

DON'T SAY IT --- Write It!

DATE: February 8, 1994

TO: 9304L172-WES-1125

FROM: Pat Reich

H4-19

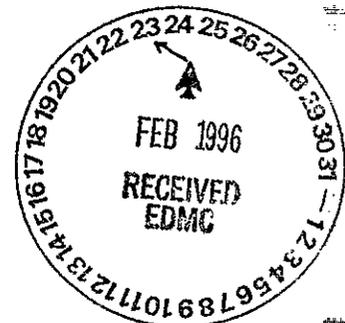
Telephone: 372-2785

cc:

SUBJECT: DATA VALIDATION REPORT FOR THE 100-IU-4 SODIUM DICHROMATE ERA INV.

THE VALIDATION REPORT FOR THIS DATA PACKAGE IS FILED IN B01971-TMA-454.

PAT REICH
FILE CLERK





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



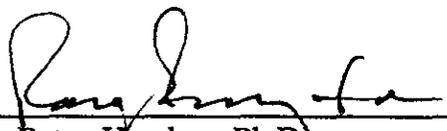
Client : WESTINGHOUSE HANFORD
RFW# : 9304L172

W.O. #: 06168-002-001-9999-00
Date Received: 04-10-93

INORGANIC

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

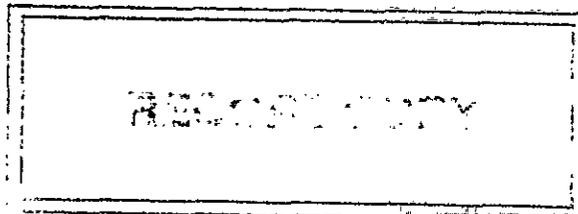
1. All sample holding times as required by 40CFR136 were met.
2. All preparation blank results were below the required detection limits.
3. All calibration verification checks were within the required control limits of 90-110%. Calibration verification is performed using independent standards.
4. Matrix 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).



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

4.15.93
Date

mmz/i04-172



0004

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 04/15/93

CLIENT: WESTINGHOUSE HANFORD
WORK ORDER: 06168-002-001-9999-00

WESTON BATCH #: 9304L172

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-001	B01990	% Solids	90.0	%	0.10
		Chromium VI	0.11	u MG/KG	0.11

9304L 172

Westinghouse
Hanford Company

CHAIN OF CUSTODY

004796

Custody Form Initiator S.M. STEELE

Company Contact R.C. SMITH/C.E. HEIDEN

Telephone 509-376-2640

Project Designation/Sampling Locations SAF#930045, ERA, SODIUM
DICHROMATE SITE

Collection Date 4/8/93

Ice Chest No.

Field Logbook No. WHC-N-205-22

Bill of Lading/Airbill No.

Offsite Property No.

Method of Shipment BURLINGTON AIR EXPRESS OVERNIGHT

Shipped to R.F. WESTON LABS, LIONVILLE PA.

Possible Sample Hazards/Remarks HAZARDS UNKNOWN, PRIORITY TURNAROUND, RCRA PROTOCOL, SEE SAMPLE
ANALYSIS REQUEST FOR INDIVIDUAL BOTTLES AND ANALYSIS.

Sample Identification

B01990 (3) BOTTLES

PRIORITY TURNAROUND

Field Transfer of Custody		Chain of Possession		(Sign and Print Names)	
Relinquished By	Date	Time	Received By	Date	Time
<i>S.M. Steele</i>	4-9-93	1000	_____	4/9/93	RES 4-10-93
<i>C.M.H. J.</i>	4/10/93	1510	<i>B.H.</i>	4-10-93	1510

Final Sample Disposition

Disposal Method:	Disposed by:	Date/Time:
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Comments:

TEMP = 6°C

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER <i>(To be obtained from PROPERTY MANAGEMENT)</i>
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PART I - TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
The following items are to be shipped from		<input type="checkbox"/> Contractor <input type="checkbox"/> Vendor
Routing		<input type="checkbox"/> Contractor <input type="checkbox"/> Vendor
Shipped to	Off-site Custodian	
	Full Title	

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1	POLYCOOLER SAMPLES ARE DOUBLE BAGGED AND STORED ON NET ICE. COOLER # <i>FR</i>	

Rec'd 4-10-93 (EDT)
 @ 15:10 and placed #61 in
 in locked refri. cooler
 All custody intact
 order
J. Ashberry

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

Necessity for the Off-Site Use of this Property

SAMPLES REQUIRE ANALYSIS THAT ARE NOT PRESENTLY AVAILABLE AT THIS SITE

SAF# 93-045

COC# *CC 41161*

BILL OF LADING *27*

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

RM Clearance for Public Release	RM Survey No	Date
Location of Property (Area & Bldg)	Contact	Phone
Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
Originated By	Date	Authorized By
Signature and Name of Property Control	Custodian Date	Property Management Approval

PART II - TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No	Date Issued	Purchase Order No	Date Issued
Date				

DISTRIBUTION

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

0018

Check <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		1304172 EMERY WORLDWIDE		SERVICES ** UNITED STATES / CANADA <input type="checkbox"/> Same Day (Extra Charge) <input type="checkbox"/> Standard 1st <input type="checkbox"/> AM <input type="checkbox"/> PM <input type="checkbox"/> Premium <input type="checkbox"/> Second Day <input checked="" type="checkbox"/> Saturday Delivery <input type="checkbox"/> Standard		Express <input type="checkbox"/>			
Date <input type="checkbox"/> Origin <input type="checkbox"/> 253695482 7		04-09-93 PSC		EMERY Company		Address <input type="checkbox"/>			
From: WESTINGHOUSE SHIPPING DEPT. (509) 376-6665 U.S. DEPARTMENT OF ENERGY C/O WESTINGHOUSE MANFORD BLDG 1153 2355 STEVENS DRIVE RICHLAND WA				To: JOSIE RF WESTON INC 256 WELSH POOL ROAD LIONVILLE PA				Freight <input type="checkbox"/>	
Customer's Reference Numbers W12910 PE621 W93-0-0403W12		4352		Consignee's Account Number 19341		Hold for Pick Up <input type="checkbox"/> Canada <input type="checkbox"/>			
Description 1 COOLER & LITTLE PLAYMATE #10 SAMPLES		Dimensions 1 12		Total Weight (LBS) 10		Declared Value \$			
Remarks SATURDAY DELIVERY		Zip Ship <input type="checkbox"/>		Mark if Emery Packaging is used Exped <input type="checkbox"/>		FOR INFORMATION OR RATES CALL 1-800 44 EMERY (1-800-443-6379)			
Shipper's Signature X		Third Party Account Number E		International Customs Value		International Insurance			
Free Domestic <input type="checkbox"/>		Commodity Code		Total Transportation Charges		Other Charges/Advance at Origin <input type="checkbox"/>			
Base Charge		Total		Total		3-PHL-SA Terms and Conditions on Back			



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

**Client: WESTINGHOUSE HANFORD
RFW #: 9304L172**

**W.O. #: 06168-002-001-9999-00
Date Received: 04-10-93**

CLP METALS

1. This narrative covers the analysis of one (1) soil sample.
2. The sample and its associated QC samples were prepared and analyzed in accordance with the following protocols: SW-846.
3. ICVs, CCVs, and LCSs stock standards were purchased from Inorganic Ventures Laboratory.
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 SW-846 control limits except for:

<u>RFW #</u>	<u>Element</u>	<u>%Difference</u>
001	Zinc	14.7

11. 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:

<u>RFW #</u>	<u>Element</u>	<u>%RPD</u>
001	Nickel	45.0

12. Method of Standard Additions (MSA) analyses were not required.

0011



13. 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:

<u>RFW #</u>	<u>Element</u>	<u>%Recovery</u>
001	Antimony	57.5

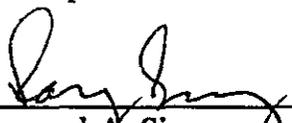
A Post-Matrix Spike analysis was performed for those ICP elements that did not meet the specified control limits (exception allowed for Ag).

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.

14. All Matrix Spike Duplicates were within the 20% Relative Percent Difference (RPD) control limits except for:

<u>RFW #</u>	<u>Element</u>	<u>%RPD</u>
001	Calcium	42.8

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. Spike level for Mercury is actually 0.667 ug/L, not 1.0 ug/L.



Raymond A. Siery
Inorganic Section Manager
Lionville Analytical Laboratory

4.28.73
Date



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

Client: WESTINGHOUSE HANFORD
RFW #: 9304L172

W.O. #: 06168-002-001-9999-00
Date Received: 04-10-93

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

4.28.93
Date

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 04/21/93

CLIENT: WESTINGHOUSE HANFORD
 WORK ORDER: 06168-002-001-9999-00

WESTON BATCH #: 9304L172

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-001	BO1990	Silver, Total	1.1	u MG/KG	1.1
		Aluminum, Total	4540	MG/KG	22.2
		Arsenic, Total	1.6	MG/KG	1.1
		Barium, Total	67.9	MG/KG	22.2
		Beryllium, Total	0.56	u MG/KG	0.56
		Calcium, Total	3990	MG/KG	556
		Cadmium, Total	0.56	u MG/KG	0.56
		Cobalt, Total	7.1	MG/KG	5.6
		Chromium, Total	12.5	MG/KG	1.1
		Copper, Total	9.6	MG/KG	2.8
		Iron, Total	12200	MG/KG	11.1
		Mercury, Total	0.11	u MG/KG	0.11
		Potassium, Total	1360	MG/KG	556
		Magnesium, Total	3270	MG/KG	556
		Manganese, Total	254	MG/KG	1.7
		Sodium, Total	556	u MG/KG	556
		Nickel, Total	12.6	MG/KG	4.4
		Lead, Total	4.1	MG/KG	0.33
		Antimony, Total	6.7	u MG/KG	6.7
		Selenium, Total	0.56	u MG/KG	0.56
		Thallium, Total	1.1	u MG/KG	1.1
		Vanadium, Total	19.2	MG/KG	5.6
		Zinc, Total	29.3	MG/KG	2.2

0015

U.S. EPA - CLP

EPA SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

BO1990

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP172

Matrix (soil/water): SOIL Lab Sample ID: 930417201

Level (low/med): LOW Date Received: 4/10/93

% Solids: 90.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4540.00			P
7440-36-0	Antimony	4.44	U	N	P
7440-38-2	Arsenic	1.60			F
7440-39-3	Barium	67.90			P
7440-41-7	Beryllium	.34	B		P
7440-43-9	Cadmium	.56	U		P
7440-70-2	Calcium	3990.00			P
7440-47-3	Chromium	12.50			P
7440-48-4	Cobalt	7.10			P
7440-50-8	Copper	9.60			P
7439-89-6	Iron	12200.00			P
7439-92-1	Lead	4.08			F
7439-95-4	Magnesium	3270.00			P
7439-96-5	Manganese	254.00			P
7439-97-6	Mercury	.06	U		CV
7440-02-0	Nickel	12.60		*	P
7440-09-7	Potassium	1360.00			P
7782-49-2	Selenium	.22	U		F
7440-22-4	Silver	1.00	U		P
7440-23-5	Sodium	129.00	B		P
7440-28-0	Thallium	.56	U		F
7440-62-2	Vanadium	19.20			P
7440-66-6	Zinc	29.30		E	P
	Cyanide				NR

Color Before: BROWN

Clarity Before:

Texture: FINE

Color After: BROWN

Clarity After:

Artifacts:

Comments:

9304L172-WES-1125

ROY F. WESTON INC.

INORGANIC DATA SUMMARY REPORT 04/15/93

CLIENT: WESTINGHOUSE HANFORD
WORK ORDER: 06168-002-001-9999-00

WESTON BATCH #: 9304L172

<u>SAMPLE</u>	<u>SITE ID</u>	<u>ANALYTE</u>	<u>RESULT</u>	<u>UNITS</u>	<u>REPORTING LIMIT</u>
-001	BO1990	% Solids	90.0 ✓	%	0.10
		Chromium VI	0.11 ✓	µg MG/KG	0.11

P212
1/6/94

0004

1/6/93
PMJ

1
INORGANIC ANALYSIS DATA SHEET

BO1990

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

Lab Code: WESTON Case No.: WEST SAS No.: SDG No.: CLP172

Matrix (soil/water): SOIL Lab Sample ID: 930417201

Level (low/med): LOW Date Received: 4/10/93

* Solids: 90.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4540.00			P
7440-36-0	Antimony	2.7 4.44	U	NJ	P
7440-38-2	Arsenic	1.60	J		F
7440-39-3	Barium	67.90			P
7440-41-7	Beryllium	.34	B		P
7440-43-9	Cadmium	0.25 56	U		P
7440-70-2	Calcium	3990.00			P
7440-47-3	Chromium	12.50			P
7440-48-4	Cobalt	7.10			P
7440-50-8	Copper	9.60			P
7439-89-6	Iron	12200.00			P
7439-92-1	Lead	4.1 4.08	J		F
7439-95-4	Magnesium	3270.00			P
7439-96-5	Manganese	254.00			P
7439-97-6	Mercury	.06	U		CV
7440-02-0	Nickel	12.60		*	P
7440-09-7	Potassium	1360.00			P
7782-49-2	Selenium	0.11 22	U	J	F
7440-22-4	Silver	0.33 1.00	U		P
7440-23-5	Sodium	129.00	B		P
7440-28-0	Thallium	0.22 56	U	J	F
7440-62-2	Vanadium	19.20			P
7440-66-6	Zinc	29.30	J	E	P
	Cyanide				NR

Color Before: BROWN

Clarity Before:

Texture: FINE

Color After: BROWN

Clarity After:

Artifacts:

Comments: