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START

WESTON
MANAGERS DESIGNERS CONSULTANTS

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JUN 1995
RECEIVED
EDMC

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0000001

AIRBILL

FORM OF PAYMENT

Check ☐ GNL ☐ ☐ COD ☐

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

Shipper's Account Number: E 850281585

9207L061

EMERY WORLDWIDE

A CF Company

SERVICES

UNITED STATES / CANADA: Same Day ☐ AM ☐ PM ☐ Second Day ☐ Saturday Delivery ☐

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

Date: 07-16-92 Origin: FSC Shipment Number: 250986914 2

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

To:
JOSIE KING
RF WESTON INC
208 WELSH POOL ROAD
LIONVILLE PA 19341
Hold for Pick Up ☐ Canada ☐

Tariff Dest. Gateway

Check to Order $

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: WI2410 P3C1N W92-0-0486#29 99352

Consignee's Account Number: E

Description	Dimensions (L W H)	Total Pieces	Total Weight
1 POLYCOOLER SML 91 SAMPLES B018Z3 W92-0-0436#29	1	1	39

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

Declared Value $

250986914 2

Remarks: OVERNIGHT DELIVERY

Shipper's Signature X

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

Mark if Emery Packaging is used

Urgent Letter 9X12 ☐ Urgent Pak 12X15 ☐

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 Charges ☐ COD/AD $

3-PHL-A

Terms and Conditions on Ba

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CHAIN OF CUSTODY

9513554.1132 000004

CHAIN OF CUSTODY

002699

...Y

...ol/C.E.Heiden Telephone (509)376-2640

...esignation/Sampling Locations Soduim Dichromate Barrel- ERA Collection Da. 7-15-92

...e SAF 92-226

...ice Chest No. SIN 91 Field Logbook No. WHC-IT-205 15

Bill of Lading/Airbill No. 2509916 9142 Offsite Property No.

Method of Shipment Emery Air Express

Shipped to Weston

Possible Sample Hazards/Remarks None Known

See T.A.R. for individual bottle sizes and analyses

Sample Identification

~~301873 (3) Bottles~~

C.E. 7-16-92

C.E. 7-16-92

☐ Field Transfer of Custody	CHAIN OF POSSESSION	(Sign and Print Names)
Relinquished by: C.E. Zachary C.E. Zachary	Received by:	Date/Time:
Relinquished by: Fed-Ex	Received by: Brian E. Shafer	Date/Time: 7/17/92 1400
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90)

WESTON Analytics Use Only

9207L061

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: Westinghouse Hanford
Est. Final Proj. Sampling Date
Work Order #: 6168-02-01-0000
Project Contact/Phone #
AD Project Manager: Jodie King
QC: Del TAT: 35 days
Date Rec'd: 7/17/92 Date Due: 8/21/92
Account #: WS-HANFORD

Refrigerator #						SUB		4	4							
#/Type Container	Liquid															
	Solid					1G		1G	1G							
Volume	Liquid															
	Solid					1,000		250	250							
Preservatives						—		—	—							
ANALYSES REQUESTED	ORGANIC: VOA	BNA	Pest/PCB	Herb		Sulfur		Cr6		INORG: Metal	CN					

MATRIX CODES:	
S -	Soil
SE -	Sediment
SO -	Solid
SL -	Sludge
W -	Water
O -	Oil
A -	Air
DS -	Drum Solids
DL -	Drum Liquids
T -	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: VOA	BNA	Pest/PCB	Herb	Sulfur		Cr6	Metal	CN					
001	B0187Z3			S	7/15/92	1155					✓		✓	✓						

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: SAF, 92-226

Radio Cs + Gamma Scan

Original Recorder

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

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
Joe Emery	[illegible]	7-17-92	14:00				
7-17-92	[illegible] 7-17-92				[illegible] 7-17-92		

WESTON Analytics Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # 2509864142
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:

RFW 21-21-001/A-7/91 ____ L372 ____ L373 ____ L375 ____ L377 ____ L378 Ref# none Cooler# SmL 91 381-596a

9513354.1155

9513354.1134

000006

BAL# 9307L001

Item/Reason	Relinquished by	Received by	Date	Time
0/0 Sol	Sherb	J Hernandez	7-22	9:30
0/0 Sol	J. Hernandez	Sherb	7-22	9:45
Metals	Sherb	Summers	8-17	1200
"	Summers	Sherb	8-17	1400

9513354.1135

CASE NARRATIVE

Roy F. Weston, INC.
Lionville Laboratory

CLIENT: WESTINGHOUSE HANFORD **SAMPLES RECEIVED:** 07/17/92
RFW #: 9207L061
W.O. #: 6168-02-01

METALS NARRATIVE

One (1) soil sample was collected on 07/15/92.

The sample and its associated QC samples were analyzed according to criteria set forth in CLP SOW 3/90.

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

1. ICVs, CCVs, and LCSs stock standards were purchased from Inorganic Ventures Laboratory.
2. All ICV and CCV values were within control limits.
3. All ICB and CCB values were within control limits.
4. All preparation blank values were within control limits.
5. All LCS results were within the 80-120% control limits.
6. All matrix spike recoveries were within the 75-125% control limits.
7. All duplicate analyses were within the 20% RPD control limits with the exception of chromium. All exceptions are flagged with a "*" on the CLP forms.
8. Quarterly Detection Limits, ICP Interelement Correction Factors and ICP Linear Ranges for IC3 are included in this package, but do not appear on EDD.

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

08.28.92
Date

mlj\ clp-met.nar

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DATA SUMMARY

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 08/26/92

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

WESTON BATCH #: 9207L061

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-001	B018Z3	Chromium, Total	12.0	MG/KG	2.0

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 08/26/92

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

WESTON BATCH #: 9207L061

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
BLANK1	92L1839-MB1	Chromium, Total	2.0 u	MG/KG	2.0

ROY F. WESTON INC.

INORGANIC ACCURACY REPORT 08/26/92

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

WESTON BATCH #: 9207L061

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV
-001	B018Z3	Chromium, Total	47.8	12.0	40.5	88.4

ROY F. WESTON INC.

INORGANIC PRECISION REPORT 08/26/92

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

WESTON BATCH #: 9207L061

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	%RPD
-001REP	B018Z3	Chromium, Total	12.0	14.8	20.9

ROY F. WESTON INC.

INORGANIC LABORATORY CONTROL STANDARDS REPORT 08/26/92

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	92L1839-LC1	Chromium, LCS	93.1	100	MG/KG	93.1
LCS2	92L1839-LC2	Chromium, LCS	92.5	100	MG/KG	92.5

I. INORGANIC ANALYSES DATA PACKAGE

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D. CRDL STANDARD FOR AA AND ICP (FORM 2B)

E. BLANKS (FORM 3)

1. INITIAL CALIBRATION BLANK
2. CONTINUING CALIBRATION BLANK
3. PREPARATION BLANK

F. ICP INTERFERENCE CHECK SAMPLE (FORM 4)

G. MATRIX SPIKE SAMPLE RECOVERY (FORM 5)

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O. ICP LINEAR RANGE (QUARTERLY) (FORM 12)

P. PREPARATION LOG (FORM 13)

Q. ANALYSIS RUN LOG (FORM 14)

U. S. EPA - CLP

COVER PAGE - INORGANIC ANALYSIS DATA PACKAGE

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP061

SOW No.: 03/90

EPA Sample No.	Lab Sample ID
B018Z3	920706101
B018Z3D	920706101R
B018Z3S	920706101S

Were ICP interelement corrections applied?	Yes/No	YES
Were ICP background corrections applied?	Yes/No	YES
If yes, were raw data generated before application of background corrections?	Yes/No	NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signatures.

Signature: Somnath Basuthakur Name: SOM N. BASUTHAKUR

Date: 08.28.92 Title: UNIT- LEADER

U.S. EPA - CLP 0000017

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B018Z3

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP061

Matrix (soil/water): SOIL Lab Sample ID: 920706101

Level (low/med): LOW Date Received: 7/17/92

% Solids: 98.8

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium	12.00		*	P
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

U.S. EPA - CLP

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP061

Initial Calibration Source: IV

Continuing Calibration Source: IV

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium	500.0	499.70	99.9	500.0	462.90	92.6	502.90	100.6	P
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP061

AA CRDL Standard Source: IV

ICP CRDL Standard Source: IV

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
					Initial		Final	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum								
Antimony								
Arsenic								
Barium								
Beryllium								
Cadmium								
Calcium								
Chromium				20.0	22.90	114.5	18.70	93.5
Cobalt								
Copper								
Iron								
Lead								
Magnesium								
Manganese								
Mercury								
Nickel								
Potassium								
Selenium								
Silver								
Sodium								
Thallium								
Vanadium								
Zinc								

U.S. EPA - CLP

3
BLANKS

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

Lab code: WESTON Case No.: WEST SAS No.: SDG No.: CLP061

Preparation Blank Matrix (soil/water): SOIL

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

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Calcium											NR
Chromium	8.0	U	8.0	U	8.0	U			1.600	U	P
Cobalt											NR
Copper											NR
Iron											NR
Lead											NR
Magnesium											NR
Manganese											NR
Mercury											NR
Nickel											NR
Potassium											NR
Selenium											NR
Silver											NR
Sodium											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Cyanide											NR

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP061

ICP ID Number: IC1 ICS Source: IV

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Aluminum	530060	506830						
Antimony								
Arsenic								
Barium		480						
Beryllium		439						
Cadmium		946						
Calcium	514420	495860						
Chromium		458	2	448.8	98.0	27	428.5	93.6
Cobalt		450						
Copper		478						
Iron	192280	188090						
Lead								
Magnesium	541560	521510						
Manganese		454						
Mercury								
Nickel		889						
Potassium								
Selenium								
Silver		931						
Sodium								
Thallium								
Vanadium		461						
Zinc		944						

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

B018Z3S

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP061

Matrix: SOIL Level (low/med): LOW

% Solids for Sample: 98.8

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

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony									NR
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium	75-125	47.8000		12.0000		40.50	88.5		P
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

B018Z3D

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP061

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

% Solids for Sample: 98.8 % Solids for Duplicate: 98.8

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	%RPD	Q	M
Aluminum								NR
Antimony								NR
Arsenic								NR
Barium								NR
Beryllium								NR
Cadmium								NR
Calcium								NR
Chromium		12.0000		14.8000		20.9		P
Cobalt								NR
Copper								NR
Iron								NR
Lead								NR
Magnesium								NR
Manganese								NR
Mercury								NR
Nickel								NR
Potassium								NR
Selenium								NR
Silver								NR
Sodium								NR
Thallium								NR
Vanadium								NR
Zinc								NR
Cyanide								NR

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP061

Solid LCS Source: IV

Aqueous LCS Source: IV

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium				100.0	93.1		80.0	120.0	93.1
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

U.S. EPA - CLP

7

LABORATORY CONTROL SAMPLE

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP061

Solid LCS Source: IV

Aqueous LCS Source: IV

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum									
Antimony									
Arsenic									
Barium									
Beryllium									
Cadmium									
Calcium									
Chromium				100.0	92.5		80.0	120.0	92.5
Cobalt									
Copper									
Iron									
Lead									
Magnesium									
Manganese									
Mercury									
Nickel									
Potassium									
Selenium									
Silver									
Sodium									
Thallium									
Vanadium									
Zinc									
Cyanide									

FORM VII - IN

03/90

U.S. EPA - CLP

8

Standard Addition Results

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP061

Concentration Units: ug/L

EPA Sample No.	An	0 ADD ABS	1 ADD CON	1 ADD ABS	2 ADD CON	2 ADD ABS	3 ADD CON	3 ADD ABS	Final Conc.	r	Q

FORM VIII - IN 03/90

U.S. EPA - CLP

9

ICP SERIAL DILUTIONS

EPA SAMPLE NO.

B018Z3L

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP061

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

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum							
Antimony							
Arsenic							
Barium							
Beryllium							
Cadmium							
Calcium							
Chromium	59.10		98.50		66.7		P
Cobalt							
Copper							
Iron							
Lead							
Magnesium							
Manganese							
Mercury							
Nickel							
Potassium							
Selenium							
Silver							
Sodium							
Thallium							
Vanadium							
Zinc							

FORM IX - IN

03/90

INSTRUMENT DETECTION LIMITS (QUARTERLY)

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP061

ICP ID Number: IC1 Date: 7/01/92

Flame AA ID Number:

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		
Antimony			60		
Arsenic			10		
Barium			200		
Beryllium			5		
Cadmium			5		
Calcium			5000		
Chromium	267.70		10	4.0	P
Cobalt			50		
Copper			25		
Iron			100		
Lead			3		
Magnesium			5000		
Manganese			15		
Mercury			0.2		
Nickel			40		
Potassium			5000		
Selenium			5		
Silver			10		
Sodium			5000		
Thallium			10		
Vanadium			50		
Zinc			20		

Comments:

U.S. EPA - CLP

10

INSTRUMENT DETECTION LIMITS (QUARTERLY)

Lab Name: Contract: 6168-02-01

Lab Code: WESTON Case No: WEST SAS No.: SDG No.: CLP061

ICP ID Number: IC3 Date: 06/19/92

Flame AA ID Number:

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.20		200.0	35.0	P
Antimony	206.80		60.0	44.0	P
Arsenic					
Barium	493.40		200.0	3.0	P
Beryllium	313.00		5.0	1.0	P
Cadmium	228.80		5.0	4.0	P
Calcium	317.90		5000.0	14.0	P
Chromium	267.70		10.0	8.0	P
Cobalt	228.60		50.0	6.0	P
Copper	324.70		25.0	5.0	P
Iron	259.90		100.0	19.0	P
Lead					
Magnesium	279.00		5000.0	36.0	P
Manganese	257.60		15.0	2.0	P
Mercury					NR
Nickel	231.60		40.0	18.0	P
Potassium	766.40		5000.0	970.0	P
Selenium					
Silver	328.00		10.0	6.0	P
Sodium	588.90		5000.0	51.0	P
Thallium					
Vanadium	292.40		50.0	6.0	P
Zinc	213.80		20.0	6.0	P

Comments:

FORM X - IN

U.S. EPA - CLP

11A

ICP Interelement Correction Factors (Annually)

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP061

ICP ID Number: IC1 Date: 1/15/92

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg	AS
Aluminum	308.20	0.0000000	0.0000000	.0002400	0.0000000	0.0000000
Antimony	206.80	0.0000000	0.0000000	.0006000	0.0000000	.0054000
Arsenic						
Barium	493.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	228.80	0.0000000	0.0000000	0.0000000	0.0000000	.0034000
Calcium	317.90	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.70	0.0000000	0.0000000	.0000800	0.0000000	0.0000000
Cobalt	228.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	324.70	0.0000000	0.0000000	-.0001000	0.0000000	0.0000000
Iron	259.90	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead						
Magnesium	279.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.60	-.0003000	0.0000000	-.0009000	0.0000000	0.0000000
Mercury						
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium						
Silver	328.00	0.0000000	0.0000000	-.0002600	0.0000000	0.0000000
Sodium	588.90	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium						
Vanadium	292.40	0.0000000	0.0000000	.0008000	0.0000000	0.0000000
Zinc	213.80	0.0000000	0.0000000	.0001000	0.0000000	0.0000000

Comments:

U.S. EPA - CLP

11A

ICP INTERELEMENT CORRECTION FACTORS (QUARTERLY)

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

Lab Code: WESTON Case No: WEST SAS No.: SDG No.: CLP061

ICP ID Number: IC3 Date: 02/01/92

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg	As
Aluminum	308.20	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Antimony	206.80	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Arsenic						
Barium	493.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	228.80	0.0000000	0.0000000	0.0000000	0.0000000	0.0025200
Calcium	317.90	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.70	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cobalt	228.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	324.70	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Iron	259.90	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead						
Magnesium	279.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Mercury						
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium						
Silver	328.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Sodium	588.90	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium						
Vanadium	292.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Zinc	213.80	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Comments:

U.S. EPA - CLP

11B

ICP INTERELEMENT CORRECTION FACTORS (QUARTERLY)

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

Lab Code: WESTON Case No: WEST SAS No.: SDG No.: CLP06

ICP ID Number: IC1 Date: 01/15/92

Analyte	Wave-length (nm)	Interelement Correction Factors for: Ba	Cr	Co	Cu	Mn
Aluminum	308.20	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Antimony	206.80	0.0000000	0.0167000	-0.0012000	0.0000000	0.0000000
Arsenic						
Barium	493.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	228.80	0.0000000	0.0000000	0.0002900	0.0000000	0.0000000
Calcium	317.90	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.70	0.0000000	0.0000000	0.0000800	0.0000000	0.0000000
Cobalt	228.60	0.0012000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	324.70	0.0000000	0.0002000	-0.0011000	0.0000000	0.0000000
Iron	259.90	0.0000000	0.0000000	0.0000000	0.0000000	-0.0079000
Lead						
Magnesium	279.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Mercury						
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium						
Silver	328.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0001900
Sodium	588.90	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium						
Vanadium	292.40	0.0000000	0.0011000	0.0008000	0.0000000	0.0000000
Zinc	213.80	0.0000000	0.0000000	0.0000000	0.0009000	0.0000000

Comments:

FORM XI (PART 2) - IN

U.S. EPA - CLP

IIB

ICP INTERELEMENT CORRECTION FACTORS (QUARTERLY)

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

Lab Code: WESTON Case No: WEST SAS No.: SDG No.: CLP061

ICP ID Number: IC1 Date: 01/15/92

Analyte	Wave-length (nm)	Interelement Correction Factors for: Ni	Pb	Sb	Sr	Tl
Aluminum	308.20	0.0000000	0.0000000	0.0000000	0.0000000	-0.0060000
Antimony	206.80	-0.0039000	0.0000000	0.0000000	0.0000000	0.0017000
Arsenic						
Barium	493.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	228.80	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Calcium	317.90	0.0000000	0.0000000	0.0740000	0.0000000	0.0000000
Chromium	267.70	0.0000000	0.0000000	0.0000000	0.0005000	0.0000000
Cobalt	228.60	0.0003000	0.0000000	0.0000000	0.0000000	0.0016000
Copper	324.70	0.0016000	0.0000000	0.0000000	0.0000000	0.0000000
Iron	259.90	0.0000000	0.0000000	0.0000000	0.0022000	0.0000000
Lead						
Magnesium	279.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Mercury						
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium						
Silver	328.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Sodium	588.90	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium						
Vanadium	292.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0008000
Zinc	213.80	0.0038000	0.0016000	0.0026000	0.0000000	0.0000000

Comments:

U.S. EPA - CLP

11B

ICP INTERELEMENT CORRECTION FACTORS (QUARTERLY)

Lab Name: Roy F. Weston, Inc. Contract: 6168-D2-01

Lab Code: WESTON Case No: WEST SAS No.: SDG No.: CLP061

ICP ID Number: IC1 Date: 01/15/92

Analyte	Wave-length (nm)	Interelement Correction Factors for: V	Zn	--	--	--
Aluminum	308.20	0.0170000	0.0000000	0.0000000	0.0000000	0.0000000
Antimony	206.80	-0.0080000	0.0000000	0.0000000	0.0000000	0.0000000
Arsenic						
Barium	493.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.00	0.0050000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	228.80	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Calcium	317.90	0.0000000	0.0022000	0.0000000	0.0000000	0.0000000
Chromium	267.70	0.0004000	0.0000000	0.0000000	0.0000000	0.0000000
Cobalt	228.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	324.70	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Iron	259.90	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead						
Magnesium	279.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Mercury						
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium						
Silver	328.00	-0.0060000	0.0000000	0.0000000	0.0000000	0.0000000
Sodium	588.90	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium						
Vanadium	292.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Zinc	213.80	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Comments:

FORM XI (PART 2) - IN

U.S. EPA - CLP

12
ICP Linear Ranges (Quarterly)

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP061

ICP ID Number: IC1 Date: 7/08/92

Analyte	Integ. Time (sec.)	Concentration (ug/L)	M
Aluminum	3.30	1000000.0	
Antimony	3.30	120000.0	
Arsenic			
Barium	3.30	200000.0	
Beryllium	3.30	50000.0	
Cadmium	3.30	25000.0	
Calcium	3.30	1000000.0	
Chromium	3.30	50000.0	
Cobalt	3.30	250000.0	
Copper	3.30	125000.0	
Iron	3.30	500000.0	
Lead			
Magnesium	3.30	1000000.0	
Manganese	3.30	100000.0	
Mercury			
Nickel	3.30	200000.0	
Potassium	3.30	1000000.0	
Selenium			
Silver	3.30	20000.0	
Sodium	3.30	1000000.0	
Thallium			
Vanadium	3.30	50000.0	
Zinc	3.30	150000.0	

Comments:

U.S. EPA - CLP

12

ICP LINEAR RANGES (QUARTERLY)

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

Lab Code: WESTON Case No: WEST SAS No.: SDG No.: CLP061

ICP ID Number: IC3 Date: 04/13/92

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Aluminum	3.30	1000000.0	
Antimony	3.30	40000.0	
Arsenic			NR
Barium	3.30	100000.0	
Beryllium	3.30	10000.0	
Cadmium	3.30	10000.0	
Calcium	3.30	1000000.0	
Chromium	3.30	10000.0	
Cobalt	3.30	50000.0	
Copper	3.30	125000.0	
Iron	3.30	500000.0	
Lead			NR
Magnesium	3.30	625000.0	
Manganese	3.30	75000.0	
Mercury			NR
Nickel	3.30	40000.0	
Potassium	3.30	500000.0	
Selenium			NR
Silver	3.30	5000.0	
Sodium	3.30	800000.0	
Thallium			NR
Vanadium	3.30	50000.0	
Zinc	3.30	20000.0	

Comments:

U.S. EPA - CLP

13

PREPARATION LOG

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

Lab Code: WESTON Case No.: WEST SAS No: SDG No.: CLP061

Method: P

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
B018Z3	8/17/92	1.00	200
B018Z3D	8/17/92	1.00	200
B018Z3S	8/17/92	1.00	200
LCSS139	8/17/92	1.00	200
LCSS239	8/17/92	1.00	200
PBS139	8/17/92	1.00	200

ANALYSIS RUN LOG

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP061

Instrument ID Number: IC1 Method: P

Start Date: 8/24/92 End Date: 8/24/92

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
S0	1.00	953		–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
S1	1.00	955		–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ICV1	1.00	957		–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ICB1	1.00	958		–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ICSA	1.00	1000		–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ICSAB	1.00	1002		–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
CRI	1.00	1004		–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
CCV1	1.00	1005		–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
CCB1	1.00	1014		–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
PBS139	1.00	1015		–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
LCSS139	1.00	1017		–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
LCSS239	1.00	1019		–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
B018Z3	1.00	1021		–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
B018Z3L	5.00	1022		–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
B018Z3D	1.00	1024		–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
B018Z3S	1.00	1026		–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ICSA	1.00	1027		–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ICSAB	1.00	1029		–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
CRI	1.00	1031		–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
CCV2	1.00	1050		–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
CCB2	1.00	1058		–	–	–	–	–	–	–	X	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	0.00			–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	0.00			–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	0.00			–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	0.00			–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	0.00			–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	0.00			–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	0.00			–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	0.00			–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	0.00			–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	0.00			–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	0.00			–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

9513354.1167

II. RAW DATA

A. METALS BY ICP

B. FLAME AA

C. FURNACE AA

D. MERCURY

E. CYANIDE

F. RARE EARTHS

9513354.1168

000040

METALS BY ICP

9513354.1169 0000041

Standardization Rpt. ~~Sat~~ 08-~~22~~-92 09:55:23 AM page 1

24

instrument clock incorrect. 8/24/92 ars.

Method: CHROMIUM Standard: S0

Elem	Cr2677
Avge	-.0003
SDev	.0019
%RSD	567.1
#1	.0018
#2	-.0018
#3	-.0010

1C0824A
8/24/92
ars

9211839
-9207L0061
001, R, S

STZI prep 09:15

Standardization Rpt. Sat 08-22-92 09:57:09 AM page 1

Method: CHROMIUM Standard: S1

Elem	Cr2677
Avge	.2366
SDev	.0032
%RSD	1.360
#1	.2340
#2	.2356
#3	.2402

Analysis Report QC Standard Sat 08-22-92 09:58:55 AM page 1

Method: CHROMIUM Sample Name: ICV Operator: AES
Run Time: 08/22/92 09:57:14
Comment:
Mode: CONC Corr. Factor: 1

Elem	Cr2677
Units	ppb
Avge	499.7
SDev	2.7
%RSD	.5430
#1	497.7
#2	498.6
#3	502.8
Errors	QC Pass
Value	500.0
Range	50.00

Analysis Report Blank Sample Sat 08-22-92 10:00:40 AM page 1

Method: CHROMIUM Sample Name: ICB Operator: AES
Run Time: 08/22/92 09:58:59
Comment:
Mode: CONC Corr. Factor: 1

Elem	Cr2677
Units	ppb
Avge	7.316
SDev	8.052
%RSD	110.1
#1	3.095
#2	2.251
#3	H16.60
Errors	LC Pass
High	10.00
Low	-10.00

Analysis Report QC Standard Sat 08-22-92 10:02:24 AM page 1

Method: CHROMIUM Sample Name: ISA Operator: AES
Run Time: 08/22/92 10:00:43
Comment:
Mode: CONC Corr. Factor: 1

Elem	Cr2677
Units	ppb
Avge	2.814
SDev	5.620
%RSD	199.7
#1	6.472
#2	5.627
#3	-3.658
Errors	NOCHECK
Value	
Range	

9513354.1174

0000046

Analysis Report QC Standard Sat 08-22-92 10:04:08 AM page 1

Method: CHROMIUM Sample Name: ISB Operator: AES
Run Time: 08/22/92 10:02:27
Comment:
Mode: CONC Corr. Factor: 1

Elem	Cr2677
Units	ppb
Avge	448.8
SDev	5.9
%RSD	1.317
#1	455.5
#2	444.6
#3	446.3
Errors	QC Pass
Value	457.8
Range	20.00

Analysis Report QC Standard Sat 08-22-92 10:05:51 AM page 1

Method: CHROMIUM Sample Name: CRI
Run Time: 08/22/92 10:04:11 Operator: AKS
Comment:
Mode: CONC Corr. Factor: 1

Elem	Cr2677
Units	ppb
Avge	~~Q34.05~~ 22.94 outlier rule
SDev	19.48
%RSD	57.20

#1	~~Q56.27~~
#2	Q25.89
#3	19.98

Errors	QC Fail
Value	20.00
Range	25.00

Analysis Report QC Standard Sat 08-22-92 10:07:35 AM page 1

Method: CHROMIUM Sample Name: CCV Operator: AES
Run Time: 08/22/92 10:05:54
Comment:
Mode: CONC Corr. Factor: 1

Elem	Cr2677
Units	ppb
Avge	462.9
SDev	3.8
%RSD	.8224
#1	463.1
#2	466.5
#3	458.9
Errors	QC Pass
Value	500.0
Range	50.00

Analysis Report Blank Sample Sat 08-22-92 10:15:48 AM page 1

Method: CHROMIUM Sample Name: CCB Operator: AES
Run Time: 08/22/92 10:14:07
Comment:
Mode: CONC Corr. Factor: 1

Elem	Cr2677
Units	ppb
Avge	-1.688
SDev	2.124
%RSD	125.8
#1	-3.658
#2	.5627
#3	-1.970
Errors	LC Pass
High	10.00
Low	-10.00

Analysis Report Sat 08-22-92 10:17:31 AM page 1

Method: CHROMIUM Sample Name: 92L1839-MB1 Operator: AES
Run Time: 08/22/92 10:15:51
Comment:
Mode: CONC Corr. Factor: 1

Elem	Cr2677
Units	ppb
Avge	4.502
SDev	8.622
%RSD	191.5
#1	8.160
#2	H10.69
#3	-5.346
Errors	LC Pass
High	10.00
Low	-10.00

Analysis Report Sat 08-22-92 10:19:15 AM page 1

Method: CHROMIUM Sample Name: 92L1839-LC1 Operator: AES
Run Time: 08/22/92 10:17:34
Comment:
Mode: CONC Corr. Factor: 1

Elem	Cr2677
Units	ppb
Avge	465.4
SDev	4.2
%RSD	.9129
#1	461.5
#2	464.8
#3	469.9
Errors	LC Pass
High	600.0
Low	400.0

Analysis Report Sat 08-22-92 10:20:58 AM page 1

Method: CHROMIUM Sample Name: 92L1839-LC2 Operator: AES
Run Time: 08/22/92 10:19:18
Comment:
Mode: CONC Corr. Factor: 1

Elem	Cr2677
Units	ppb
Avge	462.3
SDev	12.7
%RSD	2.739
#1	462.3
#2	449.6
#3	475.0
Errors	LC Pass
High	600.0
Low	400.0

Analysis Report Sat 08-22-92 10:22:41 AM page 1

Method: CHROMIUM Sample Name: 9207L061-001 Operator: AES
Run Time: 08/22/92 10:21:01
Comment:
Mode: CONC Corr. Factor: 1

Elem	Cr2677
Units	ppb
Avge	59.09
SDev	2.12
%RSD	3.595
#1	61.34
#2	58.81
#3	57.12
Errors	LC Pass
High	50000.
Low	-10.00

Analysis Report Sat 08-22-92 10:24:25 AM page 1

Method: CHROMIUM Sample Name: 9207L061-001L Operator: AES
Run Time: 08/22/92 10:22:44
Comment:
Mode: CONC Corr. Factor: 1

Elem	Cr2677
Units	ppb
Avge	19.70
SDev	3.51
%RSD	17.84
#1	15.76
#2	20.82
#3	22.51
Errors	LC Pass
High	50000.
Low	-10.00

Analysis Report Sat 08-22-92 10:26:08 AM page 1

Method: CHROMIUM Sample Name: 9207L061-001R Operator: AES
Run Time: 08/22/92 10:24:28
Comment:
Mode: CONC Corr. Factor: 1

Elem	Cr2677
Units	ppb
Avge	73.16
SDev	39.74
%RSD	54.33
#1	104.4
#2	28.42
#3	86.66
Errors	LC Pass
High	50000.
Low	-10.00

9513354.1184

000056

Analysis Report Sat 08-22-92 10:27:51 AM page 1

Method: CHROMIUM Sample Name: 9207L061-001S Operator: AES
Run Time: 08/22/92 10:26:11
Comment:
Mode: CONC Corr. Factor: 1

Elem	Cr2677
Units	ppb
Avge	236.1
SDev	25.2
%RSD	10.66
#1	209.1
#2	240.3
#3	258.9
Errors	LC Pass
High	50000.
Low	-10.00

Analysis Report QC Standard Sat 08-22-92 10:29:36 AM page 1

Method: CHROMIUM Sample Name: ISA Operator: AES
Run Time: 08/22/92 10:27:54
Comment:
Mode: CONC Corr. Factor: 1

Elem	Cr2677
Units	ppb
Avge	27.29
SDev	16.91
%RSD	61.96
#1	40.24
#2	33.48
#3	8.160
Errors	NOCHECK
Value	
Range	

Analysis Report QC Standard Sat 08-22-92 10:31:19 AM page 1

Method: CHROMIUM Sample Name: ISB Operator: AES
Run Time: 08/22/92 10:29:39
Comment:
Mode: CONC Corr. Factor: 1

Elem	Cr2677
Units	ppb
Avge	428.5
SDev	12.7
%RSD	2.974
#1	442.0
#2	426.8
#3	416.7
Errors	QC Pass
Value	457.8
Range	20.00

Analysis Report QC Standard Sat 08-22-92 10:33:03 AM page 1

Method: CHROMIUM Sample Name: CRI Operator: AES
Run Time: 08/22/92 10:31:22
Comment:
Mode: CONC Corr. Factor: 1

Elem	Cr2677
Units	ppb
Avge	~~Q13.79~~ 18.71
SDev	11.71
%RSD	84.91
#1	Q26.73
#2	Q10.69
#3	~~Q3.989~~
Errors	QC Fail
Value	20.00
Range	25.00

8/26/92

Analysis Report QC Standard Sat 08-22-92 10:52:11 AM page 1

Method: CHROMIUM Sample Name: CCV Operator: AES
Run Time: 08/22/92 10:50:31
Comment:
Mode: CONC Corr. Factor: 1

Elem	Cr2677
Units	ppb
Avge	502.9
SDev	12.8
%RSD	2.537
#1	491.0
#2	501.3
#3	516.3
Errors	QC Pass
Value	500.0
Range	50.00

9513354.1189

000060

Analysis Report Blank Sample Sat 08-22-92 11:00:15 AM page 1

Method: CHROMIUM Sample Name: CCB Operator: AES
Run Time: 08/22/92 10:58:35
Comment:
Mode: CONC Corr. Factor: 1

Elem	Cr2677
Units	ppb
Avge	~~9.998~~ 65
SDev	9.155
%RSD	91.58

8/26/92

#1	-.3845
#2	~~H18.92~~ outlier
#3	H13.46

Errors	LC Pass
High	10.00
Low	-10.00

9513354.1190

000061

DIGESTION LOG

WESTON

SAMPLE DIGESTION RECORD

LOGBOOK #: 3003

DATE/TIME INITIATED: 8-17-92
DATE/TIME COMPLETED: 8-17-92
ANALYST: RW-5
CLIENT: Westinghouse

DIGESTION BATCH #: 92L1839
TYPE OF PREP: Icp
PARAMETERS: Cr

MATRIX (circle): SOIL
METHOD (circle): ICP/FLAME/FURNACE..SW-3050/CLP
WATER - FURNACE.....SW-3020/CLP
- ICP/FLAME.....SW-3010/CLP
OTHER: Total

RFW #	SPIKE INFO	INT. WT/VOL.	FIN VOL.	%SOL.	pH<2	TEXTURE CRSE	TEXTURE FINE	COLOR/APPEAR B/CR	COLOR/APPEAR T/CY	OTHER	ARTIFACTS YES	ARTIFACTS NO
92D7L061												
001		1.000	2.00	98.84								
001 R				98.84								
001 S	2 ml Icsp	AB	CF	W1-A	98.84							
92L1839												
MB												
LCS1	2 ml ICV1	AB,2	3,4	AB,5								
LCS2												

RW-5
8-17-92

COMMENTS: IC183901 updated

REVIEWED BY/DATE: C. Difelice 8/18/92

PAGE # 5

WESTON®

% SOL/% MST/% ASH DATA

START TIME: 3:10
END TIME: 3:15
BALANCE ID: B5

PREP BATCH: 92L%S 189
WORK SHEET: % Solids
METHOD: Solids

LOGBOOK #: 2762

DATE/ INIT.	TEMP TIME IN	TEMP TIME OUT	RFW #	CONTAINER WT	INITIAL WT (Sample & Container)	INITIAL WT SAMPLE	FINAL WT (Sample & Container)	FINAL WT SAMPLE	RESULT
	105	105	92072055-001	1.317	6.471	5.154	5.856	4.539	88.07
7-22-92	3:00	9:00	001R	1.317	6.474	5.154	5.849	4.532	87.93
			92072061-001	1.342	7.209	5.867	7.141	5.799	98.84
			92072066-001	1.343	6.270	4.927	6.238	4.895	99.35
			002	1.343	7.125	5.782	7.099	5.756	99.55
			003	1.343	5.334	4.021	5.268	3.955	98.36

7-22-92 J. Hernandez

RFW21-21-016/H-05/91

1 copy

REVIEWED BY/DATE: MAL 7/22/92

PAGE #

0

9513354.1193

END OF DATA PACKAGE

9513354.1194

WESTON
MANAGERS DESIGNERS/CONSULTANTS
208 WELSH POOL ROAD
PICKERING CREEK INDUSTRIAL PARK
LIONVILLE, PA 19341-1313
PHONE: (215) 524-7360
TELEX: 83-5348

9 September 1992

SEP 1992
RECEIVED
OSM DMO

Ms. Jeanette Duncan
Westinghouse-Hanford
2355 Stevens Drive
200 W/MO-346/T6-08
Richland, WA 99352

Dear Jeanette:

Enclosed are the following Chemistry data packages:

RFW Batch Number	Parameters
9207L061	Wet Chemistry, Metals
9208L312	Wet Chemistry
9208L372	Wet Chemistry, Metals, Pest/PCB, VOA, BNA

The following Metals diskettes are enclosed:

9208L440	9208L372	9207L013	9207L012
9207L061	9207L975	9208L326	

The following Organics diskettes are also enclosed:

9111L510 V	9206L842 V,B,P	9207L857 V,B,P
9207L935 V,B	9206L824 V,B,P	9207L880 V,B
9207L111 V,B,P	9206L811 V,B,P	9206L769 V,B,P
9206L789 V,B,P	9207L129 V,B	9207L153 V
9207L171 V		

Please do not hesitate to give me a call if you have any questions.

Very truly yours,

ROY F. WESTON, INC.

Josie Edwards

Josie Edwards
Project Information Analyst

/clk

Enclosure:

9513354.1195

RECORD COPY

ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WESTINGHOUSE HANFORD **SAMPLES RECEIVED:** 07-17-92
RFW #: 9207L061
W.O. #: 6168-02-01

INORGANIC NARRATIVE

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

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

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

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

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

Date

SEP 1992
RECEIVED
OSM DMO

ncc/i07-061

WESTON
MANAGERS DESIGNERS/CONSULTANTS

ADDENDUM

I certify that this data package is in compliance with the terms and conditions of this contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Margaret M. Soak Name: Margaret M. Soak

Date: 7/3/92 Title: Section Manager

pas\4-92\addendum

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 are found in 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.

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%.

9513354.1198

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 07/27/92

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

WESTON BATCH #: 9207L061

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-001	B018Z3	% Solids	98.8	%	0.10
		Chromium VI	0.10 u	MG/KG	0.10

9513354.1199

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 07/27/92

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

WESTON BATCH #: 9207L061

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
BLANK10	92LVI029-MB1	Chromium VI	0.10 u	MG/KG	0.10
BLANK20	92LVI029-MB2	Chromium VI	0.10 u	MG/KG	0.10

9513354.1200

ROY F. WESTON INC.

INORGANIC ACCURACY REPORT 07/27/92

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

WESTON BATCH #: 9207L061

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV
-001	B018Z3	Chromium VI	2.0	0.10u	2.0	99.7
		Chromium VI MSD	2.0	0.10u	2.0	101
BLANK10	92LVI029-MB1	Chromium VI	2.0	0.10u	2.0	99.0
		Chromium VI MSD	2.0	0.10u	2.0	97.7
BLANK20	92LVI029-MB2	Chromium VI	2.0	0.10u	2.0	102

9513354.1201

ROY F. WESTON INC.

INORGANIC DUPLICATE SPIKE REPORT 07/27/92

CLIENT: WESTINGHOUSE HANFORD

WESTON BATCH #: 9207L061

WORK ORDER: 6168-02-01-0000

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%RPD
-001	B018Z3	Chromium VI	99.7	101	1.3
BLANK10	92LVI029-MB1	Chromium VI	99.0	97.7	1.4

9513354.1202

ROY F. WESTON INC.

INORGANIC PRECISION REPORT 07/27/92

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

WESTON BATCH #: 9207L061

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	%RPD
-001REP	B018Z3	Chromium VI	0.10u	0.10u	NC

9513354.1203

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WESTINGHOUSE HANFORD

DATE RECEIVED: 07/17/92 RFW LOT # :9207L061

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B018Z3						
% SOLIDS	001	S	92L%S189	07/15/92	07/22/92	07/23/92
CHROMIUM VI	001	S	92LVI029	07/15/92	07/22/92	07/22/92
CHROMIUM VI	001 REP	S	92LVI029	07/15/92	07/22/92	07/22/92
CHROMIUM VI	001 MS	S	92LVI029	07/15/92	07/22/92	07/22/92
CHROMIUM VI	001 MSD	S	92LVI029	07/15/92	07/22/92	07/22/92
SUB-OUT TEST FOR SUB	001	S		07/15/92		

LAB QC:

CHROMIUM VI	MB1	S	92LVI029	N/A	07/22/92	07/22/92
CHROMIUM VI	MB1 BS	S	92LVI029	N/A	07/22/92	07/22/92
CHROMIUM VI	MB1 BSD	S	92LVI029	N/A	07/22/92	07/22/92
CHROMIUM VI	MB2	S	92LVI029	N/A	07/22/92	07/22/92
CHROMIUM VI	MB2 BS	S	92LVI029	N/A	07/22/92	07/22/92

WESTON®

% SOL/% MST/% ASH DATA

START TIME: 3:00
END TIME: 3:15
BALANCE ID: 65

PREP BATCH: 9210055 189
WORK SHEET: % Solids
METHOD: Solids

LOGBOOK #: 2762

DATE/ INIT.	TEMP TIME IN	TEMP TIME OUT	RFW #	CONTAINER WT	INITIAL WT (Sample & Container)	INITIAL WT SAMPLE	FINAL WT (Sample & Container)	FINAL WT SAMPLE	RESULT
7-22-92	105	105	92072055 001	1.317	6.471	5.154	5.856	4.539	88.07
7.23.92	3:00	9:00	001R	1.317	6.474	5.154	5.849	4.532	87.93
			92072061 001	1.342	7.209	5.867	7.141	5.799	98.84
			92072066 001	1.343	6.270	4.927	6.238	4.895	99.35
			002	1.343	7.125	5.782	7.099	5.756	99.55
			003	1.313	5.334	4.021	5.268	3.955	98.36
			7-22-92		J. Hernandez				

RFW21-21-016/H-05/91

REVIEWED BY/DATE: [illegible] 7/22/92

PAGE #

0

9513354.1205

WESTON

HEXAVALENT CHROMIUM ANALYSIS LOG

92CVI029S

ANALYST: M. Fedeer INIT CAL STD ID: $K_2Cr_2O_7$ PREP BATCH: 92CVI026

DATE/TIME: 7/22/92 700 ICV/CCV STD ID: $Na_2Cr_2O_7$ WORKSHEET: CR 20722

SAMPLE ID/ RFW #	QC INFO	SOIL WT -> (g)	LEACH VOL (mL)	ANALYSIS VOLUME (ML)	DILN FACTOR	ABSORB. @ 540 NM	CONC (mg/L) (mg/kg)	COMMENTS % SOLIDS
Blank						.000	—	
.05						.010		
.1						.038	For	
.2						.076	Curve	
.4						.152		
.0						.377	—	
ICB						.002	<.02	
ICV	.4					.150	.396	
CCV	.4 7/22/92					.148	.391	
9207201-1					CB=.000	.023 (.003)	<.02	
-01R					CB=.000	.024 (.004)	<.02	
-001S	.4				CB=.014	.159 (.140)	.370	
-001T	.4				CB=.019	.161 (.142)	.375	
9207201-001		40	200			.003	<1.0 mg/kg	
-01R						.003	<1.0	
-001S	.4					.151	2.017	
-001T	.4	—	—			.153	2.044	
CCB						.000	<1.0	
CCV	.4					.154	2.034	
				M	Fedeer	7/22/92		

REVIEWED BY: [illegible] LOGBOOK # 2930

DATE: 7-29-92 PAGE #

RFW 21-21-016/Q-03/90

WESTON Analytics Use Only

92071061

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: Westinghouse Hanford
Est. Final Proj. Sampling Date
Work Order #: 6168-02-01-0000
Project Contact/Phone #
AD Project Manager: Jose King
QC: Clp Del: clp TAT: 35 day.
Date Rec'd: 7/17/92 Date Due: 8/21/92
Account #: WS HANFORD

Refrigerator #							SUB		4	4								
#/Type Container	Liquid																	
	Solid						1G		1G	1G								
Volume	Liquid																	
	Solid						1,100		250	250								
Preservatives							—		—	—								
ANALYSES REQUESTED →		ORGANIC								INORG								
		VOA	BNA	Pest/PCB	Herb		Sulfur Alpha		CN6	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	001	B01873			S	7/15/92	1155						✓		✓	✓						
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																						

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions: SAF, 92-226

Radio Chem = Gamma Scan

Original Recertified

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

WESTON Analytics Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # 2 5 5 9 8 6 9 1 4 2
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
Joe Emery	J. Belvin	7-17-92	14:00				
7-17-92	7-17-92				7-17-92		

RFW 21-21-001/A-7/91 L372 L373 L375 L377 L378 Ref# none Cooler# SmL-91 381-596a

9213354.1206

9513354.1207

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

C.O.C. 002698

Collector CE ZERBY Date 7-15-92

Company Contact K Pool/CE Heiden Telephone (509-) 376-2640

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Requested
B01873	S	7-15-92	1155	(1) 250ml aG Cr 6+ SW 3196-7196
B01873	S	7-15-92	1155	(1) 250ml aG Icp Metals (total chromium) CLP
B01873	S	7-15-92	1155	(1) 1liter CIG Gamma Spec PRC-042-E

7-16-92

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

Field Information SAF 92-226 Soduim Dichromate Barrel- ERA Site 100D area
Priority Turn Around. Run analysis even though hold times are missed.

Special Handling and/or Storage Samples maintained to 4°c

Possible Sample Hazards None detected with field instruments

A-6000-406 (06/91)

9513354.1208

CHAIN OF CUSTODY

002699

...uuY

...ol/C.E.Heiden

Telephone (509)376-2640

...esignation/Sampling Locations Soduim Dichromate Barrel- ERA

Collection Date 7-15-92

...e SAF 92-226

...ice Chest No. SIN 91

Field Logbook No. WHC-IT-205 15

Bill of Lading/Airbill No. 2500 9169142

Offsite Property No.

Method of Shipment Emery Air Express

Shipped to Weston

Possible Sample Hazards/Remarks None Known

See S.A.P. for individual bottle sizes and analyses

Sample Identification

~~301823 (3) Bottles~~

CEZ 7-16-92

CEZ 7-16-92

☐ Field Transfer of Custody	CHAIN OF POSSESSION	(Sign and Print Names)
Relinquished by: CE Zaitsev C.E. Zaitsev	Received by:	Date/Time:
Relinquished by: Fed-Ex	Received by: Brian E. Shafer	Date/Time: 7/17/92 1400
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

A-6000-407 (12/90)

92071L061

FORM OF PAYMENT

Check ☐ GBL ☐ ☐ COD ☐

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

Shipper's Account Number E 850281585

EMERY WORLDWIDE

A CF Company

SERVICES

UNITED STATES / CANADA: Same Day ☐ · XX AM ☐ PM · Second Day ☐ Saturday Delivery

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

Date	Origin	Shipment Number
07-16-92	PSC	250986914 2

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

To:
JOSIE KING
RF WESTON INC
208 WELSH POOL ROAD
LIONVILLE PA 19341
Hold for Pick Up ☐
Canada ☐

Tariff Dest. | Gateway

Check to Follow $

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: WI2410 P3C1N W92-0-0436#29 [illegible]

Consignee's Account Number: E

FOR INFORMATION OR RATES CALL 1-800 44 EMERY (1-800-143-6379)

Declared Value $

Description	Dimensions (Dis. / L / W / H)	Total Pieces	Total Weight
1 POLYCOOLER SML 91 SAMPLES B018Z3 W92-0-0436#29	1	1	39

Remarks: OVERNIGHT DELIVERY

Shipper's Signature X

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

Mark if Emery Packaging is used
Urgent Letter 9X12 ☐ · Urgent Pak 12X15 ☐

250986914 2

3-PHL-A

International Shipments: Free Domicile ☐ · Commodity Code

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

International Customs Value · International Insurance

Base Charge · Total Transportation Charges · Other Charges/Advance of Duty (COD) ☐ $

Terms and Conditions on Back

96 13351 1209

9513354.1210

RECORD COPY

Roy F. Weston, Inc. - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
WESTINGHOUSE HANFORD

DATE RECEIVED: 07/17/92 RFW LOT # :9207L061

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B018Z3						
CHROMIUM, TOTAL	001	S	92L1839	07/15/92	08/17/92	08/24/92
CHROMIUM, TOTAL	001 REP	S	92L1839	07/15/92	08/17/92	08/24/92
CHROMIUM, TOTAL	001 MS	S	92L1839	07/15/92	08/17/92	08/24/92
LAB QC:						
CHROMIUM LABORATORY	LC1 BS	S	92L1839	N/A	08/17/92	08/24/92
CHROMIUM LABORATORY	LC2 BS	S	92L1839	N/A	08/17/92	08/24/92
CHROMIUM, TOTAL	MB1	S	92L1839	N/A	08/17/92	08/24/92

SEP 1992
RECEIVED
OSM DMO

9515554.1211

WESTON ANALYTICS
INORGANIC METHODOLOGY SUMMARY

METALS

EPA 206.2	:	As		
EPA 239.1	:	Pb		
EPA 270.1	:	Se		
EPA 279.2	:	Tl		
EPA 245.1	:	Hg		
EPA 200.7	:	Ag	Co	Mn
		Al	Cr	Na
		Ba	Cu	Ni
		Be	Fe	V
		Ca	K	Zn
		Cd	Mg	Sb

TOTAL CYANIDE : EPA 335.2

Total Recoverable Phenolics : EPA 420.1

Other :

WESTON

MATRIX SPIKE SOLUTION

SOURCE: INORGANIC VENTURES LABORATORY

ELEMENTS	STOCK CONCENTRATION (ppb)	FINAL CONCENTRATION (ppb)
Aluminum	200,000	2,000
Antimony	50,000	500
Arsenic	4,000	40
Barium	200,000	2,000
Beryllium	5,000	50
Cadmium	5,000	50
Calcium	300,000	30,000
Chromium	2,000	200
Cobalt	5,000	500
Copper	2,500	250
Iron	10,000	1,000
Lead	200	20
Magnesium	250,000	25,000
Manganese	5,000	500
Mercury	10	1.0
Nickel	5,000	500
Potassium	250,000	25,000
Selenium	100	10
Silver	500	50
Sodium	250,000	25,000
Thallium	500	50
Vanadium	5,000	500
Zinc	1,000	500
Cyanide	1,000	100

* 1 mL of stock concentration is used for water matrix spike, final volume digestate 100 mL.

* 2 mLs of stock concentration is used for soil matrix spike, final volume digestate 200 mL.

ANALYTICAL SPIKES

ELEMENTS	SOURCE	STOCK	VOLUME ADDED TO 1 mLs	FINAL CONCENTRATION (p
Arsenic	Aldrich	2ppm	10 uL	20
Selenium	Aldrich	1ppm	10 uL	10
Lead	Aldrich	1ppm	10 uL	10
Thallium	Mallinckrodt	2ppm	10 uL	20

WESTON

USEPA CONTRACT LABORATORY PROGRAM
DATA QUALIFIER DESCRIPTIONS
INORGANIC ANALYSIS SOW NO. 3/90

CONCENTRATION QUALIFIERS:

B = INDICATES THAT THE REPORTED VALUE IS LESS THAN THE CRDL BUT GREATER THAN THE IDL.

U = INDICATES THAT THE ANALYTE WAS ANALYZED FOR BUT NOT DETECTED.

QUALIFIERS

E = THE REPORTED VALUE IS ESTIMATED BECAUSE OF THE PRESENCE OF INTERFERENCE.

M = DUPLICATE INJECTION PRECISION NOT MET.

N = SPIKED SAMPLE RECOVERY NOT WITHIN CONTROL LIMITS.

S = THE REPORTED VALUE WAS DETERMINED BY THE METHOD OF STANDARD ADDITIONS (MSA).

W = POST DIGESTION SPIKE FOR FURNANCE AA ANALYSIS IS OUT OF CONTROL LIMITS (85-125%) WHILE SAMPLE ABSORBANCE IS LESS THAN 50% OF SPIKE ABSORBANCE.

* = DUOLICATE ANALYSIS NOT WITHIN CONTROL LIMITS.

+ = CORRELATION COEFFICIENT FOR THE MSA IS LESS THAN 0.995.

METHOD

P = ICP
A = FLAME AA
F = FURNACE AA
CV = MANUAL COLD VAPOR AA.
AV = AUTOMATED COLD VAPOR AA.
AS = SEMI-AUTOMATED SPECTROPHOTOMETRIC
C = MANUAL SPECTROPHOTOMETRIC
T = TITRIMETRIC
NR = NOT REQUIRED