	---
Station 196	0.2	±0.7	0.0	±0.5	0.3	±0.8	NAD	---
Station 205	0.6	±1.0	0.0	±0.6	1.1	±1.2	NAD	---
Station 206	0.6	±0.9	0.0	±0.7	0.3	±0.8	NAD	---
Station 207	1.4	±1.1	0.0	±0.5	0.6	±0.9	NAD	---
Station 208	0.3	±0.7	0.0	±0.4	0.0	±0.4	NAD	---
Station 209	0.8	±0.9	0.0	±0.4	0.3	±0.7	NAD	---
Station 220	0.3	±0.8	0.0	±0.5	0.3	±0.8	NAD	---
Station 221	0.3	±0.8	0.0	±0.5	0.3	±0.8	NAD	---
Station 222	1.2	±1.1	0.0	±0.5	0.5	±0.9	NAD	---
Station 225	1.3	±1.1	0.0	±0.6	1.8	±1.2	NAD	---
Station 230	2.3	±1.4	0.0	±0.5	0.8	±1.0	NAD	---
Station 230 DUP	0.8	±1.0	0.0	±0.5	1.2	±1.1	NAD	---
Station 271	0.8	±1.0	0.0	±0.5	0.7	±0.9	NAD	---
Station 254	2.0	±1.4	0.0	±0.7	0.8	±1.2	NAD	---
Station 258	0.3	±0.8	0.0	±0.5	0.5	±0.8	NAD	---
Station 259	1.1	±1.1	0.0	±0.5	0.3	±0.8	NAD	---
Station 262	0.7	±0.9	0.0	±0.5	1.2	±1.1	NAD	---
Station 263	0.5	±0.9	0.0	±0.5	0.7	±0.9	NAD	---
Station 266	0.5	±0.8	0.0	±0.5	0.3	±0.8	NAD	---
Station 267	0.8	±1.0	0.0	±0.5	0.8	±1.0	NAD	---
Station 268	0.7	±0.9	0.0	±0.5	0.2	±0.7	NAD	---
Station 269	0.5	±1.0	0.0	±0.7	0.3	±1.0	NAD	---
Station 269 DUP	0.2	±0.9	0.0	±0.6	0.0	±0.8	NAD	---

BARRINGER LABORATORIES INC.
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30-Jun-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 3
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Attn: Diane C. Thomas
Project: WO# 0345-31-12-0000

Received: 20-Mar-92 09:30
PO #: LSA: LL-1006-F4

Job: 923607E

Status: Final

Sample Type: Water

Sample Id	Tritium pCi/l	Tritium Error 2σ	I-129 pCi/l	I-129 Error 2σ	Pu-238 pCi/l	Pu-238 Error 2σ
Station 186	12000	±600	1	±23	0.0	±0.6
Station 190	9100	±500	0	±21	0.0	±0.9
Station 191	7600	±500	0	±30	0.0	±1.1
Station 192	6900	±500	0	±22	0.0	±0.8
Station 196	6800	±500	0	±58	0.0	±0.8
Station 205	9100	±500	0	±33	0.0	±0.7
Station 206	88000	±1000	0	±15	0.0	±0.8
Station 207	16000	±1000	0	±29	0.0	±0.9
Station 208	20000	±1000	0	±29	0.0	±0.8
Station 209	7900	±500	3	±18	0.0	±1.0
Station 220	14000	±1000	0	±40	0.0	±1.3
Station 221	14000	±1000	0	±47	0.0	±0.4
Station 222	7700	±500	0	±43	0.0	±0.8
Station 225	8200	±500	0	±26	0.0	±0.8
Station 230	7000	±500	0	±21	0.0	±0.7
Station 230 DUP	7700	±500	0	±27	0.0	±0.7
Station 271	890	±330	0	±28	0.0	±0.7
Station 254	2800	±400	0	±21	0.0	±0.7
Station 258	7000	±500	0	±32	0.0	±0.7
Station 259	3600	±400	0	±14	0.0	±0.5
Station 262	1600	±400	0	±16	0.0	±0.6
Station 263	3200	±400	0	±20	0.0	±0.8
Station 266	1700	±400	0	±15	0.0	±1.2
Station 267	2100	±400	9	±14	0.0	±0.5
Station 268	3600	±400	0	±12	0.0	±0.6
Station 269	900	±300	0	±38	0.0	±1.1
Station 269 DUP	860	±300	0	±23	0.0	±1.2

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30-Jun-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 4
Copy: 1 of 2
Set : 1

Attn: Diane C. Thomas
Project: WO# 0345-31-12-0000

Received: 20-Mar-92 09:30
PO #: LSA: LL-1006-F4

Job: 923607E

Status: Final

Sample Type: Water

Sample Id	Pu-239/240 pCi/l	Error 2σ	Sr-89 pCi/l	Error 2σ	Sr-90 pCi/l	Error 2σ	Tc-99 pCi/l	Error 2σ
Station 186	0.0	±0.6	0.6	±1.4	0.6	±1.4	0.9	±1.6
Station 190	0.0	±0.7	0.2	±1.2	0.2	±1.2	1.6	±3.1
Station 191	0.0	±0.9	0.3	±1.4	0.3	±1.4	1.3	±3.1
Station 192	0.0	±0.7	0.0	±1.2	0.0	±1.2	0.9	±1.5
Station 196	0.0	±0.6	0.0	±1.3	0.0	±1.3	4.5	±2.6
Station 205	0.0	±0.5	0.5	±1.6	0.5	±1.6	0.0	±2.5
Station 206	0.0	±0.6	0.1	±1.2	0.1	±1.2	8.7	±2.9
Station 207	0.0	±0.7	1.0	±1.4	1.0	±1.4	0.2	±3.5
Station 208	0.0	±0.7	0.5	±1.3	0.5	±1.3	0.2	±2.3
Station 209	0.0	±1.1	1.2	±1.3	1.2	±1.3	0.0	±2.5
Station 220	0.0	±1.1	0.0	±1.4	0.0	±1.4	0.0	±2.2
Station 221	0.0	±0.4	0.5	±1.6	0.5	±1.6	1.0	±2.3
Station 222	0.0	±0.6	0.0	±1.6	0.0	±1.6	0.0	±2.5
Station 225	0.0	±0.7	0.0	±1.4	0.0	±1.4	0.0	±2.0
Station 230	0.0	±0.6	0.4	±1.7	0.4	±1.7	0.2	±2.4
Station 230 DUP	0.1	±0.8	0.6	±1.9	0.6	±1.9	0.0	±2.3
Station 271	0.8	±1.0	0.7	±2.6	0.7	±2.6	0.0	±2.3
Station 254	0.0	±0.6	2.2	±3.6	2.2	±3.6	0.0	±3.4
Station 258	0.0	±0.7	1.2	±1.4	1.2	±1.4	0.0	±2.5
Station 259	0.0	±0.4	0.6	±1.6	0.6	±1.6	0.0	±2.6
Station 262	0.0	±0.5	0.6	±1.5	0.6	±1.5	0.5	±2.7
Station 263	0.0	±0.6	2.3	±2.3	2.3	±2.3	1.7	±2.8
Station 266	0.0	±0.7	0.6	±1.7	0.6	±1.7	2.7	±2.7
Station 267	0.4	±0.7	0.5	±1.6	0.5	±1.6	0.0	±2.6
Station 268	0.6	±0.9	1.7	±1.6	0.0	±2.7	0.0	±2.6
Station 269	0.0	±0.9	1.2	±3.6	1.2	±3.6	0.0	±3.2
Station 269 DUP	0.0	±0.8	2.2	±3.0	2.2	±3.0	0.2	±2.3

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

30-Jun-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 5
Copy: 1 of 2
Set : 1

Attn: Diane C. Thomas
Project: WO# 0345-31-12-0000

Received: 20-Mar-92 09:30
PO #: LSA: LL-1006-F4

Job: 923607E

Status: Final

Sample Type: Water

Sample Id	Am-241 pCi/l	Error 2σ	C-14 pCi/l	Error 2σ
Station 186	0.0	±0.6	0	±15
Station 190	0.0	±0.6	2	±14
Station 191	0.0	±1.1	0	±11
Station 192	0.0	±0.6	8	±12
Station 196	0.0	±0.6	7	±12
Station 205	0.0	±0.8	0	±20
Station 206	0.0	±0.7	6	±11
Station 207	0.0	±0.7	0	±11
Station 208	0.0	±0.7	0	±12
Station 209	0.0	±1.0	1	±16
Station 220	0.0	±1.1	12	±13
Station 221	0.0	±1.8	5	±15
Station 222	0.0	±1.9	7	±14
Station 225	0.0	±1.9	8	±18
Station 230	0.0	±2.5	6	±16
Station 230 DUP	0.0	±2.1	19	±21
Station 271	0.0	±0.6	4	±12
Station 254	0.0	±2.8	7	±11
Station 258	0.0	±0.8	7	±13
Station 259	0.0	±0.7	10	±13
Station 262	0.0	±0.6	6	±15
Station 263	0.0	±0.7	3	±10
Station 266	0.6	±1.4	0	±12
Station 267	0.0	±0.6	0	±11
Station 268	0.0	±0.6	2.3	±9.8
Station 269	0.0	±1.1	0.7	±9.8
Station 269 DUP	0.0	±1.1	9	±18

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

30-Jun-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 6
Copy: 1 of 2
Set : 2

Attn: Diane C. Thomas
Project: WO# 0345-31-12-0000

Received: 20-Mar-92 09:30
PO #: LSA: LL-1006-F4

Job: 923607E

Status: Final

Abbreviations:

Parameters:

U-234	: Uranium-234
U-235	: Uranium-235
U-238	: Uranium-238
Gamma Spec	: Gamma Spectralanalysis
I-129	: Iodine-129
Pu-238	: Plutonium-238
Pu-239/240	: Plutonium-239/240
Sr-89	: Strontium-89
Sr-90	: Strontium -90
Tc-99	: Technetium-99
Am-241	: Americium-241
C-14	: Carbon-14

Units:

pCi/l	: picoCuries per liter
2σ	: Counting error at the 95% confidence level, 2σ

Quality codes:

NAD : No Activity Detected
No identifiable peaks between 0 and 2000 KeV.
Less than the detection limit, based on Cs-137 LLD at 25 pCi/l.

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

30-Jun-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 1
Copy: 1 of 2
Set : 1

Attn: Diane C. Thomas
Project: WO# 0345-31-12-0000

Received: 20-Mar-92 09:30
PO #: LSA: LL-1006-F4

Job: 923607E

Status: Final

QUALITY CONTROL REPORT

Sample Type: Water

Sample Id	Gross Alpha Total pCi/l	Error 2σ	Gross Beta Total pCi/l	Error 2σ	Radium Total pCi/l	Error 2σ
Duplicate	23	±8	12	±6	2.6	±1.0
Duplicate	20	±6	12	±6	2.2	±0.9
Duplicate % diff.	7.0	---	0.0	---	8.3	---
Std (found value)	219	±6	129	±2	113	±4
Std (true value)	206	---	120	---	126	---
Std % rec.	106	---	107	---	90	---
Blank	0.2	±0.2	0.1	±0.3	0.0	±0.1
Spike % rec.	---	---	---	---	---	---

Sample Id	U-234 Total pCi/l	Error 2σ	U-235 Total pCi/l	Error 2σ	U-238 Total pCi/l	Error 2σ
Duplicate	0.0	±0.7	0.0	±0.6	0.4	±1.0
Duplicate	1.0	±1.2	0.0	±0.7	0.2	±0.9
Duplicate % diff.	100	---	0.0	---	33	---
Std (found value)	203	±6	9.8	±1.2	219	±6
Std (true value)	192	---	8.8	---	192	---
Std % rec.	106	---	111	---	114	---
Blank	0.0	±0.2	0.0	±0.1	0.0	±0.1
Spike % rec.	103	---	109	---	108	---

Sample Id	Gamma Spec pCi/l	Error 2σ	Tritium pCi/l	Error 2σ	I-129 pCi/l	Error 2σ
Duplicate	NAD	---	930	±330	0	±20
Duplicate	NAD	---	790	±330	0	±23
Duplicate % diff.	0.0	---	8.1	---	0	---
Std (found value)	18	±1	19947	±694	952	±21
Std (true value)	19	---	20111	---	993	---

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

30-Jun-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 2
Copy: 1 of 2
Set : 1

Attn: Diane C. Thomas
Received: 20-Mar-92 09:30
Project: WO# 0345-31-12-0000
PO #: LSA: LL-1006-F4

Job: 923607E
Status: Final

QUALITY CONTROL REPORT

Sample Type: Water

Sample Id	Gamma Spec Error pCi/l	2σ	Tritium Error pCi/l	2σ	I-129 Error pCi/l	2σ
Std % rec.	95	---	99	---	96	---
Blank	---	---	0	±290	0.0	±3.8
Spike % rec.	---	---	94	---	---	---

Sample Id	Pu-238 Error pCi/l	2σ	Pu-239/240 Error pCi/l	2σ	Sr-89 Error pCi/l	2σ
Duplicate	0.0	±0.7	0.0	±0.7	1.2	±3.0
Duplicate	0.0	±0.9	0.0	±0.9	1.3	±4.2
Duplicate % diff.	0.0	---	0.0	---	4.0	---
Std (found value)	100	±4	100	±4	21	±2
Std (true value)	104	---	104	---	20	---
Std % rec.	104	---	104	---	106	---
Blank	0.0	±0.3	0.1	±0.3	0.2	±0.8
Spike % rec.	90	---	90	---	100	---

Sample Id	Sr-90 Error pCi/l	2σ	Tc-99 Error pCi/l	2σ	Am-241 Error pCi/l	2σ
Duplicate	10	±7	0.0	±2.5	0.0	±0.9
Duplicate	12	±6	0.0	±3.4	0.0	±1.1
Duplicate % diff.	9.1	---	0	---	0.0	---
Std (found value)	21	±2	110	±3	108	±5
Std (true value)	20	---	99.8	---	103	---
Std % rec.	105	---	110	---	105	---
Blank	0.5	±1.4	0.0	±0.7	0.0	±0.2
Spike % rec.	---	---	91.1	---	113	---

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

30-Jun-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 3
Copy: 1 of 2
Set : 1

Attn: Diane C. Thomas
Project: WO# 0345-31-12-0000

Received: 20-Mar-92 09:30
PO #: LSA: LL-1006-F4

Job: 923607E

Status: Final

QUALITY CONTROL REPORT

Sample Type: Water

Sample Id	C-14 pCi/l	Error 2σ
Duplicate	5	±15
Duplicate	5	±13
Duplicate % diff.	0.0	---
Std (found value)	1037	±17
Std (true value)	992	---
Std % rec.	104	---
Blank	0.0	±2.0
Spike % rec.	90.7	---

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

30-Jun-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 4
Copy: 1 of 2
Set : 2

Attn: Diane C. Thomas
Project: WO# 0345-31-12-0000

Received: 20-Mar-92 09:30
PO #: LSA: LL-1006-F4

Job: 923607E

Status: Final

QUALITY CONTROL REPORT

Abbreviations:

Parameters:

U-234	: Uranium-234
U-235	: Uranium-235
U-238	: Uranium-238
Gamma Spec	: Gamma Spectralanalysis
I-129	: Iodine-129
Pu-238	: Plutonium-238
Pu-239/240	: Plutonium-239/240
Sr-89	: Strontium-89
Sr-90	: Strontium -90
Tc-99	: Technetium-99
Am-241	: Americium-241
C-14	: Carbon-14

Units:

pCi/l	: picoCuries per liter
2σ	: Counting error at the 95% confidence level, 2σ

Quality codes:

NAD	: No Activity Detected

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

30-Jun-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Attn: Diane C. Thomas
Received: 20-Mar-92 09:30
Project: WO# 0345-31-12-0000
PO #: LSA: LL-1006-F4

Job: 923607E
Status: Final

QUALITY CONTROL REPORT

QUALITY CONTROL DATA SHEET

Received by: jdr
Via: Fedex

Sample Container Type: 1 gal pl , 1L pl
Sample Type: Water
Preservative When Received: none
Additional Lab Preparation: none

Parameter	Method	LLD	Preservative	Analyst	Date(s) of Analysis
Gross Alpha	900.0	2 pCi/l	none	Johnson	4/10- 5/ 6
Gross Beta	900.0	2 pCi/l	none	Johnson	4/10- 5/ 6
Radium	900.1	1 pCi/l	none	Howard	4/22- 4/27
U-234	908.0	0.4 pCi/l	none	Tonning	4/18- 4/29
U-235	908.0	0.4 pCi/l	none	Tonning	4/18- 4/29
U-238	908.0	0.4 pCi/l	none	Tonning	4/18- 4/29
Gamma Spec	901.1	---	none	Kidwell	6/21
Tritium	906.0	460 pCi/l	none	Eggleston	4/17- 4/20
I-129	901.1	25 pCi/l	none	Visser	4/14- 5/11
Pu-238	907.0	0.5 pCi/l	none	Preston	4/ 7- 4/14
Pu-239/240	907.0	0.5 pCi/l	none	Preston	4/ 7- 4/14
Sr-89	901.1	---	none	Hebel	4/21- 5/21
Sr-90	901.1	---	none	Hebel	4/21- 5/21
Tc-99	901.1	---	none	Hebel	4/13- 5/14
Am-241	907.0	0.5 pCi/l	none	Myers	4/ 6- 6/17
C-14	520-84-006	0.5 pCi/l	none	Myers	4/16- 5/13

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

30-Jun-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 6
Copy: 1 of 2

Attn: Diane C. Thomas
Received: 20-Mar-92 09:30
Project: WO# 0345-31-12-0000
PO #: LSA: LL-1006-F4

Job: 923607E
Status: Final

QUALITY CONTROL REPORT

Signed: .....
Laboratory Manager(s)

Signed: .....
Quality Assurance Department

Signed: .....
David Lasher
Acting Laboratory Director

) 2C.

360+

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 3

Client: WESTON - TASK 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12-0000
Project Contact/Phone #: EL 3/9/92
AD Project Manager: Diane Thomas
QC: Del: TAT:
Date Rec'd: 3/9/92 Date Due:
Account #:

Refrigerator #:
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives:

ANALYSES REQUESTED →

ORGANIC							INORG	
VOA	BNA	Pest/PCB	Herb	Radiochem (1)	Radiochem (2)	Radiochem (3)	Metal	CN

WESTON Analytics Use Only

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	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	Radiochem (1)	Radiochem (2)	Radiochem (3)	WESTON Analytics Use Only
	SPS-8B sample #1 12-14'			S	2/26/92	14:30	TASK ✓			RFW# 9203L590-001
	SPS-8B sample #3 12-19'			S	2/26/92	10:50	✓			RFW# 9203L590-002
	SPS-8B sample Rinsates			W	2/26/92	09:30	✓			RFW# 9203L590-003
	Station 186			W	2/10/92			✓		RFW# 9202L300-001
	Station 190			W	2/10/92			✓		RFW# 9202L300-002
	Station 191			W	2/10/92			✓		RFW# 9202L300-003
	Station 192			W	2/10/92			✓		RFW# 9202L300-004
	Station 196			W	2/10/92			✓		RFW# 9202L300-005
	Station 205			W	2/12/92			✓		RFW# 9202L330-001
	Station 206			W	2/12/92			✓		RFW# 9202L330-002

2/9/92 3/9/92

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
Radiochem (1) = Radionuclides
Americium-241, Curium 244, Cobalt-60, Cesium-137, Plutonium 239, 240, Radium-228, Strontium-90, Uranium-235, 238
Radiochem (2) = Gross Alpha, Gross Beta, Am-241, C-14, Gamma Scan, H3, I-129, Pu-238, 239, 240, RA (total) Sr-89, 90, Tc-99, U-234, 235, 238

DATE/REVISIONS:
1. Radiochem 3 = H3 (tritium)
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) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

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

Relinquished by	Received by	Date	Time
[illegible]	FedEx	3/9/92	1630
[illegible]	[illegible]	3/20/92	0930

Relinquished by	Received by	Date	Time

RFW 21-21-001/A-7/91

___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ___ Cooler# ___

381-596a

3607

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Client: WESTON - TASK 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12-0000
Project Contact/Phone #:
AD Project Manager: Dane Thomas
QC: Del: TAT:
Date Rec'd: 3/19/92 Date Due:
Account #:

Refrigerator #																		
#/Type Container	Liquid																	
	Solid																	
Volume	Liquid																	
	Solid																	
Preservatives																		
ANALYSES REQUESTED →		ORGANIC				Microchem (1)	Microchem (2)	Microchem (3)	INORG									
		VOA	BNA	Pest/PCB	Herb				Metal	CN								

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only												
S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish		Station 207				W	2/12/92						✓		RFW# 92021330-003					
		Station 208				W	2/12/92						✓		RFW# 92021330-004					
		Station 209				W	2/12/92						✓		RFW# 92021330-005					
		Station 220				W	2/20/92						✓		RFW# 92021429-001					
		Station 221				W	2/20/92						✓		RFW# 92021429-002					
		Station 222				W	2/20/92						✓		RFW# 92021429-003					
		Station 225				W	2/20/92						✓		RFW# 92021429-004					
		Station 230				W	2/20/92						✓		RFW# 92021429-005					
		Station 230 DUP				W	2/20/92						✓		RFW# 92021429-006					
		Station 271				W	2/25/92						✓		RFW 92021477-006					

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

DATE/REVISIONS:
1.
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) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

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

COC Record Present Upon Sample Rec't Y or N

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

Relinquished by	Received by	Date	Time
[illegible]	FedEx	3/19/92	[illegible]
[illegible]	[illegible]	3/20/92	0930

Relinquished by	Received by	Date	Time

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

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page 2 of 2

Client: WESTON TASK 6
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12-0000
Project Contact/Phone #:
AD Project Manager: Diane Thomas
QC: Del: TAT:
Date Rec'd: Date Due:
Account #:

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

ANALYSES REQUESTED →

ORGANIC							INORG	
VOA	BNA	Pest/PCB	Herb	Radionuclides (1)	Radionuclides (2)	Radionuclides (3)	Metal	CN

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	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only	
	Station 254			W	2/21/92		✓	RFW# 92021475-001
	Station 258			W	2/21/92		✓	RFW# 92021475-002
	Station 259			W	2/21/92		✓	RFW# 92021475-003
	Station 262			W	2/21/92		✓	RFW# 92021475-004
	Station 263			W	2/21/92		✓	RFW# 92021475-005
	Station 266				2/25/92		✓	RFW# 92021477-001
	Station 267						✓	RFW# 92021477-002
	Station 268						✓	RFW# 92021477-003
	Station 269						✓	RFW# 92021477-004
	Station 269 DUP						✓	RFW# 92021477-005

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

DATE/REVISIONS:
1.
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) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

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

COC Record Present Upon Sample Rec't Y or N

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

Relinquished by	Received by	Date	Time
[illegible]	FedEx	3/19/92	1430
	[illegible]	3/20/92	0930

Relinquished by	Received by	Date	Time

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

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WSRC-TASK 12
RFW #: 9202L330
W.O. #: 0345-31-12

SAMPLES RECEIVED: 02-13-92

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 sample holding times as required by 40CFR136 were met.

2. Preparation blank results were below the required detection limit with the exception of acidity.

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 limits.

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).

Jack R. Tuschall, Ph.D. 03.18.92
Date
Laboratory Manager
Lionville Analytical Laboratory

pas\i02-330

ROY F. WESTON, INC.
GLOSSARY OF TERMS - INORGANIC REPORTS

DATA QUALIFIERS

U - Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* - Indicates that the original sample result is greater than 4x the spike amount added. The USEPA-CLP has determined that spike results on samples where this occurs may be unreliable and therefore, the control limits are not applicable.

ABBREVIATIONS

MB - Method or preparation blank
MS - Matrix Spike
MSD - Matrix Spike Duplicate.
REP - Sample Replicate.
LC - Indicates a method LCS or Blank Spike.
NC - Not calculable, result below the detection limit.

A suffix of -R and -S following these codes indicates a replicate and spike analysis respectively.

ANALYTICAL METAL METHODS

As :	EPA 206.2	Se :	EPA 270.2
Pb :	EPA 239.2	ICP Scan :	EPA 200.7
Hg :	EPA 245.1	All Others :	EPA 200.7
Tl :	EPA 279.2	EP Leachates (except Hg) :	200.7

The analytical methods applied by the laboratory for the determination of drinking water is 5.2.1.

NOTES

The laboratory prepares a matrix spike at one per 20 frequency for TCLP samples. The Federal Register recommends that all matrix spikes be prepared at greater than 50% of the indigenous analyte concentration. A matrix duplicate is also prepared.

Holding times for soil samples have not been promulgated by the USEPA.

For solid samples, all results are reported on a dry weight basis.

The range for mercury solid laboratory control standards is 66.9% to 133.8%.

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/11/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9202L330
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-001	STATION 205	Acidity	90.0	MG/L	2.0
		Chloride	5.8	MG/L	0.25
		Hardness	10.0	MG/L	1.0
		Nitrate, as N	0.11	MG-N/L	0.050
		pH	5.0	PH UNITS	0.010
		Sulfate	3.9	MG/L	0.25
		Specific Conductance	25.1	UMHOS/CM	1.0
-002	STATION 206	Acidity	4.0	MG/L	2.0
		Chloride	3.6	MG/L	0.25
		Hardness	6.0	MG/L	1.0
		Nitrate, as N	6.6	MG-N/L	0.50
		pH	5.2	PH UNITS	0.010
		Sulfate	0.37	MG/L	0.25
		Specific Conductance	27.0	UMHOS/CM	1.0
-003	STATION 207	Acidity	8.0	MG/L	2.0
		Chloride	3.5	MG/L	0.25
		Hardness	3.3	MG/L	1.0
		Nitrate, as N	0.17	MG-N/L	0.050
		pH	5.0	PH UNITS	0.010
		Sulfate	0.38	MG/L	0.25
		Specific Conductance	14.8	UMHOS/CM	1.0
-004	STATION 208	Acidity	10.0	MG/L	2.0
		Chloride	4.9	MG/L	0.25
		Hardness	1.3	MG/L	1.0
		Nitrate, as N	0.19	MG-N/L	0.050
		pH	5.0	PH UNITS	0.010
		Sulfate	0.85	MG/L	0.25
		Specific Conductance	14.1	UMHOS/CM	1.0
-005	STATION 209	Acidity	20.0	MG/L	2.0
		Chloride	4.0	MG/L	0.25
		Hardness	4.0	MG/L	1.0
		Nitrate, as N	0.17	MG-N/L	0.050
		pH	5.0	PH UNITS	0.010
		Sulfate	1.6	MG/L	0.25
		Specific Conductance	14.5	UMHOS/CM	1.0

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 03/11/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9202L330
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
BLANK10	92LAC004-MB1	Acidity	2.0	MG/L	2.0
BLANK20	92LAC004-MB2	Acidity	4.0	MG/L	2.0
BLANK10	92LCL010-MB1	Chloride	0.25 u	MG/L	0.25
BLANK20	92LCL010-MB2	Chloride	0.25 u	MG/L	0.25
BLANK10	92LHD007-MB1	Hardness	1.0 u	MG/L	1.0
BLANK20	92LHD007-MB2	Hardness	1.0 u	MG/L	1.0
BLANK30	92LHD007-MB3	Hardness	1.0 u	MG/L	1.0
BLANK40	92LHD007-MB4	Hardness	1.0 u	MG/L	1.0
BLANK10	92LNB020-MB1	Nitrate, as N	0.050u	MG-N/L	0.050
BLANK20	92LNB020-MB2	Nitrate, as N	0.050u	MG-N/L	0.050

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 03/11/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9202L330
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
BLANK10	92LIC041-MB1	Sulfate	0.25	u	MG/L	0.25
BLANK10	92LSP018-MB1	Specific Conductance	1.0	u	UMHOS/CM	1.0
BLANK20	92LSP018-MB2	Specific Conductance	1.0	u	UMHOS/CM	1.0

ROY F. WESTON INC.

INORGANIC ACCURACY REPORT 03/11/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9202L330
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV
-001	STATION 205	Hardness	110	10.0	100	100
BLANK10	92LCL010-MB1	Chloride	5.5	0.25u	5.0	109
		Chloride MSD	5.4	0.25u	5.0	109
BLANK20	92LCL010-MB2	Chloride	5.6	0.25u	5.0	112
BLANK10	92LHD007-MB1	Hardness	99.7	1.0 u	100	99.7
		Hardness MSD	330	1.0 u	330	99.9
BLANK20	92LHD007-MB2	Hardness	100	1.0 u	100	100
BLANK30	92LHD007-MB3	Hardness	99.6	1.0 u	100	99.6
BLANK40	92LHD007-MB4	Hardness	100	1.0 u	100	100
BLANK10	92LNB020-MB1	Nitrate, as N	0.48	0.05u	0.50	96.8
		Nitrate, as N MSD	0.54	0.05u	0.50	107
BLANK20	92LNB020-MB2	Nitrate, as N	0.49	0.05u	0.50	97.6
BLANK10	92LIC041-MB1	Sulfate	5.0	0.25u	5.0	99.0
		Sulfate	5.1	0.25u	5.0	102

ROY F. WESTON INC.

INORGANIC ACCURACY REPORT 03/11/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9202L330

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE		SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV
BLANK10	92LSP018-MB1	Specific Conductance		146	1.0 u	147	99.3
		Specific Conductance	M	145	1.0 u	147	98.6
BLANK20	92LSP018-MB2	Specific Conductance		1410	1.0 u	1410	99.9

ROY F. WESTON INC.

INORGANIC DUPLICATE SPIKE REPORT 03/11/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9202L330

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%RPD
BLANK10	92LCL010-MB1	Chloride	109	109	0.20
BLANK10	92LHD007-MB1	Hardness	99.7	99.9	0.20
BLANK10	92LNB020-MB1	Nitrate, as N	96.8	107	10.5
BLANK10	92LIC041-MB1	Sulfate	99.0	102	2.9
BLANK10	92LSP018-MB1	Specific Conductance	99.3	98.6	0.70

ROY F. WESTON INC.

INORGANIC PRECISION REPORT 03/11/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9202L330
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	%RPD
-001REP	STATION 205	Acidity	90.0	98.0	8.5
		Nitrate, as N	0.11	0.10	5.8
-002REP	STATION 206	Chloride	3.6	3.5	0.84
-005REP	STATION 209	pH	5.0	5.0	0.20

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/13/92 RFW LOT # :9202L330

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 205						
ACIDITY	001	W	92LAC004	02/12/92	02/24/92	02/24/92
ACIDITY	001 REP	W	92LAC004	02/12/92	02/24/92	02/24/92
CHLORIDE	001	W	92LCL010	02/12/92	03/05/92	03/05/92
HARDNESS	001	W	92LHD007	02/12/92	02/21/92	02/21/92
HARDNESS	001 MS	W	92LHD007	02/12/92	02/21/92	02/21/92
NITRATE	001	W	92LNB020	02/12/92	02/20/92	02/20/92
NITRATE	001 REP	W	92LNB020	02/12/92	02/20/92	02/20/92
PH	001	W	92LPH029	02/12/92	02/13/92	02/13/92
SULFATE	001	W	92LIC041	02/12/92	03/07/92	03/07/92
SPECIFIC CONDUCTANCE	001	W	92LSP018	02/12/92	02/13/92	02/13/92
SUB-OUT TEST FOR SUB	001	W		02/12/92		
STATION 206						
ACIDITY	002	W	92LAC004	02/12/92	02/24/92	02/24/92
CHLORIDE	002	W	92LCL010	02/12/92	03/05/92	03/05/92
CHLORIDE	002 REP	W	92LCL010	02/12/92	03/05/92	03/05/92
HARDNESS	002	W	92LHD007	02/12/92	02/21/92	02/21/92
NITRATE	002	W	92LNB020	02/12/92	02/20/92	02/20/92
PH	002	W	92LPH029	02/12/92	02/13/92	02/13/92
SULFATE	002	W	92LIC041	02/12/92	03/07/92	03/07/92
SPECIFIC CONDUCTANCE	002	W	92LSP018	02/12/92	02/13/92	02/13/92
SUB-OUT TEST FOR SUB	002	W		02/12/92		
STATION 207						
ACIDITY	003	W	92LAC004	02/12/92	02/24/92	02/24/92
CHLORIDE	003	W	92LCL010	02/12/92	03/05/92	03/05/92
HARDNESS	003	W	92LHD007	02/12/92	02/21/92	02/21/92
NITRATE	003	W	92LNB020	02/12/92	02/20/92	02/20/92
PH	003	W	92LPH029	02/12/92	02/13/92	02/13/92
SULFATE	003	W	92LIC041	02/12/92	03/07/92	03/07/92
SPECIFIC CONDUCTANCE	003	W	92LSP018	02/12/92	02/13/92	02/13/92
SUB-OUT TEST FOR SUB	003	W		02/12/92		
STATION 208						
ACIDITY	004	W	92LAC004	02/12/92	02/24/92	02/24/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/13/92 RFW LOT # :9202L330

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHLORIDE	004	W	92LCL010	02/12/92	03/05/92	03/05/92
HARDNESS	004	W	92LHD007	02/12/92	02/21/92	02/21/92
NITRATE	004	W	92LNB020	02/12/92	02/20/92	02/20/92
PH	004	W	92LPH029	02/12/92	02/13/92	02/13/92
SULFATE	004	W	92LIC041	02/12/92	03/07/92	03/07/92
SPECIFIC CONDUCTANCE	004	W	92LSP018	02/12/92	02/13/92	02/13/92
SUB-OUT TEST FOR SUB	004	W		02/12/92		
STATION 209						
ACIDITY	005	W	92LAC004	02/12/92	02/24/92	02/24/92
CHLORIDE	005	W	92LCL010	02/12/92	03/05/92	03/05/92
HARDNESS	005	W	92LHD007	02/12/92	02/21/92	02/21/92
NITRATE	005	W	92LNB020	02/12/92	02/20/92	02/20/92
PH	005	W	92LPH029	02/12/92	02/13/92	02/13/92
PH	005 REP	W	92LPH029	02/12/92	02/13/92	02/13/92
SULFATE	005	W	92LIC041	02/12/92	03/07/92	03/07/92
SPECIFIC CONDUCTANCE	005	W	92LSP018	02/12/92	02/13/92	02/13/92
SUB-OUT TEST FOR SUB	005	W		02/12/92		

LAB QC:

ACIDITY	MB1	W	92LAC004	N/A	02/24/92	02/24/92
ACIDITY	MB2	W	92LAC004	N/A	02/24/92	02/24/92
CHLORIDE	MB1	W	92LCL010	N/A	03/05/92	03/05/92
CHLORIDE	MB1 BS	W	92LCL010	N/A	03/05/92	03/05/92
CHLORIDE	MB1 BSD	W	92LCL010	N/A	03/05/92	03/05/92
CHLORIDE	MB2	W	92LCL010	N/A	03/05/92	03/05/92
CHLORIDE	MB2 BS	W	92LCL010	N/A	03/05/92	03/05/92
HARDNESS	MB1	W	92LHD007	N/A	02/21/92	02/21/92
HARDNESS	MB1 BS	W	92LHD007	N/A	02/21/92	02/21/92
HARDNESS	MB1 BSD	W	92LHD007	N/A	02/21/92	02/21/92
HARDNESS	MB2	W	92LHD007	N/A	02/21/92	02/21/92
HARDNESS	MB2 BS	W	92LHD007	N/A	02/21/92	02/21/92
HARDNESS	MB3	W	92LHD007	N/A	02/21/92	02/21/92
HARDNESS	MB3 BS	W	92LHD007	N/A	02/21/92	02/21/92
HARDNESS	MB4	W	92LHD007	N/A	02/21/92	02/21/92
HARDNESS	MB4 BS	W	92LHD007	N/A	02/21/92	02/21/92
NITRATE	MB1	W	92LNB020	N/A	02/20/92	02/20/92
NITRATE	MB1 BS	W	92LNB020	N/A	02/20/92	02/20/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/13/92 RFW LOT # :9202L330

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRATE	MB1 BSD	W	92LNB020	N/A	02/20/92	02/20/92
NITRATE	MB2	W	92LNB020	N/A	02/20/92	02/20/92
NITRATE	MB2 BS	W	92LNB020	N/A	02/20/92	02/20/92
SULFATE	MB1	W	92LIC041	N/A	03/07/92	03/07/92
SULFATE	MB1 BS	W	92LIC041	N/A	03/07/92	03/07/92
SULFATE	MB1 BSD	W	92LIC041	N/A	03/07/92	03/07/92
SPECIFIC CONDUCTANCE	MB1	W	92LSP018	N/A	02/13/92	02/13/92
SPECIFIC CONDUCTANCE	MB1 BS	W	92LSP018	N/A	02/13/92	02/13/92
SPECIFIC CONDUCTANCE	MB1 BSD	W	92LSP018	N/A	02/13/92	02/13/92
SPECIFIC CONDUCTANCE	MB2	W	92LSP018	N/A	02/13/92	02/13/92
SPECIFIC CONDUCTANCE	MB2 BS	W	92LSP018	N/A	02/13/92	02/13/92

WESTON Analytics Use Only

9702L330

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WS RC - TASK 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12-0000
Project Contact/Phone #:
AD Project Manager: D. Thomas
QC: Del: TAT: 30 day
Date Rec'd: 2-13-92 Date Due: 3-14-92
Account #: WSRC125TD

Refrigerator #		1				SUB			4		4	4	4				
#/Type Container	Liquid	1G				1P			1P		1P	1P	1P				
	Solid																
Volume	Liquid	40m				4L			1L		1L	250	250				
	Solid																
Preservatives		HCl				none			HNO3		none	HNO3	none				
ANALYSES REQUESTED →		ORGANIC							INORG								
		VOA	BNA	Pest/PCB	Herb	Total Chlor			Metal	CN	ALKL ACID CL SPED	NO3 HARD	Ph SO4				

WESTON Analytics Use Only

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	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	06234H				ISUB			Metal Reduced		IALKL IACID ICL ISPED	INO3P IHARD	IPh ISO4			
	001	Station 205			W	2-13-92		✓				✓			✓		✓	✓	✓			
	002	206						✓				✓			✓		✓	✓	✓			
	003	207						✓				✓			✓		✓	✓	✓			
	004	208						✓				✓			✓		✓	✓	✓			
	005	209						✓				✓			✓		✓	✓	✓			
	006	~~Field Blank~~			~~W~~	~~2-13-92~~		✓	NOT	Rec'D												
		RAD info to follow																				

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
Metals - Ag, Al, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, Zn, Fe, Mn
~~[illegible]~~ 2/13/92

Original Rewritten

DATE/REVISIONS:
2-13-92 1. add bottle to VOA 06234H
2-26-92 2. Cancel Alkalinity per SDR
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill #8513423398
2) Ambient or Chilled
3) Received in Good Condition (Y) or N
4) Labels Indicate Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample Y or (N)
4) Unbroken on Sample Y or (N)
COC Record Present Upon Sample Rec't (Y) or N

Discrepancies Between Samples Labels and COC Record? (Y) or N
NOTES: Didn't Rec Field Blank

Relinquished by	Received by	Date	Time
Emery	[illegible]	2-13-92	12:45
	[illegible] 2/13/92		

Relinquished by	Received by	Date	Time
	[illegible] 2-13-92		

RFW 21-[illegible]-001/A-7/91 ____ L372 ____ L373 ____ L[illegible] ____ L377 ____ L378 Ref# none Cooler# N/A 381-596a

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WSRC-TASK 12
RFW #: 9202L330
W.O. #: 0345-31-12

SAMPLES RECEIVED: 02-13-92

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

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

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

4. All calibration verification checks were within the required control limits of 90-110% (80-120% for Hg). Calibration verification is performed using independent standards from Inorganic Ventures, Inc.

03.13.92

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

Date

kls\m02-330

ROY F. WESTON, INC.
GLOSSARY OF TERMS - INORGANIC REPORTS

DATA QUALIFIERS

U - Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* - Indicates that the original sample result is greater than 4x the spike amount added. The USEPA-CLP has determined that spike results on samples where this occurs may be unreliable and therefore, the control limits are not applicable.

ABBREVIATIONS

MB - Method or preparation blank
MS - Matrix Spike
MSD - Matrix Spike Duplicate.
REP - Sample Replicate.
LC - Indicates a method LCS or Blank Spike.
NC - Not calculable, result below the detection limit.

A suffix of -R and -S following these codes indicates a replicate and spike analysis respectively.

ANALYTICAL METAL METHODS

As :	EPA 206.2	Se :	EPA 270.2
Pb :	EPA 239.2	ICP Scan :	EPA 200.7
Hg :	EPA 245.1	All Others :	EPA 200.7
Tl :	EPA 279.2	EP Leachates (except Hg) :	200.7

The analytical methods applied by the laboratory for the determination of drinking water is 5.2.1.

NOTES

The laboratory prepares a matrix spike at one per 20 frequency for TCLP samples. The Federal Register recommends that all matrix spikes be prepared at greater than 50% of the indigenous analyte concentration. A matrix duplicate is also prepared.

Holding times for soil samples have not been promulgated by the USEPA.

For solid samples, all results are reported on a dry weight basis.

The range for mercury solid laboratory control standards is 66.9% to 133.8%.

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/11/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L330

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	STATION 205	Silver, Total	16.0		UG/L	10.0
		Aluminum, Total	266		UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	6230		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	64.8		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	4.2		UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	133		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/11/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9202L330
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-002	STATION 206	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	147		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	22.8		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/11/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L330

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-003	STATION 207	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	20.3		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/11/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L330

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-004	STATION 208	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	102		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	73.0		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/11/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L330

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-005	STATION 209	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	38.7		UG/L	20.0

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 03/11/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9202L330
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
BLANK1	92L0604-MB1	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Zinc, Total	20.0	u	UG/L	20.0
BLANK1	92L0603-MB1	Arsenic, Total	10.0	u	UG/L	10.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
BLANK1	92C0055-MB1	Mercury, Total	0.20	u	UG/L	0.20

ROY F. WESTON INC.

INORGANIC DUPLICATE SPIKE REPORT 03/11/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9202L330

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%RPD
LCS2	92L0604-LC2	Silver, LCS	83.5	79.7	4.7
		Aluminum, LCS	99.5	97.9	1.6
		Barium, LCS	97.5	95.9	1.7
		Cadmium, LCS	96.3	94.4	2.0
		Chromium, LCS	94.2	92.6	1.7
		Copper, LCS	95.0	93.3	1.8
		Iron, LCS	95.1	93.3	1.9
		Manganese, LCS	95.7	94.1	1.7
		Sodium, LCS	97.6	96.4	1.2
		Nickel, LCS	95.9	93.3	2.7
		Zinc, LCS	94.3	92.8	1.6
LCS2	92L0603-LC2	Arsenic, LCS	92.0	91.3	0.76
		Lead, LCS	100	99.3	1.0
		Selenium, LCS	81.7	82.7	1.2
LCS2	92C0055-LC2	Mercury, LCS	105	98.2	6.7

ROY F. WESTON INC.

INORGANIC LABORATORY CONTROL STANDARDS REPORT 03/11/92

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	92L0604-LC1	Silver, LCS	418	500	UG/L	83.5
		Aluminum, LCS	4970	5000	UG/L	99.5
		Barium, LCS	4880	5000	UG/L	97.5
		Cadmium, LCS	241	250	UG/L	96.3
		Chromium, LCS	471	500	UG/L	94.2
		Copper, LCS	1190	1250	UG/L	95.0
		Iron, LCS	4760	5000	UG/L	95.1
		Manganese, LCS	718	750	UG/L	95.7
		Sodium, LCS	24400	25000	UG/L	97.6
		Nickel, LCS	1920	2000	UG/L	95.9
		Zinc, LCS	944	1000	UG/L	94.3
LCS2	92L0604-LC2	Silver, LCS	399	500	UG/L	79.7
		Aluminum, LCS	4900	5000	UG/L	97.9
		Barium, LCS	4790	5000	UG/L	95.9
		Cadmium, LCS	236	250	UG/L	94.4
		Chromium, LCS	463	500	UG/L	92.6
		Copper, LCS	1170	1250	UG/L	93.3
		Iron, LCS	4670	5000	UG/L	93.3
		Manganese, LCS	706	750	UG/L	94.1
		Sodium, LCS	24100	25000	UG/L	96.4
		Nickel, LCS	1870	2000	UG/L	93.3
		Zinc, LCS	928	1000	UG/L	92.8
LCS1	92L0603-LC1	Arsenic, LCS	27.6	30.0	UG/L	92.0
		Lead, LCS	30.1	30.0	UG/L	100
		Selenium, LCS	24.5	30.0	UG/L	81.7
LCS2	92L0603-LC2	Arsenic, LCS	27.4	30.0	UG/L	91.3
		Lead, LCS	29.8	30.0	UG/L	99.3
		Selenium, LCS	24.8	30.0	UG/L	82.7
LCS1	92C0055-LC1	Mercury, LCS	5.3	5.0	UG/L	105
LCS2	92C0055-LC2	Mercury, LCS	4.9	5.0	UG/L	98.2

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/13/92 RFW LOT # :9202L330

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 205						
SILVER, TOTAL	001	W	92L0604	02/12/92	02/27/92	03/10/92
ALUMINUM, TOTAL	001	W	92L0604	02/12/92	02/27/92	03/10/92
ARSENIC, TOTAL	001	W	92L0603	02/12/92	02/27/92	02/28/92
BARIUM, TOTAL	001	W	92L0604	02/12/92	02/27/92	03/10/92
CADMIUM, TOTAL	001	W	92L0604	02/12/92	02/27/92	03/10/92
CHROMIUM, TOTAL	001	W	92L0604	02/12/92	02/27/92	03/10/92
COPPER, TOTAL	001	W	92L0604	02/12/92	02/27/92	03/10/92
IRON, TOTAL	001	W	92L0604	02/12/92	02/27/92	03/10/92
MERCURY, TOTAL	001	W	92C0055	02/12/92	02/27/92	03/02/92
MANGANESE, TOTAL	001	W	92L0604	02/12/92	02/27/92	03/10/92
SODIUM, TOTAL	001	W	92L0604	02/12/92	02/27/92	03/10/92
NICKEL, TOTAL	001	W	92L0604	02/12/92	02/27/92	03/10/92
LEAD, TOTAL	001	W	92L0603	02/12/92	02/27/92	02/28/92
SELENIUM, TOTAL	001	W	92L0603	02/12/92	02/27/92	02/28/92
ZINC, TOTAL	001	W	92L0604	02/12/92	02/27/92	03/10/92
STATION 206						
SILVER, TOTAL	002	W	92L0604	02/12/92	02/27/92	03/10/92
ALUMINUM, TOTAL	002	W	92L0604	02/12/92	02/27/92	03/10/92
ARSENIC, TOTAL	002	W	92L0603	02/12/92	02/27/92	02/28/92
BARIUM, TOTAL	002	W	92L0604	02/12/92	02/27/92	03/10/92
CADMIUM, TOTAL	002	W	92L0604	02/12/92	02/27/92	03/10/92
CHROMIUM, TOTAL	002	W	92L0604	02/12/92	02/27/92	03/10/92
COPPER, TOTAL	002	W	92L0604	02/12/92	02/27/92	03/10/92
IRON, TOTAL	002	W	92L0604	02/12/92	02/27/92	03/10/92
MERCURY, TOTAL	002	W	92C0055	02/12/92	02/27/92	03/02/92
MANGANESE, TOTAL	002	W	92L0604	02/12/92	02/27/92	03/10/92
SODIUM, TOTAL	002	W	92L0604	02/12/92	02/27/92	03/10/92
NICKEL, TOTAL	002	W	92L0604	02/12/92	02/27/92	03/10/92
LEAD, TOTAL	002	W	92L0603	02/12/92	02/27/92	02/28/92
SELENIUM, TOTAL	002	W	92L0603	02/12/92	02/27/92	02/28/92
ZINC, TOTAL	002	W	92L0604	02/12/92	02/27/92	03/10/92
STATION 207						
SILVER, TOTAL	003	W	92L0604	02/12/92	02/27/92	03/10/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/13/92 RFW LOT # :9202L330

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	003	W	92L0604	02/12/92	02/27/92	03/10/92
ARSENIC, TOTAL	003	W	92L0603	02/12/92	02/27/92	02/28/92
BARIUM, TOTAL	003	W	92L0604	02/12/92	02/27/92	03/10/92
CADMIUM, TOTAL	003	W	92L0604	02/12/92	02/27/92	03/10/92
CHROMIUM, TOTAL	003	W	92L0604	02/12/92	02/27/92	03/10/92
COPPER, TOTAL	003	W	92L0604	02/12/92	02/27/92	03/10/92
IRON, TOTAL	003	W	92L0604	02/12/92	02/27/92	03/10/92
MERCURY, TOTAL	003	W	92C0055	02/12/92	02/27/92	03/02/92
MANGANESE, TOTAL	003	W	92L0604	02/12/92	02/27/92	03/10/92
SODIUM, TOTAL	003	W	92L0604	02/12/92	02/27/92	03/10/92
NICKEL, TOTAL	003	W	92L0604	02/12/92	02/27/92	03/10/92
LEAD, TOTAL	003	W	92L0603	02/12/92	02/27/92	02/28/92
SELENIUM, TOTAL	003	W	92L0603	02/12/92	02/27/92	02/28/92
ZINC, TOTAL	003	W	92L0604	02/12/92	02/27/92	03/10/92
STATION 208						
SILVER, TOTAL	004	W	92L0604	02/12/92	02/27/92	03/10/92
ALUMINUM, TOTAL	004	W	92L0604	02/12/92	02/27/92	03/10/92
ARSENIC, TOTAL	004	W	92L0603	02/12/92	02/27/92	02/28/92
BARIUM, TOTAL	004	W	92L0604	02/12/92	02/27/92	03/10/92
CADMIUM, TOTAL	004	W	92L0604	02/12/92	02/27/92	03/10/92
CHROMIUM, TOTAL	004	W	92L0604	02/12/92	02/27/92	03/10/92
COPPER, TOTAL	004	W	92L0604	02/12/92	02/27/92	03/10/92
IRON, TOTAL	004	W	92L0604	02/12/92	02/27/92	03/10/92
MERCURY, TOTAL	004	W	92C0055	02/12/92	02/27/92	03/02/92
MANGANESE, TOTAL	004	W	92L0604	02/12/92	02/27/92	03/10/92
SODIUM, TOTAL	004	W	92L0604	02/12/92	02/27/92	03/10/92
NICKEL, TOTAL	004	W	92L0604	02/12/92	02/27/92	03/10/92
LEAD, TOTAL	004	W	92L0603	02/12/92	02/27/92	02/28/92
SELENIUM, TOTAL	004	W	92L0603	02/12/92	02/27/92	02/28/92
ZINC, TOTAL	004	W	92L0604	02/12/92	02/27/92	03/10/92
STATION 209						
SILVER, TOTAL	005	W	92L0604	02/12/92	02/27/92	03/10/92
ALUMINUM, TOTAL	005	W	92L0604	02/12/92	02/27/92	03/10/92
ARSENIC, TOTAL	005	W	92L0603	02/12/92	02/27/92	02/28/92
BARIUM, TOTAL	005	W	92L0604	02/12/92	02/27/92	03/10/92
CADMIUM, TOTAL	005	W	92L0604	02/12/92	02/27/92	03/10/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/13/92 RFW LOT # :9202L330

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	005	W	92L0604	02/12/92	02/27/92	03/10/92
COPPER, TOTAL	005	W	92L0604	02/12/92	02/27/92	03/10/92
IRON, TOTAL	005	W	92L0604	02/12/92	02/27/92	03/10/92
MERCURY, TOTAL	005	W	92C0055	02/12/92	02/27/92	03/02/92
MANGANESE, TOTAL	005	W	92L0604	02/12/92	02/27/92	03/10/92
SODIUM, TOTAL	005	W	92L0604	02/12/92	02/27/92	03/10/92
NICKEL, TOTAL	005	W	92L0604	02/12/92	02/27/92	03/10/92
LEAD, TOTAL	005	W	92L0603	02/12/92	02/27/92	02/28/92
SELENIUM, TOTAL	005	W	92L0603	02/12/92	02/27/92	02/28/92
ZINC, TOTAL	005	W	92L0604	02/12/92	02/27/92	03/10/92

LAB QC:

SILVER LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
ALUMINUM LABORTORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
BARIUM LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
CADMIUM LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
CHROMIUM LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
COPPER LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
IRON LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
MANGANESE LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
SODIUM LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
NICKEL LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
ZINC LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
SILVER LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
ALUMINUM LABORTORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
BARIUM LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
CADMIUM LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
CHROMIUM LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
COPPER LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
IRON LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
MANGANESE LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
SODIUM LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
NICKEL LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
ZINC LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
SILVER, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
ALUMINUM, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
BARIUM, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
CADMIUM, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
CHROMIUM, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/13/92 RFW LOT # :9202L330

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
IRON, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
MANGANESE, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
SODIUM, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
NICKEL, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
ZINC, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
ARSENIC LABORATORY	LC1 BS	W	92L0603	N/A	02/27/92	02/28/92
LEAD LABORATORY	LC1 BS	W	92L0603	N/A	02/27/92	02/28/92
SELENIUM LABORATORY	LC1 BS	W	92L0603	N/A	02/27/92	02/28/92
ARSENIC LABORATORY	LC2 BS	W	92L0603	N/A	02/27/92	02/28/92
LEAD LABORATORY	LC2 BS	W	92L0603	N/A	02/27/92	02/28/92
SELENIUM LABORATORY	LC2 BS	W	92L0603	N/A	02/27/92	02/28/92
ARSENIC, TOTAL	MB1	W	92L0603	N/A	02/27/92	02/28/92
LEAD, TOTAL	MB1	W	92L0603	N/A	02/27/92	02/28/92
SELENIUM, TOTAL	MB1	W	92L0603	N/A	02/27/92	02/28/92
MERCURY LABORATORY	LC1 BS	W	92C0055	N/A	02/27/92	03/02/92
MERCURY LABORATORY	LC2 BS	W	92C0055	N/A	02/27/92	03/02/92
MERCURY, TOTAL	MB1	W	92C0055	N/A	02/27/92	03/02/92

WESTON Analytics Use Only

9202L330

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WSRC - TASK 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12-0000
Project Contact/Phone #:
AD Project Manager: D. Thomas
QC: Del: TAT: 30 day
Date Rec'd: 2-13-92 Date Due: 3-14-92
Account #: WSRC12STD

Refrigerator #		1				SUB			4		4	4	4			
#/Type Container	Liquid	1G				1P			1P		1P	1P	1P			
	Solid															
Volume	Liquid	40m				4L 1L			1L		1L	250	250			
	Solid															
Preservatives		HCl				none			HNO3		none	HNO3	none			
ANALYSES REQUESTED		ORGANIC: VOA	BNA	Pest/PCB	Herb	Tri Chlor			INORG: Metal	CN	ALKL ACID CL SPED	NO3 NHED	PA SO4			

WESTON Analytics Use Only

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	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624H				ISUB			Hoc Release		IALKL IACID ICL ISPED	INOS IHNED	IPA ISO4			
	001	Station 205			W	2-12-92		✓				✓			✓		✓	✓	✓			
	002	206						✓				✓			✓		✓	✓	✓			
	003	207						✓				✓			✓		✓	✓	✓			
	004	208						✓				✓			✓		✓	✓	✓			
	005	209						✓				✓			✓		✓	✓	✓			
	006	~~FIELD BLANK~~			~~W~~	~~2-12-92~~		✓	NOT	REC'D												
		RAD info to follow																				

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
Metals - Ag, Al, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, Zn, Fe, Mn
~~[illegible]~~ 2/13/92

Original Rewritten

DATE/REVISIONS:
2-13-92 1. add bottle to VOA 0624H
2-26-92 2. Cancel Alkalinity per SDR
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # 2513423198
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES: DIDN'T Rec Field Blank

Relinquished by	Received by	Date	Time
Emery	[illegible]	2-13-92	12:45
	[illegible]	2-13-92	

Relinquished by	Received by	Date	Time
	[illegible]	2-13-92	

L372 L373 L375 L377 L378 Ref# none Cooler# N/A

RFW 21-01-001/A-7/91 381-596a

RFW 9202L330

EMERY WORLDWIDE

A CF Company

FORM OF PAYMENT

Check ☐ GBL ☐ ACCOD ☐

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

E Shipper's Account Number: 850282237

SERVICES

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

INTERNATIONAL: Express ☐ Business Documents ☐ Customs Clearance ☐ Delivery ☐

Date: 2-12-92 | Origin: CAE | Shipment Number: 251342319 8

Tariff Dest.: 3PHL | Gateway:

From:
H.M. RICKEY 404-821-8013
UBDOE WESTINGHOUS
SAVANNAH RIVER CO
SAVANNAH RIVER SITE
AIKEN SC
Canada ☐

To:
DIANE THOMAS
WESTON ANALYTICS
208 WELSH POOL RD.
LIONVILLE PA 19341
Hold for Pick Up ☐ Canada ☐

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: SRM 5540-15 29808

E Consignee's Account Number:

Declared Value $

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

Description	Pcs.	L	W	H	Total Pieces	Total Weight (In Lbs.)
LABORATORY SAMPLES	2	34	17	17	2	1798

Remarks

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 ☐

Shipper's Signature X H.M RICKEY

International Shipments: Free Domicile ☐ Commodity Code

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

International Customs Value | International Insurance

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

251342319 8

3PHL A

Terms and Conditions on Back

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WSRC-TASK 12 **SAMPLES RECEIVED:** 02-13-92
RFW #: 9202L330, GC/MS VOLATILE
W.O. #: 0345-31-12

NARRATIVE

The set of samples consisted of five (5) water samples collected on 02-12-92.

The samples were analyzed according to criteria set forth in SW 846 Method 8240 for TCL Volatile target compounds on 02-14,17-92.

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

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

2. All surrogate recoveries were within EPA QC limits.

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

4. The laboratory blanks contained the common contaminant methylene chloride at levels less than the CRQL.

Margaret M. Sady 3/17/92

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

WESTON

GLOSSARY OF VOA DATA

DATA QUALIFIERS

U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

J = Indicates an estimated value.* This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero; for example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

I = Interference.

X = Additional qualifiers used as required are explained in the case narrative.

NQ = Result qualitatively confirmed but not able to quantify.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Indicates that surrogate recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not applicable.

DF = Dilution factor.

NR = Not required.

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

RFW Batch Number: 9202L330 Client: WSRC-TASK 12 Work Order: 0345-31-12-0000 Report Date: 02/28/92 11:54 Page: 1a

	Cust ID:	STATION 205		STATION 206		STATION 207		STATION 207		STATION 207		STATION 208	
Sample Information	RFW#:	001		002		003		003 MS		003 MSD		004	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Surrogate Recovery	Toluene-d8	99	%	96	%	95	%	94	%	94	%	91	%
	Bromofluorobenzene	100	%	99	%	97	%	95	%	97	%	100	%
	1,2-Dichloroethane-d4	93	%	102	%	104	%	102	%	105	%	106	%
			fl		fl		fl		fl		fl		fl
Chloromethane		10	U	10	U	10	U	10	U	10	U	10	U
Bromomethane		10	U	10	U	10	U	10	U	10	U	10	U
Vinyl Chloride		10	U	10	U	10	U	10	U	10	U	10	U
Chloroethane		10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride		5	U	2	JB	5	B	5	U	5	B	5	B
Acetone		10	U	10	U	10	U	10	U	10	U	10	U
Carbon Disulfide	*	5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene		5	U	5	U	5	U	87	%	91	%	5	U
1,1-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethene (total)		5	U	5	U	5	U	5	U	5	U	5	U
Chloroform		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
2-Butanone		10	U	10	U	10	U	10	U	10	U	10	U
1,1,1-Trichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Carbon Tetrachloride		5	U	5	U	5	U	5	U	5	U	5	U
Vinyl Acetate		10	U	10	U	10	U	10	U	10	U	10	U
Bromodichloromethane		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloropropane		5	U	5	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U	5	U
Trichloroethene		5	U	5	U	5	U	100	%	104	%	5	U
Dibromochloromethane		5	U	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Benzene		5	U	5	U	5	U	92	%	96	%	5	U
Trans-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U	5	U
Bromoform		5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone		10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone		10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene		5	U	5	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U	5	U	5	U	5	U

*= Outside of EPA CLP QC limits.

Cust ID:	STATION 205	STATION 206	STATION 207	STATION 207	STATION 207	STATION 208
RFW#:	001	002	003	003 MS	003 MSD	004
Toluene	2 J	2 J	5 U	94 %	95 %	1 J
Chlorobenzene	5 U	5 U	5 U	97 %	98 %	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

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

Report Date: 02/28/92 11:54

RFW Batch Number: 9202L330 Client: WSRC-TASK 12 Work Order: 0345-31-12-0000

	Cust ID:	STATION 209		VBLK		VBLK							
Sample Information	RFW#:	005		92LVK028-MB1		92LVK027-MB1							
	Matrix:	WATER		WATER		WATER							
	D.F.:	1.00		1.00		1.00							
	Units:	ug/L		ug/L		ug/L							
Surrogate Recovery	Toluene-d8	94	%	98	%	99	%						
	Bromofluorobenzene	98	%	100	%	99	%						
	1,2-Dichloroethane-d4	106	%	102	%	95	%						
Chloromethane		10	U	10	U	10	U						
Bromomethane		10	U	10	U	10	U						
Vinyl Chloride		10	U	10	U	10	U						
Chloroethane		10	U	10	U	10	U						
Methylene Chloride		5	B	3	J	1	J						
Acetone		10	U	10	U	10	U						
Carbon Disulfide	*	5	U	5	U	5	U						
1,1-Dichloroethene		5	U	5	U	5	U						
1,1-Dichloroethane		5	U	5	U	5	U						
1,2-Dichloroethene (total)		5	U	5	U	5	U						
Chloroform		5	U	5	U	5	U						
1,2-Dichloroethane		5	U	5	U	5	U						
2-Butanone		10	U	10	U	10	U						
1,1,1-Trichloroethane		5	U	5	U	5	U						
Carbon Tetrachloride		5	U	5	U	5	U						
Vinyl Acetate		10	U	10	U	10	U						
Bromodichloromethane		5	U	5	U	5	U						
1,2-Dichloropropane		5	U	5	U	5	U						
cis-1,3-Dichloropropene		5	U	5	U	5	U						
Trichloroethene		5	U	5	U	5	U						
Dibromochloromethane		5	U	5	U	5	U						
1,1,2-Trichloroethane		5	U	5	U	5	U						
Benzene		5	U	5	U	5	U						
Trans-1,3-Dichloropropene		5	U	5	U	5	U						
Bromoform		5	U	5	U	5	U						
4-Methyl-2-pentanone		10	U	10	U	10	U						
2-Hexanone		10	U	10	U	10	U						
Tetrachloroethene		5	U	5	U	5	U						
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U						

*= Outside of EPA CLP QC limits.

Cust ID:	STATION 209	VBLK	VBLK
RFW#:	005	92LVK028-MB1	92LVK027-MB1
Toluene	5 U	5 U	5 U
Chlorobenzene	5 U	5 U	5 U
Ethylbenzene	5 U	5 U	5 U
Styrene	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
VOA ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/13/92 RFW LOT # :9202L330

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 205	001	W	92LVK028	02/12/92	N/A	02/17/92
STATION 206	002	W	92LVK027	02/12/92	N/A	02/14/92
STATION 207	003	W	92LVK027	02/12/92	N/A	02/14/92
STATION 207	003 MS	W	92LVK027	02/12/92	N/A	02/14/92
STATION 207	003 MSD	W	92LVK027	02/12/92	N/A	02/14/92
STATION 208	004	W	92LVK027	02/12/92	N/A	02/14/92
STATION 209	005	W	92LVK027	02/12/92	N/A	02/14/92

LAB QC:

VBLK	MB1	W	92LVK028	N/A	N/A	02/17/92
VBLK	MB1	W	92LVK027	N/A	N/A	02/14/92

WESTON Analytics Use Only

9202L330

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WS RC - TASK 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12-0000
Project Contact/Phone #:
AD Project Manager: D. Thomas
QC: Del: TAT: 30 days
Date Rec'd: 2-13-92 Date Due: 3-14-92
Account #: WSRC/25TD

Refrigerator #		1				SUB			4		4	4	4			
#/Type Container	Liquid	1G				1P			1P		1P	1P	1P			
	Solid															
Volume	Liquid	40m				1L			1L		1L	250	250			
	Solid															
Preservatives		HCL				none			HNO3		none	HNO3	none			
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN	ALK ACID CL SO4	NO3 NH3	Pb SO4			

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	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only: 06234H				ISUB			See Below		TALK TACID ICL TSO4	INO3P INHD	IPb ISO4			
001	Station 205			W	2-13-92		✓				✓			✓		✓	✓	✓			
002	206						✓				✓			✓		✓	✓	✓			
003	207						✓				✓			✓		✓	✓	✓			
004	208						✓				✓			✓		✓	✓	✓			
005	209						✓				✓			✓		✓	✓	✓			
~~006~~	~~FIELD BLANK~~			~~W~~	~~2-13-92~~		~~✓~~	NOT	REC'D												
	RAD info to follow																				

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
Metals - Ag, Al, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, Zn, Fe, Mn
~~Use 2000 ml~~ 2/13/92

Original Rewritten

DATE/REVISIONS:
2-13-92 1. add test code to VOA 06234H
2-26-92 2. Cancel Ammonia nitrogen SDR
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill #25134273198
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES: DIDN'T Rec Field Blank

Relinquished by	Received by	Date	Time
Emery	[illegible]	2-13-92	12:45
	[illegible]	2/13/92	

Relinquished by	Received by	Date	Time
	[illegible]	2-13-92	

RFW 21[illegible]001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# none Cooler# N/A 381-596a

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WSRC-TASK 12 **SAMPLES RECEIVED:** 02-21-92
RFW #: 9202L429
W.O. #: 0345-31-12

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 sample holding times as required by 40CFR136 were met.

2. All preparation blank results were below the required detection limit with the exception of acidity.

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

4. Replicate results are summarized on the Inorganic Precision Report contained within this document. All results were within the 20% RPD guidance limit with the exception of acidity.

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

Margaret M. Leahy 3-23-92

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

kls\i02-429

ROY F. WESTON, INC.
GLOSSARY OF TERMS - INORGANIC REPORTS

DATA QUALIFIERS

U - Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* - Indicates that the original sample result is greater than 4x the spike amount added. The USEPA-CLP has determined that spike results on samples where this occurs may be unreliable and therefore, the control limits are not applicable.

ABBREVIATIONS

MB - Method or preparation blank
MS - Matrix Spike
MSD - Matrix Spike Duplicate.
REP - Sample Replicate.
LC - Indicates a method LCS or Blank Spike.
NC - Not calculable, result below the detection limit.

A suffix of -R and -S following these codes indicates a replicate and spike analysis respectively.

ANALYTICAL METAL METHODS

As :	EPA 206.2	Se :	EPA 270.2
Pb :	EPA 239.2	ICP Scan :	EPA 200.7
Hg :	EPA 245.1	All Others :	EPA 200.7
Tl :	EPA 279.2	EP Leachates (except Hg) :	200.7

The analytical methods applied by the laboratory for the determination of drinking water is 5.2.1.

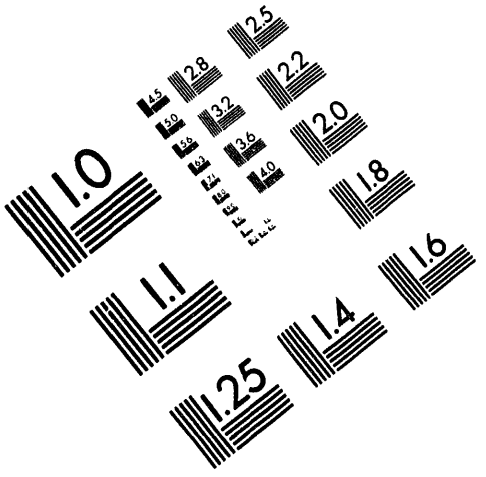
NOTES

The laboratory prepares a matrix spike at one per 20 frequency for TCLP samples. The Federal Register recommends that all matrix spikes be prepared at greater than 50% of the indigenous analyte concentration. A matrix duplicate is also prepared.

Holding times for soil samples have not been promulgated by the USEPA.

For solid samples, all results are reported on a dry weight basis.

The range for mercury solid laboratory control standards is 66.9% to 133.8%.



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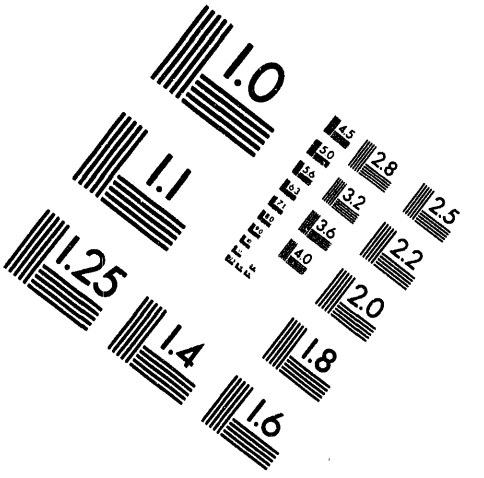
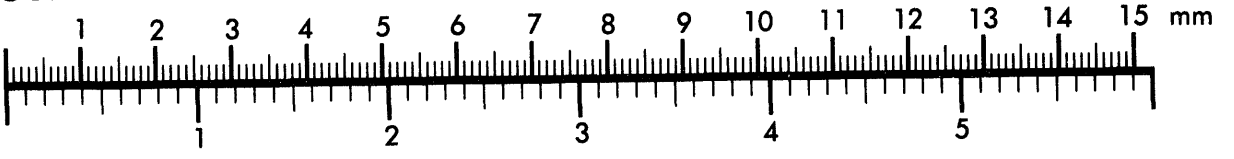


Centimeter



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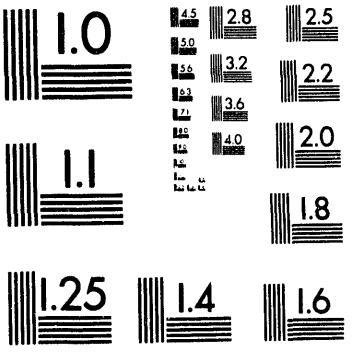

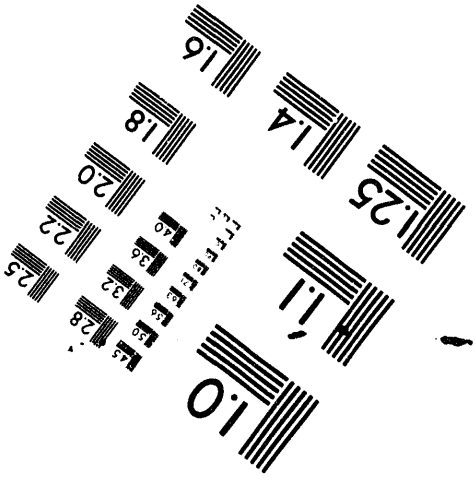

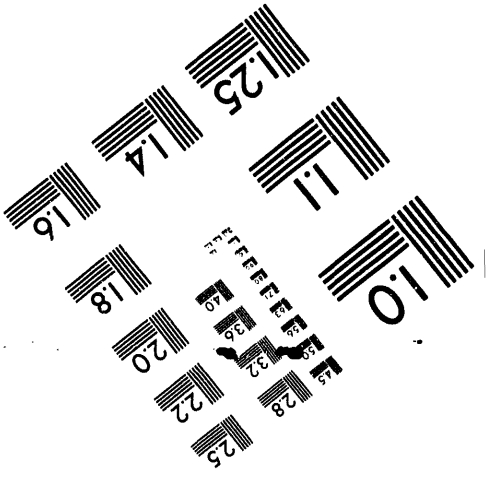

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4 of 5

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/20/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L429

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-001	STATION 220	Acidity	16.0	MG/L	2.0
		Chloride	3.5	MG/L	0.25
		Hardness	12.0	MG/L	1.0
		Nitrate, as N	0.18	MG-N/L	0.10
		pH	5.0	PH UNITS	0.010
		Sulfate	2.9	MG/L	2.5
		Specific Conductance	17.4	UMHOS/CM	1.0
-002	STATION 221	Acidity	20.0	MG/L	2.0
		Chloride	4.0	MG/L	0.25
		Hardness	6.0	MG/L	1.0
		Nitrate, as N	0.10 u	MG-N/L	0.10
		pH	4.0	PH UNITS	0.010
		Sulfate	3.2	MG/L	2.5
		Specific Conductance	26.2	UMHOS/CM	1.0
-003	STATION 222	Acidity	32.0	MG/L	2.0
		Chloride	3.7	MG/L	0.25
		Hardness	5.5	MG/L	1.0
		Nitrate, as N	0.10 u	MG-N/L	0.10
		pH	4.3	PH UNITS	0.010
		Sulfate	4.2	MG/L	2.5
		Specific Conductance	16.8	UMHOS/CM	1.0
-004	STATION 225	Acidity	384	MG/L	2.0
		Chloride	3.8	MG/L	0.25
		Hardness	5.0	MG/L	1.0
		Nitrate, as N	0.23	MG-N/L	0.10
		pH	4.4	PH UNITS	0.010
		Sulfate	2.5 u	MG/L	2.5
		Specific Conductance	16.0	UMHOS/CM	1.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/20/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L429

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-005	STATION 230	Acidity	180	MG/L	2.0
		Chloride	3.7	MG/L	0.25
		Hardness	9.5	MG/L	1.0
		Nitrate, as N	0.12	MG-N/L	0.10
		pH	4.3	PH UNITS	0.010
		Sulfate	4.1	MG/L	2.5
		Specific Conductance	12.6	UMHOS/CM	1.0
-006	STATION 230DUP	Acidity	188	MG/L	2.0
		Chloride	2.9	MG/L	0.25
		Hardness	8.5	MG/L	1.0
		Nitrate, as N	0.14	MG-N/L	0.10
		pH	4.3	PH UNITS	0.010
		Sulfate	4.5	MG/L	2.5
		Specific Conductance	12.8	UMHOS/CM	1.0

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 03/20/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L429

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
BLANK10	92LAC004-MB1	Acidity	2.0	MG/L	2.0
BLANK20	92LAC004-MB2	Acidity	4.0	MG/L	2.0
BLANK10	92LCL013-MB1	Chloride	0.25 u	MG/L	0.25
BLANK20	92LCL013-MB2	Chloride	0.25 u	MG/L	0.25
BLANK30	92LCL013-MB3	Chloride	0.25 u	MG/L	0.25
BLANK10	92LHD008-MB1	Hardness	1.0 u	MG/L	1.0
BLANK20	92LHD008-MB2	Hardness	1.0 u	MG/L	1.0
BLANK30	92LHD008-MB3	Hardness	1.0 u	MG/L	1.0
BLANK10	92LNO033-MB1	Nitrate, as N	0.10 u	MG-N/L	0.10
BLANK20	92LNO033-MB2	Nitrate, as N	0.10 u	MG-N/L	0.10

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 03/20/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L429

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
BLANK30	92LNO033-MB3	Nitrate, as N	0.10	u	MG-N/L	0.10
BLANK10	92LS4013-MB1	Sulfate	2.5	u	MG/L	2.5
BLANK20	92LS4013-MB2	Sulfate	2.5	u	MG/L	2.5
BLANK30	92LS4013-MB3	Sulfate	2.5	u	MG/L	2.5
BLANK10	92LSP023-MB1	Specific Conductance	1.0	u	UMHOS/CM	1.0
BLANK20	92LSP023-MB2	Specific Conductance	1.0	u	UMHOS/CM	1.0
BLANK30	92LSP023-MB3	Specific Conductance	1.0	u	UMHOS/CM	1.0

ROY F. WESTON INC.

INORGANIC ACCURACY REPORT 03/20/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9202L429

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV
BLANK10	92LCL013-MB1	Chloride	5.4	0.25u	5.0	107
		Chloride MSD	5.4	0.25u	5.0	108
BLANK20	92LCL013-MB2	Chloride	5.0	0.25u	5.0	101
BLANK30	92LCL013-MB3	Chloride	5.4	0.25u	5.0	107
BLANK10	92LHD008-MB1	Hardness	99.7	1.0 u	100	99.7
		Hardness MSD	330	1.0 u	330	100
BLANK20	92LHD008-MB2	Hardness	99.8	1.0 u	100	99.8
BLANK30	92LHD008-MB3	Hardness	99.5	1.0 u	100	99.5
BLANK10	92LNO033-MB1	Nitrate, as N	0.52	0.10u	0.50	105
		Nitrate, as N MSD	0.53	0.10u	0.50	106
BLANK20	92LNO033-MB2	Nitrate, as N	0.53	0.10u	0.50	107
BLANK30	92LNO033-MB3	Nitrate, as N	0.52	0.10u	0.50	103
BLANK10	92LS4013-MB1	Sulfate	20.2	2.5 u	20.0	101
		Sulfate	20.3	2.5 u	20.0	102

ROY F. WESTON INC.

INORGANIC ACCURACY REPORT 03/20/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L429

SAMPLE	SITE ID	ANALYTE		SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV
BLANK20	92LS4013-MB2	Sulfate		20.4	2.5 u	20.0	102
BLANK30	92LS4013-MB3	Sulfate		20.2	2.5 u	20.0	101
BLANK10	92LSP023-MB1	Specific Conductance		148	1.0 u	147	101
		Specific Conductance	M	149	1.0 u	147	101
BLANK20	92LSP023-MB2	Specific Conductance		722	1.0 u	718	101
BLANK30	92LSP023-MB3	Specific Conductance		1410	1.0 u	1410	99.6

ROY F. WESTON INC.

INORGANIC DUPLICATE SPIKE REPORT 03/20/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9202L429

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%RPD
BLANK10	92LCL013-MB1	Chloride	107	108	0.40
BLANK10	92LHD008-MB1	Hardness	99.7	100	0.30
BLANK10	92LNO033-MB1	Nitrate, as N	105	106	1.1
BLANK10	92LS4013-MB1	Sulfate	101	102	0.90
BLANK10	92LSP023-MB1	Specific Conductance	101	101	0.70

ROY F. WESTON INC.

INORGANIC PRECISION REPORT 03/20/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9202L429

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	%RPD
-001REP	STATION 220	Acidity	16.0	20.0	22.2
		Nitrate, as N	0.18	0.18	0.54
		Specific Conductance	17.4	17.6	1.3
-006REP	STATION 230DUP	Specific Conductance	12.8	12.8	0.00

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/21/92 RFW LOT # :9202L429

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 220						
ACIDITY	001	W	92LAC004	02/20/92	02/24/92	02/24/92
ACIDITY	001 REP	W	92LAC004	02/20/92	02/24/92	02/24/92
CHLORIDE	001	W	92LCL013	02/20/92	03/12/92	03/12/92
HARDNESS	001	W	92LHD008	02/20/92	03/10/92	03/10/92
NITRATE	001	W	92LNO033	02/20/92	03/11/92	03/11/92
NITRATE	001 REP	W	92LNO033	02/20/92	03/11/92	03/11/92
PH	001	W	92LPH034	02/20/92	02/21/92	02/21/92
SULFATE	001	W	92LS4013	02/20/92	03/19/92	03/19/92
SPECIFIC CONDUCTANCE	001	W	92LSP023	02/20/92	02/21/92	02/21/92
SPECIFIC CONDUCTANCE	001 REP	W	92LSP023	02/20/92	02/21/92	02/21/92
SUB-OUT TEST FOR SUB	001	W		02/20/92		
STATION 221						
ACIDITY	002	W	92LAC004	02/20/92	02/24/92	02/24/92
CHLORIDE	002	W	92LCL013	02/20/92	03/12/92	03/12/92
HARDNESS	002	W	92LHD008	02/20/92	03/10/92	03/10/92
NITRATE	002	W	92LNO033	02/20/92	03/11/92	03/11/92
PH	002	W	92LPH034	02/20/92	02/21/92	02/21/92
SULFATE	002	W	92LS4013	02/20/92	03/19/92	03/19/92
SPECIFIC CONDUCTANCE	002	W	92LSP023	02/20/92	02/21/92	02/21/92
SUB-OUT TEST FOR SUB	002	W		02/20/92		
STATION 222						
ACIDITY	003	W	92LAC004	02/20/92	02/24/92	02/24/92
CHLORIDE	003	W	92LCL013	02/20/92	03/12/92	03/12/92
HARDNESS	003	W	92LHD008	02/20/92	03/10/92	03/10/92
NITRATE	003	W	92LNO033	02/20/92	03/11/92	03/11/92
PH	003	W	92LPH034	02/20/92	02/21/92	02/21/92
SULFATE	003	W	92LS4013	02/20/92	03/19/92	03/19/92
SPECIFIC CONDUCTANCE	003	W	92LSP023	02/20/92	02/21/92	02/21/92
SUB-OUT TEST FOR SUB	003	W		02/20/92		
STATION 225						
ACIDITY	004	W	92LAC004	02/20/92	02/24/92	02/24/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/21/92 RFW LOT # :9202L429

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHLORIDE	004	W	92LCL013	02/20/92	03/12/92	03/12/92
HARDNESS	004	W	92LHD008	02/20/92	03/10/92	03/10/92
NITRATE	004	W	92LNO033	02/20/92	03/11/92	03/11/92
PH	004	W	92LPH034	02/20/92	02/21/92	02/21/92
SULFATE	004	W	92LS4013	02/20/92	03/19/92	03/19/92
SPECIFIC CONDUCTANCE	004	W	92LSP023	02/20/92	02/21/92	02/21/92
SUB-OUT TEST FOR SUB	004	W		02/20/92		
STATION 230						
ACIDITY	005	W	92LAC004	02/20/92	02/24/92	02/24/92
CHLORIDE	005	W	92LCL013	02/20/92	03/12/92	03/12/92
HARDNESS	005	W	92LHD008	02/20/92	03/10/92	03/10/92
NITRATE	005	W	92LNO033	02/20/92	03/11/92	03/11/92
PH	005	W	92LPH034	02/20/92	02/21/92	02/21/92
SULFATE	005	W	92LS4013	02/20/92	03/19/92	03/19/92
SPECIFIC CONDUCTANCE	005	W	92LSP023	02/20/92	02/21/92	02/21/92
SUB-OUT TEST FOR SUB	005	W		02/20/92		
STATION 230DUP						
ACIDITY	006	W	92LAC004	02/20/92	02/24/92	02/24/92
CHLORIDE	006	W	92LCL013	02/20/92	03/12/92	03/12/92
HARDNESS	006	W	92LHD008	02/20/92	03/10/92	03/10/92
NITRATE	006	W	92LNO033	02/20/92	03/11/92	03/11/92
PH	006	W	92LPH034	02/20/92	02/21/92	02/21/92
SULFATE	006	W	92LS4013	02/20/92	03/19/92	03/19/92
SPECIFIC CONDUCTANCE	006	W	92LSP023	02/20/92	02/21/92	02/21/92
SPECIFIC CONDUCTANCE	006 REP	W	92LSP023	02/20/92	02/21/92	02/21/92
SUB-OUT TEST FOR SUB	006	W		02/20/92		

LAB QC:

ACIDITY	MB1	W	92LAC004	N/A	02/24/92	02/24/92
ACIDITY	MB2	W	92LAC004	N/A	02/24/92	02/24/92
CHLORIDE	MB1	W	92LCL013	N/A	03/12/92	03/12/92
CHLORIDE	MB1 BS	W	92LCL013	N/A	03/12/92	03/12/92
CHLORIDE	MB1 BSD	W	92LCL013	N/A	03/12/92	03/12/92
CHLORIDE	MB2	W	92LCL013	N/A	03/12/92	03/12/92
CHLORIDE	MB2 BS	W	92LCL013	N/A	03/12/92	03/12/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/21/92 RFW LOT # :9202L429

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHLORIDE	MB3	W	92LCL013	N/A	03/12/92	03/12/92
CHLORIDE	MB3 BS	W	92LCL013	N/A	03/12/92	03/12/92
HARDNESS	MB1	W	92LHD008	N/A	03/10/92	03/10/92
HARDNESS	MB1 BS	W	92LHD008	N/A	03/10/92	03/10/92
HARDNESS	MB1 BSD	W	92LHD008	N/A	03/10/92	03/10/92
HARDNESS	MB2	W	92LHD008	N/A	03/10/92	03/10/92
HARDNESS	MB2 BS	W	92LHD008	N/A	03/10/92	03/10/92
HARDNESS	MB3	W	92LHD008	N/A	03/10/92	03/10/92
HARDNESS	MB3 BS	W	92LHD008	N/A	03/10/92	03/10/92
NITRATE	MB1	W	92LNO033	N/A	03/11/92	03/11/92
NITRATE	MB1 BS	W	92LNO033	N/A	03/11/92	03/11/92
NITRATE	MB1 BSD	W	92LNO033	N/A	03/11/92	03/11/92
NITRATE	MB2	W	92LNO033	N/A	03/11/92	03/11/92
NITRATE	MB2 BS	W	92LNO033	N/A	03/11/92	03/11/92
NITRATE	MB3	W	92LNO033	N/A	03/11/92	03/11/92
NITRATE	MB3 BS	W	92LNO033	N/A	03/11/92	03/11/92
SULFATE	MB1	W	92LS4013	N/A	03/19/92	03/19/92
SULFATE	MB1 BS	W	92LS4013	N/A	03/19/92	03/19/92
SULFATE	MB1 BSD	W	92LS4013	N/A	03/19/92	03/19/92
SULFATE	MB2	W	92LS4013	N/A	03/19/92	03/19/92
SULFATE	MB2 BS	W	92LS4013	N/A	03/19/92	03/19/92
SULFATE	MB3	W	92LS4013	N/A	03/19/92	03/19/92
SULFATE	MB3 BS	W	92LS4013	N/A	03/19/92	03/19/92
SPECIFIC CONDUCTANCE	MB1	W	92LSP023	N/A	02/21/92	02/21/92
SPECIFIC CONDUCTANCE	MB1 BS	W	92LSP023	N/A	02/21/92	02/21/92
SPECIFIC CONDUCTANCE	MB1 BSD	W	92LSP023	N/A	02/21/92	02/21/92
SPECIFIC CONDUCTANCE	MB2	W	92LSP023	N/A	02/21/92	02/21/92
SPECIFIC CONDUCTANCE	MB2 BS	W	92LSP023	N/A	02/21/92	02/21/92
SPECIFIC CONDUCTANCE	MB3	W	92LSP023	N/A	02/21/92	02/21/92
SPECIFIC CONDUCTANCE	MB3 BS	W	92LSP023	N/A	02/21/92	02/21/92

WESTON Analytics Use Only
9202L429

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WSRC-TASK 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12-0000
Project Contact/Phone #:
AD Project Manager: D. Thomas
QC: Del: TAT: 30 day
Date Rec'd: 2-21-92 Date Due: 3-22-92
Account #: WSRC12STD

Refrigerator #		1				SUB					4		4		4	
#/Type Container	Liquid	1G				1P					1P		1P		1P	
	Solid															
Volume	Liquid	4 Quart				4L					1L		250		250	
	Solid															
Preservatives		None				None					None		None		HNO3	
ANALYSES REQUESTED		ORGANIC: VOA	BNA	Pest/PCB	Herb	Chlor Phen			INORG: Metal	CN	ALK NH3 & SPCD		Ph ISO4		NO3 HARD	
WESTON Analytics Use Only		624#				ISUB			See Below		INALK INCD ICL ISPCD		IPh ISO4		INO3P IHARD	

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	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	624#				ISUB			See Below		INALK INCD ICL ISPCD		IPh ISO4		INO3P IHARD	
001	Station 220			W	2-20-92		✓				✓			✓		✓		✓		✓	
002	221						✓				✓			✓		✓		✓		✓	
003	222						✓				✓			✓		✓		✓		✓	
004	225						✓				✓			✓		✓		✓		✓	
005	230						✓				✓			✓		✓		✓		✓	
006	230 Dup						✓				✓			✓		✓		✓		✓	
007	~~Field~~ Trip Blank						✓														
	Ph 2-21-92																				
	Bad info to Follow.																				

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: original Rewritten

metals = Ag, Al, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, Zn, Fe, Mn

* original chain lists us having field blanks but we received trip blanks not field blanks.

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # 251347331
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
Emery	[signature]	2-21-92	12:30
	[signature] 2-21-92		

Relinquished by	Received by	Date	Time
	[signature]		
	[signature] 2-21-92		

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES: * 30 250 Ph

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

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WSRC-TASK 12 **SAMPLES RECEIVED:** 02-21-92
RFW #: 9202L429
W.O. #: 0345-31-12

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

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

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

4. Usual rounding rules are followed. If the figure following those to be retained is less than 5, the figure is dropped, and the retained figures are kept unchanged. As an example, 11.443 is rounded off to 11.44.

   If the figure following those to be retained is greater than 5, the figure is dropped, and the last retained figure is raised by 1. As an example, 11.446 is rounded off to 11.45.

   If the figure following those to be retained is 5, and if there are no figures other than zeros beyond the five, the figure 5 is dropped, and the last place figure retained is increased by 1 if it is an odd number or it is kept unchanged if an even number. As an example, 11.435 is rounded off to 11.44, while 11.425 is rounded off to 11.42.

WESTON

5. All calibration verification checks were within the required control limits of 90-110% (80-120% for Hg). Calibration verification is performed using independent standards from Inorganic Ventures, Inc.

Samuel B. Smith / 03.13.92

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

kis\m02-429

ROY F. WESTON, INC.
GLOSSARY OF TERMS - INORGANIC REPORTS

DATA QUALIFIERS

U - Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* - Indicates that the original sample result is greater than 4x the spike amount added. The USEPA-CLP has determined that spike results on samples where this occurs may be unreliable and therefore, the control limits are not applicable.

ABBREVIATIONS

MB - Method or preparation blank
MS - Matrix Spike
MSD - Matrix Spike Duplicate.
REP - Sample Replicate.
LC - Indicates a method LCS or Blank Spike.
NC - Not calculable, result below the detection limit.

A suffix of -R and -S following these codes indicates a replicate and spike analysis respectively.

ANALYTICAL METAL METHODS

As :	EPA 206.2	Se :	EPA 270.2
Pb :	EPA 239.2	ICP Scan :	EPA 200.7
Hg :	EPA 245.1	All Others :	EPA 200.7
Tl :	EPA 279.2	EP Leachates (except Hg) :	200.7

The analytical methods applied by the laboratory for the determination of drinking water is 5.2.1.

NOTES

The laboratory prepares a matrix spike at one per 20 frequency for TCLP samples. The Federal Register recommends that all matrix spikes be prepared at greater than 50% of the indigenous analyte concentration. A matrix duplicate is also prepared.

Holding times for soil samples have not been promulgated by the USEPA.

For solid samples, all results are reported on a dry weight basis.

The range for mercury solid laboratory control standards is 66.9% to 133.8%.

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/13/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L429

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	STATION 220	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	215		UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	165		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	46.1		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	42.1		UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	175		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/13/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9202L429
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-002	STATION 221	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	203		UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	464		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	38.3		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	4.2		UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	123		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/13/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L429

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-003	STATION 222	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	248		UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	744		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	53.6		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	72.1		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/13/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L429

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-004	STATION 225	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	287		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	51.7		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/13/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L429

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-005	STATION 230	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	794		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	22.7		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	36.2		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/13/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L429

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-006	STATION 230DUP	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	28.7		UG/L	25.0
		Iron, Total	194		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	24.8		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	71.4		UG/L	20.0

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 03/13/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9202L429
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
LLANK1	92L0604-MB1	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Zinc, Total	20.0	u	UG/L	20.0
BLANK1	92L0603-MB1	Arsenic, Total	10.0	u	UG/L	10.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
BLANK1	92C0055-MB1	Mercury, Total	0.20	u	UG/L	0.20

ROY F. WESTON INC.

INORGANIC DUPLICATE SPIKE REPORT 03/13/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9202L429

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%RPD
LCS2	92L0604-LC2	Silver, LCS	83.5	79.7	4.7
		Aluminum, LCS	99.5	97.9	1.6
		Barium, LCS	97.5	95.9	1.7
		Cadmium, LCS	96.3	94.4	2.0
		Chromium, LCS	94.2	92.6	1.7
		Copper, LCS	95.0	93.3	1.8
		Iron, LCS	95.1	93.3	1.9
		Manganese, LCS	95.7	94.1	1.7
		Sodium, LCS	97.6	96.4	1.2
		Nickel, LCS	95.9	93.3	2.7
		Zinc, LCS	94.3	92.8	1.6
LCS2	92L0603-LC2	Arsenic, LCS	92.0	91.3	0.76
		Lead, LCS	100	99.3	1.0
		Selenium, LCS	81.7	82.7	1.2
LCS2	92C0055-LC2	Mercury, LCS	105	98.2	6.7

ROY F. WESTON INC.

INORGANIC LABORATORY CONTROL STANDARDS REPORT 03/13/92

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	92L0604-LC1	Silver, LCS	418	500	UG/L	83.5
		Aluminum, LCS	4970	5000	UG/L	99.5
		Barium, LCS	4880	5000	UG/L	97.5
		Cadmium, LCS	241	250	UG/L	96.3
		Chromium, LCS	471	500	UG/L	94.2
		Copper, LCS	1190	1250	UG/L	95.0
		Iron, LCS	4760	5000	UG/L	95.1
		Manganese, LCS	718	750	UG/L	95.7
		Sodium, LCS	24400	25000	UG/L	97.6
		Nickel, LCS	1920	2000	UG/L	95.9
		Zinc, LCS	944	1000	UG/L	94.3
LCS2	92L0604-LC2	Silver, LCS	399	500	UG/L	79.7
		Aluminum, LCS	4900	5000	UG/L	97.9
		Barium, LCS	4790	5000	UG/L	95.9
		Cadmium, LCS	236	250	UG/L	94.4
		Chromium, LCS	463	500	UG/L	92.6
		Copper, LCS	1170	1250	UG/L	93.3
		Iron, LCS	4670	5000	UG/L	93.3
		Manganese, LCS	706	750	UG/L	94.1
		Sodium, LCS	24100	25000	UG/L	96.4
		Nickel, LCS	1870	2000	UG/L	93.3
		Zinc, LCS	928	1000	UG/L	92.8
LCS1	92L0603-LC1	Arsenic, LCS	27.6	30.0	UG/L	92.0
		Lead, LCS	30.1	30.0	UG/L	100
		Selenium, LCS	24.5	30.0	UG/L	81.7
LCS2	92L0603-LC2	Arsenic, LCS	27.4	30.0	UG/L	91.3
		Lead, LCS	29.8	30.0	UG/L	99.3
		Selenium, LCS	24.8	30.0	UG/L	82.7
LCS1	92C0055-LC1	Mercury, LCS	5.3	5.0	UG/L	105
LCS2	92C0055-LC2	Mercury, LCS	4.9	5.0	UG/L	98.2

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/21/92 RFW LOT # :9202L429

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 220						
SILVER, TOTAL	001	W	92L0604	02/20/92	02/27/92	03/10/92
ALUMINUM, TOTAL	001	W	92L0604	02/20/92	02/27/92	03/10/92
ARSENIC, TOTAL	001	W	92L0603	02/20/92	02/27/92	02/28/92
BARIUM, TOTAL	001	W	92L0604	02/20/92	02/27/92	03/10/92
CADMIUM, TOTAL	001	W	92L0604	02/20/92	02/27/92	03/10/92
CHROMIUM, TOTAL	001	W	92L0604	02/20/92	02/27/92	03/10/92
COPPER, TOTAL	001	W	92L0604	02/20/92	02/27/92	03/10/92
IRON, TOTAL	001	W	92L0604	02/20/92	02/27/92	03/10/92
MERCURY, TOTAL	001	W	92C0055	02/20/92	02/27/92	03/02/92
MANGANESE, TOTAL	001	W	92L0604	02/20/92	02/27/92	03/10/92
SODIUM, TOTAL	001	W	92L0604	02/20/92	02/27/92	03/10/92
NICKEL, TOTAL	001	W	92L0604	02/20/92	02/27/92	03/10/92
LEAD, TOTAL	001	W	92L0603	02/20/92	02/27/92	02/28/92
SELENIUM, TOTAL	001	W	92L0603	02/20/92	02/27/92	02/28/92
ZINC, TOTAL	001	W	92L0604	02/20/92	02/27/92	03/10/92
STATION 221						
SILVER, TOTAL	002	W	92L0604	02/20/92	02/27/92	03/10/92
ALUMINUM, TOTAL	002	W	92L0604	02/20/92	02/27/92	03/10/92
ARSENIC, TOTAL	002	W	92L0603	02/20/92	02/27/92	02/28/92
BARIUM, TOTAL	002	W	92L0604	02/20/92	02/27/92	03/10/92
CADMIUM, TOTAL	002	W	92L0604	02/20/92	02/27/92	03/10/92
CHROMIUM, TOTAL	002	W	92L0604	02/20/92	02/27/92	03/10/92
COPPER, TOTAL	002	W	92L0604	02/20/92	02/27/92	03/10/92
IRON, TOTAL	002	W	92L0604	02/20/92	02/27/92	03/10/92
MERCURY, TOTAL	002	W	92C0055	02/20/92	02/27/92	03/02/92
MANGANESE, TOTAL	002	W	92L0604	02/20/92	02/27/92	03/10/92
SODIUM, TOTAL	002	W	92L0604	02/20/92	02/27/92	03/10/92
NICKEL, TOTAL	002	W	92L0604	02/20/92	02/27/92	03/10/92
LEAD, TOTAL	002	W	92L0603	02/20/92	02/27/92	02/28/92
SELENIUM, TOTAL	002	W	92L0603	02/20/92	02/27/92	02/28/92
ZINC, TOTAL	002	W	92L0604	02/20/92	02/27/92	03/10/92
STATION 222						
SILVER, TOTAL	003	W	92L0604	02/20/92	02/27/92	03/10/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/21/92 RFW LOT # :9202L429

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	003	W	92L0604	02/20/92	02/27/92	03/10/92
ARSENIC, TOTAL	003	W	92L0603	02/20/92	02/27/92	02/28/92
BARIUM, TOTAL	003	W	92L0604	02/20/92	02/27/92	03/10/92
CADMIUM, TOTAL	003	W	92L0604	02/20/92	02/27/92	03/10/92
CHROMIUM, TOTAL	003	W	92L0604	02/20/92	02/27/92	03/10/92
COPPER, TOTAL	003	W	92L0604	02/20/92	02/27/92	03/10/92
IRON, TOTAL	003	W	92L0604	02/20/92	02/27/92	03/10/92
MERCURY, TOTAL	003	W	92C0055	02/20/92	02/27/92	03/02/92
MANGANESE, TOTAL	003	W	92L0604	02/20/92	02/27/92	03/10/92
SODIUM, TOTAL	003	W	92L0604	02/20/92	02/27/92	03/10/92
NICKEL, TOTAL	003	W	92L0604	02/20/92	02/27/92	03/10/92
LEAD, TOTAL	003	W	92L0603	02/20/92	02/27/92	02/28/92
SELENIUM, TOTAL	003	W	92L0603	02/20/92	02/27/92	02/28/92
ZINC, TOTAL	003	W	92L0604	02/20/92	02/27/92	03/10/92
STATION 225						
SILVER, TOTAL	004	W	92L0604	02/20/92	02/27/92	03/10/92
ALUMINUM, TOTAL	004	W	92L0604	02/20/92	02/27/92	03/10/92
ARSENIC, TOTAL	004	W	92L0603	02/20/92	02/27/92	02/28/92
BARIUM, TOTAL	004	W	92L0604	02/20/92	02/27/92	03/10/92
CADMIUM, TOTAL	004	W	92L0604	02/20/92	02/27/92	03/10/92
CHROMIUM, TOTAL	004	W	92L0604	02/20/92	02/27/92	03/10/92
COPPER, TOTAL	004	W	92L0604	02/20/92	02/27/92	03/10/92
IRON, TOTAL	004	W	92L0604	02/20/92	02/27/92	03/10/92
MERCURY, TOTAL	004	W	92C0055	02/20/92	02/27/92	03/02/92
MANGANESE, TOTAL	004	W	92L0604	02/20/92	02/27/92	03/10/92
SODIUM, TOTAL	004	W	92L0604	02/20/92	02/27/92	03/10/92
NICKEL, TOTAL	004	W	92L0604	02/20/92	02/27/92	03/10/92
LEAD, TOTAL	004	W	92L0603	02/20/92	02/27/92	02/28/92
SELENIUM, TOTAL	004	W	92L0603	02/20/92	02/27/92	02/28/92
ZINC, TOTAL	004	W	92L0604	02/20/92	02/27/92	03/10/92
STATION 230						
SILVER, TOTAL	005	W	92L0604	02/20/92	02/27/92	03/10/92
ALUMINUM, TOTAL	005	W	92L0604	02/20/92	02/27/92	03/10/92
ARSENIC, TOTAL	005	W	92L0603	02/20/92	02/27/92	02/28/92
BARIUM, TOTAL	005	W	92L0604	02/20/92	02/27/92	03/10/92
CADMIUM, TOTAL	005	W	92L0604	02/20/92	02/27/92	03/10/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/21/92 RFW LOT # :9202L429

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	005	W	92L0604	02/20/92	02/27/92	03/10/92
COPPER, TOTAL	005	W	92L0604	02/20/92	02/27/92	03/10/92
IRON, TOTAL	005	W	92L0604	02/20/92	02/27/92	03/10/92
MERCURY, TOTAL	005	W	92C0055	02/20/92	02/27/92	03/02/92
MANGANESE, TOTAL	005	W	92L0604	02/20/92	02/27/92	03/10/92
SODIUM, TOTAL	005	W	92L0604	02/20/92	02/27/92	03/10/92
NICKEL, TOTAL	005	W	92L0604	02/20/92	02/27/92	03/10/92
LEAD, TOTAL	005	W	92L0603	02/20/92	02/27/92	02/28/92
SELENIUM, TOTAL	005	W	92L0603	02/20/92	02/27/92	02/28/92
ZINC, TOTAL	005	W	92L0604	02/20/92	02/27/92	03/10/92
STATION 230DUP						
SILVER, TOTAL	006	W	92L0604	02/20/92	02/27/92	03/10/92
ALUMINUM, TOTAL	006	W	92L0604	02/20/92	02/27/92	03/10/92
ARSENIC, TOTAL	006	W	92L0603	02/20/92	02/27/92	02/28/92
BARIUM, TOTAL	006	W	92L0604	02/20/92	02/27/92	03/10/92
CADMIUM, TOTAL	006	W	92L0604	02/20/92	02/27/92	03/10/92
CHROMIUM, TOTAL	006	W	92L0604	02/20/92	02/27/92	03/10/92
COPPER, TOTAL	006	W	92L0604	02/20/92	02/27/92	03/10/92
IRON, TOTAL	006	W	92L0604	02/20/92	02/27/92	03/10/92
MERCURY, TOTAL	006	W	92C0055	02/20/92	02/27/92	03/02/92
MANGANESE, TOTAL	006	W	92L0604	02/20/92	02/27/92	03/10/92
SODIUM, TOTAL	006	W	92L0604	02/20/92	02/27/92	03/10/92
NICKEL, TOTAL	006	W	92L0604	02/20/92	02/27/92	03/10/92
LEAD, TOTAL	006	W	92L0603	02/20/92	02/27/92	02/28/92
SELENIUM, TOTAL	006	W	92L0603	02/20/92	02/27/92	02/28/92
ZINC, TOTAL	006	W	92L0604	02/20/92	02/27/92	03/10/92

LAB QC:

SILVER LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
ALUMINUM LABORTORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
BARIUM LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
CADMIUM LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
CHROMIUM LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
COPPER LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
IRON LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
MANGANESE LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
SODIUM LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/21/92 RFW LOT # :9202L429

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NICKEL LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
ZINC LABORATORY	LC1 BS	W	92L0604	N/A	02/27/92	03/10/92
SILVER LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
ALUMINUM LABORTORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
BARIUM LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
CADMIUM LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
CHROMIUM LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
COPPER LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
IRON LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
MANGANESE LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
SODIUM LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
NICKEL LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
ZINC LABORATORY	LC2 BS	W	92L0604	N/A	02/27/92	03/10/92
SILVER, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
ALUMINUM, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
BARIUM, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
CADMIUM, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
CHROMIUM, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
COPPER, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
IRON, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
MANGANESE, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
SODIUM, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
NICKEL, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
ZINC, TOTAL	MB1	W	92L0604	N/A	02/27/92	03/10/92
ARSENIC LABORATORY	LC1 BS	W	92L0603	N/A	02/27/92	02/28/92
LEAD LABORATORY	LC1 BS	W	92L0603	N/A	02/27/92	02/28/92
SELENIUM LABORATORY	LC1 BS	W	92L0603	N/A	02/27/92	02/28/92
ARSENIC LABORATORY	LC2 BS	W	92L0603	N/A	02/27/92	02/28/92
LEAD LABORATORY	LC2 BS	W	92L0603	N/A	02/27/92	02/28/92
SELENIUM LABORATORY	LC2 BS	W	92L0603	N/A	02/27/92	02/28/92
ARSENIC, TOTAL	MB1	W	92L0603	N/A	02/27/92	02/28/92
LEAD, TOTAL	MB1	W	92L0603	N/A	02/27/92	02/28/92
SELENIUM, TOTAL	MB1	W	92L0603	N/A	02/27/92	02/28/92
MERCURY LABORATORY	LC1 BS	W	92C0055	N/A	02/27/92	03/02/92
MERCURY LABORATORY	LC2 BS	W	92C0055	N/A	02/27/92	03/02/92
MERCURY, TOTAL	MB1	W	92C0055	N/A	02/27/92	03/02/92

WESTON Analytics Use Only

9202L429

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WSRC-TASK 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12-0000
Project Contact/Phone #:
AD Project Manager: D. Thomas
QC: [illegible] Del: [illegible] TAT: 30 days
Date Rec'd: 2-21-92 Date Due: 3-22-92
Account #: WSRC12STD

Refrigerator #		1				SUB					4		4		4				
#/Type Container	Liquid	1G				1P					1P		1P		1P				
	Solid																		
Volume	Liquid	40ml				4L					1L		250		250				
	Solid																		
Preservatives		HCl				none					none		none		HNO3				
ANALYSES REQUESTED		ORGANIC							INORG										
		VOA	BNA	Pest/PCB	Herb	Sulfur Rem			Metal	CN	ALKL ACID & SOLID		Pb ICPM		AS HAGD				

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	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only: 8240				ISUB			Hg Rebun		ALKL ACID PCL SOLID		IPM ICPM		ASSP HAGD	
001	Station 220			W	2-20-92		✓				✓			✓		✓		✓		✓	
002	221						✓				✓			✓		✓		✓		✓	
003	222						✓				✓			✓		✓		✓		✓	
004	225						✓				✓			✓		✓		✓		✓	
005	230						✓				✓			✓		✓		✓		✓	
006	230 Dup						✓				✓			✓		✓		✓		✓	
007	~~Field~~ Trip Blank						✓														
	Thu 2-21-92																				
	Bad info to follow.																				

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: original Requisition

Metals = Ag, Al, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, Zn, Fe, Mn

* ORIGINAL chain lists us having field blanks but we received trip blanks not field blanks.

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # 25134 2331
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

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

COC Record Present Upon Sample Rec't Y or N

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

Relinquished by	Received by	Date	Time
Emery	[illegible]	2-21-92	12:30
	[illegible] 2-21-92		

Relinquished by	Received by	Date	Time
	[illegible]		
	2-21-92		

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

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WSRC-TASK 12 **SAMPLES RECEIVED:** 02-21-92
RFW #: 9202L429, GC/MS VOLATILE
W.O. #: 0345-31-12

NARRATIVE

The set of samples consisted of seven (7) water samples collected on 02-20-92.

The samples were analyzed according to criteria set forth in SW 846 Method 8240 for TCL Volatile target compounds on 02-28-92.

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

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

2. All surrogate recoveries were within EPA QC limits.

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

Margaret M. Seaty 3/17/92

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

WESTON

GLOSSARY OF VOA DATA

DATA QUALIFIERS

U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero; for example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

I = Interference.

X = Additional qualifiers used as required are explained in the case narrative.

NQ = Result qualitatively confirmed but not able to quantify.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Indicates that surrogate recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not applicable.

DF = Dilution factor.

NR = Not required.

Roy F. Weston, Inc. - Lionville Laboratory
VOA ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/21/92 RFW LOT # :9202L429

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 220	001	W	92LVW036	02/20/92	N/A	02/28/92
STATION 221	002	W	92LVW036	02/20/92	N/A	02/28/92
STATION 222	003	W	92LVW036	02/20/92	N/A	02/28/92
STATION 225	004	W	92LVW036	02/20/92	N/A	02/28/92
STATION 230	005	W	92LVW036	02/20/92	N/A	02/28/92
STATION 230DUP	006	W	92LVW036	02/20/92	N/A	02/28/92
TRIP BLANK	007	W	92LVW036	02/20/92	N/A	02/28/92
LAB QC:						
VBLK	MB1	W	92LVW036	N/A	N/A	02/28/92

Roy F. Weston, In[illegible] Lionville Laboratory
Volatiles [illegible] GC/MS, HSL List

Report Date: 03/17/[illegible]2 01:19

RFW Batch Number: 9202L429 Client: WSRC-TASK 12 Work Order: 0345-31-12-0000 Page: 1a

	Cust ID:	STATION 220	STATION 221	STATION 222	STATION 225	STATION 230	STATION 230D UP
Sample Information	RFW#:	001	002	003	004	005	006
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Surrogate Recovery	Toluene-d8	102 %	102 %	105 %	106 %	101 %	103 %
	Bromofluorobenzene	104 %	100 %	103 %	99 %	100 %	98 %
	1,2-Dichloroethane-d4	103 %	99 %	96 %	89 %	96 %	95 %
Chloromethane		10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane		10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride		10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride		4 JB	2 JB	7 B	9 B	8 B	7 B
Acetone		19 B	3 JB	2 JB	5 JB	4 JB	6 JB
Carbon Disulfide		5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene		5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)		5 U	5 U	5 U	5 U	5 U	5 U
Chloroform		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone		10 U	8 J	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride		5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate		10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane		5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene		5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane		5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
Benzene		5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	5 U
Bromoform		5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone		10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene		5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		5 U	5 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

RFW [illegible]ch Number: 9202L429 Client: WSRC-TASK 1[illegible] Work Order: 0345-31-12-0000 [illegible]ge: 1b.

Cust ID:	STATION 220	STATION 221	STATION 222	STATION 225	STATION 230	STATION 230D UP
RFW#:	001	002	003	004	005	006
Toluene	5 U	5 U	3 J	5 U	5 U	5 U
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

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

RFW Batch Number: 9202L429 Client: WSRC-TASK 12 Work Order: 0345-31-12-0000 Report Date: 03/17/92 01:19 Page: 2a

	Cust ID:	TRIP BLANK		VBLK	
Sample Information	RFW#:	007		92LVW036-MB1	
	Matrix:	WATER		WATER	
	D.F.:	1.00		1.00	
	Units:	ug/L		ug/L	
Surrogate Recovery	Toluene-d8	106	%	103	%
	Bromofluorobenzene	102	%	102	%
	1,2-Dichloroethane-d4	98	%	86	%
Chloromethane		10	U	10	U
Bromomethane		10	U	10	U
Vinyl Chloride		10	U	10	U
Chloroethane		10	U	10	U
Methylene Chloride		8	B	4	J
Acetone		10	B	12	
Carbon Disulfide		5	U	5	U
1,1-Dichloroethene		5	U	5	U
1,1-Dichloroethane		5	U	5	U
1,2-Dichloroethene (total)		5	U	5	U
Chloroform		5	U	5	U
1,2-Dichloroethane		5	U	5	U
2-Butanone		10	U	10	U
1,1,1-Trichloroethane		5	U	5	U
Carbon Tetrachloride		5	U	5	U
Vinyl Acetate		10	U	10	U
Bromodichloromethane		5	U	5	U
1,2-Dichloropropane		5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U
Trichloroethene		5	U	5	U
Dibromochloromethane		5	U	5	U
1,1,2-Trichloroethane		5	U	5	U
Benzene		5	U	5	U
Trans-1,3-Dichloropropene		5	U	5	U
Bromoform		5	U	5	U
4-Methyl-2-pentanone		10	U	10	U
2-Hexanone		10	U	10	U
Tetrachloroethene		5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U

*= Outside of EPA CLP QC limits.

RFW[illegible]ch Number: 9202L429 Client: WSRC-TASK [illegible] Work Order: 0345-31-12-0000 [illegible]ge: 2b

Cust ID: TRIP BLANK VBLK

RFW#:	007	92LVW036-MB1
Toluene	5 U	5 U
Chlorobenzene	5 U	5 U
Ethylbenzene	5 U	5 U
Styrene	5 U	5 U
Xylene (total)	5 U	5 U

*= Outside of EPA CLP QC limits.

WESTON Analytics Use Only: 9202L429

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WSRC - TASK 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12-0000
Project Contact/Phone #:
AD Project Manager: D. Thomas
QC: Stt Del: Stt TAT: 30 day
Date Rec'd: 2-21-92 Date Due: 3-22-92
Account #: WSRC12STD

Refrigerator #		1				SUB					4		4		4	
#/Type Container	Liquid	1G				1P					1P		1P		1P	
	Solid															
Volume	Liquid	40ml				40ml					1L		250		250	
	Solid															
Preservatives		Hcl				none					none		none		Hno3	
ANALYSES REQUESTED		ORGANIC: VOA	BNA	Pest/PCB	Herb	Gas/Chem			INORG: Metal	CN	ALKL RED SPD		Pb ISOT		MS HANGD	
WESTON Analytics Use Only		8244				TSUB			Sr Rb		TALKL TOXID TCL SPD		IPb ISOT		IMS P HANGD	

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	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8244				TSUB			Sr Rb		TALKL TOXID TCL SPD		IPb ISOT		IMS P HANGD	
001	Station 220			W	2-20-92		✓				✓			✓		✓		✓		✓	
002	221						✓				✓			✓		✓		✓		✓	
003	222						✓				✓			✓		✓		✓		✓	
004	225						✓				✓			✓		✓		✓		✓	
005	230						✓				✓			✓		✓		✓		✓	
006	230 Dup						✓				✓			✓		✓		✓		✓	
007	~~Field~~ Trip Blank						✓							*							
	Tha 2-19-92																				
	Bad info to follow.																				

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: original Cancellation

metals = Ag, Al, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, Zn, Fe, Mn

* original chain lists us having field blanks but we received trip blanks not field blanks.

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # 2513412331
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

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

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
Emery	[signature]	2-21-92	12:30		[signature]		
	[signature] 2-21-92				2-21-92		

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

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

20-Apr-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 1
Copy: 1 of 2
Set : 1

Attn: Diane Thomas
Project: 0630-28-27

Received: 22-Nov-91 11:34
PO #: LL-0962-F4

Job: 912295E

Status: Final

AMENDED REPORT

Sample Type: Water

Sample	Gross Alpha Total pCi/l	Error 2σ	Gross Beta Total pCi/l	Error 2σ	Radium pCi/l	Error 2σ
Site 266	0.9	±1.4	2.7	±1.7	2.1	±0.8
Site 267	110	±20	57	±10	5.4	±1.1
Site 268	0.1	±1.3	3.4	±1.7	1.6	±0.7
Site 269	2.7	±1.8	3.3	±1.7	1.5	±0.6
Site 271	33	±8	17	±4	2.9	±0.9
Site 258	16	±6	16	±3	2.2	±0.8
Site 259	5.2	±2.2	5.0	±1.8	2.1	±0.7
Site 262	45	±12	28	±6	2.2	±0.8
Site 225	34	±8	24	±4	4.0	±1.6
Site 230	65	±16	43	±8	6.9	±1.2
Site 254	9.7	±2.3	8.2	±1.9	2.6	±0.8
Site 220	9.1	±2.2	6.4	±1.6	4.5	±1.7
Site 221	7.7	±2.6	6.6	±1.8	3.4	±0.9
Site 222	1.3	±1.6	5.5	±1.8	1.8	±0.7
Site 223	32	±7	20	±4	4.2	±1.0

Sample	U-234 Total pCi/l	Error 2σ	U-235 Total pCi/l	Error 2σ	U-238 Total pCi/l	Error 2σ	Am-241 pCi/l	Error 2σ
Site 266	0.0	±0.8	0.0	±0.7	0.2	±0.9	0.0	±1.1
Site 267	6.2	±2.5	0.3	±0.8	4.5	±2.0	0.0	±0.9
Site 268	0.2	±1.0	0.0	±0.6	0.0	±0.8	0.0	±0.8
Site 269	4.3	±2.0	0.0	±0.5	2.5	±1.5	0.0	±0.7
Site 271	1.6	±1.7	0.0	±0.8	3.5	±2.1	0.5	±1.8
Site 258	3.1	±1.8	0.0	±0.6	2.4	±1.5	0.0	±4.2
Site 259	2.9	±1.7	0.0	±0.5	1.3	±1.2	0.0	±3.5
Site 262	1.5	±1.4	0.0	±0.5	1.5	±1.3	0.0	±2.3
Site 225	3.3	±1.8	0.0	±0.6	2.6	±1.6	0.0	±2.3
Site 230	2.5	±1.6	0.0	±0.7	2.6	±1.6	1.4	±2.6

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

20-Apr-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 2
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Attn: Diane Thomas
Project: 0630-28-27

Received: 22-Nov-91 11:34
PO #: LL-0962-F4

Job: 912295E

Status: Final

AMENDED REPORT

Sample Type: Water

Sample	U-234 Total pCi/l	Error 2σ	U-235 Total pCi/l	Error 2σ	U-238 Total pCi/l	Error 2σ	Am-241 pCi/l	Error 2σ
Site 254	a0.2	±0.8	a0.0	±0.4	a0.4	±0.8	0.5	±2.5
Site 220	2.5	±1.6	0.0	±0.6	3.7	±1.8	0.0	±4.7
Site 221	11	±3	0.0	±0.7	8.7	±2.6	0.0	±2.6
Site 222	5.4	±2.2	0.0	±0.6	2.8	±1.6	0.0	±3.7
Site 223	3.4	±2.9	0.0	±1.3	3.1	±2.6	1.5	±7.5

Sample	Tritium pCi/l	Error 2σ	I-129 pCi/l	Error 2σ	Pu-238 pCi/l	Error 2σ
Site 266	1800	±400	0.8	±9.4	0.0	±0.6
Site 267	1600	±400	6.1	±9.8	0.0	±0.6
Site 268	2300	±400	0.0	±8.8	0.0	±0.5
Site 269	1900	±400	2.1	±9.4	0.0	±0.6
Site 271	1400	±400	4.9	±9.2	0.0	±1.3
Site 258	7800	±500	0	±11	0.2	±0.6
Site 259	4000	±400	0.0	±8.6	0.0	±0.5
Site 262	1300	±400	0.0	±9.1	0.0	±0.6
Site 225	9000	±500	0.0	±8.9	0.0	±0.8
Site 230	8600	±500	2.6	±8.6	0.0	±0.4
Site 254	2700	±400	0.0	±9.0	0.0	±0.5
Site 220	18000	±700	0.2	±7.2	0.0	±0.5
Site 221	18000	±700	7.4	±7.8	0.0	±0.6
Site 222	9000	±500	3.7	±8.8	0.0	1.1
Site 223	3500	±400	0.0	±9.0	0.0	±2.8

BARRINGER LABORATORIES INC.
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20-Apr-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 3
Copy: 1 of 2
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Attn: Diane Thomas
Project: 0630-28-27

Received: 22-Nov-91 11:34
PO #: LL-0962-F4

Job: 912295E

Status: Final

AMENDED REPORT

Sample Type: Water

Sample	Pu-239/240 pCi/l	Error 2σ	Sr-89 pCi/l	Error 2σ	Sr-90 pCi/l	Error 2σ
Site 266	0.0	±0.5	0.0	±1.8	0.0	±1.8
Site 267	1.3	±0.9	1.3	±2.1	0.0	±2.7
Site 268	0.0	±0.3	0.0	±1.8	0.0	±1.8
Site 269	0.0	±0.5	0.0	±1.8	0.0	±1.8
Site 271	0.0	±1.0	0.0	±6.7	0.0	±6.7
Site 258	0.0	±0.4	0.0	±1.8	0.0	±1.8
Site 259	0.0	±0.6	0.0	±1.7	0.0	±1.7
Site 262	0.0	±0.5	0.8	±1.9	0.5	±3.2
Site 225	0.3	±0.6	0.0	±3.3	0.0	±5.3
Site 230	0.0	±0.4	0.6	±1.6	0.0	±2.4
Site 254	0.0	±0.6	0.4	±1.6	0.0	±2.3
Site 220	0.0	±0.5	0.5	±1.3	0.0	±2.1
Site 221	0.0	±0.4	0.0	±1.6	0.0	±1.6
Site 222	0.1	±1.0	0.4	±1.6	0.0	±2.8
Site 223	---	---	0.0	±2.6	1.2	±5.3

Sample	Tc-99 pCi/l	Error 2σ	C-14 pCi/l	Error 2σ
Site 266	0.0	±1.7	5.1	±7.6
Site 267	1.3	±2.0	0.0	±9.0
Site 268	0.0	±1.8	0.6	±9.2
Site 269	0.5	±1.9	5.7	±8.9
Site 271	0.0	±9.7	1.0	±7.3
Site 258	1.1	±1.9	0	±28
Site 259	0.6	±1.7	10	±16
Site 262	2.0	±2.0	3	±12
Site 225	0.3	±1.9	0	±11
Site 230	0.0	±1.8	8	±20

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

20-Apr-92

Diane Thomas
WESTON
208 Welsh Pool Road
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Page: 4
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Attn: Diane Thomas
Project: 0630-28-27

Received: 22-Nov-91 11:34
PO #: LL-0962-F4

Job: 912295E

Status: Final

AMENDED REPORT

Sample Type: Water

Sample	Tc-99 pCi/l	Error 2σ	C-14 pCi/l	Error 2σ
Site 254	0.0	±1.8	3.8	±9.6
Site 220	0.6	±1.9	13	±8
Site 221	0.1	±1.9	4	±22
Site 222	0.0	±1.7	0	±12
Site 223	0.6	±2.0	1	±12

AMENDED REPORT

Sample	Bi-214* pCi/l	Error 2σ	Pb-214* pCi/l	Error 2σ
Sample Type: Water				
Site 266	<25	---	<18	---
Site 267	51	±17	30	±15
Site 268	<25	---	<18	---
Site 269	<25	---	22	±10
Site 271	<49	---	47	±21
Site 258	44	±17	30	±11
Site 259	36	±17	<21	---
Site 262	<27	---	31	±12
Site 225	30	±14	25	±10
Site 230	36	±14	<21	---
Site 254	34	±15	31	±12
Site 220	41	±16	30	±11
Site 221	22	±14	25	±13
Site 222	45	±16	23	±12

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

20-Apr-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 5
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Attn: Diane Thomas
Project: 0630-28-27

Received: 22-Nov-91 11:34
PO #: LL-0962-F4

Job: 912295E

Status: Final

AMENDED REPORT

Sample Type: Water

Sample	Bi-214* pCi/l	Error 2σ	Pb-214* pCi/l	Error 2σ
Site 223	44	±17	27	±13

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

20-Apr-92

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WESTON
208 Welsh Pool Road
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Attn: Diane Thomas
Project: 0630-28-27

Received: 22-Nov-91 11:34
PO #: LL-0962-F4

Job: 912295E

Status: Final

AMENDED REPORT

Abbreviations:

Parameters:

U-234	: Uranium-234
U-235	: Uranium-235
U-238	: Uranium-238
Am-241	: Americium-241
I-129	: Iodine-129
Pu-238	: Plutonium-238
Pu-239/240	: Plutonium-239/240
Sr-89	: Strontium-89
Sr-90	: Strontium -90
Tc-99	: Technetium-99
C-14	: Carbon-14
Bi-214*	: Bismuth 214-MDA Reported at 1.645 sigma
Pb-214*	: Lead 214-MDA Reported at 1.654 sigma
Co-58*	: Cobalt 58-MDA Reported at 1.645 sigma
Co-60*	: Cobalt 60-MDA Reported at 1.645 sigma
Cs-137*	: Cesium 137-MDA Reported at 1.645 sigma
Ag-110m*	: Silver 110m-MDA Reported at 1.645 sigma
Gamma Spec	: Gamma Spectralanalysis

Units:

pCi/l	: picoCuries per liter
2σ	: Counting error at the 95% confidence level, 2σ

Quality codes:

<	: Not Detected- below detection limit.

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

20-Apr-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 7
Copy: 1 of 2

Attn: Diane Thomas
Project: 0630-28-27

Received: 22-Nov-91 11:34
PO #: LL-0962-F4

Job: 912295E

Status: Final

AMENDED REPORT

a : Amended Value

Job approved by:

Signed: Ellen La Riviere
Ellen La Riviere
Radiochemistry Laboratory Manager

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

20-Apr-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 1
Copy: 1 of 2
Set : 1

Attn: Diane Thomas
Project: 0630-28-27

Received: 22-Nov-91 11:34
PO #: LL-0962-F4

Job: 912295E

Status: Final

QUALITY CONTROL REPORT

Sample Type: Water

Sample Id	Gross Alpha Total pCi/l	Error 2σ	Gross Beta Total pCi/l	Error 2σ	Radium pCi/l	Error 2σ
Duplicate	38	±8	22	±4	3.7	±1.6
Duplicate	26	±6	18	±3	5.3	±1.8
Duplicate % diff.	19	---	10	---	18	---
Std (found value)	225	±6	108	±2	107	±4
Std (true value)	206	---	106	---	101	---
Std % diff.	9.2	---	1.9	---	5.9	---
Std % rec.	---	---	---	---	---	---
Blank	0.0	±0.2	0.4	±0.3	0.0	±0.1
Spike % rec.	96	---	99	---	101	---

Sample Id	U-234 Total pCi/l	Error 2σ	U-235 Total pCi/l	Error 2σ	U-238 Total pCi/l	Error 2σ
Duplicate	3.5	±1.9	0.0	±0.6	2.6	±1.6
Duplicate	3.1	±1.8	0.0	±0.5	2.6	±1.5
Duplicate % diff.	6.1	---	0.0	---	0.0	---
Std (found value)	202	±6	8.2	±1.1	185	±5
Std (true value)	192	---	8.8	---	192	---
Std % diff.	5.2	---	6.8	---	3.6	---
Std % rec.	---	---	---	---	---	---
Blank	0.0	±0.2	0.0	±0.1	0.0	±0.2
Spike % rec.	113	---	100	---	102	---

Sample Id	Am-241 pCi/l	Error 2σ	Tritium pCi/l	Error 2σ	I-129 pCi/l	Error 2σ
Duplicate	0.0	±1.6	9000	±500	0.0	±9.0
Duplicate	0.2	±1.6	9000	±500	0.0	±9.0
Duplicate % diff.	100	---	0.0	---	0.0	---

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

20-Apr-92

Diane Thomas
WESTON
208 Welsh Pool Road
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Page: 2
Copy: 1 of 2
Set : 1

Attn: Diane Thomas
Project: 0630-28-27

Received: 22-Nov-91 11:34
PO #: LL-0962-F4

Job: 912295E

Status: Final

QUALITY CONTROL REPORT

Sample Type: Water

Sample Id	Am-241 pCi/l	Error 2σ	Tritium pCi/l	Error 2σ	I-129 pCi/l	Error 2σ
Std (found value)	102	±4	56884	±1135	1065	---
Std (true value)	103	---	55740	---	993	---
Std % diff.	1.0	---	2.1	---	7.3	---
Std % rec.	99	---	---	---	107	---
Blank	0.0	±0.4	38	±304	0.0	±3.5
Spike % rec.	---	---	---	---	---	---

Sample Id	Pu-238 pCi/l	Error 2σ	Pu-239/240 pCi/l	Error 2σ	Sr-89 pCi/l	Error 2σ
Duplicate	0.0	±1.2	0.0	±1.0	0.3	±2.7
Duplicate	0.0	±1.3	0.0	±1.0	0.0	±2.4
Duplicate % diff.	0.0	---	0.0	---	100	---
Std (found value)	101	±4	101	±4	23	±2
Std (true value)	104	---	104	---	21	---
Std % diff.	2.9	---	2.9	---	9.5	---
Std % rec.	97	---	97	---	---	---
Blank	0.0	±0.2	0.0	±0.2	0.0	±1.0
Spike % rec.	---	---	---	---	---	---

Sample Id	Sr-90 pCi/l	Error 2σ	Tc-99 pCi/l	Error 2σ	C-14 pCi/l	Error 2σ
Duplicate	0.0	±5.7	0.0	±1.9	23	±17
Duplicate	0.0	±4.9	0.0	±1.8	16	±27
Duplicate % diff.	0.0	---	0.0	---	18	---
Std (found value)	21	±2	100	±3	982	±21
Std (true value)	21	---	100	---	992	---
Std % diff.	0.0	---	0.0	---	1.0	---

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

20-Apr-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 3
Copy: 1 of 2
Set : 1

Attn: Diane Thomas
Project: 0630-28-27

Received: 22-Nov-91 11:34
PO #: LL-0962-F4

Job: 912295E

Status: Final

QUALITY CONTROL REPORT

Sample Type: Water

Sample Id	Sr-90 pCi/l	Error 2σ	Tc-99 pCi/l	Error 2σ	C-14 pCi/l	Error 2σ
Std % rec.	---	---	100	---	---	---
Blank	1.0	±1.0	0.0	±0.7	0.6	±3.1
Spike % rec.	---	---	---	---	---	---

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

20-Apr-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Attn: Diane Thomas
Project: 0630-28-27

Received: 22-Nov-91 11:34
PO #: LL-0962-F4

Job: 912295E

Status: Final

QUALITY CONTROL REPORT

Sample Type: Water

Sample Id	Co-58* pCi/l	Error 2σ	Co-60* pCi/l	Error 2σ	Cs-137* pCi/l	Error 2σ
Duplicate	810	±100	410	±80	95	±41
Duplicate	810	±100	440	±100	100	±40
Duplicate % diff.	0.0	---	3.5	---	2.6	---
Std (found value)	---	---	---	---	---	---
Std (true value)	---	---	---	---	---	---
Std % diff.	---	---	---	---	---	---

Sample Id	Ag-110m* pCi/l	Error 2σ	Gamma Spec pCi/l	Error 2σ
Duplicate	180	±40	---	---
Duplicate	200	±40	---	---
Duplicate % diff.	5.3	---	---	---
Std (found value)	---	---	20	±2
Std (true value)	---	---	19	---
Std % diff.	---	---	5.3	---

Abbreviations:

Parameters:

U-234 : Uranium-234
U-235 : Uranium-235
U-238 : Uranium-238
Am-241 : Americium-241

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

20-Apr-92

Diane Thomas
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Page: 5
Copy: 1 of 2

Attn: Diane Thomas
Project: 0630-28-27

Received: 22-Nov-91 11:34
PO #: LL-0962-F4

Job: 912295E

Status: Final

QUALITY CONTROL REPORT

I-129	: Iodine-129
Pu-238	: Plutonium-238
Pu-239/240	: Plutonium-239/240
Sr-89	: Strontium-89
Sr-90	: Strontium -90
Tc-99	: Technetium-99
C-14	: Carbon-14
Bi-214*	: Bismuth 214-MDA Reported at 1.645 sigma
Pb-214*	: Lead 214-MDA Reported at 1.654 sigma
Co-58*	: Cobalt 58-MDA Reported at 1.645 sigma
Co-60*	: Cobalt 60-MDA Reported at 1.645 sigma
Cs-137*	: Cesium 137-MDA Reported at 1.645 sigma
Ag-110m*	: Silver 110m-MDA Reported at 1.645 sigma
Gamma Spec	: Gamma Spectralanalysis

Units:

pCi/l	: picoCuries per liter
2σ	: Counting error at the 95% confidence level, 2σ

Job approved by:

Signed:
.....
Approved
Quality Assurance Department

BARRINGER LABORATORIES INC.
15000 W. 6TH AVE., SUITE 300 GOLDEN, CO 80401 (303) 277-1687 FAX (303) 277-1689

20-Apr-92

Diane Thomas
WESTON
208 Welsh Pool Road
Lionville, PA 19353

Page: 6
Copy: 1 of 2

Attn: Diane Thomas
Project: 0630-28-27

Received: 22-Nov-91 11:34
PO #: LL-0962-F4

Job: 912295E

Status: Final

QUALITY CONTROL REPORT

QUALITY CONTROL DATA SHEET

Received by: ljb Via: Federal Express

Sample Container Type: pl L, gl gal, gl L btl
Sample Type: Water
Preservative When Received: None
Additional Lab Preparation: None

Parameter	Method	LLD	Preser-vative	Analyst	Date(s) of Analysis
Gross Alpha	900.0	2 pCi/l	none	Pingilley	12/ 6-12/17
Gross Beta	900.0	2 pCi/l	none	Pingilley	12/ 6-12/17
Radium	900.1	1 pCi/l	none	Seidel	12/16-12/22
U-234/235/238	907.0	0.4 pCi/l	none	Meyer	1/17- 1/24
Am-241	907.0	0.5 pCi/l	none	Preston	1/12- 1/20
Tritium	906.0	460 pCi/l	none	Eggelston	12/22- 1/ 8
I-129	902.0	1 pCi/l	none	Preston	12/30- 1/ 7
Pu-238/239/240	907.0	0.4 pCi/l	none	Preston	1/ 6- 1/13
Sr-89/90	905.0	1 pCi/l	none	Kidwell	12/30-12/23
Tc-99	HASL 300	1 pCi/l	none	Preston	12/17- 1/ 6
C-14	520-84-006	3 pCi/l	none	Meyers	12/16- 1/17
Bi-214*	901.0	----	none	Kidwell	1/24
Pb-214*	901.0	----	none	Kidwell	1/24
Co-58*	901.0	----	none	Kidwell	1/24
Co-60*	901.0	----	none	Kidwell	1/24
Cs-137*	901.0	----	none	Kidwell	1/24
Ag-110m*	901.0	----	none	Kidwell	1/24
Gamma Spec	901.0	----	none	Kidwell	1/24

Signed: .....
Mark Burkhardt, Ph.D.
Laboratory Director

WDSRC [redacted] k 27

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 2

Client [redacted]
Est. Final Proj. Sampling Date [redacted]
Work Order # [redacted]
Project Contact/Phone [redacted]
AD Project Manager [redacted]
QC SH Del SH TAT

Date Rec'd _____ Date Due _____
Account # _____

Refrigerator #																		
#/Type Container	Liquid								1L	1L								
	Solid																	
Volume	Liquid								9L	9L								
	Solid																	
Preservatives																		
ANALYSES REQUESTED →			ORGANIC									INORG						
			VOA	BNA	Pest/PCB	Herb	Radio chem (3)			Metal	CN							

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	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only													
	Site 266			W	9/17						✓	✓			91092755-001					
	267														002					
	268														003					
	269														004					
	271														005					
	258				9/17										006					
	259														007					
	262														008					
	225														009					
	230														010					

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
Radiochem (3) - See Attached

DATE/REVISIONS:
1. _____
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) 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
[illegible]	[illegible]						

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

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

USRC Task 27

WESTON Analytics Use Only

Custody Transfer Record/Lab Work Request

WESTON

Page ____ of ____

Client: Weston-Task 27
Est. Final Proj. Sampling Date:
Work Order #: 01130-28-27
Project Contact/Phone #:
AD Project Manager: Dillmae
QC: ____ Del: ____ TAT: ____
Date Rec'd: ____ Date Due: ____
Account #: ____

Refrigerator #:
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives:

ANALYSES REQUESTED →

ORGANIC							INORG	
VOA	BNA	Pest/PCB	Herb	Pb 3			Metal	CN

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	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only
	Site 254			W	9/17/91		✓ ✓ 9109175 5-011
	220						012
	221						013
	222						014
	263						015

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

DATE/REVISIONS:
1. ____
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) 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
Megan	Fedex		

Relinquished by	Received by	Date	Time

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

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

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WSRC-TASK 12 **SAMPLES RECEIVED:** 02-25-92
RFW #: 9202L475
W.O. #: 0345-31-12-0000

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 sample holding times as required by 40CFR136 were met.

2. All preparation blank results were below the required detection limit with the exception of acidity.

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

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

5. 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).

Jack R. Tuschall / 04.02.92
Jack R. Tuschall, Ph.D. Date
Laboratory Manager
Lionville Analytical Laboratory

rls/i02-475

ROY F. WESTON, INC.
GLOSSARY OF TERMS - INORGANIC REPORTS

DATA QUALIFIERS

U - Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* - Indicates that the original sample result is greater than 4x the spike amount added. The USEPA-CLP has determined that spike results on samples where this occurs may be unreliable and therefore, the control limits are not applicable.

ABBREVIATIONS

MB - Method or preparation blank.
MS - Matrix Spike.
MSD - Matrix Spike Duplicate.
REP - Sample Replicate.
LC - Indicates a method LCS or Blank Spike.
NC - Not calculable, result below the detection limit.

A suffix of -R or -S following these codes indicates a replicate or spike analysis respectively.

ANALYTICAL METAL METHODS

As :	EPA 206.2	SE	:	EPA 270.2
Pb :	EPA 239.2	ICP Scan	:	EPA 200.7
Hg :	EPA 245.1	All Others	:	EPA 200.7
Tl :	EPA 279.2	EP Leachates	(except Hg)	200.7

The analytical methods applied by the laboratory for the determination of drinking water is 5.2.1.

NOTES

The laboratory prepares a matrix spike at one per 20 frequency for TCLP samples. The Federal Register recommends that all matrix spikes be prepared at greater than 50% of the indigenous analyte concentration. A matrix duplicate is also prepared.

Holding times for soil samples have not been promulgated by the USEPA.

For solid samples, all results are reported on a dry weight basis.

The range for mercury solid laboratory control standards is 66.9% to 133.8%.

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/30/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L475

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	STATION 254	Acidity	30.0		MG/L	2.0
		Chloride	3.6		MG/L	0.25
		Hardness	110		MG/L	1.0
		Nitrate, as N	0.11		MG-N/L	0.10
		pH	4.7		PH UNITS	0.010
		Sulfate	2.5	u	MG/L	2.5
		Specific Conductance	17.8		UMHOS/CM	1.0
-002	STATION 258	Acidity	70.0		MG/L	2.0
		Chloride	4.8		MG/L	0.25
		Hardness	9.0		MG/L	1.0
		Nitrate, as N	0.16		MG-N/L	0.10
		pH	4.7		PH UNITS	0.010
		Sulfate	2.5	u	MG/L	2.5
		Specific Conductance	29.4		UMHOS/CM	1.0
-003	STATION 259	Acidity	36.0		MG/L	2.0
		Chloride	3.6		MG/L	0.25
		Hardness	10.0		MG/L	1.0
		Nitrate, as N	0.21		MG-N/L	0.10
		pH	4.4		PH UNITS	0.010
		Sulfate	4.3		MG/L	2.5
		Specific Conductance	25.7		UMHOS/CM	1.0
-004	STATION 262	Acidity	46.0		MG/L	2.0
		Chloride	2.9		MG/L	0.25
		Hardness	12.0		MG/L	1.0
		Nitrate, as N	0.35		MG-N/L	0.10
		pH	4.2		PH UNITS	0.010
		Sulfate	4.7		MG/L	2.5
		Specific Conductance	26.3		UMHOS/CM	1.0
-005	STATION 263	Acidity	26.0		MG/L	2.0
		Chloride	3.0		MG/L	0.25
		Hardness	10.0		MG/L	1.0
		Nitrate, as N	0.27		MG-N/L	0.10
		pH	4.4		PH UNITS	0.010
		Sulfate	2.5	u	MG/L	2.5
		Specific Conductance	18.4		UMHOS/CM	1.0

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 03/30/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9202L475
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
BLANK10	92LAL005-MB1	Acidity	2.5	MG/L	2.0
BLANK20	92LAL005-MB2	Acidity	8.0	MG/L	2.0
BLANK10	92LCL018-MB1	Chloride	0.25 u	MG/L	0.25
BLANK20	92LCL018-MB2	Chloride	0.25 u	MG/L	0.25
BLANK30	92LCL018-MB3	Chloride	0.25 u	MG/L	0.25
BLANK10	92LHD010-MB1	Hardness	1.0 u	MG/L	1.0
BLANK20	92LHD010-MB2	Hardness	1.0 u	MG/L	1.0
BLANK30	92LHD010-MB3	Hardness	1.0 u	MG/L	1.0
BLANK10	92LNO033-MB1	Nitrate, as N	0.10 u	MG-N/L	0.10
BLANK20	92LNO033-MB2	Nitrate, as N	0.10 u	MG-N/L	0.10

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 03/30/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9202L475
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
BLANK30	92LNO033-MB3	Nitrate, as N	0.10	u	MG-N/L	0.10
BLANK10	92LS4013-MB1	Sulfate	2.5	u	MG/L	2.5
BLANK20	92LS4013-MB2	Sulfate	2.5	u	MG/L	2.5
BLANK30	92LS4013-MB3	Sulfate	2.5	u	MG/L	2.5
BLANK10	92LSP025-MB1	Specific Conductance	1.0	u	UMHOS/CM	1.0
BLANK20	92LSP025-MB2	Specific Conductance	1.0	u	UMHOS/CM	1.0
BLANK30	92LSP025-MB3	Specific Conductance	1.0	u	UMHOS/CM	1.0

ROY F. WESTON INC.

INORGANIC ACCURACY REPORT 03/30/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9202L475

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV
BLANK10	92LCL018-MB1	Chloride	4.8	0.25u	5.0	96.5
		Chloride MSD	5.0	0.25u	5.0	99.9
BLANK20	92LCL018-MB2	Chloride	5.0	0.25u	5.0	100
BLANK30	92LCL018-MB3	Chloride	5.1	0.25u	5.0	102
BLANK10	92LHD010-MB1	Hardness	99.5	1.0 u	100	99.5
		Hardness MSD	332	1.0 u	330	101
BLANK20	92LHD010-MB2	Hardness	100	1.0 u	100	100
BLANK30	92LHD010-MB3	Hardness	101	1.0 u	100	101
BLANK10	92LNO033-MB1	Nitrate, as N	0.52	0.10u	0.50	105
		Nitrate, as N MSD	0.53	0.10u	0.50	106
BLANK20	92LNO033-MB2	Nitrate, as N	0.53	0.10u	0.50	107
BLANK30	92LNO033-MB3	Nitrate, as N	0.52	0.10u	0.50	103
BLANK10	92LS4013-MB1	Sulfate	20.2	2.5 u	20.0	101
		Sulfate	20.3	2.5 u	20.0	102

ROY F. WESTON INC.

INORGANIC ACCURACY REPORT 03/30/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9202L475

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE		SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV
BLANK20	92LS4013-MB2	Sulfate		20.4	2.5 u	20.0	102
BLANK30	92LS4013-MB3	Sulfate		20.2	2.5 u	20.0	101
BLANK10	92LSP025-MB1	Specific Conductance		147	1.0 u	147	100
		Specific Conductance	M	147	1.0 u	147	100
BLANK20	92LSP025-MB2	Specific Conductance		1410	1.0 u	1410	99.6
BLANK30	92LSP025-MB3	Specific Conductance		723	1.0 u	718	101

ROY F. WESTON INC.

INORGANIC DUPLICATE SPIKE REPORT 03/30/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9202L475

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%RPD
BLANK10	92LCL018-MB1	Chloride	96.5	99.9	3.6
BLANK10	92LHD010-MB1	Hardness	99.5	101	1.1
BLANK10	92LNO033-MB1	Nitrate, as N	105	106	1.1
BLANK10	92LS4013-MB1	Sulfate	101	102	0.90
BLANK10	92LSP025-MB1	Specific Conductance	100	100	0.00

ROY F. WESTON INC.

INORGANIC PRECISION REPORT 03/30/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9202L475

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	%RPD
-001REP	STATION 254	Acidity	30.0	26.0	14.3
		pH	4.7	4.7	0.42
		Specific Conductance	17.8	17.8	0.00
-004REP	STATION 262	Sulfate	4.7	5.5	15.9

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/25/92 RFW LOT # :9202L475

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 254						
ACIDITY	001	W	92LAL005	02/24/92	03/06/92	03/06/92
ACIDITY	001 REP	W	92LAL005	02/24/92	03/06/92	03/06/92
CHLORIDE	001	W	92LCL018	02/24/92	03/13/92	03/13/92
HARDNESS	001	W	92LHD010	02/24/92	03/11/92	03/11/92
NITRATE	001	W	92LNO033	02/24/92	03/11/92	03/11/92
PH	001	W	92LPH037	02/24/92	02/25/92	02/25/92
PH	001 REP	W	92LPH037	02/24/92	02/25/92	02/25/92
SULFATE	001	W	92LS4013	02/24/92	03/19/92	03/19/92
SPECIFIC CONDUCTANCE	001	W	92LSP025	02/24/92	02/25/92	02/25/92
SPECIFIC CONDUCTANCE	001 REP	W	92LSP025	02/24/92	02/25/92	02/25/92
SUB-OUT TEST FOR SUB	001	W		02/24/92		
STATION 258						
ACIDITY	002	W	92LAL005	02/24/92	03/06/92	03/06/92
CHLORIDE	002	W	92LCL018	02/24/92	03/13/92	03/13/92
HARDNESS	002	W	92LHD010	02/24/92	03/11/92	03/11/92
NITRATE	002	W	92LNO033	02/24/92	03/11/92	03/11/92
PH	002	W	92LPH037	02/24/92	02/25/92	02/25/92
SULFATE	002	W	92LS4013	02/24/92	03/19/92	03/19/92
SPECIFIC CONDUCTANCE	002	W	92LSP025	02/24/92	02/25/92	02/25/92
SUB-OUT TEST FOR SUB	002	W		02/24/92		
STATION 259						
ACIDITY	003	W	92LAL005	02/24/92	03/06/92	03/06/92
CHLORIDE	003	W	92LCL018	02/24/92	03/13/92	03/13/92
HARDNESS	003	W	92LHD010	02/24/92	03/11/92	03/11/92
NITRATE	003	W	92LNO033	02/24/92	03/11/92	03/11/92
PH	003	W	92LPH037	02/24/92	02/25/92	02/25/92
SULFATE	003	W	92LS4013	02/24/92	03/19/92	03/19/92
SPECIFIC CONDUCTANCE	003	W	92LSP025	02/24/92	02/25/92	02/25/92
SUB-OUT TEST FOR SUB	003	W		02/24/92		
STATION 262						
ACIDITY	004	W	92LAL005	02/24/92	03/06/92	03/06/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/25/92 RFW LOT # :9202L475

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHLORIDE	004	W	92LCL018	02/24/92	03/13/92	03/13/92
HARDNESS	004	W	92LHD010	02/24/92	03/11/92	03/11/92
NITRATE	004	W	92LNO033	02/24/92	03/11/92	03/11/92
PH	004	W	92LPH037	02/24/92	02/25/92	02/25/92
SULFATE	004	W	92LS4013	02/24/92	03/19/92	03/19/92
SULFATE	004 REP	W	92LS4013	02/24/92	03/19/92	03/19/92
SPECIFIC CONDUCTANCE	004	W	92LSP025	02/24/92	02/25/92	02/25/92
SUB-OUT TEST FOR SUB	004	W		02/24/92		
STATION 263						
ACIDITY	005	W	92LAL005	02/24/92	03/06/92	03/06/92
CHLORIDE	005	W	92LCL018	02/24/92	03/13/92	03/13/92
HARDNESS	005	W	92LHD010	02/24/92	03/11/92	03/11/92
NITRATE	005	W	92LNO033	02/24/92	03/11/92	03/11/92
PH	005	W	92LPH037	02/24/92	02/25/92	02/25/92
SULFATE	005	W	92LS4013	02/24/92	03/19/92	03/19/92
SPECIFIC CONDUCTANCE	005	W	92LSP025	02/24/92	02/25/92	02/25/92
SUB-OUT TEST FOR SUB	005	W		02/24/92		

LAB QC:

ACIDITY	MB1	W	92LAL005	N/A	03/06/92	03/06/92
ALKALINITY	MB1	W	92LAL005	N/A	02/05/92	02/05/92
ALKALINITY	MB1 BS	W	92LAL005	N/A	02/05/92	02/05/92
ALKALINITY	MB1 BSD	W	92LAL005	N/A	02/05/92	02/05/92
ACIDITY	MB2	W	92LAL005	N/A	03/06/92	03/06/92
ALKALINITY	MB2	W	92LAL005	N/A	02/05/92	02/05/92
ALKALINITY	MB2 BS	W	92LAL005	N/A	02/05/92	02/05/92
CHLORIDE	MB1	W	92LCL018	N/A	03/13/92	03/13/92
CHLORIDE	MB1 BS	W	92LCL018	N/A	03/13/92	03/13/92
CHLORIDE	MB1 BSD	W	92LCL018	N/A	03/13/92	03/13/92
CHLORIDE	MB2	W	92LCL018	N/A	03/13/92	03/13/92
CHLORIDE	MB2 BS	W	92LCL018	N/A	03/13/92	03/13/92
CHLORIDE	MB3	W	92LCL018	N/A	03/13/92	03/13/92
CHLORIDE	MB3 BS	W	92LCL018	N/A	03/13/92	03/13/92
HARDNESS	MB1	W	92LHD010	N/A	03/11/92	03/11/92
HARDNESS	MB1 BS	W	92LHD010	N/A	03/11/92	03/11/92
HARDNESS	MB1 BSD	W	92LHD010	N/A	03/11/92	03/11/92
HARDNESS	MB2	W	92LHD010	N/A	03/11/92	03/11/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/25/92 RFW LOT # :9202L475

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
HARDNESS	MB2 BS	W	92LHD010	N/A	03/11/92	03/11/92
HARDNESS	MB3	W	92LHD010	N/A	03/11/92	03/11/92
HARDNESS	MB3 BS	W	92LHD010	N/A	03/11/92	03/11/92
NITRATE	MB1	W	92LNO033	N/A	03/11/92	03/11/92
NITRATE	MB1 BS	W	92LNO033	N/A	03/11/92	03/11/92
NITRATE	MB1 BSD	W	92LNO033	N/A	03/11/92	03/11/92
NITRATE	MB2	W	92LNO033	N/A	03/11/92	03/11/92
NITRATE	MB2 BS	W	92LNO033	N/A	03/11/92	03/11/92
NITRATE	MB3	W	92LNO033	N/A	03/11/92	03/11/92
NITRATE	MB3 BS	W	92LNO033	N/A	03/11/92	03/11/92
SULFATE	MB1	W	92LS4013	N/A	03/19/92	03/19/92
SULFATE	MB1 BS	W	92LS4013	N/A	03/19/92	03/19/92
SULFATE	MB1 BSD	W	92LS4013	N/A	03/19/92	03/19/92
SULFATE	MB2	W	92LS4013	N/A	03/19/92	03/19/92
SULFATE	MB2 BS	W	92LS4013	N/A	03/19/92	03/19/92
SULFATE	MB3	W	92LS4013	N/A	03/19/92	03/19/92
SULFATE	MB3 BS	W	92LS4013	N/A	03/19/92	03/19/92
SPECIFIC CONDUCTANCE	MB1	W	92LSP025	N/A	02/25/92	02/25/92
SPECIFIC CONDUCTANCE	MB1 BS	W	92LSP025	N/A	02/25/92	02/25/92
SPECIFIC CONDUCTANCE	MB1 BSD	W	92LSP025	N/A	02/25/92	02/25/92
SPECIFIC CONDUCTANCE	MB2	W	92LSP025	N/A	02/25/92	02/25/92
SPECIFIC CONDUCTANCE	MB2 BS	W	92LSP025	N/A	02/25/92	02/25/92
SPECIFIC CONDUCTANCE	MB3	W	92LSP025	N/A	02/25/92	02/25/92
SPECIFIC CONDUCTANCE	MB3 BS	W	92LSP025	N/A	02/25/92	02/25/92

WESTON Analytics Use Only

9202L475

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WSRC - TASK 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12-0000
Project Contact/Phone #:
AD Project Manager: D. Thomas
QC: std Del: std TAT: 30 days
Date Rec'd: 2-25-92 Date Due: 3-26-92
Account #: WSRC12STD

Refrigerator #		1				SUB			4		4		4		4	
# Type Container	Liquid	1G							1P		1P		1P		1P	
	Solid															
Volume	Liquid	40							1L		250		250		250	
	Solid															
Preservatives		—														
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest PCB	Herb				Metal	CN						
WESTON Analytics Use Only																

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected												
S - Soil, SE - Sediment, SO - Solid, SL - Sludge, W - Water, O - Oil, A - Air, DS - Drum Solids, DL - Drum Liquids, L - EP/TCLP Leachate, WI - Wipe, X - Other, F - Fish	001	Station 254			W	2-24-92		✓			✓			✓		✓		✓	
	002	258																	
	003	259																	
	004	262																	
	005	263																	
	006	Trip Blank.			W	2-24-92		✓											

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Original Rewritten
Metals = Ag, Al, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, Zn, Fe, Mn

trip Blank Pres. with HCl.

DATE/REVISIONS:
3-19-92 1. Analysis Chem Subbed to Barringer
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were: 1) Shipped ✓ or Hand Delivered
Airbill # 7251342 3220
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 Pb & Cd (N) Y or N

COC Tape was: 1) Present on Outer Package Y or (N)
2) Unbroken on Outer Package Y or (N)
3) Present on Sample Y or (N)
4) Unbroken on Sample Y or (N)
COC Record Present Upon Sample Rec'd (Y) or N

Discrepancies Between Samples Labels and COC Record? (Y) or N
NOTES: Original cvc had field Blank. Field Table says Trip Blank.

Relinquished by	Received by	Date	Time
Emery	[signature]	2-25-92	13:00

Relinquished by	Received by	Date	Time
	[signature]	2-25-92	

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

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WSRC-TASK 12
RFW #: 9202L475
W.O. #: 0345-31-12

SAMPLES RECEIVED: 02-25-92

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

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

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

4. All calibration verification checks were within the required control limits of 90-110% (80-120% for Hg). Calibration verification is performed using independent standards from Inorganic Ventures, Inc.

Margaret M. Leahy 3/23/92

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

Date

pas\m02-475

ROY F. WESTON, INC.
GLOSSARY OF TERMS - INORGANIC REPORTS

DATA QUALIFIERS

U - Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* - Indicates that the original sample result is greater than 4x the spike amount added. The USEPA-CLP has determined that spike results on samples where this occurs may be unreliable and therefore, the control limits are not applicable.

ABBREVIATIONS

MB - Method or preparation blank
MS - Matrix Spike
MSD - Matrix Spike Duplicate.
REP - Sample Replicate.
LC - Indicates a method LCS or Blank Spike.
NC - Not calculable, result below the detection limit.

A suffix of -R and -S following these codes indicates a replicate and spike analysis respectively.

ANALYTICAL METAL METHODS

As :	EPA 206.2	Se :	EPA 270.2
Pb :	EPA 239.2	ICP Scan :	EPA 200.7
Hg :	EPA 245.1	All Others :	EPA 200.7
Tl :	EPA 279.2	EP Leachates (except Hg) :	200.7

The analytical methods applied by the laboratory for the determination of drinking water is 5.2.1.

NOTES

The laboratory prepares a matrix spike at one per 20 frequency for TCLP samples. The Federal Register recommends that all matrix spikes be prepared at greater than 50% of the indigenous analyte concentration. A matrix duplicate is also prepared.

Holding times for soil samples have not been promulgated by the USEPA.

For solid samples, all results are reported on a dry weight basis.

The range for mercury solid laboratory control standards is 66.9% to 133.8%.

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/23/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L475

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	STATION 254	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	454		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	35.6		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0		UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	156		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/23/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L475

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-002	STATION 258	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	227		UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	653		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	65.2		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	4.3		UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	110		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/23/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L475

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-003	STATION 259	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	245		UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	388		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	58.5		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	4.0		UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	171		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/23/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9202L475

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-004	STATION 262	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	369		UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	840		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	41.7		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	6.7		UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	140		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/23/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L475

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-005	STATION 263	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	426		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	68.4		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	5.8		UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	94.7		UG/L	20.0

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 03/23/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L475

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
BLANK1	92L0728-MB1	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Zinc, Total	20.0	u	UG/L	20.0
BLANK1	92L0727-MB1	Arsenic, Total	10.0	u	UG/L	10.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
BLANK1	92C0076-MB1	Mercury, Total	0.20	u	UG/L	0.20

ROY F. WESTON INC.

INORGANIC DUPLICATE SPIKE REPORT 03/23/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9202L475
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%RPD
LCS2	92L0728-LC2	Silver, LCS	96.8	97.2	0.41
		Aluminum, LCS	101	102	0.39
		Barium, LCS	99.0	98.7	0.30
		Cadmium, LCS	107	107	0.28
		Chromium, LCS	96.5	97.3	0.83
		Copper, LCS	95.7	96.3	0.63
		Iron, LCS	96.5	97.8	1.3
		Manganese, LCS	98.6	99.3	0.71
		Sodium, LCS	98.6	97.5	1.1
		Nickel, LCS	96.9	98.0	1.1
		Zinc, LCS	98.5	100	1.7
LCS2	92L0727-LC2	Arsenic, LCS	94.3	97.3	3.1
		Lead, LCS	107	107	0.28
		Selenium, LCS	97.7	98.0	0.31
LCS2	92C0076-LC2	Mercury, LCS	89.8	93.6	4.1

ROY F. WESTON INC.

INORGANIC LABORATORY CONTROL STANDARDS REPORT 03/23/92

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	92L0728-LC1	Silver, LCS	484	500	UG/L	96.8
		Aluminum, LCS	5060	5000	UG/L	101
		Barium, LCS	4950	5000	UG/L	99.0
		Cadmium, LCS	267	250	UG/L	107
		Chromium, LCS	482	500	UG/L	96.5
		Copper, LCS	1200	1250	UG/L	95.7
		Iron, LCS	4820	5000	UG/L	96.5
		Manganese, LCS	739	750	UG/L	98.6
		Sodium, LCS	24700	25000	UG/L	98.6
		Nickel, LCS	1940	2000	UG/L	96.9
		Zinc, LCS	985	1000	UG/L	98.5
LCS2	92L0728-LC2	Silver, LCS	486	500	UG/L	97.2
		Aluminum, LCS	5080	5000	UG/L	102
		Barium, LCS	4930	5000	UG/L	98.7
		Cadmium, LCS	267	250	UG/L	107
		Chromium, LCS	487	500	UG/L	97.3
		Copper, LCS	1200	1250	UG/L	96.3
		Iron, LCS	4890	5000	UG/L	97.8
		Manganese, LCS	745	750	UG/L	99.3
		Sodium, LCS	24400	25000	UG/L	97.5
		Nickel, LCS	1960	2000	UG/L	98.0
		Zinc, LCS	1000	1000	UG/L	100
LCS1	92L0727-LC1	Arsenic, LCS	28.3	30.0	UG/L	94.3
		Lead, LCS	32.1	30.0	UG/L	107
		Selenium, LCS	29.3	30.0	UG/L	97.7
LCS2	92L0727-LC2	Arsenic, LCS	29.2	30.0	UG/L	97.3
		Lead, LCS	32.2	30.0	UG/L	107
		Selenium, LCS	29.4	30.0	UG/L	98.0
LCS1	92C0076-LC1	Mercury, LCS	4.5	5.0	UG/L	89.8
LCS2	92C0076-LC2	Mercury, LCS	4.7	5.0	UG/L	93.6

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/25/92 RFW LOT # :9202L475

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 254						
SILVER, TOTAL	001	W	92L0728	02/24/92	03/12/92	03/16/92
ALUMINUM, TOTAL	001	W	92L0728	02/24/92	03/12/92	03/16/92
ARSENIC, TOTAL	001	W	92L0727	02/24/92	03/12/92	03/16/92
BARIUM, TOTAL	001	W	92L0728	02/24/92	03/12/92	03/16/92
CADMIUM, TOTAL	001	W	92L0728	02/24/92	03/12/92	03/16/92
CHROMIUM, TOTAL	001	W	92L0728	02/24/92	03/12/92	03/16/92
COPPER, TOTAL	001	W	92L0728	02/24/92	03/12/92	03/16/92
IRON, TOTAL	001	W	92L0728	02/24/92	03/12/92	03/16/92
MERCURY, TOTAL	001	W	92C0076	02/24/92	03/18/92	03/19/92
MANGANESE, TOTAL	001	W	92L0728	02/24/92	03/12/92	03/20/92
SODIUM, TOTAL	001	W	92L0728	02/24/92	03/12/92	03/20/92
NICKEL, TOTAL	001	W	92L0728	02/24/92	03/12/92	03/16/92
LEAD, TOTAL	001	W	92L0727	02/24/92	03/12/92	03/16/92
SELENIUM, TOTAL	001	W	92L0727	02/24/92	03/12/92	03/16/92
ZINC, TOTAL	001	W	92L0728	02/24/92	03/12/92	03/16/92
STATION 258						
SILVER, TOTAL	002	W	92L0728	02/24/92	03/12/92	03/16/92
ALUMINUM, TOTAL	002	W	92L0728	02/24/92	03/12/92	03/16/92
ARSENIC, TOTAL	002	W	92L0727	02/24/92	03/12/92	03/16/92
BARIUM, TOTAL	002	W	92L0728	02/24/92	03/12/92	03/16/92
CADMIUM, TOTAL	002	W	92L0728	02/24/92	03/12/92	03/16/92
CHROMIUM, TOTAL	002	W	92L0728	02/24/92	03/12/92	03/16/92
COPPER, TOTAL	002	W	92L0728	02/24/92	03/12/92	03/16/92
IRON, TOTAL	002	W	92L0728	02/24/92	03/12/92	03/16/92
MERCURY, TOTAL	002	W	92C0076	02/24/92	03/18/92	03/19/92
MANGANESE, TOTAL	002	W	92L0728	02/24/92	03/12/92	03/20/92
SODIUM, TOTAL	002	W	92L0728	02/24/92	03/12/92	03/20/92
NICKEL, TOTAL	002	W	92L0728	02/24/92	03/12/92	03/16/92
LEAD, TOTAL	002	W	92L0727	02/24/92	03/12/92	03/16/92
SELENIUM, TOTAL	002	W	92L0727	02/24/92	03/12/92	03/16/92
ZINC, TOTAL	002	W	92L0728	02/24/92	03/12/92	03/16/92
STATION 259						
SILVER, TOTAL	003	W	92L0728	02/24/92	03/12/92	03/16/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/25/92 RFW LOT # :9202L475

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	003	W	92L0728	02/24/92	03/12/92	03/16/92
ARSENIC, TOTAL	003	W	92L0727	02/24/92	03/12/92	03/16/92
BARIUM, TOTAL	003	W	92L0728	02/24/92	03/12/92	03/16/92
CADMIUM, TOTAL	003	W	92L0728	02/24/92	03/12/92	03/16/92
CHROMIUM, TOTAL	003	W	92L0728	02/24/92	03/12/92	03/16/92
COPPER, TOTAL	003	W	92L0728	02/24/92	03/12/92	03/16/92
IRON, TOTAL	003	W	92L0728	02/24/92	03/12/92	03/16/92
MERCURY, TOTAL	003	W	92C0076	02/24/92	03/18/92	03/19/92
MANGANESE, TOTAL	003	W	92L0728	02/24/92	03/12/92	03/20/92
SODIUM, TOTAL	003	W	92L0728	02/24/92	03/12/92	03/20/92
NICKEL, TOTAL	003	W	92L0728	02/24/92	03/12/92	03/16/92
LEAD, TOTAL	003	W	92L0727	02/24/92	03/12/92	03/16/92
SELENIUM, TOTAL	003	W	92L0727	02/24/92	03/12/92	03/16/92
ZINC, TOTAL	003	W	92L0728	02/24/92	03/12/92	03/16/92
STATION 262						
SILVER, TOTAL	004	W	92L0728	02/24/92	03/12/92	03/16/92
ALUMINUM, TOTAL	004	W	92L0728	02/24/92	03/12/92	03/16/92
ARSENIC, TOTAL	004	W	92L0727	02/24/92	03/12/92	03/16/92
BARIUM, TOTAL	004	W	92L0728	02/24/92	03/12/92	03/16/92
CADMIUM, TOTAL	004	W	92L0728	02/24/92	03/12/92	03/16/92
CHROMIUM, TOTAL	004	W	92L0728	02/24/92	03/12/92	03/16/92
COPPER, TOTAL	004	W	92L0728	02/24/92	03/12/92	03/16/92
IRON, TOTAL	004	W	92L0728	02/24/92	03/12/92	03/16/92
MERCURY, TOTAL	004	W	92C0076	02/24/92	03/18/92	03/19/92
MANGANESE, TOTAL	004	W	92L0728	02/24/92	03/12/92	03/20/92
SODIUM, TOTAL	004	W	92L0728	02/24/92	03/12/92	03/20/92
NICKEL, TOTAL	004	W	92L0728	02/24/92	03/12/92	03/16/92
LEAD, TOTAL	004	W	92L0727	02/24/92	03/12/92	03/16/92
SELENIUM, TOTAL	004	W	92L0727	02/24/92	03/12/92	03/16/92
ZINC, TOTAL	004	W	92L0728	02/24/92	03/12/92	03/16/92
STATION 263						
SILVER, TOTAL	005	W	92L0728	02/24/92	03/12/92	03/16/92
ALUMINUM, TOTAL	005	W	92L0728	02/24/92	03/12/92	03/16/92
ARSENIC, TOTAL	005	W	92L0727	02/24/92	03/12/92	03/16/92
BARIUM, TOTAL	005	W	92L0728	02/24/92	03/12/92	03/16/92
CADMIUM, TOTAL	005	W	92L0728	02/24/92	03/12/92	03/16/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/25/92 RFW LOT # :9202L475

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	005	W	92L0728	02/24/92	03/12/92	03/16/92
COPPER, TOTAL	005	W	92L0728	02/24/92	03/12/92	03/16/92
IRON, TOTAL	005	W	92L0728	02/24/92	03/12/92	03/16/92
MERCURY, TOTAL	005	W	92C0076	02/24/92	03/18/92	03/19/92
MANGANESE, TOTAL	005	W	92L0728	02/24/92	03/12/92	03/20/92
SODIUM, TOTAL	005	W	92L0728	02/24/92	03/12/92	03/20/92
NICKEL, TOTAL	005	W	92L0728	02/24/92	03/12/92	03/16/92
LEAD, TOTAL	005	W	92L0727	02/24/92	03/12/92	03/16/92
SELENIUM, TOTAL	005	W	92L0727	02/24/92	03/12/92	03/16/92
ZINC, TOTAL	005	W	92L0728	02/24/92	03/12/92	03/16/92

LAB QC:

SILVER LABORATORY	LC1 BS	W	92L0728	N/A	03/12/92	03/16/92
ALUMINUM LABORTORY	LC1 BS	W	92L0728	N/A	03/12/92	03/16/92
BARIUM LABORATORY	LC1 BS	W	92L0728	N/A	03/12/92	03/16/92
CADMIUM LABORATORY	LC1 BS	W	92L0728	N/A	03/12/92	03/16/92
CHROMIUM LABORATORY	LC1 BS	W	92L0728	N/A	03/12/92	03/16/92
COPPER LABORATORY	LC1 BS	W	92L0728	N/A	03/12/92	03/16/92
IRON LABORATORY	LC1 BS	W	92L0728	N/A	03/12/92	03/16/92
MANGANESE LABORATORY	LC1 BS	W	92L0728	N/A	03/12/92	03/20/92
SODIUM LABORATORY	LC1 BS	W	92L0728	N/A	03/12/92	03/20/92
NICKEL LABORATORY	LC1 BS	W	92L0728	N/A	03/12/92	03/16/92
ZINC LABORATORY	LC1 BS	W	92L0728	N/A	03/12/92	03/16/92
SILVER LABORATORY	LC2 BS	W	92L0728	N/A	03/12/92	03/16/92
ALUMINUM LABORTORY	LC2 BS	W	92L0728	N/A	03/12/92	03/16/92
BARIUM LABORATORY	LC2 BS	W	92L0728	N/A	03/12/92	03/16/92
CADMIUM LABORATORY	LC2 BS	W	92L0728	N/A	03/12/92	03/16/92
CHROMIUM LABORATORY	LC2 BS	W	92L0728	N/A	03/12/92	03/16/92
COPPER LABORATORY	LC2 BS	W	92L0728	N/A	03/12/92	03/16/92
IRON LABORATORY	LC2 BS	W	92L0728	N/A	03/12/92	03/16/92
MANGANESE LABORATORY	LC2 BS	W	92L0728	N/A	03/12/92	03/20/92
SODIUM LABORATORY	LC2 BS	W	92L0728	N/A	03/12/92	03/20/92
NICKEL LABORATORY	LC2 BS	W	92L0728	N/A	03/12/92	03/16/92
ZINC LABORATORY	LC2 BS	W	92L0728	N/A	03/12/92	03/16/92
SILVER, TOTAL	MB1	W	92L0728	N/A	03/12/92	03/16/92
ALUMINUM, TOTAL	MB1	W	92L0728	N/A	03/12/92	03/16/92
BARIUM, TOTAL	MB1	W	92L0728	N/A	03/12/92	03/16/92
CADMIUM, TOTAL	MB1	W	92L0728	N/A	03/12/92	03/16/92
CHROMIUM, TOTAL	MB1	W	92L0728	N/A	03/12/92	03/16/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/25/92 RFW LOT # :9202L475

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	MB1	W	92L0728	N/A	03/12/92	03/16/92
IRON, TOTAL	MB1	W	92L0728	N/A	03/12/92	03/16/92
MANGANESE, TOTAL	MB1	W	92L0728	N/A	03/12/92	03/20/92
SODIUM, TOTAL	MB1	W	92L0728	N/A	03/12/92	03/20/92
NICKEL, TOTAL	MB1	W	92L0728	N/A	03/12/92	03/16/92
ZINC, TOTAL	MB1	W	92L0728	N/A	03/12/92	03/16/92
ARSENIC LABORATORY	LC1 BS	W	92L0727	N/A	03/12/92	03/16/92
LEAD LABORATORY	LC1 BS	W	92L0727	N/A	03/12/92	03/16/92
SELENIUM LABORATORY	LC1 BS	W	92L0727	N/A	03/12/92	03/16/92
ARSENIC LABORATORY	LC2 BS	W	92L0727	N/A	03/12/92	03/16/92
LEAD LABORATORY	LC2 BS	W	92L0727	N/A	03/12/92	03/16/92
SELENIUM LABORATORY	LC2 BS	W	92L0727	N/A	03/12/92	03/16/92
ARSENIC, TOTAL	MB1	W	92L0727	N/A	03/12/92	03/16/92
LEAD, TOTAL	MB1	W	92L0727	N/A	03/12/92	03/16/92
SELENIUM, TOTAL	MB1	W	92L0727	N/A	03/12/92	03/16/92
MERCURY LABORATORY	LC1 BS	W	92C0076	N/A	03/18/92	03/19/92
MERCURY LABORATORY	LC2 BS	W	92C0076	N/A	03/18/92	03/19/92
MERCURY, TOTAL	MB1	W	92C0076	N/A	03/18/92	03/19/92

WESTON Analytics Use Only
92021475

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WSRC - TASK 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12-0000
Project Contact/Phone #:
AD Project Manager: D. Thomas
QC: std Del: std TAT: 30 days
Date Rec'd: 2-25-92 Date Due: 3-26-92
Account #: WSRC12STD

Refrigerator #		1					SUB				4		4		4		4				
#/Type Container	Liquid	1G					1				1L		1L		1L		1L				
	Solid																				
Volume	Liquid	40					1L				1L		200		200		200				
	Solid																				
Preservatives		—					none				Na2S2O3		none		NaOH		none				
ANALYSES REQUESTED →		ORGANIC									INORG										
		VOA	BNA	Pest/PCB	Herb						Metal	CN	TSS		PO4		TP				

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	WESTON Analytics Use Only: VOA 624				TSS 1B			Low Boiling		MLAL FIELD PO4		MLAL FIELD PO4		TP PO4		
S - Soil	001	Station 254			W	2-24-92		✓				✓			✓		✓		✓		✓		
SE - Sediment	002	258																					
SO - Solid	003	259																					
SL - Sludge	004	262																					
W - Water	005	263																					
O - Oil	006	Trip Blank.			W	2-24-92		✓															
A - Air																							
DS - Drum Solids																							
DL - Drum Liquids																							
L - EP/TCLP Leachate																							
WI - Wipe																							
X - Other																							
F - Fish																							

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Original Rewritten
Metals = Ag, Al, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, Zn, Fe, Mn

trip Blank Pres. with HCl.

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # 251 342 3220
2) Ambient or Chilled
3) Received in Good Condition (Y) or N
4) Labels Indicate Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

COC Tape was:
1) Present on Outer Package Y or (N)
2) Unbroken on Outer Package Y or (N)
3) Present on Sample Y or (N)
4) Unbroken on Sample Y or (N)
COC Record Present Upon Sample Rec't (Y) or N

Discrepancies Between Samples Labels and COC Record? (Y) or N
NOTES: Original COC had field Blank. Field Labels have Trip Blank.

Relinquished by	Received by	Date	Time
Emery	[illegible]	2-25-92	13:00

Relinquished by	Received by	Date	Time
	[illegible]	2-25-92	

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

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WSRC-TASK 12 **SAMPLES RECEIVED:** 02-25-92
RFW #: 9202L475, GC/MS VOLATILE
W.O. #: 0345-31-12

NARRATIVE

The set of samples consisted of six (6) water samples collected on 02-24-92.

The samples were analyzed according to criteria set forth in SW 846 Method 8240 for TCL Volatile target compounds on 03-02-92.

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

1. Non-target compounds were detected in sample STATION 263.

2. All surrogate recoveries were within EPA QC limits.

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

Jack R. Tuschall, Ph.D. 03-24-92
Date
Laboratory Manager
Lionville Analytical Laboratory

WESTON

GLOSSARY OF VOA DATA

DATA QUALIFIERS

U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

J = Indicates an estimated value.* This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero; for example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

I = Interference.

X = Additional qualifiers used as required are explained in the case narrative.

NQ = Result qualitatively confirmed but not able to quantify.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Indicates that surrogate recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not applicable.

DF = Dilution factor.

NR = Not required.

Roy F. Weston, I[illegible] Lionville Laboratory
Volatiles By GC/MS, HSL List

RFW Batch Number: 9202L475 Client: WSRC-TASK 12 Work Order: 0345-31-12-0000 Report Date: 03/19/92 02:58 Page: 1a

Cust ID:	STATION 254		STATION 258		STATION 259		STATION 262		STATION 263		TRIP BLANK	
Sample Information RFW#:	001		002		003		004		005		006	
Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Surrogate Recovery Toluene-d8	102	%	105	%	104	%	105	%	100	%	103	%
Bromofluorobenzene	96	%	99	%	108	%	98	%	96	%	95	%
1,2-Dichloroethane-d4	84	%	87	%	85	%	90	%	83	%	84	%
		fl		fl		fl		fl		fl		fl
Chloromethane	10	U	10	U	10	U	10	U	10	U	10	U
Bromomethane	10	U	10	U	10	U	10	U	10	U	10	U
Vinyl Chloride	10	U	10	U	10	U	10	U	10	U	10	U
Chloroethane	10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride	6	B	6	B	5	B	5	B	11	B	8	B
Acetone	11	B	16	B	11	B	15	B	15	B	28	B
Carbon Disulfide	5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene	5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethane	5	U	1	J	5	U	5	U	4	J	5	U
1,2-Dichloroethene (total)	5	U	5	U	5	U	5	U	5	U	5	U
Chloroform	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane	5	U	5	U	5	U	5	U	5	U	5	U
2-Butanone	10	U	10	U	10	U	10	U	10	U	10	U
1,1,1-Trichloroethane	5	U	5	U	5	U	5	U	7		5	U
Carbon Tetrachloride	5	U	5	U	5	U	5	U	5	U	5	U
Vinyl Acetate	10	U	10	U	10	U	10	U	10	U	10	U
Bromodichloromethane	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloropropane	5	U	5	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene	5	U	5	U	5	U	5	U	5	U	5	U
Trichloroethene	5	U	5	U	5	U	5	U	3	J	5	U
Dibromochloromethane	5	U	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane	5	U	5	U	5	U	5	U	5	U	5	U
Benzene	5	U	5	U	5	U	5	U	5	U	5	U
Trans-1,3-Dichloropropene	5	U	5	U	5	U	5	U	5	U	5	U
Bromoform	5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone	10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone	10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	5	U	5	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	5	U	5	U	5	U	5	U	5	U	5	U

*= Outside of EPA CLP QC limits.

R[illegible]ch Number: 9202L475 Client: WSRC-TASK [illegible] Work Order: 0345-31-12-0000 [illegible]ge: 1b

Cust ID:	STATION 254	STATION [illegible]8	STATION 259	STATION 262	STATION 263	TRI[illegible]LANK
RFW#:	001	002	003	004	005	006
Toluene	5 U	5 U	5 U	5 U	2 J	5 U
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

Cust ID: VBLK

Sample Information
RFW#: 92LVW037-MB1
Matrix: WATER
D.F.: 1.00
Units: ug/L

Surrogate Recovery	Toluene-d8	103	%
	Bromofluorobenzene	99	%
	1,2-Dichloroethane-d4	82	%

Chloromethane	10	U
Bromomethane	10	U
Vinyl Chloride	10	U
Chloroethane	10	U
Methylene Chloride	1	J
Acetone	10	
Carbon Disulfide	5	U
1,1-Dichloroethene	5	U
1,1-Dichloroethane	5	U
1,2-Dichloroethene (total)	5	U
Chloroform	5	U
1,2-Dichloroethane	5	U
2-Butanone	10	U
1,1,1-Trichloroethane	5	U
Carbon Tetrachloride	5	U
Vinyl Acetate	10	U
Bromodichloromethane	5	U
1,2-Dichloropropane	5	U
cis-1,3-Dichloropropene	5	U
Trichloroethene	5	U
Dibromochloromethane	5	U
1,1,2-Trichloroethane	5	U
Benzene	5	U
Trans-1,3-Dichloropropene	5	U
Bromoform	5	U
4-Methyl-2-pentanone	10	U
2-Hexanone	10	U
Tetrachloroethene	5	U
1,1,2,2-Tetrachloroethane	5	U

*= Outside of EPA CLP QC limits.

R1 Batch Number: 9202L475 Client: WSRC-TASK 4- Work Order: 0345-31-12-0000

Cust ID: VBLK

RFW#: 92LVW037-MB1

Toluene	5	U
Chlorobenzene	5	U
Ethylbenzene	5	U
Styrene	5	U
Xylene (total)	5	U

*= Outside of EPA CLP QC limits.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

STATION 254

Lab Name: Roy F. Weston, Inc. Work Order: 0345-31-12-0000

Client: WSRC-TASK 12

Matrix: WATER

Lab Sample ID: 9202L475-001

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

Lab File ID: W030212

Level: (low/med) LOW

Date Received: 02/25/92

% Moisture: not dec. _____

Date Analyzed: 03/02/92

Column: (pack/cap) PACK

Dilution Factor: 1.00

Number TICs found: 0

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

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

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

STATION 258

Lab Name: Roy F. Weston, Inc. Work Order: 0345-31-12-0000

Client: WSRC-TASK 12

Matrix: WATER

Lab Sample ID: 9202L475-002

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

Lab File ID: W030213

Level: (low/med) LOW

Date Received: 02/25/92

% Moisture: not dec. _____

Date Analyzed: 03/02/92

Column: (pack/cap) PACK

Dilution Factor: 1.00

Number TICs found: 0

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

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

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

STATION 259

Lab Name: Roy F. Weston, Inc. Work Order: 0345-31-12-0000

Client: WSRC-TASK 12

Matrix: WATER

Lab Sample ID: 9202L475-003

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

Lab File ID: W030214

Level: (low/med) LOW

Date Received: 02/25/92

% Moisture: not dec. _____

Date Analyzed: 03/02/92

Column: (pack/cap) PACK

Dilution Factor: 1.00

Number TICs found: 0

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

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

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

STATION 262

Lab Name: Roy F. Weston, Inc. Work Order: 0345-31-12-0000

Client: WSRC-TASK 12

Matrix: WATER

Lab Sample ID: 9202L475-004

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

Lab File ID: W030215

Level: (low/med) LOW

Date Received: 02/25/92

% Moisture: not dec. _____

Date Analyzed: 03/02/92

Column: (pack/cap) PACK

Dilution Factor: 1.00

Number TICs found: 0

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

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

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

STATION 263

Lab Name: Roy F. Weston, Inc. Work Order: 0345-31-12-0000

Client: WSRC-TASK 12

Matrix: WATER

Lab Sample ID: 9202L475-005

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

Lab File ID: W030216

Level: (low/med) LOW

Date Received: 02/25/92

% Moisture: not dec. _____

Date Analyzed: 03/02/92

Column: (pack/cap) PACK

Dilution Factor: 1.00

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	TRICHLOROFLUOROMETHANE	4.67	63	CJ

C: Response Factor from daily standard.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

TRIP BLANK

Lab Name: Roy F. Weston, Inc. Work Order: 0345-31-12-0000

Client: WSRC-TASK 12

Matrix: WATER

Lab Sample ID: 9202L475-006

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

Lab File ID: W030211

Level: (low/med) LOW

Date Received: 02/25/92

% Moisture: not dec. _____

Date Analyzed: 03/02/92

Column: (pack/cap) PACK

Dilution Factor: 1.00

Number TICs found: 0

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

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

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

VBLK

Lab Name: Roy F. Weston, Inc. Work Order: 0345-31-12-0000

Client: WSRC-TASK 12

Matrix: WATER

Lab Sample ID: 92LVW037-MB1

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

Lab File ID: W030203

Level: (low/med) LOW

Date Received: 03/02/92

% Moisture: not dec. _____

Date Analyzed: 03/02/92

Column: (pack/cap) PACK

Dilution Factor: 1.00

Number TICs found: 0

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

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

Roy F. Weston, Inc. - Lionville Laboratory
VOA ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/25/92 RFW LOT # :9202L475

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 254	001	W	92LVW037	02/24/92	N/A	03/02/92
STATION 258	002	W	92LVW037	02/24/92	N/A	03/02/92
STATION 259	003	W	92LVW037	02/24/92	N/A	03/02/92
STATION 262	004	W	92LVW037	02/24/92	N/A	03/02/92
STATION 263	005	W	92LVW037	02/24/92	N/A	03/02/92
TRIP BLANK	006	W	92LVW037	02/24/92	N/A	03/02/92

LAB QC:

VBLK	MB1	W	92LVW037	N/A	N/A	03/02/92

WESTON Analytics Use Only
92021475

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WSRC-TASK12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12-0000
Project Contact/Phone #:
AD Project Manager: D. Thomas
QC: std Del: std TAT: 30 days
Date Rec'd: 2-25-92 Date Due: 3-26-92
Account #: WSRC12STD

Refrigerator #		1				SUB			4		4		4		4		
#/Type Container	Liquid	16				4			18		18		18		18		
	Solid																
Volume	Liquid	40				40 ml			1L		250 ml		250		250		
	Solid																
Preservatives		—				none			none		none		none		none		
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	Pest/PCB	Herb	Cyanide			INORG: Metal	CN	NH4 NO3 Cl SO4		PO4 NO3 NO2		PO4 SO4		

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA 624				TCMS			Metal		NH4 NO3 Cl SO4		NO3 NO2		PO4 SO4	
S - Soil	001	Station 254			W	2-24-92		✓				✓			✓		✓		✓		✓	
SE - Sediment	002	258																				
SO - Solid	003	259																				
SL - Sludge	004	262																				
W - Water	005	263																				
O - Oil	006	Trip Blank.			W	2-24-92		✓														
A - Air																						
DS - Drum Solids																						
DL - Drum Liquids																						
L - EP/TCLP Leachate																						
WI - Wipe																						
X - Other																						
F - Fish																						

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: Original Rewritten
Metals = Ag, Al, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, Zn, Fe, Mn

trip Blank Pres. with HCl.

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # 251 342 3220
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

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

COC Record Present Upon Sample Rec't Y or N

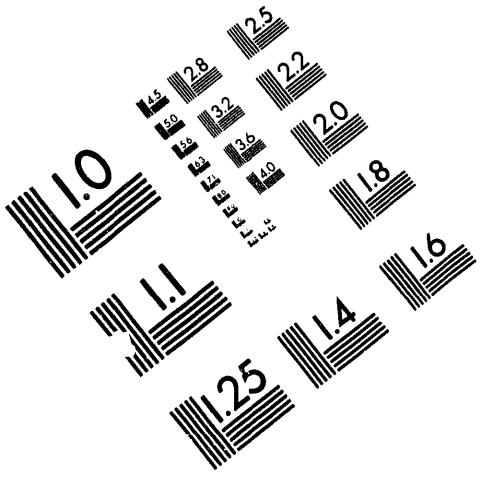
Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: Original COC had field Blank. Field Lab says TRIP Blank.

Relinquished by	Received by	Date	Time
Emery	[illegible]	2-25-92	13:00

Relinquished by	Received by	Date	Time
	[illegible]	2-25-92	

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



Association for Information and Image Management

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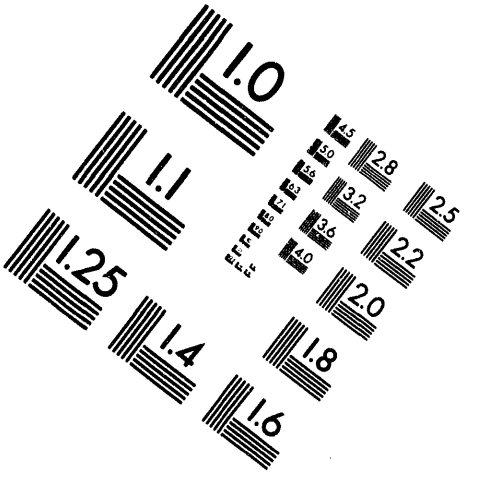
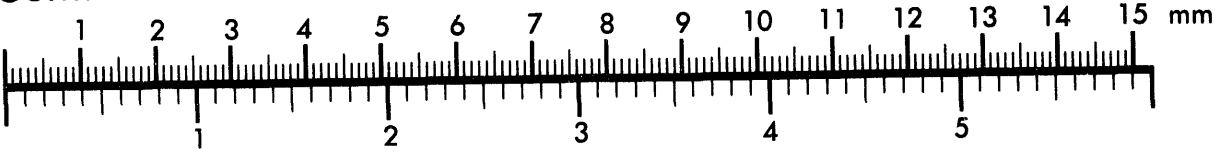
Silver Spring, Maryland 20910

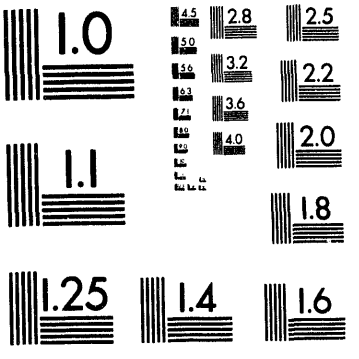
301/587-8202

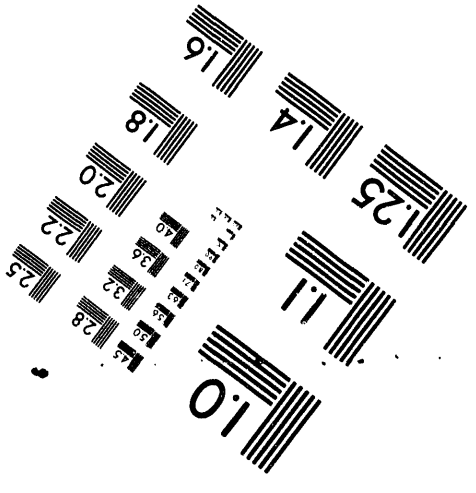


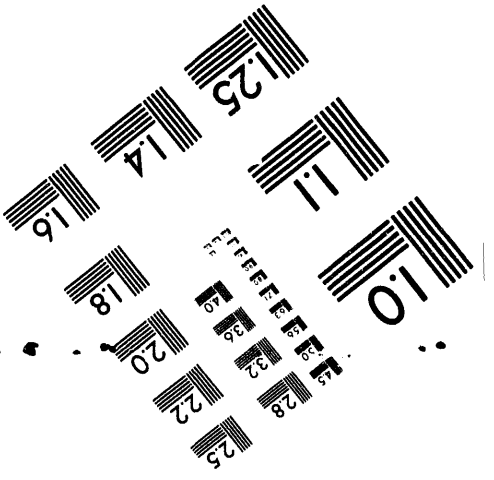
Centimeter



Inches







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BY APPLIED IMAGE, INC.

5 of 5

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WSRC-TASK 12
RFW #: 9202L477
W.O. #: 0345-31-12-0000

SAMPLES RECEIVED: 02-26-92

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 sample holding times as required by 40CFR136 were met.

2. All preparation blank results were below the required detection limit with the exception of acidity.

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 Inorganics Accuracy Report contained within this document. All recoveries were within the 75-125% guidance limit. All %RPD were within the 20% 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).

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

04.02.92
Date

rls/i02-477

ROY F. WESTON, INC.
GLOSSARY OF TERMS - INORGANIC REPORTS

DATA QUALIFIERS

U - Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* - Indicates that the original sample result is greater than 4x the spike amount added. The USEPA-CLP has determined that spike results on samples where this occurs may be unreliable and therefore, the control limits are not applicable.

ABBREVIATIONS

MB - Method or preparation blank.
MS - Matrix Spike.
MSD - Matrix Spike Duplicate.
REP - Sample Replicate.
LC - Indicates a method LCS or Blank Spike.
NC - Not calculable, result below the detection limit.

A suffix of -R or -S following these codes indicates a replicate or spike analysis respectively.

ANALYTICAL METAL METHODS

As :	EPA 206.2	SE	:	EPA 270.2
Pb :	EPA 239.2	ICP Scan	:	EPA 200.7
Hg :	EPA 245.1	All Others	:	EPA 200.7
Tl :	EPA 279.2	EP Leachates	(except Hg)	200.7

The analytical methods applied by the laboratory for the determination of drinking water is 5.2.1.

NOTES

The laboratory prepares a matrix spike at one per 20 frequency for TCLP samples. The Federal Register recommends that all matrix spikes be prepared at greater than 50% of the indigenous analyte concentration. A matrix duplicate is also prepared.

Holding times for soil samples have not been promulgated by the USEPA.

For solid samples, all results are reported on a dry weight basis.

The range for mercury solid laboratory control standards is 66.9% to 133.8%.

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/30/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L477

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-001	STATION 266	Acidity	18.0	MG/L	2.0
		Chloride	5.1	MG/L	0.25
		Hardness	31.0	MG/L	1.0
		Nitrate, as N	0.16	MG-N/L	0.10
		pH	5.9	PH UNITS	0.010
		Sulfate	12.4	MG/L	2.5
		Specific Conductance	83.4	UMHOS/CM	1.0
-002	STATION 267	Acidity	22.0	MG/L	2.0
		Chloride	5.4	MG/L	0.25
		Hardness	11.0	MG/L	1.0
		Nitrate, as N	0.17	MG-N/L	0.10
		pH	5.2	PH UNITS	0.010
		Sulfate	17.8	MG/L	2.5
		Specific Conductance	83.0	UMHOS/CM	1.0
-003	STATION 268	Acidity	16.0	MG/L	2.0
		Chloride	3.6	MG/L	0.25
		Hardness	12.0	MG/L	1.0
		Nitrate, as N	0.22	MG-N/L	0.10
		pH	4.9	PH UNITS	0.010
		Sulfate	5.7	MG/L	2.5
		Specific Conductance	28.0	UMHOS/CM	1.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/30/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L477

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-004	STATION 269	Acidity	12.0	MG/L	2.0
		Chloride	2.0	MG/L	0.25
		Hardness	6.0	MG/L	1.0
		Nitrate, as N	0.65	MG-N/L	0.10
		pH	5.3	PH UNITS	0.010
		Sulfate	6.2	MG/L	2.5
		Specific Conductance	24.7	UMHOS/CM	1.0
-005	STATION 269 DUP	Acidity	8.0	MG/L	2.0
		Chloride	1.9	MG/L	0.25
		Hardness	6.5	MG/L	1.0
		Nitrate, as N	0.61	MG-N/L	0.10
		pH	5.4	PH UNITS	0.010
		Sulfate	6.6	MG/L	2.5
		Specific Conductance	26.1	UMHOS/CM	1.0
-006	STATION 271	Acidity	14.0	MG/L	2.0
		Chloride	3.2	MG/L	0.25
		Hardness	4.5	MG/L	1.0
		Nitrate, as N	0.24	MG-N/L	0.10
		pH	5.3	PH UNITS	0.010
		Sulfate	10.9	MG/L	2.5
		Specific Conductance	37.4	UMHOS/CM	1.0

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 03/30/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L477

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
BLANK10	92LAL005-MB1	Acidity	2.5	MG/L	2.0
BLANK20	92LAL005-MB2	Acidity	8.0	MG/L	2.0
BLANK10	92LCL018-MB1	Chloride	0.25 u	MG/L	0.25
BLANK20	92LCL018-MB2	Chloride	0.25 u	MG/L	0.25
BLANK30	92LCL018-MB3	Chloride	0.25 u	MG/L	0.25
BLANK10	92LHD010-MB1	Hardness	1.0 u	MG/L	1.0
BLANK20	92LHD010-MB2	Hardness	1.0 u	MG/L	1.0
BLANK30	92LHD010-MB3	Hardness	1.0 u	MG/L	1.0
BLANK10	92LNO033-MB1	Nitrate, as N	0.10 u	MG-N/L	0.10
BLANK20	92LNO033-MB2	Nitrate, as N	0.10 u	MG-N/L	0.10

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 03/30/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L477

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
BLANK30	92LNO033-MB3	Nitrate, as N	0.10	u	MG-N/L	0.10
BLANK10	92LS4014-MB1	Sulfate	2.5	u	MG/L	2.5
BLANK20	92LS4014-MB2	Sulfate	2.5	u	MG/L	2.5
BLANK30	92LS4014-MB3	Sulfate	2.5	u	MG/L	2.5
BLANK10	92LSP026-MB1	Specific Conductance	1.0	u	UMHOS/CM	1.0
BLANK20	92LSP026-MB2	Specific Conductance	1.0	u	UMHOS/CM	1.0

ROY F. WESTON INC.

INORGANIC ACCURACY REPORT 03/30/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9202L477

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV
-003	STATION 268	Chloride	8.8	3.6	5.0	103
		Chloride MSD	8.8	3.6	5.0	103
BLANK10	92LCL018-MB1	Chloride	4.8	0.25u	5.0	96.5
		Chloride MSD	5.0	0.25u	5.0	99.9
BLANK20	92LCL018-MB2	Chloride	5.0	0.25u	5.0	100
BLANK30	92LCL018-MB3	Chloride	5.1	0.25u	5.0	102
BLANK10	92LHD010-MB1	Hardness	99.5	1.0 u	100	99.5
		Hardness MSD	332	1.0 u	330	101
BLANK20	92LHD010-MB2	Hardness	100	1.0 u	100	100
BLANK30	92LHD010-MB3	Hardness	101	1.0 u	100	101
BLANK10	92LNO033-MB1	Nitrate, as N	0.52	0.10u	0.50	105
		Nitrate, as N MSD	0.53	0.10u	0.50	106
BLANK20	92LNO033-MB2	Nitrate, as N	0.53	0.10u	0.50	107
BLANK30	92LNO033-MB3	Nitrate, as N	0.52	0.10u	0.50	103

ROY F. WESTON INC.

INORGANIC ACCURACY REPORT 03/30/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9202L477

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE		SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV
BLANK10	92LS4014-MB1	Sulfate		20.3	2.5 u	20.0	101
		Sulfate		20.2	2.5 u	20.0	101
BLANK20	92LS4014-MB2	Sulfate		19.9	2.5 u	20.0	99.5
BLANK30	92LS4014-MB3	Sulfate		20.2	2.5 u	20.0	101
BLANK10	92LSP026-MB1	Specific Conductance		146	1.0 u	147	99.3
		Specific Conductance	M	147	1.0 u	147	100
BLANK20	92LSP026-MB2	Specific Conductance		723	1.0 u	718	101

ROY F. WESTON INC.

INORGANIC DUPLICATE SPIKE REPORT 03/30/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9202L477

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%RPD
-003	STATION 268	Chloride	103	103	0.10
BLANK10	92LCL018-MB1	Chloride	96.5	99.9	3.6
BLANK10	92LHD010-MB1	Hardness	99.5	101	1.1
BLANK10	92LNO033-MB1	Nitrate, as N	105	106	1.1
BLANK10	92LS4014-MB1	Sulfate	101	101	0.10
BLANK10	92LSP026-MB1	Specific Conductance	99.3	100	0.70

ROY F. WESTON INC.

INORGANIC PRECISION REPORT 03/30/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L477

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	%RPD
-001REP	STATION 266	Acidity	18.0	22.0	20.0
		Nitrate, as N	0.16	0.15	6.6
		pH	5.9	5.9	0.17
		Specific Conductance	83.4	83.6	0.24
-003REP	STATION 268	Chloride	3.6	3.6	0.97
		Sulfate	5.7	6.0	4.9

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/26/92 RFW LOT # :9202L477

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 266						
ACIDITY	001	W	92LAL005	02/25/92	03/06/92	03/06/92
ACIDITY	001 REP	W	92LAL005	02/25/92	03/06/92	03/06/92
CHLORIDE	001	W	92LCL018	02/25/92	03/13/92	03/13/92
HARDNESS	001	W	92LHD010	02/25/92	03/11/92	03/11/92
NITRATE	001	W	92LNO033	02/25/92	03/11/92	03/11/92
NITRATE	001 REP	W	92LNO033	02/25/92	03/11/92	03/11/92
PH	001	W	92LPH038	02/25/92	02/26/92	02/26/92
PH	001 REP	W	92LPH038	02/25/92	02/26/92	02/26/92
SULFATE	001	W	92LS4014	02/25/92	03/21/92	03/21/92
SPECIFIC CONDUCTANCE	001	W	92LSP026	02/25/92	02/26/92	02/26/92
SPECIFIC CONDUCTANCE	001 REP	W	92LSP026	02/25/92	02/26/92	02/26/92
SUB-OUT TEST FOR SUB	001	W		02/25/92		
STATION 267						
ACIDITY	002	W	92LAL005	02/25/92	03/06/92	03/06/92
CHLORIDE	002	W	92LCL018	02/25/92	03/13/92	03/13/92
HARDNESS	002	W	92LHD010	02/25/92	03/11/92	03/11/92
NITRATE	002	W	92LNO033	02/25/92	03/11/92	03/11/92
PH	002	W	92LPH038	02/25/92	02/26/92	02/26/92
SULFATE	002	W	92LS4014	02/25/92	03/21/92	03/21/92
SPECIFIC CONDUCTANCE	002	W	92LSP026	02/25/92	02/26/92	02/26/92
SUB-OUT TEST FOR SUB	002	W		02/25/92		
STATION 268						
ACIDITY	003	W	92LAL005	02/25/92	03/06/92	03/06/92
CHLORIDE	003	W	92LCL018	02/25/92	03/13/92	03/13/92
CHLORIDE	003 REP	W	92LCL018	02/25/92	03/13/92	03/13/92
CHLORIDE	003 MS	W	92LCL018	02/25/92	03/13/92	03/13/92
CHLORIDE	003 MSD	W	92LCL018	02/25/92	03/13/92	03/13/92
HARDNESS	003	W	92LHD010	02/25/92	03/11/92	03/11/92
NITRATE	003	W	92LNO033	02/25/92	03/11/92	03/11/92
PH	003	W	92LPH038	02/25/92	02/26/92	02/26/92
SULFATE	003	W	92LS4014	02/25/92	03/21/92	03/21/92
SULFATE	003 REP	W	92LS4014	02/25/92	03/21/92	03/21/92
SPECIFIC CONDUCTANCE	003	W	92LSP026	02/25/92	02/26/92	02/26/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/26/92 RFW LOT # :9202L477

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SUB-OUT TEST FOR SUB	003	W		02/25/92		
STATION 269						
ACIDITY	004	W	92LAL005	02/25/92	03/06/92	03/06/92
CHLORIDE	004	W	92LCL018	02/25/92	03/13/92	03/13/92
HARDNESS	004	W	92LHD010	02/25/92	03/11/92	03/11/92
NITRATE	004	W	92LNO033	02/25/92	03/11/92	03/11/92
PH	004	W	92LPH038	02/25/92	02/26/92	02/26/92
SULFATE	004	W	92LS4014	02/25/92	03/21/92	03/21/92
SPECIFIC CONDUCTANCE	004	W	92LSP026	02/25/92	02/26/92	02/26/92
SUB-OUT TEST FOR SUB	004	W		02/25/92		
STATION 269 DUP						
ACIDITY	005	W	92LAL005	02/25/92	03/06/92	03/06/92
CHLORIDE	005	W	92LCL018	02/25/92	03/13/92	03/13/92
HARDNESS	005	W	92LHD010	02/25/92	03/11/92	03/11/92
NITRATE	005	W	92LNO033	02/25/92	03/11/92	03/11/92
PH	005	W	92LPH038	02/25/92	02/26/92	02/26/92
SULFATE	005	W	92LS4014	02/25/92	03/21/92	03/21/92
SPECIFIC CONDUCTANCE	005	W	92LSP026	02/25/92	02/26/92	02/26/92
SUB-OUT TEST FOR SUB	005	W		02/25/92		
STATION 271						
ACIDITY	006	W	92LAL005	02/25/92	03/06/92	03/06/92
CHLORIDE	006	W	92LCL018	02/25/92	03/13/92	03/13/92
HARDNESS	006	W	92LHD010	02/25/92	03/11/92	03/11/92
NITRATE	006	W	92LNO033	02/25/92	03/11/92	03/11/92
PH	006	W	92LPH038	02/25/92	02/26/92	02/26/92
SULFATE	006	W	92LS4014	02/25/92	03/21/92	03/21/92
SPECIFIC CONDUCTANCE	006	W	92LSP026	02/25/92	02/26/92	02/26/92
SUB-OUT TEST FOR SUB	006	W		02/25/92		

LAB QC:

ACIDITY	MB1	W	92LAL005	N/A	03/06/92	03/06/92
ALKALINITY	MB1	W	92LAL005	N/A	02/05/92	02/05/92
ALKALINITY	MB1 BS	W	92LAL005	N/A	02/05/92	02/05/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/26/92 RFW LOT # :9202L477

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALKALINITY	MB1 BSD	W	92LAL005	N/A	02/05/92	02/05/92
ACIDITY	MB2	W	92LAL005	N/A	03/06/92	03/06/92
ALKALINITY	MB2	W	92LAL005	N/A	02/05/92	02/05/92
ALKALINITY	MB2 BS	W	92LAL005	N/A	02/05/92	02/05/92
CHLORIDE	MB1	W	92LCL018	N/A	03/13/92	03/13/92
CHLORIDE	MB1 BS	W	92LCL018	N/A	03/13/92	03/13/92
CHLORIDE	MB1 BSD	W	92LCL018	N/A	03/13/92	03/13/92
CHLORIDE	MB2	W	92LCL018	N/A	03/13/92	03/13/92
CHLORIDE	MB2 BS	W	92LCL018	N/A	03/13/92	03/13/92
CHLORIDE	MB3	W	92LCL018	N/A	03/13/92	03/13/92
CHLORIDE	MB3 BS	W	92LCL018	N/A	03/13/92	03/13/92
HARDNESS	MB1	W	92LHD010	N/A	03/11/92	03/11/92
HARDNESS	MB1 BS	W	92LHD010	N/A	03/11/92	03/11/92
HARDNESS	MB1 BSD	W	92LHD010	N/A	03/11/92	03/11/92
HARDNESS	MB2	W	92LHD010	N/A	03/11/92	03/11/92
HARDNESS	MB2 BS	W	92LHD010	N/A	03/11/92	03/11/92
HARDNESS	MB3	W	92LHD010	N/A	03/11/92	03/11/92
HARDNESS	MB3 BS	W	92LHD010	N/A	03/11/92	03/11/92
NITRATE	MB1	W	92LNO033	N/A	03/11/92	03/11/92
NITRATE	MB1 BS	W	92LNO033	N/A	03/11/92	03/11/92
NITRATE	MB1 BSD	W	92LNO033	N/A	03/11/92	03/11/92
NITRATE	MB2	W	92LNO033	N/A	03/11/92	03/11/92
NITRATE	MB2 BS	W	92LNO033	N/A	03/11/92	03/11/92
NITRATE	MB3	W	92LNO033	N/A	03/11/92	03/11/92
NITRATE	MB3 BS	W	92LNO033	N/A	03/11/92	03/11/92
SULFATE	MB1	W	92LS4014	N/A	03/21/92	03/21/92
SULFATE	MB1 BS	W	92LS4014	N/A	03/21/92	03/21/92
SULFATE	MB1 BSD	W	92LS4014	N/A	03/21/92	03/21/92
SULFATE	MB2	W	92LS4014	N/A	03/21/92	03/21/92
SULFATE	MB2 BS	W	92LS4014	N/A	03/21/92	03/21/92
SULFATE	MB3	W	92LS4014	N/A	03/21/92	03/21/92
SULFATE	MB3 BS	W	92LS4014	N/A	03/21/92	03/21/92
SPECIFIC CONDUCTANCE	MB1	W	92LSP026	N/A	02/26/92	02/26/92
SPECIFIC CONDUCTANCE	MB1 BS	W	92LSP026	N/A	02/26/92	02/26/92
SPECIFIC CONDUCTANCE	MB1 BSD	W	92LSP026	N/A	02/26/92	02/26/92
SPECIFIC CONDUCTANCE	MB2	W	92LSP026	N/A	02/26/92	02/26/92
SPECIFIC CONDUCTANCE	MB2 BS	W	92LSP026	N/A	02/26/92	02/26/92

WESTON Analytics Use Only

92021477

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WSRC-TASK 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12-0000
Project Contact/Phone #:
AD Project Manager: Dave Thomas
QC: Std Del: Std TAT: 30 day
Date Rec'd: 2-26-92 Date Due: 3-27-92
Account #: WSRC 12 STD

Refrigerator #		1				548			4		4		4		4	
#/Type Container	Liquid	16				18/1			1P		1P		1P		1P	
	Solid															
Volume	Liquid	40m				1L			1L		1L		250		250	
	Solid															
Preservatives		–							HNO3						HNO3 HCL	
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	Pest/PCB	Herb	Total Chlorine			INORG: Metal	CN	ALKL ACID & SPED		Ph ISO4		NO3 HARD	

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	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA	BNA	Pest/PCB	Herb	Total Chlorine			Metal	CN	ALKL ACID & SPED		Ph ISO4		NO3 HARD
							WESTON Analytics Use Only													
							624H				ISUB			Lic Reduc		ALKL ACID ICL SPED		IPh ISO4		NO3P HARD
001	Station 266			W	2-25-92		✓				✓			✓		✓		✓		✓
002	267																			
003	268																			
004	269																			
005	269 DUP																			
006	271																			
* 007	Trip Blank																			
	Code info to follow																			

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

Metals = Ag, Al, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, Zn, Fe, Mn

* Original chain list was having field Blank, but we received trip blank preserved in HCL!

Original Rewritten

DATE/REVISIONS:

3-19-92 1. Total Chlorine Added to Barringer

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 (✓) or 4) Labels Indicate Properly Preserved

COC Tape was: 1) Present on Package 2) Not Present

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time	Discrepancies Between Samples Labels and

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WSRC-TASK 12 **SAMPLES RECEIVED:** 02-26-92
RFW #: 9202L477
W.O. #: 0345-31-12

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

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

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

4. All calibration verification checks were within the required control limits of 90-110% (80-120% for Hg). Calibration verification is performed using independent standards from Inorganic Ventures, Inc.

Margaret M. Beaty 3/31/92
Jack R. Tuschall, Ph.D. Date
Laboratory Manager
Lionville Analytical Laboratory

kls\m02-477

ROY F. WESTON, INC.
GLOSSARY OF TERMS - INORGANIC REPORTS

DATA QUALIFIERS

U - Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* - Indicates that the original sample result is greater than 4x the spike amount added. The USEPA-CLP has determined that spike results on samples where this occurs may be unreliable and therefore, the control limits are not applicable.

ABBREVIATIONS

MB - Method or preparation blank.
MS - Matrix Spike.
MSD - Matrix Spike Duplicate.
REP - Sample Replicate.
LC - Indicates a method LCS or Blank Spike.
NC - Not calculable, result below the detection limit.

A suffix of -R or -S following these codes indicates a replicate or spike analysis respectively.

ANALYTICAL METAL METHODS

As :	EPA 206.2	SE	:	EPA 270.2
Pb :	EPA 239.2	ICP Scan	:	EPA 200.7
Hg :	EPA 245.1	All Others	:	EPA 200.7
Tl :	EPA 279.2	EP Leachates	(except Hg)	200.7

The analytical methods applied by the laboratory for the determination of drinking water is 5.2.1.

NOTES

The laboratory prepares a matrix spike at one per 20 frequency for TCLP samples. The Federal Register recommends that all matrix spikes be prepared at greater than 50% of the indigenous analyte concentration. A matrix duplicate is also prepared.

Holding times for soil samples have not been promulgated by the USEPA.

For solid samples, all results are reported on a dry weight basis.

The range for mercury solid laboratory control standards is 66.9% to 133.8%.

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/26/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9202L477
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-001	STATION 266	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	478		UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	9660		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	6990		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	98.9		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/26/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9202L477
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-002	STATION 267	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	550		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	603		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	64.4		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/26/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L477

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-003	STATION 268	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	237		UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	241		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	118		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/26/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L477

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-004	STATION 269	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	115		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	96.5		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	103		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/26/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9202L477
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-005	STATION 269 DUP	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	200	u	UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	102		UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	88.5		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	52.1		UG/L	20.0

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 03/26/92

CLIENT: WSRC-TASK 12
WORK ORDER: 0345-31-12-0000

WESTON BATCH #: 9202L477

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
-006	STATION 271	Silver, Total	10.0	u	UG/L	10.0
		Aluminum, Total	300		UG/L	200
		Arsenic, Total	10.0	u	UG/L	10.0
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Mercury, Total	0.20	u	UG/L	0.20
		Manganese, Total	30.7		UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Lead, Total	3.0	u	UG/L	3.0
		Selenium, Total	5.0	u	UG/L	5.0
		Zinc, Total	30.7		UG/L	20.0

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 03/26/92

CLIENT: WSRC-TASK 12 WESTON BATCH #: 9202L477
WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT
BLANK1	92L0826-MB1	Silver, Total	10.0	u	UG/L	10.0
BLANK1	92L0682-MB1	Aluminum, Total	200	u	UG/L	200
		Barium, Total	200	u	UG/L	200
		Cadmium, Total	5.0	u	UG/L	5.0
		Chromium, Total	10.0	u	UG/L	10.0
		Copper, Total	25.0	u	UG/L	25.0
		Iron, Total	100	u	UG/L	100
		Manganese, Total	15.0	u	UG/L	15.0
		Sodium, Total	5000	u	UG/L	5000
		Nickel, Total	40.0	u	UG/L	40.0
		Zinc, Total	20.0	u	UG/L	20.0
BLANK1	92L0681-MB1	Arsenic, Total	10.0	u	UG/L	10.0
		Selenium, Total	5.0	u	UG/L	5.0
BLANK1	92C0076-MB1	Mercury, Total	0.20	u	UG/L	0.20
BLANK1	92L0706-MB1	Lead, Total	3.0	u	UG/L	3.0

ROY F. WESTON INC.

INORGANIC DUPLICATE SPIKE REPORT 03/26/92

CLIENT: WSRC-TASK 12

WESTON BATCH #: 9202L477

WORK ORDER: 0345-31-12-0000

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%RPD
LCS2	92L0826-LC2	Silver, LCS	102	104	1.8
LCS2	92L0682-LC2	Aluminum, LCS	103	101	2.4
		Barium, LCS	101	98.7	2.4
		Cadmium, LCS	103	102	0.97
		Chromium, LCS	96.9	96.5	0.41
		Copper, LCS	97.5	97.4	0.10
		Iron, LCS	98.1	97.8	0.31
		Manganese, LCS	98.0	97.8	0.20
		Sodium, LCS	102	98.9	2.9
		Nickel, LCS	98.2	97.5	0.72
		Zinc, LCS	99.0	97.8	1.2
LCS2	92L0681-LC2	Arsenic, LCS	97.7	98.3	0.61
		Selenium, LCS	105	105	0.57
LCS2	92C0076-LC2	Mercury, LCS	89.8	93.6	4.1
LCS2	92L0706-LC2	Lead, LCS	103	106	3.2

ROY F. WESTON INC.

INORGANIC LABORATORY CONTROL STANDARDS REPORT 03/26/92

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	92L0826-LC1	Silver, LCS	509	500	UG/L	102
LCS2	92L0826-LC2	Silver, LCS	518	500	UG/L	104
LCS1	92L0682-LC1	Aluminum, LCS	5160	5000	UG/L	103
		Barium, LCS	5050	5000	UG/L	101
		Cadmium, LCS	258	250	UG/L	103
		Chromium, LCS	484	500	UG/L	96.9
		Copper, LCS	1220	1250	UG/L	97.5
		Iron, LCS	4900	5000	UG/L	98.1
		Manganese, LCS	735	750	UG/L	98.0
		Sodium, LCS	25400	25000	UG/L	102
		Nickel, LCS	1960	2000	UG/L	98.2
		Zinc, LCS	990	1000	UG/L	99.0
LCS2	92L0682-LC2	Aluminum, LCS	5030	5000	UG/L	101
		Barium, LCS	4940	5000	UG/L	98.7
		Cadmium, LCS	256	250	UG/L	102
		Chromium, LCS	483	500	UG/L	96.5
		Copper, LCS	1220	1250	UG/L	97.4
		Iron, LCS	4890	5000	UG/L	97.8
		Manganese, LCS	733	750	UG/L	97.8
		Sodium, LCS	24700	25000	UG/L	98.9
		Nickel, LCS	1950	2000	UG/L	97.5
		Zinc, LCS	978	1000	UG/L	97.8
LCS1	92L0681-LC1	Arsenic, LCS	29.3	30.0	UG/L	97.7
		Selenium, LCS	31.4	30.0	UG/L	105
LCS2	92L0681-LC2	Arsenic, LCS	29.5	30.0	UG/L	98.3
		Selenium, LCS	31.6	30.0	UG/L	105
LCS1	92C0076-LC1	Mercury, LCS	4.5	5.0	UG/L	89.8
LCS2	92C0076-LC2	Mercury, LCS	4.7	5.0	UG/L	93.6
LCS1	92L0706-LC1	Lead, LCS	15.4	15.0	UG/L	103
LCS2	92L0706-LC2	Lead, LCS	15.9	15.0	UG/L	106

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/26/92 RFW LOT # :9202L477

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 266						
SILVER, TOTAL	001	W	92L0826	02/25/92	03/24/92	03/25/92
ALUMINUM, TOTAL	001	W	92L0682	02/25/92	03/24/92	03/23/92
ARSENIC, TOTAL	001	W	92L0681	02/25/92	03/07/92	03/09/92
BARIUM, TOTAL	001	W	92L0682	02/25/92	03/24/92	03/23/92
CADMIUM, TOTAL	001	W	92L0682	02/25/92	03/24/92	03/23/92
CHROMIUM, TOTAL	001	W	92L0682	02/25/92	03/24/92	03/23/92
COPPER, TOTAL	001	W	92L0682	02/25/92	03/24/92	03/23/92
IRON, TOTAL	001	W	92L0682	02/25/92	03/24/92	03/23/92
MERCURY, TOTAL	001	W	92C0076	02/25/92	03/18/92	03/19/92
MANGANESE, TOTAL	001	W	92L0682	02/25/92	03/24/92	03/23/92
SODIUM, TOTAL	001	W	92L0682	02/25/92	03/24/92	03/23/92
NICKEL, TOTAL	001	W	92L0682	02/25/92	03/24/92	03/23/92
LEAD, TOTAL	001	W	92L0706	02/25/92	03/10/92	03/10/92
SELENIUM, TOTAL	001	W	92L0681	02/25/92	03/07/92	03/09/92
ZINC, TOTAL	001	W	92L0682	02/25/92	03/24/92	03/23/92
STATION 267						
SILVER, TOTAL	002	W	92L0826	02/25/92	03/24/92	03/25/92
ALUMINUM, TOTAL	002	W	92L0682	02/25/92	03/24/92	03/23/92
ARSENIC, TOTAL	002	W	92L0681	02/25/92	03/07/92	03/09/92
BARIUM, TOTAL	002	W	92L0682	02/25/92	03/24/92	03/23/92
CADMIUM, TOTAL	002	W	92L0682	02/25/92	03/24/92	03/23/92
CHROMIUM, TOTAL	002	W	92L0682	02/25/92	03/24/92	03/23/92
COPPER, TOTAL	002	W	92L0682	02/25/92	03/24/92	03/23/92
IRON, TOTAL	002	W	92L0682	02/25/92	03/24/92	03/23/92
MERCURY, TOTAL	002	W	92C0076	02/25/92	03/18/92	03/19/92
MANGANESE, TOTAL	002	W	92L0682	02/25/92	03/24/92	03/23/92
SODIUM, TOTAL	002	W	92L0682	02/25/92	03/24/92	03/23/92
NICKEL, TOTAL	002	W	92L0682	02/25/92	03/24/92	03/23/92
LEAD, TOTAL	002	W	92L0706	02/25/92	03/10/92	03/10/92
SELENIUM, TOTAL	002	W	92L0681	02/25/92	03/07/92	03/09/92
ZINC, TOTAL	002	W	92L0682	02/25/92	03/24/92	03/23/92
STATION 268						
SILVER, TOTAL	003	W	92L0826	02/25/92	03/24/92	03/25/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/26/92 RFW LOT # :9202L477

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	003	W	92L0682	02/25/92	03/24/92	03/23/92
ARSENIC, TOTAL	003	W	92L0681	02/25/92	03/07/92	03/09/92
BARIUM, TOTAL	003	W	92L0682	02/25/92	03/24/92	03/23/92
CADMIUM, TOTAL	003	W	92L0682	02/25/92	03/24/92	03/23/92
CHROMIUM, TOTAL	003	W	92L0682	02/25/92	03/24/92	03/23/92
COPPER, TOTAL	003	W	92L0682	02/25/92	03/24/92	03/23/92
IRON, TOTAL	003	W	92L0682	02/25/92	03/24/92	03/23/92
MERCURY, TOTAL	003	W	92C0076	02/25/92	03/18/92	03/19/92
MANGANESE, TOTAL	003	W	92L0682	02/25/92	03/24/92	03/23/92
SODIUM, TOTAL	003	W	92L0682	02/25/92	03/24/92	03/23/92
NICKEL, TOTAL	003	W	92L0682	02/25/92	03/24/92	03/23/92
LEAD, TOTAL	003	W	92L0706	02/25/92	03/10/92	03/10/92
SELENIUM, TOTAL	003	W	92L0681	02/25/92	03/07/92	03/09/92
ZINC, TOTAL	003	W	92L0682	02/25/92	03/24/92	03/23/92
STATION 269						
SILVER, TOTAL	004	W	92L0826	02/25/92	03/24/92	03/25/92
ALUMINUM, TOTAL	004	W	92L0682	02/25/92	03/24/92	03/23/92
ARSENIC, TOTAL	004	W	92L0681	02/25/92	03/07/92	03/09/92
BARIUM, TOTAL	004	W	92L0682	02/25/92	03/24/92	03/23/92
CADMIUM, TOTAL	004	W	92L0682	02/25/92	03/24/92	03/23/92
CHROMIUM, TOTAL	004	W	92L0682	02/25/92	03/24/92	03/23/92
COPPER, TOTAL	004	W	92L0682	02/25/92	03/24/92	03/23/92
IRON, TOTAL	004	W	92L0682	02/25/92	03/24/92	03/23/92
MERCURY, TOTAL	004	W	92C0076	02/25/92	03/18/92	03/19/92
MANGANESE, TOTAL	004	W	92L0682	02/25/92	03/24/92	03/23/92
SODIUM, TOTAL	004	W	92L0682	02/25/92	03/24/92	03/23/92
NICKEL, TOTAL	004	W	92L0682	02/25/92	03/24/92	03/23/92
LEAD, TOTAL	004	W	92L0706	02/25/92	03/10/92	03/10/92
SELENIUM, TOTAL	004	W	92L0681	02/25/92	03/07/92	03/09/92
ZINC, TOTAL	004	W	92L0682	02/25/92	03/24/92	03/23/92
STATION 269 DUP						
SILVER, TOTAL	005	W	92L0826	02/25/92	03/24/92	03/25/92
ALUMINUM, TOTAL	005	W	92L0682	02/25/92	03/24/92	03/23/92
ARSENIC, TOTAL	005	W	92L0681	02/25/92	03/07/92	03/09/92
BARIUM, TOTAL	005	W	92L0682	02/25/92	03/24/92	03/23/92
CADMIUM, TOTAL	005	W	92L0682	02/25/92	03/24/92	03/23/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/26/92 RFW LOT # :9202L477

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	005	W	92L0682	02/25/92	03/24/92	03/23/92
COPPER, TOTAL	005	W	92L0682	02/25/92	03/24/92	03/23/92
IRON, TOTAL	005	W	92L0682	02/25/92	03/24/92	03/23/92
MERCURY, TOTAL	005	W	92C0076	02/25/92	03/18/92	03/19/92
MANGANESE, TOTAL	005	W	92L0682	02/25/92	03/24/92	03/23/92
SODIUM, TOTAL	005	W	92L0682	02/25/92	03/24/92	03/23/92
NICKEL, TOTAL	005	W	92L0682	02/25/92	03/24/92	03/23/92
LEAD, TOTAL	005	W	92L0706	02/25/92	03/10/92	03/10/92
SELENIUM, TOTAL	005	W	92L0681	02/25/92	03/07/92	03/09/92
ZINC, TOTAL	005	W	92L0682	02/25/92	03/24/92	03/23/92
STATION 271						
SILVER, TOTAL	006	W	92L0826	02/25/92	03/24/92	03/25/92
ALUMINUM, TOTAL	006	W	92L0682	02/25/92	03/24/92	03/23/92
ARSENIC, TOTAL	006	W	92L0681	02/25/92	03/07/92	03/09/92
BARIUM, TOTAL	006	W	92L0682	02/25/92	03/24/92	03/23/92
CADMIUM, TOTAL	006	W	92L0682	02/25/92	03/24/92	03/23/92
CHROMIUM, TOTAL	006	W	92L0682	02/25/92	03/24/92	03/23/92
COPPER, TOTAL	006	W	92L0682	02/25/92	03/24/92	03/23/92
IRON, TOTAL	006	W	92L0682	02/25/92	03/24/92	03/23/92
MERCURY, TOTAL	006	W	92C0076	02/25/92	03/18/92	03/19/92
MANGANESE, TOTAL	006	W	92L0682	02/25/92	03/24/92	03/23/92
SODIUM, TOTAL	006	W	92L0682	02/25/92	03/24/92	03/23/92
NICKEL, TOTAL	006	W	92L0682	02/25/92	03/24/92	03/23/92
LEAD, TOTAL	006	W	92L0706	02/25/92	03/10/92	03/10/92
SELENIUM, TOTAL	006	W	92L0681	02/25/92	03/07/92	03/09/92
ZINC, TOTAL	006	W	92L0682	02/25/92	03/24/92	03/23/92

LAB QC:

SILVER LABORATORY	LC1 BS	W	92L0826	N/A	03/24/92	03/25/92
SILVER LABORATORY	LC2 BS	W	92L0826	N/A	03/24/92	03/25/92
SILVER, TOTAL	MB1	W	92L0826	N/A	03/24/92	03/25/92
ALUMINUM LABORTORY	LC1 BS	W	92L0682	N/A	03/07/92	03/23/92
BARIUM LABORATORY	LC1 BS	W	92L0682	N/A	03/07/92	03/23/92
CADMIUM LABORATORY	LC1 BS	W	92L0682	N/A	03/07/92	03/23/92
CHROMIUM LABORATORY	LC1 BS	W	92L0682	N/A	03/07/92	03/23/92
COPPER LABORATORY	LC1 BS	W	92L0682	N/A	03/07/92	03/23/92
IRON LABORATORY	LC1 BS	W	92L0682	N/A	03/07/92	03/23/92

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/26/92 RFW LOT # :9202L477

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MANGANESE LABORATORY	LC1 BS	W	92L0682	N/A	03/07/92	03/23/92
SODIUM LABORATORY	LC1 BS	W	92L0682	N/A	03/07/92	03/23/92
NICKEL LABORATORY	LC1 BS	W	92L0682	N/A	03/07/92	03/23/92
ZINC LABORATORY	LC1 BS	W	92L0682	N/A	03/07/92	03/23/92
ALUMINUM LABORTORY	LC2 BS	W	92L0682	N/A	03/07/92	03/23/92
BARIUM LABORATORY	LC2 BS	W	92L0682	N/A	03/07/92	03/23/92
CADMIUM LABORATORY	LC2 BS	W	92L0682	N/A	03/07/92	03/23/92
CHROMIUM LABORATORY	LC2 BS	W	92L0682	N/A	03/07/92	03/23/92
COPPER LABORATORY	LC2 BS	W	92L0682	N/A	03/07/92	03/23/92
IRON LABORATORY	LC2 BS	W	92L0682	N/A	03/07/92	03/23/92
MANGANESE LABORATORY	LC2 BS	W	92L0682	N/A	03/07/92	03/23/92
SODIUM LABORATORY	LC2 BS	W	92L0682	N/A	03/07/92	03/23/92
NICKEL LABORATORY	LC2 BS	W	92L0682	N/A	03/07/92	03/23/92
ZINC LABORATORY	LC2 BS	W	92L0682	N/A	03/07/92	03/23/92
ALUMINUM, TOTAL	MB1	W	92L0682	N/A	03/07/92	03/23/92
BARIUM, TOTAL	MB1	W	92L0682	N/A	03/07/92	03/23/92
CADMIUM, TOTAL	MB1	W	92L0682	N/A	03/07/92	03/23/92
CHROMIUM, TOTAL	MB1	W	92L0682	N/A	03/07/92	03/23/92
COPPER, TOTAL	MB1	W	92L0682	N/A	03/07/92	03/23/92
IRON, TOTAL	MB1	W	92L0682	N/A	03/07/92	03/23/92
MANGANESE, TOTAL	MB1	W	92L0682	N/A	03/07/92	03/23/92
SODIUM, TOTAL	MB1	W	92L0682	N/A	03/07/92	03/23/92
NICKEL, TOTAL	MB1	W	92L0682	N/A	03/07/92	03/23/92
ZINC, TOTAL	MB1	W	92L0682	N/A	03/07/92	03/23/92
ARSENIC LABORATORY	LC1 BS	W	92L0681	N/A	03/07/92	03/09/92
SELENIUM LABORATORY	LC1 BS	W	92L0681	N/A	03/07/92	03/09/92
ARSENIC LABORATORY	LC2 BS	W	92L0681	N/A	03/07/92	03/09/92
SELENIUM LABORATORY	LC2 BS	W	92L0681	N/A	03/07/92	03/09/92
ARSENIC, TOTAL	MB1	W	92L0681	N/A	03/07/92	03/09/92
SELENIUM, TOTAL	MB1	W	92L0681	N/A	03/07/92	03/09/92
MERCURY LABORATORY	LC1 BS	W	92C0076	N/A	03/18/92	03/19/92
MERCURY LABORATORY	LC2 BS	W	92C0076	N/A	03/18/92	03/19/92
MERCURY, TOTAL	MB1	W	92C0076	N/A	03/18/92	03/19/92
LEAD LABORATORY	LC1 BS	W	92L0706	N/A	03/10/92	03/10/92
LEAD LABORATORY	LC2 BS	W	92L0706	N/A	03/10/92	03/10/92
LEAD, TOTAL	MB1	W	92L0706	N/A	03/10/92	03/10/92

WESTON Analytics Use Only
92021477

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: WSRC-TASK 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12-0000
Project Contact/Phone #:
AD Project Manager: Dwayne Thomas
QC: Std Del: Std TAT: 30 day
Date Rec'd: 2-26-92 Date Due: 3-27-92
Account #: WSRC 12 STD

Refrigerator #		1				5+B			4		4		4		4	
#/Type Container	Liquid	1G				1P/V			1P		1P		1P		1P	
	Solid															
Volume	Liquid	40M				4L/1L			1L		1L		250		250	
	Solid															
Preservatives		–				None			None		None		None		H2SO4	
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb	Total Chlor			Metal	CN	NITL ACID or SPED		Ph ISO4		NO3 HNO3	

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

WESTON Analytics Use Only

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	VOA 624H	BNA	Pest/PCB	Herb	Total Chlor 25LB			Metal Lic Below	CN	NITL ACID ICL TSPED		Ph ISO4		NO3 P HNO3	
001	Station 266			W	2-25-92		✓				✓			✓		✓		✓		✓	
002	267																				
003	268																				
004	269																				
005	269 DUP																				
006	271																				
* 007	Trip Blank																				
	Cod info to follow																				

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
Metals = Ag, Al, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, Zn, Fe, Mn
* Original chain list was having field Blanks but we received trip blank preserved in HCL!
Original Rewritten

DATE/REVISIONS:
3-17-92 1. Index Chem Submitted to Barringer
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) Labels Indicate Properly Preserved (Y) or N
5) Received Within Holding Times Y or (N)

COC Tape was:
1) Present on Outer Package Y or (N)
2) Unbroken on Outer Package Y or (N)
3) Present on Sample Y or (N)
4) Unbroken on Sample Y or (N)
COC Record Present Upon Sample Rec't (Y) or N

Discrepancies Between Samples Labels and COC Record? (Y) or N
NOTES:
*
Ph, SPED

Relinquished by	Received by	Date	Time
Fed X	[illegible]	2-26-92	09:30
	[illegible] 2-26-92		

Relinquished by	Received by	Date	Time
	[illegible] 2-26-92		

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

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WSRC-TASK 12 **SAMPLES RECEIVED:** 02-26-92
RFW #: 9202L477, GC/MS VOLATILE
W.O. #: 0345-31-12

NARRATIVE

The set of samples consisted of seven (7) water samples collected on 02-25-92.

The samples were analyzed according to criteria set forth in SW 846 Method 8240 for Client Specified target compounds on 03-03-92.

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

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

2. All surrogate recoveries were within EPA QC limits.

3. The laboratory blank contained the common contaminant acetone and the target compound chloroform at levels less than the CRQL.

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

Date

WESTON

GLOSSARY OF VOA DATA

DATA QUALIFIERS

U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

J = Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero; for example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

I = Interference.

X = Additional qualifiers used as required are explained in the case narrative.

NQ = Result qualitatively confirmed but not able to quantify.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Indicates that surrogate recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not applicable.

DF = Dilution factor.

NR = Not required.

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

RFW Batch Number: 9202L477 Client: WSRC-TASK 12 Work Order: 0345-31-12-0000 Report Date: 03/17/92 14:49 Page: 1a

	Cust ID:	STATION 266		STATION 267		STATION 268		STATION 269		STATION 269 DUP		STATION 271	
Sample Information	RFW#:	001		002		003		004		005		006	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Surrogate Recovery	Toluene-d8	101	%	100	%	97	%	102	%	101	%	103	%
	Bromofluorobenzene	103	%	103	%	100	%	105	%	102	%	106	%
	1,2-Dichloroethane-d4	109	%	107	%	111	%	111	%	108	%	111	%
			fl		fl		fl		fl		fl		fl
Chloromethane		10	U	10	U	10	U	10	U	10	U	10	U
Bromomethane		10	U	10	U	10	U	10	U	10	U	10	U
Vinyl Chloride		10	U	10	U	10	U	10	U	10	U	10	U
Chloroethane		10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride		5	U	2	J	5	U	5	U	5	U	4	J
Acetone		10	U	10	U	10	U	10	U	10	U	10	U
Carbon Disulfide		5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene		5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethene (total)		5	U	5	U	5	U	5	U	5	U	5	U
Chloroform		5	U	5	U	5	U	5	U	5	U	4	JB
1,2-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
2-Butanone		10	U	10	U	10	U	10	U	10	U	10	U
1,1,1-Trichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Carbon Tetrachloride		5	U	5	U	5	U	5	U	5	U	5	U
Vinyl Acetate		10	U	10	U	10	U	10	U	10	U	10	U
Bromodichloromethane		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloropropane		5	U	5	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U	5	U
Trichloroethene		5	U	5	U	5	U	5	U	5	U	5	U
Dibromochloromethane		5	U	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Benzene		5	U	5	U	5	U	5	U	5	U	5	U
Trans-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U	5	U
Bromoform		5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone		10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone		10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene		5	U	5	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U	5	U	5	U	5	U

*= Outside of EPA CLP QC limits.

Cust ID:	STATION 266	STATION 267	STATION 268	STATION 269	STATION 269 DUP	STATION 271
RFW#:	001	002	003	004	005	006
Toluene	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

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

RFW Batch Number: 9202L477 Client: WSRC-TASK 12 Work Order: 0345-31-12-0000 Report Date: 03/17/92 14:49 Page: 2a

	Cust ID:	TRIP BLANK		VBLK	
Sample Information	RFW#:	007		92LVK038-MB1	
	Matrix:	WATER		WATER	
	D.F.:	1.00		1.00	
	Units:	ug/L		ug/L	
Surrogate Recovery	Toluene-d8	104	%	99	%
	Bromofluorobenzene	105	%	102	%
	1,2-Dichloroethane-d4	112	%	101	%
Chloromethane		10	U	10	U
Bromomethane		10	U	10	U
Vinyl Chloride		10	U	10	U
Chloroethane		10	U	10	U
Methylene Chloride		6		5	U
Acetone		28	B	7	J
Carbon Disulfide	*	5	U	5	U
1,1-Dichloroethene		5	U	5	U
1,1-Dichloroethane		5	U	5	U
1,2-Dichloroethene (total)		5	U	5	U
Chloroform		3	JB	1	J
1,2-Dichloroethane		5	U	5	U
2-Butanone		10	U	10	U
1,1,1-Trichloroethane		5	U	5	U
Carbon Tetrachloride		5	U	5	U
Vinyl Acetate		10	U	10	U
Bromodichloromethane		5	U	5	U
1,2-Dichloropropane		5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U
Trichloroethene		5	U	5	U
Dibromochloromethane		5	U	5	U
1,1,2-Trichloroethane		5	U	5	U
Benzene		5	U	5	U
Trans-1,3-Dichloropropene		5	U	5	U
Bromoform		5	U	5	U
4-Methyl-2-pentanone		10	U	10	U
2-Hexanone		10	U	10	U
Tetrachloroethene		5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U

*= Outside of EPA CLP QC limits.

Cust ID:	TRIP BLANK		VBLK	
RFW#:	007		92LVK038-MB1	
Toluene	5	U	5	U
Chlorobenzene	5	U	5	U
Ethylbenzene	5	U	5	U
Styrene	5	U	5	U
Xylene (total)	5	U	5	U

*= Outside of EPA CLP QC limits.

Roy F. Weston, Inc. - Lionville Laboratory
VOA ANALYTICAL DATA PACKAGE FOR
WSRC-TASK 12

DATE RECEIVED: 02/26/92 RFW LOT # :9202L477

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
STATION 266	001	W	92LVK038	02/25/92	N/A	03/03/92
STATION 267	002	W	92LVK038	02/25/92	N/A	03/03/92
STATION 268	003	W	92LVK038	02/25/92	N/A	03/03/92
STATION 269	004	W	92LVK038	02/25/92	N/A	03/03/92
STATION 269 DUP	005	W	92LVK038	02/25/92	N/A	03/03/92
STATION 271	006	W	92LVK038	02/25/92	N/A	03/03/92
TRIP BLANK	007	W	92LVK038	02/25/92	N/A	03/03/92

LAB QC:

VBLK	MB1	W	92LVK038	N/A	N/A	03/03/92

WESTON Analytics Use Only
92021477

Custody Transfer Record/Lab Work Request

WESTON

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Client: WSRC - TASK 12
Est. Final Proj. Sampling Date:
Work Order #: 0345-31-12-0000
Project Contact/Phone #:
AD Project Manager: Dwyer Hamm
QC: Std Del: Std TAT: 30 day
Date Rec'd: 2-26-92 Date Due: 3-27-92
Account #: WSRC 12 STD

Refrigerator #		1				SUB			4		4		4		4	
#/Type Container	Liquid	1G				1P/1P			1P		1P		1P		1P	
	Solid															
Volume	Liquid	40M				4L/1L			1L		1L		250		250	
	Solid															
Preservatives		–				none			NaO3		none		none		H2SO4	

ANALYSES REQUESTED →

ORGANIC							INORG					
VOA	BNA	Pest/PCB	Herb	Sulfide Cyan			Metal	CN	NH4 ACID & SPCD	Ph ISOM	NO3 INMCD	

WESTON Analytics Use Only

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	Metals				ISUB			Lic Cyan		NH4 ACID ICL ISPCD		IPh ISM		NO3P INMCD	
001	Station 266			W	2-26-92		✓				✓			✓		✓		✓		✓	
002	267																				
003	268																				
004	269																				
005	269 Dup																				
006	271																				
* 007	Trip Blank																				
	Bad info to follow																				

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

Metals = Ag, Al, As, Ba, Cd, Cr, Cu, Hg, Ni, Na, Pb, Se, Zn, Fe, Mn

* Original chain list no tracing field Blanks, but we received trip blank preserved in HCl!

Original Rewritten

DATE/REVISIONS:
1.
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) Labels Indicate Properly Preserved (Y) or N
5) Received Within Holding Times Y or (N)

COC Tape was:
1) Present on Outer Package Y or (N)
2) Unbroken on Outer Package Y or (N)
3) Present on Sample Y or (N)
4) Unbroken on Sample Y or (N)
COC Record Present Upon Sample Rec't (Y) or N

Discrepancies Between Samples Labels and COC Record? (Y) or N
NOTES:
*
Ph, SPCD

Relinquished by	Received by	Date	Time
Red X	[illegible]	2-26-92	09:30
	Ph 2-26-92		

Relinquished by	Received by	Date	Time
	Ph 2-26-92		

RFW 21-21-[illegible]7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# ____ Cooler# ____ [illegible]81-596a

DATE
FILMED
8/19/94

END