START 9713506.2162

9307L286-WES-1215

0045863

WESTON

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

Client : WESTINGHOUSE HANFORD
RFW# : 9307L286

W.O. #: 06168-002-001-9999-00
Date Received: 07-22-93

NOV 1996 RECEIVED LOMC

INORGANIC

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

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

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

3. All 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), Standard Methods for the Examination of Water and Wastewater 16 ed. and Test Methods for Evaluating Solid Waste (USEPA SW846).

RECORD COPY

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

8.18.93
Date

AUG 1993 RECEIVED SDLA

pas/i07-286

0001

9713506.2163

DON'T SAY IT --- *Write It!*

DATE: November 18, 1993

TO: 93071286-WES-1215

FROM: Pat Reich H4-19

Telephone: 372-2785

cc:

SUBJECT: 100-BC-2 VADOSE, 116-C-2A CRIB, VALIDATION BY AT KEARNERY

THE DATA VALIDATION REPORT FOR 9307L286-WES-1215 IS FILED IN PACKAGE # B08R95-TMA-555.

PAT REICH

54-3000-101 (12/92) GEF014

WESTON

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: Ray Siery

Name: Ray Siery

Date: 8.18.93

Title: Section Manager

pas\4-92\addendum

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 08/16/93

CLIENT: WESTINGHOUSE HANFORD

WESTON BATCH #: 9307L286

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B08R97	% Solids	97.6	%	0.10	1.0
		Sulfate by IC	12.9	MG/KG	1.3	1.0
		Nitrate Nitrite	1.9	MG-N/KG	0.20	2.0

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

Client: WESTINGHOUSE HANFORD
RFW #: 9307L286

W.O. #: 06168-002-001-9999-00
Date Received: 07-22-93

CLP METALS

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

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

3. ICVs, CCVs, and LCSs stock standards were purchased from Inorganic Ventures Laboratory and High Purity.

4. All analyses were performed within the required holding times.

5. All Initial and Continuing Calibration Verifications (ICV/CCV's) were within control limits.

6. All Initial and Continuing Calibration Blanks (ICB/CCB's) were within control limits.

7. All Preparation/Method Blanks were below Reporting Limits.

8. All ICP Interference Check Samples (ICSA and ICSAB) were within control limits.

9. All Laboratory Control Samples (LCS) were within the 80-120% control limits.

10. All Serial Dilution percent differences were within USEPA SOW control limits.

11. All Matrix Spike recoveries were within the 75-125% control limits (exception allowed when sample concentration exceeds the spike added concentration by a factor of 4 or more)
except for:

RFW #	Element	%Recovery
001	Lead	-5.0
	Zinc	159.0

For analytes where the Matrix Spike is out of control, a Post-digestion Matrix Spike and Serial Dilution are performed (exception allowed for Ag).

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

WESTON

12. All Matrix Spike Duplicates were within the 20% Relative Percent Difference (RPD) control limits.

13. All Duplicate analyses were within the 20% Relative Percent Difference (RPD) control limits for samples values greater than 5X Reporting Limit, or +/- the Reporting Limits for sample values less than 5X Reporting Limit except for:

RFW #	Element	%RPD
001	Calcium	20.2
	Zinc	24.8

14. Method of Standard Additions (MSA) analyses were performed on the following samples:

Element	Sample #'s
Lead	001, 001R

15. The code CV is currently in use by the laboratory for both mercury instruments in operation (HG1 and HG2). HG1 is complete with autosampler and software, but still requires manual digestion; HG2 is operated by the analyst, produces a strip chart and also requires manual digestion.

16. HG1 requires less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionally scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 ml. For soils, 0.1 gram of sample is taken to a final volume of 50 ml (including all reagents).

17. ICP Interelement Correction Factors for IC1 and IC3 are included in this package, but do not appear on EDD.

18. The graphite furnace time that appears on form XIV is the time of the first injection. The time that appears on the data is the print time.

19. Method 3050 was used for the metals digestion.

Raymond A. Siery
Inorganic Section Manager
Lionville Analytical Laboratory

8.22.93
Date

mlj/clp-met.nar

9713506.2168

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

Client: WESTINGHOUSE HANFORD
RFW #: 9307L286

W.O. #: 06168-002-001-9999-00
Date Received: 07-22-93

CLP METALS ADDENDUM

1. Following Exhibit E, Section V, Item 10, page E-23 of the USEPA Statement of Work for Inorganics Analysis, Document Number ILM02.0 ICP Instrument Detection Limits (IDLs) are reported for two (2) ICP instruments. The instrument identification numbers are "IC1" and "IC3". The highest IDL for the two instruments is used for reporting concentration values in this sample data package.

2. A discrepancy exists between raw data and Form XIVs analytical spikes recovery calculations performed for graphite furnace AA analytes. Instrument software calculates spike recoveries based on absolute values below the IDL for sample results. This is hard-coded by the vendor and is currently not correctable. CLP convention (SOW ILM02.0, Exhibit E, Section V, Item 6, page E-20) requires that when values fall below the IDL, the sample result is equal to zero (0) for the purposes of calculating the percent recovery. The Form XIVs contain the correct calculation.

Raymond A. Siery
Inorganic Section Manager
Lionville Analytical Laboratory

8.22.93
Date

mlj\clp-met.nar

9713506.2169

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 08/19/93

CLIENT: WESTINGHOUSE HANFORD

WESTON BATCH #: 9307L286

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B08R97	Silver, Total	1.0	u	MG/KG	1.0	1.0
		Aluminum, Total	3240		MG/KG	20.5	1.0
		Arsenic, Total	1.6		MG/KG	1.0	1.0
		Barium, Total	84.4		MG/KG	20.5	1.0
		Beryllium, Total	0.51	u	MG/KG	0.51	1.0
		Calcium, Total	6150		MG/KG	512	1.0
		Cadmium, Total	2.1		MG/KG	0.51	1.0
		Cobalt, Total	5.1	u	MG/KG	5.1	1.0
		Chromium, Total	220		MG/KG	1.0	1.0
		Copper, Total	7.0		MG/KG	2.6	1.0
		Iron, Total	7520		MG/KG	10.2	1.0
		Mercury, Total	0.10	u	MG/KG	0.10	1.0
		Potassium, Total	606		MG/KG	512	1.0
		Magnesium, Total	2240		MG/KG	512	1.0
		Manganese, Total	261		MG/KG	1.5	1.0
		Sodium, Total	512	u	MG/KG	512	1.0
		Nickel, Total	11.7		MG/KG	4.1	1.0
		Lead, Total	4.1		MG/KG	0.31	1.0
		Antimony, Total	6.1	u	MG/KG	6.1	1.0
		Selenium, Total	0.51	u	MG/KG	0.51	1.0
		Thallium, Total	1.0	u	MG/KG	1.0	1.0
		Vanadium, Total	10.6		MG/KG	5.1	1.0
		Zinc, Total	162		MG/KG	2.0	1.0

ROY F. WESTON INC.

INORGANIC METHOD BLANK DATA SUMMARY PAGE 08/19/93

CLIENT: WESTINGHOUSE HANFORD

WESTON BATCH #: 9307L286

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	93L6529-MB1	Silver, Total	1.0	u	MG/KG	1.0	1.0
		Aluminum, Total	20.0	u	MG/KG	20.0	1.0
		Barium, Total	20.0	u	MG/KG	20.0	1.0
		Beryllium, Total	0.50	u	MG/KG	0.50	1.0
		Calcium, Total	500	u	MG/KG	500	1.0
		Cadmium, Total	0.50	u	MG/KG	0.50	1.0
		Cobalt, Total	5.0	u	MG/KG	5.0	1.0
		Chromium, Total	1.0	u	MG/KG	1.0	1.0
		Copper, Total	2.5	u	MG/KG	2.5	1.0
		Iron, Total	10.0	u	MG/KG	10.0	1.0
		Potassium, Total	500	u	MG/KG	500	1.0
		Magnesium, Total	500	u	MG/KG	500	1.0
		Manganese, Total	1.5	u	MG/KG	1.5	1.0
		Sodium, Total	500	u	MG/KG	500	1.0
		Nickel, Total	4.0	u	MG/KG	4.0	1.0
		Antimony, Total	6.0	u	MG/KG	6.0	1.0
		Vanadium, Total	5.0	u	MG/KG	5.0	1.0
		Zinc, Total	2.0	u	MG/KG	2.0	1.0
BLANK1	93L6528-MB1	Arsenic, Total	1.0	u	MG/KG	1.0	1.0
		Selenium, Total	0.50	u	MG/KG	0.50	1.0
BLANK1	93C0226-MB1	Mercury, Total	0.10	u	MG/KG	0.10	1.0
BLANK2	93C0226-MB2	Mercury, Total	0.10	u	MG/KG	0.10	1.0
BLANK1	93L6586-MB1	Lead, Total	0.30	u	MG/KG	0.30	1.0
		Thallium, Total	1.0	u	MG/KG	1.0	1.0

ROY F. WESTON INC.

INORGANIC PRECISION REPORT 08/19/93

CLIENT: WESTINGHOUSE HANFORD

WESTON BATCH #: 9307L286

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	%RPD	DILUTION FACTOR(REP)
-001REP	B08R97	Silver, Total	1.0 u	1.0 u	NC	1.0
		Aluminum, Total	3240	3110	4.1	1.0
		Arsenic, Total	1.6	1.6	0.00	1.0
		Barium, Total	84.4	89.5	5.9	1.0
		Beryllium, Total	0.51u	0.51u	NC	1.0
		Calcium, Total	6150	7530	20.2	1.0
		Cadmium, Total	2.1	2.5	17.4	1.0
		Cobalt, Total	5.1 u	5.1 u	NC	1.0
		Chromium, Total	220	210	4.5	1.0
		Copper, Total	7.0	7.0	0.00	1.0
		Iron, Total	7520	7820	4.0	1.0
		Mercury, Total	0.10u	0.10u	NC	1.0
		Potassium, Total	606	574	5.4	1.0
		Magnesium, Total	2240	2320	3.2	1.0
		Manganese, Total	261	261	0.00	1.0
		Sodium, Total	512 u	512 u	NC	1.0
		Nickel, Total	11.7	11.8	0.85	1.0
		Lead, Total	0.31u	3.1	NC	1.0
		Antimony, Total	6.1 u	6.1 u	NC	1.0
		Selenium, Total	0.51u	0.51u	NC	1.0
		Thallium, Total	1.0 u	1.0 u	NC	1.0
		Vanadium, Total	10.6	12.7	18.0	1.0
		Zinc, Total	162	208	24.9	1.0

9713506.2172

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B08R97

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP286

Matrix (soil/water): SOIL Lab Sample ID: 930728601

Level (low/med): LOW Date Received: 7/22/93

% Solids: 97.6

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3240.00			P
7440-36-0	Antimony	4.81	U		P
7440-38-2	Arsenic	1.60			F
7440-39-3	Barium	84.40			P
7440-41-7	Beryllium	.10	U		P
7440-43-9	Cadmium	2.10			P
7440-70-2	Calcium	6150.00		*	P
7440-47-3	Chromium	220.00			P
7440-48-4	Cobalt	4.10	B		P
7440-50-8	Copper	7.00			P
7439-89-6	Iron	7520.00			P
7439-92-1	Lead	4.10		NS	F
7439-95-4	Magnesium	2240.00			P
7439-96-5	Manganese	261.00			P
7439-97-6	Mercury	.05	U		CV
7440-02-0	Nickel	11.70			P
7440-09-7	Potassium	606.00			P
7782-49-2	Selenium	.20	U	W	F
7440-22-4	Silver	.61	U		P
7440-23-5	Sodium	106.00	B		P
7440-28-0	Thallium	.41	U		F
7440-62-2	Vanadium	10.60			P
7440-66-6	Zinc	162.00		N*	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

FORM I - IN 03/90

WESTON Analytics Use Only

9307L286

Custody Transfer Record/Lab Work Request

WESTON

Page 7 of 7

Client: Westinghouse Hanford
Est. Final Proj. Sampling Date:
Work Order #: 06168-002-001-9999-00
Project Contact/Phone #:
AD Project Manager: George Edwards
QC: CLP Del: CLP TAT: 35 Days
Date Rec'd: 7/22/93 Date Due: 8/26/93
Account #: WS-HANFORD

Refrigerator #											4		4	4		SUB	
#/Type Container	Liquid										1PL		1GL	1PL			
	Solid																
Volume	Liquid										500ml		1L	1L			
	Solid																
Preservatives											HNO3						
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	B08R97 (RAD)			S	7/15/93	0910						see below ✓		IC sat ✓	IC 002 IC 003 IN 002 ✓		IS48 ✓			
		Radiochem = Gross Alpha/Beta, Gamma Spec, Co-60, Cs-137, Ru-106, Eu-152, Eu-154, Eu-155; Tritium, C-14, Ni-63, Sr-90, Tc-99, U-235, U-238, Pu-238, Pu-239/240, Pu-241, Am-241																			
		metals = HSL																			

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
Target Date = 16

DATE/REVISIONS:
7/23/93 Change IC002 & IC003 to
1. IN002.
8/2/93 3. Sample Rad.
4.
5.
6.

Original Rewritten

Relinquished by	Received by	Date	Time
FedEx	M. Denise	7/22/93	0930
MD	DH	7/22/93	

Relinquished by	Received by	Date	Time
	MDH	7/22/93	

WESTON Analytics Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # 6060204021 14
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# N/A Cooler# N/A 381-596a

9713506.2123

9713506.2174

Westinghouse Hanford Company

CHAIN OF CUSTODY

Custody Form Initiator: LE ROGERS

Company Contact: LE ROGERS

Telephone: 376-7690

Project Designation/Sampling Locations: 100-BC-2

Collection Date: 7-15-93

Field Logbook No.: EFL-1088

Ice Chest No.: SML-175

Bill of Lading/Airbill No.: N/A

Offsite Property No.: Offsite RSR 17585

Method of Shipment: OVERNIGHT AIR SERVICE

Shipped to: WESTON

Possible Sample Hazards/Remarks: Maintain at 4C.

9307L286

Sample Identification

308R97

1) 1,500ml P:CLP;ICP/AA Metals,Hg
1,125ml G:Sulfate
1,125ml P/G:Anions (NO2,NO3)
1,900ml P/G:Gross alpha/beta,Gamma Spec to include,Co-60,Cs-137,Ru-106,Eu-152, Eu-154,Eu-155 ; Tritium,C-14,Ni-63,Sr-90,Tc-99,U-235, U-238,Pu-238,Pu-239/240,Pu-241,Am-241

2) 1,500ml P:CLP;ICP/AA Metals,Hg
1,125ml G:Sulfate
1,125ml P/G:Anions (NO2,NO3)
1,900ml P/G:Gross alpha/beta,Gamma Spec to include,Co-60,Cs-137,Ru-106,Eu-152, Eu-154,Eu-155 ; Tritium,C-14,Ni-63,Sr-90,Tc-99,U-235, U-238,Pu-238,Pu-239/240,Pu-241,Am-241

3) 1,500ml P:CLP;ICP/AA Metals,Hg
1,125ml G:Sulfate
1,125ml P/G:Anions (NO2,NO3)
1,900ml P/G:Gross alpha/beta,Gamma Spec to include,Co-60,Cs-137,Ru-106,Eu-152, Eu-154,Eu-155 ; Tritium,C-14,Ni-63,Sr-90,Tc-99,U-235, U-238,Pu-238,Pu-239/240,Pu-241,Am-241

Temp: 12.4°C

[] Field Transfer of Custody

Chain of Possession (Sign and Print Names)

Relinquished by:	Received by:	Date/Time:
7-21-93 1130		
Relinquished by: Fed Ex	Received by: [illegible]	Date/Time: 7/22/93 0930
Relinquished by:	Received by:	Date/Time:
Relinquished by:	Received by:	Date/Time:

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:

Comments:

Westinghouse Hanford Company

SAMPLE ANALYSIS REQUEST

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

9213506.2175

Collector L E ROGERS Date 7-21-93

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

Sample Number	*	Date Collected	Time Collected	Number and Type of Sample Containers/Analysis Required
B08R97	S	7-15-93	0910	1-500ml P;ICP/AA Metals,Hg 1-125ml G;Sulfate 1-125ml P/G;Anions(NO2,NO3) 1-900ml P/G;Gross alpha/beta,Gamma Spec to include,Co-60,Cs-137,Ru-106,Eu-152,Eu-154,Eu-155 ; Tritium,C-14,Ni-63,Sr-90,Tc-99,U-235,U-238,Pu-238,Pu-239/240,Pu-241,Am-241
				1-500ml P;ICP/AA Metals,Hg 1-125ml G;Sulfate 1-125ml P/G;Anions(NO2,NO3) 1-900ml P/G;Gross alpha/beta,Gamma Spec to include,Co-60,Cs-137,Ru-106,Eu-152,Eu-154,Eu-155 ; Tritium,C-14,Ni-63,Sr-90,Tc-99,U-235,U-238,Pu-238,Pu-239/240,Pu-241,Am-241
				1-500ml P;ICP/AA Metals,Hg 1-125ml G;Sulfate 1-125ml P/G;Anions(NO2,NO3) 1-900ml P/G;Gross alpha/beta,Gamma Spec to include,Co-60,Cs-137,Ru-106,Eu-152,Eu-154,Eu-155 ; Tritium,C-14,Ni-63,Sr-90,Tc-99,U-235,U-238,Pu-238,Pu-239/240,Pu-241,Am-241

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

Field Information FROM 100-BC-2 Drilling

Special Handling and/or Storage Maintain at 4C

Possible Sample Hazards : RADIOACTIVE

A-6000-406 (06/91) WEF060

SAMPLE STATUS REPORT FOR E 450. E-BLANK B08R97 TIME: 7/20/93 8:26
DISPATCHED: 7/ 9/93 12:41 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 7/16/93 13:30

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
2172	GEA-SOIL	4.33000E 01 pCi/gWETwt Co-60	N	Y	VOGEL
2172	GEA-SOIL	< 1.34000E 00 pCi/gWETwt Cs-137	N	Y	VOGEL
2172	GEA-SOIL	1.53000E 02 pCi/gWETwt Eu-152	N	Y	VOGEL
2172	GEA-SOIL	1.58000E 01 pCi/gWETwt Eu-154	N	Y	VOGEL
4271	TOT-ACT	1.42470E 02 pCi/G	N	Y	VOGEL

END OF REPORT

9713506.2176

Emergency contact: (509) 373-3800 ERG #61 Overnight delivery

OFFSITE RADIOACTIVE SHIPMENT RECORD

- EXTERIOR INSPECTION PERMITTED -

17585

SHIPPING INST.

SHIP TO:

Company: Ray F Weston Inc

Address: 2000 Welsh Pool Rd.

City, State, Zip: Fairwing Creek Ind Pk Lionville, PA 19341

Attention:

Contractor: ☐ PNL ☐ KEH ☒ WHC

Site Carrier: L.E. Kenek

PR No: 84662

Veh No: 6 1582

Ship: ☒ Prepaid ☐ Collect Via:

☐ Motor-Rail ☐ Air Psgr

☐ Excl Use ☒ Air Cargo

☐ DOE Veh ☐ Mail

☐ UPS Sur ☐

SHIPMENT DESCRIPTION AND CERTIFICATION

Proper Shipping Name (Radioactive Material)	UN Number
1 Empty Packages	☐ UN 2908
2 Low Specific Activity, n o s	☐ UN 2912
3 Limited quantity, n o s	☒ UN 2910
4 N O S	☐ UN 2982
5 Fissile n o s	☐ UN 2918
6 Special Form, n o s	☐ UN 2974
7 Instruments & Articles	☐ UN 2911
8	☐

Material Form: ☐ Special (A1) ☒ Normal (A2)

Labels Applied: ☐ Empty ☐ Radioactive LSA ☐ White I ☐ Yellow II ☐ Yellow III ☒ None ☐ Danger (Air Cargo) ☐ Secondary

Material Category: ☐ Empty ☐ Low Specific Act (LSA) ☒ Limited Quantity ☐ Type A Quantity ☐ Type B Quantity ☐ Highway Route Controlled Quantity

For Normal Form Identify:

Physical Form: ☒ Solid ☐ Liquid ☐ Gas

Chemical Form: ☐ Metal ☐ Oxide ☒ Elemental ☐ Nitrate

Other

TYPE PACKAGE: ☒ Strong Tight ☐ Type A ☐ Type B ☐ Type B (U) ☐ Type B (M)

CONSTRUCTION: ☐ Box, FB ☐ Wood ☐ Steel ☐ Drum ☐ Cask ☒ Other Poly Cooler

FISSILE CLASS: ☒ Non Fissile ☐ Fissile Exempt ☐ Fissile I ☐ Fissile II ☐ Fissile III

Grams Fissile

SNM: ☒ No ☐ Yes ☐ < 1 gr ☐ Category I ☐ Category II ☐ Category III

ACCOUNTABILITY/SECURITY CONTROL: ☐ Classified ☒ Unclassified

Consignee authorized to receive this qty ☒

Sig. Security Svc. Req ☐ NA ☒

~~Pu, EU > 1g~~ ☐ N/A ~~NU, Do > 1kg~~ N/A ☐

Security Escorts Req ☐ Not Req ☒

External Cask Temperature N/A ☒

(Max 122° F LTL, 180° F Ex Use) °F

Packaging conforms to appropriate packaging procedure ☐ N/A ☒ Yes

Complies with D O T packaging marking and labeling requirements ☐ N/A ☒ Yes

Container acceptability documented (incl 7A cert) ☒ N/A ☐ Yes

Container examined: No evidence of deterioration or damage ☒ Yes

QA Inspection Current ☐ Yes ☒ N/A Seals required ☒ No ☐ Yes

Shipping Doc N/A 49CFR Authorization No N/A

No Pkgs	Model Package	COC/Spec No	Serial No	Seal No	Isotopes	Curies/Pkg	T I	Gr Wt
1	Strong tight	N-14	N/A	N/A	Cs-137 Europium Europium	576.6mCi	0	45 lbs
Contents: Sixteen sample bottles and ~~[illegible]~~ volumes								
Soil samples in black bottles. Bottles are double bagged and packed in vermiculite surrounded by vermiculite absorbent. This package conforms to the conditions and limitations specified in 49CFR 173.421 for exempted Radioactive material limited quantity.								
(Shipper may describe package in detail on one of unused lines above)					TOTAL	576.6mCi	0	45 lbs

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable federal, state, local and international regulations for the transportation of hazardous materials

Certifier s Signature: [signature] Date: 7-21-93 Organization: Env Field Services Complete Cost Code (inc end function): 17110/107 AB

AREA MONITOR

Surface Dose Rate of Package: ☒ ≤0 5 or ___ mrem/hr (N + βγ)

Dose Rate at 1 Meter from Surface of Package: ☒ ≤0 5 or ___ mrem/hr (N + βγ)

Smears of Outer Container: ☒ ≤ 22 dpm βγ/cm² ☒ ≤ 2.2 dpm α/cm²

TRUCK LOAD OR EXCLUSIVE USE: Surface: ☒ ≤ 200 mrem/hr (N + βγ) @ 6 feet: ☒ ≤ 10 mrem/hr (N + βγ) @ Cab or Sleeper ☒ ≤ 2.0 mrem/hr (N + βγ)

Additional Data and Instructions (inc Readings on Internal Packaging): N/A

Signature - Radiation Monitoring: [signature] Bldg. 100B2 Survey No: L-112795 Date: 7-21-93

AUTHORIZATION FOR SHIPMENT

APPROVAL

AIR TRANSPORT CERTIFICATION ▸ Cargo Only: ☐ Danger Labels Applied

Passenger: ☒ 1 Ltd Qty ☒ 3 Research or Medical Diagnosis ☐ 2 ≤3 T I ☐ 4 Human Medical Research

Pkg Dimensions

Traffic has inspected and verified preshipment compliance to DOT regulations

Authorized Signature ▸ [signature] Printed Name ▸ M.A. SAMS Date ▸ 7-21-93

APPROVED FOR OFFSITE SHIPMENT

TRAFFIC

B L No: MW-8159 Date Shipped: 7/21/93 E.T.A: 7/22/93 Routing: FEDX ☐ N/A

Surveyed By: [signature] Date: 7-21-93 Approved for Shipment: Westinghouse Hanford Company [signature] Date: 7/21/93

Placards: ☐ Yes ☒ No

Route Plan: ☐ Yes ☒ No

FEDERAL EXPRESS

1 of 2

QUESTIONS? CALL 800-238-5355 TOLL FREE.

6062042114

AIRBILL PACKAGE TRACKING NUMBER 6062042114

RECIPIENT'S COPY

Date 7-21-93

From (Your Name) Please Print: J.E. HAYHELL

Your Phone Number (Very Important): (509) 376-7403

Company: U.S. DEPT. OF ENERGY

Department/Floor No

Street Address: (EMERGENCY CONTACT PHONE) (NORTH 509-373-[illegible])

City

State

ZIP Required

To (Recipient's Name) Please Print

Company: ROY F. WESTON, INC.

Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes)

208 BESSI PLEASANT ROAD

PICKERLING CREEK INDUSTRIAL PARK

City: LIGHVILLE

State: PA

ZIP Required

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice) 3 1710/E2318

RMI-8159 RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - LIMITED QUANTITY OF MATERIAL. DOT ERG NUMBER 51 ATTACHED

IF HOLD FOR PICK UP, Print FEDEX Address Here (Not available at all locations)

Street Address

City

State

ZIP Required

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

5 [ ] Cash/Check

SERVICES (Check only one box)

Priority Overnight 11 [X]

Standard Overnight 51 [ ]

Economy Two Day 30 [ ]

Government Overnight 41 [ ]

Freight Service

70 [ ] OVERNIGHT FREIGHT**

80 [ ] TWO DAY FREIGHT**

INSTRUCTIONS (Mark appropriate boxes)

- Dangerous Goods as per attached Shipper's Declaration [ ]
- Dangerous Goods Shipper's Declaration not required [X]
- Cargo Aircraft only [ ]

DELIVERY AND SPECIAL HANDLING (Check services required)

HOLD FOR PICK UP (Not available at all locations) 1 [ ] WEEKDAY or 31 [ ] SATURDAY

DELIVER 2 [ ] WEEKDAY or 3 [ ] SATURDAY (Extra charge) (Not available to all locations)

4 [X] DANGEROUS GOODS (Extra charge)

5 [ ]

6 [ ] DRY ICE (Dangerous Goods Shipper's Declaration not required)

7 [ ] OTHER SPECIAL SERVICE

9 [ ] SATURDAY PICK UP

12 [ ] HOLIDAY DELIVERY (Extra charge)

PACKAGES	WEIGHT (in Pounds Only)	YOUR DECLARED VALUE
1	45	-0-
Total 1	Total 45	-0-

DIM SHIPMENT

Emp No

Date

[ ] Cash Received

[ ] Release Signature

[ ] Hold Only

Street Address

City

Received By: x M. Henrie

Date/Time Delivered: 7/22/93 0900

SIGNATURE RELEASE UNAVAILABLE

145

9713506.2178

0016

9713506.2179

VALIDATION SUMMARY

9713506.2130

U.S. EPA - CLP

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

B08R97

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP286

Matrix (soil/water): SOIL Lab Sample ID: 930728601

Level (low/med): LOW Date Received: 7/22/93

% Solids: 97.6

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3240.00			P
7440-36-0	Antimony	4.81	U		P
7440-38-2	Arsenic	1.60			F
7440-39-3	Barium	84.40			P
7440-41-7	Beryllium	.10	U		P
7440-43-9	Cadmium	2.10			P
7440-70-2	Calcium	6150.00		*	P
7440-47-3	Chromium	220.00			P
7440-48-4	Cobalt	4.10	B		P
7440-50-8	Copper	7.00			P
7439-89-6	Iron	7520.00			P
7439-92-1	Lead	4.10		NS J	F
7439-95-4	Magnesium	2240.00			P
7439-96-5	Manganese	261.00			P
7439-97-6	Mercury	.05	U		CV
7440-02-0	Nickel	11.70			P
7440-09-7	Potassium	606.00			P
7782-49-2	Selenium	.20	U	W J	F
7440-22-4	Silver	.61	U		P
7440-23-5	Sodium	106.00	B		P
7440-28-0	Thallium	.41	U		F
7440-62-2	Vanadium	10.60			P
7440-66-6	Zinc	162.00		N* J	P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: FINE

Color After: BROWN Clarity After: Artifacts:

Comments:

11/05/93 pm

FORM I - IN 03/90

9713506.2131

XD-46

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 08/16/93

CLIENT: WESTINGHOUSE HANFORD

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

WESTON BATCH #: 9307L286

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B08R97	% Solids	97.6	%	0.10	1.0
		Sulfate by IC	12.9	MG/KG	1.3	1.0
		Nitrate Nitrite	1.9	MG-N/KG	0.20	2.0

11/27/93

0004