

0000002: 9107L156-WES-113

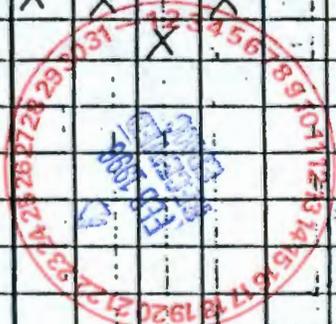
Data

WESTON Analytics Use Only
9107L156

Custody Transfer Record/Lab Work Request

Client: <u>Westinghouse Hanford Company</u>	Refrigerator #	1	3	3	4	3	3	3	4	
Est. Final Proj. Sampling Date: <u>6168-02-01</u>	#/Type Container	Liquid: 3, Gs	1/2	3/2	3/2	1/2	1/2	1/2	1/2	
Work Order # <u>P.H. Butcher / (509) 376-5045</u>	Volume	Liquid: 40 ml	23	41	41	41	1, L	1, L	1, L	
Project Contact/Phone # <u>Josie King</u>	Preservatives		HNO3	HNO3	HNO3	HCL	HNO3	HNO3	HNO3	
AD Project Manager	ANALYSES REQUESTED	ORGANIC	*				INORG		*	
QC <u>CLP</u> Del <u>CLP TAT 35 days</u>	VOA	BNA	Pest/PCB	Herb	See Below			Metal	-CN	Metal
Date Rec'd <u>7/12/91</u> Date Due <u>8/16/91</u>	Account # <u>WS-Hanford</u>				1	2	3	4	(un)	5

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓)	Matrix	Date Collected	1	2	3	4	(un)	5
S - Soil	001	BOO XW9	XX	W	7/10/91	X	X	X	X	X	X
SE - Sediment	2	BOO XX0	XX	W	7/10/91						X
SO - Solid		BOO	XX	W							
SL - Sludge		*1) TOC, NO ₂ /NO ₃									
W - Water		2) Anions, TDS, AIK, pH ICPO4, IC504, ICFL, ICCL, ICNO3, ICNO2									
O - Oil		3) Gross Alpha, Beta, Tc-99, Sr-90, Cs-137, Co-60, Pu-238, Pu-239/240									
A - Air		4) Total Uranium									
DS - Drum Solids		5) Tritium									
DL - Drum Liquids											
L - EP/TCLP Leachate											
WI - Wipe											
X - Other											
F - Fish											



Special Instructions: NOTE: (F) = Filtered (Un) = Unfiltered

BOL # 2474250229
 OPC # W91-0334 #50

DATE/REVISIONS:

1.	
2.	
3.	
4.	
5.	
6.	

WESTON Analytics Use Only

Samples were: 1) Shipped or Hand Delivered Airbill # _____

2) Ambient or Chilled

3) Received in Good Condition or N

4) Properly Preserved or N

5) Received Within Holding Times or N

COC Tape was: 1) Present on Outer Package or N

2) Unbroken on Outer Package or N

3) Present on Sample or N

4) Unbroken on Sample or N

COC Record Present Upon Sample Rec'l or N

Discrepancies Between Samples Labels and COC Record? Y or N

PH. Anions

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
Emory	Angie	7/12/91	3:45	Emory	Angie	7/13/91	1:00
						7/15/91	

START 26130943036

WESTON Analytics Use Only
9107L156

Custody Transfer Record/Lab Work Request

Client <u>Westinghouse Hanford Company</u>		Refrigerator #																		
Est. Final Proj. Sampling Date <u>6168-02-01</u>		#/Type Container	Liquid	3, Gs																
Work Order #			Solid																	
Project Contact/Phone # <u>P.H. Butcher/(509)376-5045</u>		Volume	Liquid	40 ml																
AD Project Manager <u>Justie King</u>			Solid																	
QC <u>Del [Signature]</u>		Preservatives																		
Date Rec'd		ANALYSES REQUESTED		ORGANIC				INORG												
Date Due		VOA	BNA	Pest/PCB	Herb	1	2	3	4	(Metal)	CN	Metal F	5	See Below						
Account #						See Below														

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓)	Matrix	Date Collected	1	2	3	4	(Metal)	CN	Metal F	5
S - Soil	003	B00 XX2	XMX	W	7/10/91	X	X	X	X	X	X	X	X
SE - Sediment	4	B00 XX3	XMX	W	7/10/91							X	
SO - Solid		B00	XMX	W									
SL - Sludge		*1) TOC, NO ₂ /NO ₃											
W - Water		2) Anions, TDS, A1K, pH			IC504, ICPO4, ICC4, ICFL, ICNO2, ICNO3								
O - Oil		3) Gross Alpha, Beta, Tc-99, Sr-90, Cs-137, Co-60, Pu-238, Pu-239/240											
A - Air		4) Total Uranium											
DS - Drum Solids		5) Tritium											

Special Instructions: NOTE: (F) = Filtered (Un) = Unfiltered

BOL # 2474250229
OPC # W91-0334 #49

DATE/REVISIONS:

- _____
- _____
- _____
- _____
- _____
- _____

WESTON Analytics Use Only

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

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
5) Received Within Holding Time Y or N

CO Record Present Upon Sample Rec'd Y or N

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
	[Signature]	7/15/91			[Signature]	7/15/91	

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

00000003
9613402.1258

91074156

Custody Transfer Record/Lab Work Request

Client <u>Westinghouse Hanford Company</u>		Refrigerator #																		
Est. Final Proj. Sampling Date <u>6168-02-01</u>		#/Type Container	Liquid	3, Gs						1, P	1, P	1, P	1, G							
Work Order # <u>P.H. Butcher / (509) 376-5045</u>		Volume	Liquid	40 ml						1, L	1, L	1, L	250 ml							
Project Contact/Phone # <u>Josie King</u>		Preservatives	Solid																	
AD Project Manager		ANALYSES REQUESTED																		
QC <u>Joe King</u>		ORGANIC									INORG									
Date Rec'd <u>7/10/91</u>		VOA	BNA	Pest/PCB	Herb	See Below				(Metal)	CN	Metal F			See Below					
Account #						1	2	3	4					5						

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓)	Matrix	Date Collected	VOA	BNA	Pest/PCB	Herb	1	2	3	4	(Metal)	CN	Metal F	5
S - Soil	005	B00 XX5	XX	W	7/10/91					X	X	X	X	X	X		X
SE - Sediment	6	B00 XX6	XX	W	7/10/91											X	
SO - Solid	7	B00 Y14	XX	W	7/10/91	X											
SL - Sludge		*1) TOC, NO ₂ /NO ₃															
W - Water		2) Anions, TDS, Alk, pH															
O - Oil		3) Gross Alpha, Beta, Tc-99, Sr-90, Cs-137, Co-60, Pu-238, Pu-239, 240															
A - Air		4) Total Uranium															
DS - Drum Solids		5) Tritium															
DL - Drum Liquids																	
L - EP/TCLP Leachate																	
WI - Wipe																	
X - Other																	
F - Fish																	

Special Instructions:	DATE/REVISIONS:	WESTON Analytics Use Only:
NOTE: (F) = Filtered (Un) = Unfiltered	1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____	Samples were: 1) Shipped <u>or</u> Hand Delivered _____ Airbill # _____
BOL # <u>2474250229</u> OPC # <u>W91-0334 #49</u>		COC Tape was: 1) Present on Outer Package Y or N 2) Unbroken on Outer Package Y or N 3) Present on Sample Condition Y or N Y or N 4) Properly Preserved Y or N Y or N 5) Received Within Holding Times Y or N

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time	Discrepancies Between Samples Labels and COC Record? Y or N NOTES:
	<u>P9 7/15/91</u>				<u>P9 7/15/91</u>			

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CHAIN OF CUSTODY

Company Contact	B.H. FORD	Telephone	509-376-6465	
Sample Collected by	L. WALKER	Date	7/10/91	Time 0900
Sample Locations	200-BP-1			
Ice Chest No.	# 88	Field Logbook and Page No.	WHC-N-4461/pg. 51	
Remarks	N/A			
Bill of Lading No.	2474250219	Offsite Property No.	W91-0334 #49	
Method of Shipment	EMERY			
Shipped to	WESTON Analytics			

SAMPLE IDENTIFICATION

BOO XX5

- 1, 1L, P, WATER, CLP-CN, NaOH
- 1, 1L, P, WATER, CLP-METAL, Bi/Se/Si, HNO3, UNFILTERED
- 1, 500ml, G, WATER, TOC, NO2/HO3, H2SO4
- 1, 1L, P, WATER, ANIONS, TDS, ALK, pH
- 3, 4L, P, WATER, ALPHA, BETA, Tc-99, Sr-90, Cs-137, Co-60, Pu-238, Pu-239/240, HNO3
- 1, 1L, P, WATER, TOTAL URANIUM, HCl
- 1, 250ml, G, WATER, TRITIUM

BOO XX6

- 1, 1L, P, WATER, CLP-METAL, Bi/Se/Si, HNO3, FILTERED

BOO Y14

- 3, 40ml, Gs, Water, CLP-VOA

CHAIN OF POSSESSION

Relinquished by: <i>L.D. Walker</i> L.D. Walker	Received by: <i>AH Butcher</i> AH Butcher	Date/Time: 7/11/91 0800
Relinquished by: <i>AH Butcher</i> AH Butcher	Received by: <i>J. DEMAREST</i> J. Demarest	Date/Time: 7/11/91 1125
Relinquished by: <i>J. DEMAREST</i> J. Demarest	Received by:	Date/Time:
Relinquished by: <i>Emery</i> Emery	Received by: <i>P. Legier</i> P. Legier	Date/Time: 7/12/91 3:45 PM

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0000006

CHAIN OF CUSTODY

Company Contact	B.H. FORD	Telephone	509-376-6465	
Sample Collected by	L. WALKER	Date	7-10-91	Time 1200
Sample Locations	200-BP-1			
Ice Chest No.	Laurel	Field Logbook and Page No.	WHC-N-4461 / pg. 51	
Remarks	N/A			
Bill of Lading No.	2474250229	Offsite Property No.	W91-0334 # 50	
Method of Shipment	EMERY			
Shipped to	WESTON Analytics			

SAMPLE IDENTIFICATION

BOO XW9
1, 1L, P, WATER, CLP-CN, NaOH
1, 1L, P, WATER, CLP-METAL, Bi/Se/Si, HNO3, UNFILTERED
1, 500ml, G, WATER, TOC, NO2/NO3, H2SO4
1, 1L, P, WATER, ANIONS, TDS, ALK, pH
3, 4L, P, WATER, ALPHA, BETA, Tc-99, Sr-90, Cs-137, Co-60, Pu-238, Pu-239/240, HNO3
1, 1L, P, WATER, TOTAL URANIUM, HCl
1, 250ml, G, WATER, TRITIUM
BOO XK0
1, 1L, P, WATER, CLP-METAL, Bi/Se/Si, HNO3, FILTERED

CHAIN OF POSSESSION

Relinquished by: <i>L.D. Walker</i> L.D. Walker	Received by: <i>PH Butcher</i> PH Butcher	Date/Time: 7/11/91 0800
Relinquished by: <i>PH Butcher</i> PH Butcher	Received by: <i>J. Demarest</i> J. Demarest	Date/Time: 7/11/91 1125
Relinquished by: <i>J. Demarest</i> J. Demarest	Received by:	Date/Time:
Relinquished by: <i>Emery</i>	Received by: <i>Plugi</i>	Date/Time: 7/12/91 3 ⁴⁵ PM

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0000007

CHAIN OF CUSTODY

Company Contact	B.H. FORD	Telephone	509-376-6465	
Sample Collected by	L. WALKER	Date	7-10-91	Time 1045
Sample Location	200-BP-1			
Ice Chest No.	Bandu	Field Logbook and Page No.	WHC-N-4461 / pg. 51	
Remarks	N/A			
Bill of Lading No.	2474250229	Offsite Property No.	PAB 7/11/91 WHL W91-0334# 49	
Method of Shipment	EMERY			
Shipped to	WESTON Analytics			

SAMPLE IDENTIFICATION

BOO XX2

- 1, 1L, P, WATER, CLP-CN, NaOH
- 1, 1L, P, WATER, CLP-METAL, Bi/Se/Si, HNO₃, UNFILTERED
- 1, 500ml, G, WATER, TOC, NO₂/NO₃, H₂SO₄
- 1, 1L, P, WATER, ANIONS, TDS, ALK, pH
- 3, 4L, P, WATER, ALPHA, BETA, Tc-99, Sr-90, Cs-137, Co-60, Pu-238, Pu-239/240, HNO₃
- 1, 1L, P, WATER, TOTAL URANIUM, HCl
- 1, 250ml, G, WATER, TRITIUM

BOO XX3

- 1, 1L, P, WATER, CLP-METAL, Bi/Se/Si, HNO₃, FILTERED

CHAIN OF POSSESSION

Relinquished by: <i>L.D. Walker</i> L.D. Walker	Received by: <i>PH Butcher</i> PH Butcher	Date/Time: 7/11/91 0800
Relinquished by: <i>PH Butcher</i> PH Butcher	Received by: <i>J. DEMAREST</i> J. Demarest	Date/Time: 7/11/91 1125
Relinquished by: <i>J. DEMAREST</i> J. Demarest	Received by:	Date/Time:
Relinquished by: <i>Emery</i> Emery	Received by: <i>P. Geigi</i> P. Geigi	Date/Time: 7/12/91 3 ⁴⁵ PM

Cust ID:

B00Y14

VBLK

RFW#:

007

91LVK126-MB1

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

*= Outside of EPA CLP QC limits.

0000010

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ROY F. WESTON, INC.
Lionville Laboratory

CLIENT: WESTINGHOUSE HANFORD SAMPLES RECEIVED: 07-12-91
RFW #: 9107L156, GC/MS VOLATILE
W.O. #: 6168-02-01

NARRATIVE

One (1) water sample was collected on 07-10-91.

The sample and its associated QC sample were analyzed according to criteria set forth in CLP SOW 2/88 (rev 5/89) for TCL Volatile target compounds on 07-17-91.

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

1. Non-target compounds were not detected in these samples.
2. All surrogate recoveries were within EPA QC limits.
3. Matrix spike and spike duplicate samples are associated with RFW lot 9107L112.
4. The laboratory blank contained the common contaminants methylene chloride and acetone at levels less than 2x the CRQL.
5. All internal standard area and retention time criteria were met.

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

8.7.91.

Date

B00Y14

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: WATER

Lab Sample ID: 9107L156-007

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

Lab File ID: AK7H15

Level: (low/med) LOW

Date Received: 07/12/91

% Moisture: not dec.

Date Analyzed: 07/17/91

Column: (pack/cap) CAP

Dilution Factor: 1.00

CAS NO. COMPOUND CONCENTRATION UNITS:
 (ug/L or ug/Kg) ug/L

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	1	JB
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	Trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

9613492.1267 0000022
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B00Y14

Lab Name: Roy F. Weston, Inc. Work Order: 6168-02-01-0000

Client: WESTINGHOUSE HANFORD

Matrix: WATER

Lab Sample ID: 9107L156-007

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

Lab File ID: AK7H15

Level: (low/med) LOW

Date Received: 07/12/91

% Moisture: not dec.

Date Analyzed: 07/17/91

Column: (pack/cap) CAP

Dilution Factor: 1.00

Number TICs found: 0

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

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

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ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT. 08/22/91

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

WESTON BATCH #: 9107L156

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
=====	=====	=====	=====	=====	=====
-001	BOOXW9	Alkalinity	92.0	MG/L	2.0
		Chloride by IC	5.9	mg/L	0.25
		Fluoride by IC	0.52	mg/L	0.50
		Nitrite by IC	0.25 u	mg/L	0.25
		Nitrate by IC	73.6	mg/L	0.25
		Cyanide, Total	16.9	UG/L	10.0
		Phosphate by IC	0.25 u	mg/L	0.25
		Sulfate by IC	40.0	mg/L	0.25
		Nitrate Nitrite	16.7	MG/L	1.0
		Total Organic Carbon	0.73	MG/L	0.50
		pH	8.0	PH UNITS	0.010
		Total Dissolved Solids	301	MG/L	5.0
		-003	BOOXX2	Alkalinity	94.0
Chloride by IC	4.9			mg/L	0.25
Fluoride by IC	0.81			mg/L	0.50
Nitrite by IC	0.25 u			mg/L	0.25
Nitrate by IC	78.5			mg/L	0.25
Cyanide, Total	31.6			UG/L	10.0
Phosphate by IC	0.25 u			mg/L	0.25
Sulfate by IC	38.2			ng/L	0.25
Nitrate Nitrite	16.8			MG/L	1.0
Total Organic Carbon	0.83			MG/L	0.50
pH	7.9			PH UNITS	0.010
Total Dissolved Solids	310			MG/L	5.0
-005	BOOXX5			Alkalinity	94.0
		Chloride by IC	5.2	mg/L	0.25
		Fluoride by IC	0.76	mg/L	0.50
		Nitrite by IC	0.25 u	mg/L	0.25
		Nitrate by IC	85.8	mg/L	0.25
		Cyanide, Total	37.0	UG/L	10.0
		Phosphate by IC	0.25 u	mg/L	0.25
		Sulfate by IC	38.8	mg/L	0.25
		Nitrate Nitrite	18.5	MG/L	1.0
		Total Organic Carbon	2.2	MG/L	0.50
		pH	7.8	PH UNITS	0.010
		Total Dissolved Solids	400	MG/L	5.0



Roy F. Weston, INC.
Lionville Laboratory

CLIENT:WESTINGHOUSE HANFORD

SAMPLES RECEIVED:7/12/91

RFW#:9107L156

W.O.#:6168-02-01

METALS NARRATIVE

The set of samples consisted of six (6) water samples collected on 7/10/91.

The 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 with the exception of Pb. All corresponding samples were flagged with an "N" according to CLP protocol.
7. All duplicate analyses were within the 20% RPD control limit with the exception of Cr and Zn. All corresponding samples were flagged with a "*" according to CLP protocol.

WESTON

8. 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 does not add reagents; HG2 is operated by the analyst and produces a strip chart. Reference SOP21-15-0245.1. Sample volumes and reagents have been proportionally scaled down to adapt to a new automated technique. The volume used for all water analysis is 33 mls. For soils, 0.1 gram of sample in a final volume of 50 mls.



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

9.25.91.

Date

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0000012

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 08/13/91

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

WESTON BATCH #: 9107L156

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-----	-----	-----	-----	-----	-----
-001	BOOKW9	Silver, Total	10.0	u UG/L	10.0
		Aluminum, Total	200	u UG/L	200
		Arsenic, Total	10.0	u UG/L	10.0
		Barium, Total	200	u UG/L	200
		Beryllium, Total	5.0	u UG/L	5.0
		Calcium, Total	39800	UG/L	5000
		Cadmium, Total	5.0	u UG/L	5.0
		Cobalt, Total	50.0	u UG/L	50.0
		Chromium, Total	10.0	u UG/L	10.0
		Copper, Total	25.0	u UG/L	25.0
		Iron, Total	100	u UG/L	100
		Mercury, Total	0.20	u UG/L	0.20
		Potassium, Total	5470	UG/L	5000
		Magnesium, Total	11400	UG/L	5000
		Manganese, Total	15.0	u UG/L	15.0
		Sodium, Total	22800	UG/L	5000
		Nickel, Total	40.0	u UG/L	40.0
		Lead, Total	3.0	u UG/L	3.0
		Antimony, Total	60.0	u UG/L	60.0
		Selenium, Total	5.0	u UG/L	5.0
		Thallium, Total	10.0	u UG/L	10.0
		Vanadium, Total	50.0	u UG/L	50.0
		Zinc, Total	20.0	u UG/L	20.0

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0000013

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 08/13/91

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

WESTON BATCH #: 9107L156

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-002	BOOXX0	Silver, Soluble	10.0	u UG/L	10.0
		Aluminum, Soluble	200	u UG/L	200
		Arsenic, Soluble	10.0	u UG/L	10.0
		Barium, Soluble	200	u UG/L	200
		Beryllium, Soluble	5.0	u UG/L	5.0
		Calcium, Soluble	40700	UG/L	5000
		Cadmium, Soluble	5.0	u UG/L	5.0
		Cobalt, Soluble	50.0	u UG/L	50.0
		Chromium, Soluble	13.3	UG/L	10.0
		Copper, Soluble	25.0	u UG/L	25.0
		Iron, Soluble	100	u UG/L	100
		Mercury, Soluble	0.20	u UG/L	0.20
		Potassium, Soluble	5520	UG/L	5000
		Magnesium, Soluble	11600	UG/L	5000
		Manganese, Soluble	15.0	u UG/L	15.0
		Sodium, Soluble	23200	UG/L	5000
		Nickel, Soluble	40.0	u UG/L	40.0
		Lead, Soluble	3.0	u UG/L	3.0
		Antimony, Soluble	60.0	u UG/L	60.0
		Selenium, Soluble	5.0	u UG/L	5.0
		Thallium, Soluble	10.0	u UG/L	10.0
		Vanadium, Soluble	50.0	u UG/L	50.0
		Zinc, Soluble	20.0	u UG/L	20.0

9613402.1274

0000014

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 08/13/91

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

WESTON BATCH #: 9107L156

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-003	BOOXX2	Silver, Total	10.0	u UG/L	10.0
		Aluminum, Total	200	u UG/L	200
		Arsenic, Total	10.0	u UG/L	10.0
		Barium, Total	200	u UG/L	200
		Beryllium, Total	5.0	u UG/L	5.0
		Calcium, Total	39900	UG/L	5000
		Cadmium, Total	5.0	u UG/L	5.0
		Cobalt, Total	50.0	u UG/L	50.0
		Chromium, Total	22.0	UG/L	10.0
		Copper, Total	25.0	u UG/L	25.0
		Iron, Total	317	UG/L	100
		Mercury, Total	0.29	UG/L	0.20
		Potassium, Total	6490	UG/L	5000
		Magnesium, Total	11100	UG/L	5000
		Manganese, Total	15.0	u UG/L	15.0
		Sodium, Total	29600	UG/L	5000
		Nickel, Total	40.0	u UG/L	40.0
		Lead, Total	3.0	u UG/L	3.0
		Antimony, Total	60.0	u UG/L	60.0
		Selenium, Total	5.0	u UG/L	5.0
		Thallium, Total	10.0	u UG/L	10.0
		Vanadium, Total	50.0	u UG/L	50.0
		Zinc, Total	20.0	u UG/L	20.0

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0000015

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 08/13/91

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

WESTON BATCH #: 9107L156

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-004	BOOXX3	Silver, Soluble	10.0	u UG/L	10.0
		Aluminum, Soluble	200	u UG/L	200
		Arsenic, Soluble	10.0	u UG/L	10.0
		Barium, Soluble	200	u UG/L	200
		Beryllium, Soluble	5.0	u UG/L	5.0
		Calcium, Soluble	38400	UG/L	5000
		Cadmium, Soluble	5.0	u UG/L	5.0
		Cobalt, Soluble	50.0	u UG/L	50.0
		Chromium, Soluble	16.9	UG/L	10.0
		Copper, Soluble	25.0	u UG/L	25.0
		Iron, Soluble	121	UG/L	100
		Mercury, Soluble	0.22	UG/L	0.20
		Potassium, Soluble	5880	UG/L	5000
		Magnesium, Soluble	10700	UG/L	5000
		Manganese, Soluble	15.0	u UG/L	15.0
		Sodium, Soluble	28300	UG/L	5000
		Nickel, Soluble	40.0	u UG/L	40.0
		Lead, Soluble	3.0	u UG/L	3.0
		Antimony, Soluble	60.0	u UG/L	60.0
		Selenium, Soluble	5.0	u UG/L	5.0
		Thallium, Soluble	10.0	u UG/L	10.0
		Vanadium, Soluble	50.0	u UG/L	50.0
		Zinc, Soluble	20.0	u UG/L	20.0

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0000016

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 08/13/91

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

WESTON BATCH #: 9107L156

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-005	BOOXX5	Silver, Total	10.0	u UG/L	10.0
		Aluminum, Total	200	u UG/L	200
		Arsenic, Total	10.0	u UG/L	10.0
		Barium, Total	200	u UG/L	200
		Beryllium, Total	5.0	u UG/L	5.0
		Calcium, Total	38500	UG/L	5000
		Cadmium, Total	5.0	u UG/L	5.0
		Cobalt, Total	50.0	u UG/L	50.0
		Chromium, Total	24.4	UG/L	10.0
		Copper, Total	25.0	u UG/L	25.0
		Iron, Total	240	UG/L	100
		Mercury, Total	0.22	UG/L	0.20
		Potassium, Total	6310	UG/L	5000
		Magnesium, Total	10700	UG/L	5000
		Manganese, Total	15.0	u UG/L	15.0
		Sodium, Total	27800	UG/L	5000
		Nickel, Total	40.0	u UG/L	40.0
		Lead, Total	3.0	u UG/L	3.0
		Antimony, Total	60.0	u UG/L	60.0
		Selenium, Total	5.0	u UG/L	5.0
		Thallium, Total	10.0	u UG/L	10.0
		Vanadium, Total	50.0	u UG/L	50.0
		Zinc, Total	22.8	UG/L	20.0

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0000017

ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 08/13/91

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

WESTON BATCH #: 9107L156

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT
-006	BOOXX6	Silver, Soluble	10.0	u UG/L	10.0
		Aluminum, Soluble	200	u UG/L	200
		Arsenic, Soluble	10.0	u UG/L	10.0
		Barium, Soluble	200	u UG/L	200
		Beryllium, Soluble	5.0	u UG/L	5.0
		Calcium, Soluble	39100	UG/L	5000
		Cadmium, Soluble	5.0	u UG/L	5.0
		Cobalt, Soluble	50.0	u UG/L	50.0
		Chromium, Soluble	10.0	u UG/L	10.0
		Copper, Soluble	25.0	u UG/L	25.0
		Iron, Soluble	100	u UG/L	100
		Mercury, Soluble	0.26	UG/L	0.20
		Potassium, Soluble	6550	UG/L	5000
		Magnesium, Soluble	10800	UG/L	5000
		Manganese, Soluble	15.0	u UG/L	15.0
		Sodium, Soluble	28100	UG/L	5000
		Nickel, Soluble	40.0	u UG/L	40.0
		Lead, Soluble	3.0	u UG/L	3.0
		Antimony, Soluble	60.0	u UG/L	60.0
		Selenium, Soluble	5.0	u UG/L	5.0
		Thallium, Soluble	10.0	u UG/L	10.0
		Vanadium, Soluble	50.0	u UG/L	50.0
		Zinc, Soluble	20.0	u UG/L	20.0

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U.S. EPA - CLP

EPA SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

BOOKW9

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

Lab Code: WESTON Case No.: 200BP SAS No.: SDG No.: CLP156

Matrix (soil/water): WATER Lab Sample ID: 910715601

Level (low/med): LOW Date Received: 7/12/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	84.00	U		P
7440-36-0	Antimony	18.00	U		P
7440-38-2	Arsenic	8.50	B		F
7440-39-3	Barium	28.00	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	39800.00			P
7440-47-3	Chromium	6.60	B *		P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	3.00	B		P
7439-89-6	Iron	66.50	B		P
7439-92-1	Lead	2.00	U	NW	F
7439-95-4	Magnesium	11400.00			P
7439-96-5	Manganese	2.00	B		P
7439-97-6	Mercury	.10	U		CV
7440-02-0	Nickel	6.00	U		P
7440-09-7	Potassium	5470.00			P
7782-49-2	Selenium	2.40	B	W	F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	22800.00			P
7440-28-0	Thallium	2.00	U		F
7440-62-2	Vanadium	26.30	B		P
7440-66-6	Zinc	19.50	B *		P
	Cyanide	16.90	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

9613402-1279

0000032

U.S. EPA - CLP

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

BOOXX0

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

Lab Code: WESTON Case No.: 200BP SAS No.: SDG No.: CLP156

Matrix (soil/water): WATER Lab Sample ID: 910715602

Level (low/med): LOW Date Received: 7/12/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	84.00	U		P
7440-36-0	Antimony	20.20	B		P
7440-38-2	Arsenic	8.40	B		F
7440-39-3	Barium	29.00	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	40700.00			P
7440-47-3	Chromium	13.30		*	P
7440-48-4	Cobalt	3.50	B		P
7440-50-8	Copper	4.30	B		P
7439-89-6	Iron	65.30	B		P
7439-92-1	Lead	2.00	U	NW	F
7439-95-4	Magnesium	11600.00			P
7439-96-5	Manganese	2.40	B		P
7439-97-6	Mercury	.10	U		CV
7440-02-0	Nickel	6.00	U		P
7440-09-7	Potassium	5520.00			P
7782-49-2	Selenium	2.00	U		F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	23200.00			P
7440-28-0	Thallium	2.20	B		F
7440-62-2	Vanadium	25.30	B		P
7440-66-6	Zinc	17.50	B	*	P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

9613402.1280

0000033

U.S. EPA - CLP

EPA SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

BOOX2

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

Lab Code: WESTON Case No.: 200BP SAS No.:

SDG No.: CLP156

Matrix (soil/water): WATER

Lab Sample ID: 910715603

Level (low/med): LOW

Date Received: 7/12/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	84.00	U		P
7440-36-0	Antimony	18.00	U		P
7440-38-2	Arsenic	9.00	B		F
7440-39-3	Barium	21.30	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	39900.00			P
7440-47-3	Chromium	22.00		*	P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	8.70	B		P
7439-89-6	Iron	317.00			P
7439-92-1	Lead	2.90	B	NW	F
7439-95-4	Magnesium	11100.00			P
7439-96-5	Manganese	10.30	B		P
7439-97-6	Mercury	.29			CV
7440-02-0	Nickel	9.10	B		P
7440-09-7	Potassium	6490.00			P
7782-49-2	Selenium	2.00	U		F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	29600.00			P
7440-28-0	Thallium	2.00	U		F
7440-62-2	Vanadium	25.10	B		P
7440-66-6	Zinc	10.90	B	*	P
	Cyanide	31.60	U		C

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

1
INORGANIC ANALYSIS DATA SHEET

BOOXX3

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

Lab Code: WESTON Case No.: 200BP SAS No.: SDG No.: CLP156

Matrix (soil/water): WATER Lab Sample ID: 910715604

Level (low/med): LOW Date Received: 7/12/91

* Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	84.00	U		P
7440-36-0	Antimony	18.00	U		P
7440-38-2	Arsenic	9.30	B		F
7440-39-3	Barium	21.10	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	38400.00			P
7440-47-3	Chromium	16.90		*	P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	6.10	B		P
7439-89-6	Iron	121.00			P
7439-92-1	Lead	2.00	U	NW	F
7439-95-4	Magnesium	10700.00			P
7439-96-5	Manganese	4.00	B		P
7439-97-6	Mercury	.22			CV
7440-02-0	Nickel	6.00	U		P
7440-09-7	Potassium	5880.00			P
7782-49-2	Selenium	2.00	U		F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	28300.00			P
7440-28-0	Thallium	2.00	U		F
7440-62-2	Vanadium	28.30	B		P
7440-66-6	Zinc	11.50	B	*	P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:
 Color After: COLORLESS Clarity After: CLEAR Artifacts:
 Comments:

9613402.1282

0000035

U.S. EPA - CLP

EPA SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

BOOXX5

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

Lab Code: WESTON Case No.: 200BP SAS No.: SDG No.: CLP156

Matrix (soil/water): WATER Lab Sample ID: 910715605

Level (low/med): LOW Date Received: 7/12/91

* Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	84.00	U		P
7440-36-0	Antimony	18.00	U		P
7440-38-2	Arsenic	9.20	B		F
7440-39-3	Barium	23.60	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	38500.00			P
7440-47-3	Chromium	24.40	*		P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	14.00	B		P
7439-89-6	Iron	240.00			P
7439-92-1	Lead	2.00	U	NW	F
7439-95-4	Magnesium	10700.00			P
7439-96-5	Manganese	4.50	B		P
7439-97-6	Mercury	.22			CV
7440-02-0	Nickel	7.80	B		P
7440-09-7	Potassium	6310.00			P
7782-49-2	Selenium	2.40	B	W	F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	27800.00			P
7440-28-0	Thallium	2.00	U		F
7440-62-2	Vanadium	33.50	B		P
7440-66-6	Zinc	22.80	*		P
	Cyanide	37.00	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

1
INORGANIC ANALYSIS DATA SHEET

BOOXX6

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

Lab Code: WESTON Case No.: 200BP SAS No.: SDG No.: CLP156

Matrix (soil/water): WATER Lab Sample ID: 910715606

Level (low/med): LOW Date Received: 7/12/91

‡ Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	84.00	U		P
7440-36-0	Antimony	18.00	U		P
7440-38-2	Arsenic	6.80	B	W	F
7440-39-3	Barium	22.00	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	39100.00			P
7440-47-3	Chromium	8.90	B	*	P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	3.60	B		P
7439-89-6	Iron	45.70	B		P
7439-92-1	Lead	2.00	U	NW	F
7439-95-4	Magnesium	10800.00			P
7439-96-5	Manganese	2.50	B		P
7439-97-6	Mercury	.26			CV
7440-02-0	Nickel	6.00	U		P
7440-09-7	Potassium	6550.00			P
7782-49-2	Selenium	2.00	U		F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	28100.00			P
7440-28-0	Thallium	2.00	U		F
7440-62-2	Vanadium	33.70	B		P
7440-66-6	Zinc	11.60	B	*	P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:
 Color After: COLORLESS Clarity After: CLEAR Artifacts:
 Comments:

9613402.1284

VALIDATION SUMMARY



Science Applications International Corporation
An Employee-Owned Company

0840-PKB.92
July 31, 1992

Mr. Mark A. Buckmaster
Westinghouse Hanford Company
P.O. Box 1970, MSIN H4-55
Richland, WA 99352

Subject: Deliverable for 200-BP-1 Data Validation, Task Order S-92-19, WHC Contract
No. MLW-SVV-073750

Dear Mr. Buckmaster:

Enclosed is the subject deliverable required by the referenced SAIC Task Order and WHC contract. Included in this deliverable, please find a copy of the Data Validation Report for Data Packages 9106L758, 9107L112, 9107L156, and 9107L177. This deliverable was prepared by Golder Associates with support from Ken Ridgway of SAIC under the direction of Mr. Kent Angelos.

Should you have any questions, please do not hesitate to contact the following: Mr. Kent Angelos of Golder Associates at (206) 883-0777, Mr. Mike Hoxie or myself at (509) 943-3133.

Sincerely yours,

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

A handwritten signature in black ink, appearing to read "P. K. Brockman", written in a cursive style.

P. K. Brockman
Program Manager

PKB/srj

w/att.	w/o att.
B. Bechtold, WHC	R. Henckel, WHC
LB/Task S-92-19 Deliv File	D. Martin, Albq
	D. Wilson, WHC

w/enc. including original data package
D. Leech, WHC

UK

OSH RCRA LEVEL C DATA ASSESSMENT

DATE 10-7-91
 REVIEWED BY LK Thompson
 LABORATORY WESTON
 CASE # _____
 SDG # RFW #9107L 156

SAMPLES/MATRIX BODX W9 - WATER
BODX X2 - WATER
BODX X5 - WATER

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	<u>ALUMINUM</u>	<u>ICANIONS</u> ⁽⁴⁾	<u>CYANIDE</u>
1. <u>HOLDING TIME</u>		<u>0</u>	<u>X</u>	<u>0</u>
2. <u>BLANK</u>		<u>0</u>	<u>0</u>	<u>0</u>
3. <u>MATRIX SPIKE</u>		<u>0</u>	<u>0</u>	<u>NE</u>
4. <u>DUPLICATE</u>		<u>NE</u>	<u>NE</u>	<u>0</u>
5. _____		_____	_____	_____
6. _____		_____	_____	_____
7. _____		_____	_____	_____
8. _____		_____	_____	_____
9. _____		_____	_____	_____
10. _____		_____	_____	_____

0 = data had no problems
 X = data qualified due to minor problems
 M = data qualified due to major problems/some data may be unusable

NE: NOT EVALUATED
 OVERALL ASSESSMENT: NO MAJOR PROBLEM W CASE.

ALL DATA USEABLE W/ ATTACHED QUALIFIERS

NOTES: _____

o Refer to the corresponding attachments for explanation of any problems.

ok to transmit

JJ 12/21/91

IC ANIONS: F, Cl, NO₂, NO₃, PO₄, SO₄



9613402.1287

UK

OSM RCRA LEVEL C DATA ASSESSMENT

DATE 10-7-91
REVIEWED BY LK THOMPSON
LABORATORY WESTON
CASE # _____
SDG # RFW# 91072156

SAMPLES/MATRIX BOOK W9 - WATER
BOOK X2 - WATER
BOOK X5 - WATER

DATA ASSESSMENT SUMMARY

QUALITY CONTROL CHECK	ANALYSIS	<u>NO₂/NO₃</u>	<u>TOC</u>	<u>TDS</u>
1. <u>HOLDING TIME</u>		<u>0</u>	<u>0</u>	<u>0</u>
2. <u>BLANK</u>		<u>0</u>	<u>0</u>	<u>X</u>
3. <u>MATRIX SPIKE</u>		<u>0</u>	<u>0</u>	<u>NE</u>
4. <u>DUPLICATE</u>		<u>0</u>	<u>0</u>	<u>0</u>
5. _____		<u> </u>	<u> </u>	<u> </u>
6. _____		<u> </u>	<u> </u>	<u> </u>
7. _____		<u> </u>	<u> </u>	<u> </u>
8. _____		<u> </u>	<u> </u>	<u> </u>
9. _____		<u> </u>	<u> </u>	<u> </u>
10. _____		<u> </u>	<u> </u>	<u> </u>

0 = data had no problems
X = data qualified due to minor problems
M = data qualified due to major problems/some data may be unusable
NE; NOT EVALUATED.

OVERALL ASSESSMENT: See Cover

NOTES: _____

o Refer to the corresponding attachments for explanation of any problems.

Name LK ThompsonDate 10.7.91QC Check: HOOLDING TIMESCOMMENTS: → 48 HOUR HOLDING TIME FOR NO₂, NO₃ and PO₄ WAS EXCEEDED BY 6 DAYS.→ 14 DAY HOLDING TIME FOR ALKALINITY AND CN WAS MET + OK→ 28 DAY HOLDING TIME FOR CL, F, SO₄, NO₂/NO₃ and TOC WAS MET + OK(UAT) ACTION: → TDS HAS NO SPECIFIED HOLDING TIME BUT ANALYZED IN 6 DAYSACTION: QUALIFY DATA VIA OSM GUIDELINES.

<u>sample #</u>	<u>constituent</u>	<u>value/qual</u>	<u>sample #</u>	<u>constituent</u>	<u>value/qual</u>
B00XW9	NO ₂	0.25 UJ			
	NO ₃	73.6 J			
	PO ₄	0.25 UJ			
B00XX2	NO ₂	0.25 UJ			
	NO ₃	78.5 J			
	PO ₄	0.25 UJ			
B00XX5	NO ₂	0.25 UJ			
	NO ₃	85.8 J			
	PO ₄	0.25 UJ			

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PCDA LEVEL C QC

Name LK Thompson

Date 10-7-91

LFA

QC Check: BLANK

COMMENTS: → ALKALINITY BLANKS <MDL +OK

→ IC ANION BLANKS HAD ALL ANALYTES <MDL +OK

→ CYANIDE BLANKS HAD <MDL +OK

→ NO₂/NO₃ BLANKS <MDL +OK.

QA ACTION: → TOC BLANKS <MDL +OK

→ TDS BLANK HAD 14 ppm AND SINCE ALL SAMPLES HAD TDS RESULTS > 5X THEN NO ACTION NEEDED.

sample # constituent value/qual

sample # constituent value/qual

Action: NONE

Name LK THOMPSON

Date 10.7.91

UCL

QC Check: MATRIX SPIKE

COMMENTS: → ALKALINITY BLANK SPIKES ALL W/IN QC LIMIT FOR RECOU.

→ IC ANYHOW BLANK SPIKE RECOVERIES ALL W/IN QC LIMITS.

→ NO₂/NO₃ BLANK SPIKES ALL W/IN QC LIMITS

→ TOC BLANK SPIKES ALL W/IN QC LIMITS.

UCL ACTION: → CYANIDE + TDS HAD NO SPIKE RECOU STUDIES
NONE

ACTION: NONE

sample # constituent value/qual

sample # constituent value/qual

<u>sample #</u>	<u>constituent</u>	<u>value/qual</u>	<u>sample #</u>	<u>constituent</u>	<u>value/qual</u>
 					

Name LK THOMPSONDate 10.7.91QC Check: DUPLICATECOMMENTS: → CN DUP OF LCS WERE HAD %DIFF W/IN QCLIMIT.→ NO₂/NO₃ BLANK SPIKE DUP %DIFF W/IN QC LIMIT→ TOC BLANK SPIKE DUP %DIFF W/IN QCLIMIT.→ TDS DUP OF BOOXS %DIFF W/IN QC LIMIT.ⓁⓂ ACTION: → NO IC ANION DUP NOR ALKALINITY DUPACTION: NONEsample # constituent value/qualsample # constituent value/qual

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ROY F. WESTON INC.

INORGANICS DATA SUMMARY REPORT 08/22/91

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

WESTON BATCH #: 9107L156

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT		
-001	BOOXW9	Alkalinity	92.0	MG/L	2.0		
		Chloride by IC	5.9	mg/L	0.25		
		Fluoride by IC	0.52	mg/L	0.50		
		Nitrite by IC	0.25 uJ	mg/L	0.25		
		Nitrate by IC	73.6 J	mg/L	0.25		
		Cyanide, Total	16.9	UG/L	10.0		
		Phosphate by IC	0.25 uJ	mg/L	0.25		
		Sulfate by IC	40.0	mg/L	0.25		
		Nitrate Nitrite	16.7	MG/L	1.0		
		Total Organic Carbon	0.73	MG/L	0.50		
		pH	8.0	PH UNITS	0.010		
		Total Dissolved Solids	301	MG/L	5.0		
		-003	BOOXX2	Alkalinity	94.0	MG/L	2.0
				Chloride by IC	4.9	mg/L	0.25
Fluoride by IC	0.81			mg/L	0.50		
Nitrite by IC	0.25 uJ			mg/L	0.25		
Nitrate by IC	78.5 J			mg/L	0.25		
Cyanide, Total	31.6			UG/L	10.0		
Phosphate by IC	0.25 uJ			mg/L	0.25		
Sulfate by IC	38.2			mg/L	0.25		
Nitrate Nitrite	16.8			MG/L	1.0		
Total Organic Carbon	0.83			MG/L	0.50		
pH	7.9			PH UNITS	0.010		
Total Dissolved Solids	310			MG/L	5.0		
-005	BOOXX5			Alkalinity	94.0	MG/L	2.0
				Chloride by IC	5.2	mg/L	0.25
		Fluoride by IC	0.76	mg/L	0.50		
		Nitrite by IC	0.25 uJ	mg/L	0.25		
		Nitrate by IC	85.8 J	mg/L	0.25		
		Cyanide, Total	37.0	UG/L	10.0		
		Phosphate by IC	0.25 uJ	mg/L	0.25		
		Sulfate by IC	38.8	mg/L	0.25		
		Nitrate Nitrite	18.5	MG/L	1.0		
		Total Organic Carbon	2.2	MG/L	0.50		
		pH	7.8	PH UNITS	0.010		
		Total Dissolved Solids	400	MG/L	5.0		

LIT
10-7-91

LIT
10-7-91

LIT
10-7-91

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

DATE: January 26, 1993

TO: File 9107L156

FROM: S.D.L.A.

Telephone: 2-3206

CC:

SUBJECT:

VALIDATION DOCUMENTATION

Validation documentation for the above mentioned data package is filed with Data Package 9106L758.

Report To

**Westinghouse Hanford Company
Richland, Washington**

**Data Validation Report
200-BP-1 RI/FS**

Laboratory: Weston

**Data Packages: 9106L758, 9107L112
9107L156, 9107L177**

Matrix: Water

Analysis Type: Volatile Organics and Wet Chemistry

Prepared By

**Golder Associates Inc.
Redmond, Washington**

9613402.1295



Science Applications International Corporation
An Employee-Owned Company

0072-PKB.92
February 24, 1992

Mr. Mark A. Buckmaster
Westinghouse Hanford Company
P.O. Box 1970, MSIN H4-55
Richland, WA 99352

Subject: Deliverable for 200-BP-1 Validation, Task Order S-92-19, WHC Contract No.
MLW-SVV-073750

Dear Mr. Buckmaster:

Enclosed please find a copy of the Data Validation Summary reports for Data Packages CLP156 and CLP758 required by the referenced SAIC Task and WHC contract. This deliverable was prepared by a team of Golder Associates under the direction of Mr. Kent Angelos with support from SAIC.

Should you have any questions, please do not hesitate to contact the following: Mr. Kent Angelos, Golder Associates at (206) 883-0777, Mr. Mike Hoxie or myself at (509) 943-3133.

Sincerely yours,

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

A handwritten signature in black ink, appearing to read "P. K. Brockman", written in a cursive style.

P. K. Brockman
Program Manager

Enclosure
PKB/kdc

w. enc.
R. Bechtold, WHC
LB/Task S-92-19 Deliv File

w/o enc.
M. Adams, WHC
D. Caldwell, Golder
J. Wilborn, Albq
D. Wilson, WHC

w/enc. including original data package
T. Tønning, WHC

1845 Terminal Drive, Suite 202, Richland, Washington 99352 (509) 943-3133

Other SAIC Offices: Albuquerque, Boston, Colorado Springs, Dayton, Huntsville, Las Vegas, Los Angeles, McLean, Oak Ridge, Orlando, Palo Alto, San Diego, Seattle, and Tucson

Report To

Westinghouse Hanford Company
Richland, Washington

Data Validation Report

200-BP-1 RI/FS

Data Package: 9107L156-WES-113

SDG No.: CLP156

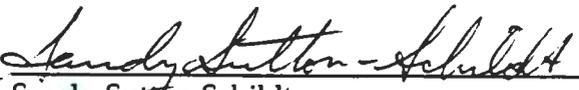
Data Package: 9106L758-WES-091

SDG No.: CLP758

Analysis Type: Metals/Cyanide/Bi/Si

Prepared By

Golder Associates Inc.
Redmond, Washington

Validated by: 
Sandy Sutton-Schildt
Staff Environmental Scientist

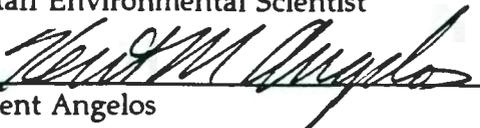
Reviewed by: 
Kent Angelos
Associate

TABLE OF CONTENTS

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1. INTRODUCTION	1
2. DATA QUALITY OBJECTIVES	1
3. QUALIFIED DATA	1
3.1 Major Deficiencies	1
3.2 Minor Deficiencies	1
4. CONCLUSIONS	3
5. REFERENCES	3

1. INTRODUCTION

This report presents the results of data validation on case 200BP and SDGs: CLP156 and CLP758 consisting of six (6) and seven (7) water samples, respectively, for contract laboratory program/target analyte list (CLP/TAL) total and dissolved metals, CLP/TAL total cyanide, bismuth and silicon analysis. Sample identifications, locations and sample dates are provided in the tabular data summary provided in Attachment 3. Sample delivery group CLP758 included one field blank and one set of field duplicates. The samples were analyzed by the Weston - Lionville laboratory using the 3/90 statement of work (SOW) for metals and cyanide. Validation was conducted in accordance with "Westinghouse Hanford Company, Validation of 200-BP-1 Data, Statement of Work, Revision 0, November 1991" including Revision A, dated December 1991.

2. DATA QUALITY OBJECTIVES

The data package was complete for all requested analyses and met the data quality objectives of the "RI/FS Work Plan for the 200-BP-1 Operable Unit, Hanford Site, Richland, Washington, DOE/RL 88-32". Data quality objectives for the project specified the use of CLP methods for the TAL metals and cyanide, and the use of standard methods for the analysis of bismuth and silicon (APHA, 1989).

Sample quantitation limits were in most samples less than the contract required quantitation limit (CRQL) specified in the QAPjP (DOE, 1989) with the exception of three analyses for cyanide (samples B00XW9, B00XX2, and B00XX5) in CLP156, and bismuth in CLP758. Bismuth was reported to a quantitation limit of 200 µg/L and the estimated detection limit specified in method 3111A (APHA, 1989) is 60 µg/L. However, all analyses were reported to within five times the CRQL.

3. QUALIFIED DATA

This section presents a summary of the qualifications required based on validation of the subject data package.

3.1 Major Deficiencies

No data were rejected as a result of the validation.

3.2 Minor Deficiencies

The following qualifications were required for SDG CLP156 as a result of the validation. Attachment 2 provides a summary of the samples affected.

- Antimony, copper, iron, vanadium, zinc, manganese, and potassium were detected in one or more laboratory blanks. Associated sample results less

than five times the highest blank result have been qualified as non-detects (see Attachments 2 and 4).

- Matrix spike recoveries for silver and lead were less than the control limits of 75 to 125%. Six associated sample results have been qualified as estimated (UJ for non-detects).
- Analytical spike recoveries for arsenic, lead, and selenium were less than the control limits of 85 to 115%. Ten associated samples have been qualified as estimated (J for detects, UJ for non-detects).

The following qualifications were required for SDG CLP758 as a result of the validation. Attachment 2 provides a summary of the samples affected.

- Holding times were exceeded for mercury in four samples. Mercury results for these four samples have been qualified as estimated (UJ for non-detects).
- Copper, vanadium, and zinc were detected in one or more laboratory blanks. Associated sample results less than five times the highest blank result have been qualified as non-detects (see Attachments 2 and 4).
- Selenium was detected in the field blank at a concentration of 2.1 µg/L. One sample with a selenium concentration less than five times this concentration (10.5 µg/L) has been qualified as a non-detect (U).
- Matrix spike recoveries for aluminum, arsenic, chromium, iron, lead, selenium, silicon, and thallium were not within the control limits of 75 to 125%. Associated sample results have been qualified as estimated (J for detects, UJ for non-detects).
- Analytical spike recoveries for thallium exceeded the control limit of 85 to 115%. Two associated sample results have been qualified as estimated (UJ for non-detects).
- One set of field duplicate samples was analyzed and a summary of the results is in attachment 4. Relative percent difference (RPD) values for the duplicate set ranged from 0 to 200% which is within the control limits specified in the validation requirements.
- The field blank was used for the matrix spike analysis, laboratory duplicate, and ICP serial dilutions. The results for these analyses may not represent actual site conditions.

4. CONCLUSIONS

Sections 1 through 3 present a summary of the data quality for the subject data package. No major deficiencies were identified during the validation requiring rejection of data. The attachments provide supporting documentation and a tabular summary of the qualified data. The original, as-received data package is enclosed for submittal to the project QA record.

LIST OF ATTACHMENTS

- 1 Glossary of Data Qualifiers
- 2 Summary of Data Qualifications - Form B-7
- 3 As-Qualified Data Summary
- 4 Data Review Supporting Documentation

5. REFERENCES

APHA, 1989, Standard Methods for the Examination of Water and Wastewater, 17th Edition, American Public Health Association, Washington, D.C.

DOE, 1989, Remedial Investigation/Feasibility Study Work Plan for the 200-BP-1 Operable Unit Hanford Site, Richland, Washington, DOE/RL 88-32. United States Department of Energy, Richland, Washington.

WHC, 1991, Westinghouse Hanford Company, Validation of 200-BP-1 Data, Statement of Work, Revision A, November 1991. Westinghouse Hanford Company, Richland, Washington.

ATTACHMENT 1

GLOSSARY OF DATA REPORTING QUALIFIERS

- U - Indicates the compound or analyte was analyzed for and not detected. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.
- UJ - Indicates the compound or analyte was analyzed for and not detected. Due to identified quality control deficiency identified during data validation the value reported may not accurately reflect the sample quantitation limit.
- J - Indicates the compound or analyte was analyzed for and detected. The associated value is estimated but the data are usable for decision making processes.
- B - Indicates the compound or analyte was analyzed for and detected. The associated value is less than the CRQL but greater than the IDL.
- R - Indicates the compound or analyte was analyzed for and due to an identified quality control deficiency the data are unusable.
- NJ - Indicates presumptive evidence of a compound at an estimated value.
- N - Indicates presumptive evidence of a compound.

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ATTACHMENT 2
SUMMARY OF DATA QUALIFICATIONS

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: CLP156	REVIEWER: S. Schindler	DATE: 2/4/92	PAGE: 1 OF 1	
COMMENTS:				
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON	
Sb	U	B00XX0	Analyte found in blank	
Cu	U	B00XW9, XX0, XX2 XX3, XX5, XX6	↓	
Fe	U	B00XW9, XX0, XX2, XX3, XX5, XX6		
V	U	B00XW9, XX0, XX2 XX3, XX5, XX6		
Zn	U	B00XW9, XX0, XX2 XX3, XX5, XX6		
Mn	U	B00XW9, XX0, XX3 XX5, XX6		
As K	U	B00XX5, XX6		↓
Ag	UJ	B00XW9, XX0 XX2, XX3		Matrix spike recovery < 75%
Pb	UJ	B00XX5, XX6		↓
As	J	B00XX6		Analytical spike recovery < 85%
Pb	UJ	B00XW9, XX0, XX2, XX3		↓
Se	UJ	B00XX0, XX2, XX3		
↓	J	B00XW9, XX5		

SSS
2/4/92

SSS
2/20/92
SSS
2/14/92

DATA QUALIFICATION SUMMARY - FORM B-7

SDG: CLP758		REVIEWER: SSchultz	DATE: 2/6/92	PAGE 1 OF 2
COMMENTS:				
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON	
Hg	UJ	B00XT5, XT6, XT2, XT3	Holding time exceeded	
Cu	U	B00XR2, XT5	Analyte found	
↓	↓	XT2, XT3, XY4, XY5	in blanks	
V	↓	B00XT5, XT6, XT2, XT3	↓	
Zn	↓	B00XR2, XT6	↓	
↓	↓	XT2, XT3, XY4	↓	
Se	U	B00XY5	Analyte found in field blank	
Al	J	B00XT5	Matrix spike recovery	
↓	UJ none	B00XT6, XT2, XT3	73% or >125%	
As	UJ	B00XR2	48/12	
↓	J	B00XT5, XT6	↓	
↓	↓	XT2, XT3, XY4, XY5	↓	
Cr	J	B00XT5, XT2, XT3	↓	
↓	UJ none	B00XT6	↓	
Fe	J	B00XT5, XT6, XT2	↓	
↓	UJ none	B00XT3	↓	
Se	UJ	B00XT5, XT6, XT2, XT3	↓	
↓	↓	B00XY4, XY5	↓	
↓	J	B00XR2	↓	
Pb	UJ	B00XR2, XY4, XY5	↓	
Tl	UJ	B00XR2, XY4, XY5	↓	

SSchultz
2/14/92

ASL
2/14

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ATTACHMENT 3
AS QUALIFIED DATA SUMMARY

Project		200-BP-1																	
Laboratory		WESTON																	
Case WEST		SDG		CLP156															
Sample Number		B00XW9		B00XX0		B00XX2		B00XX3		B00XX5		B00XX6							
Location		2-33-3		2-33-3		2-33-4		2-33-4		2-33-7		2-33-7							
Remarks		total		dissolved		total		dissolved		total		dissolved							
Sample Date		7-10-91		7-10-91		7-10-91		7-10-91		7-10-91		7-10-91							
Inorganic Analytes		CRQL		Result		Q		Result		Q		Result		Q		Result		Q	
Aluminum		200		84		U		84		U		84		U		84		U	
Antimony		60		18		U		20.2		U		18		U		18		U	
Arsenic		10		8.5		B		8.4		B		9		B		9.3		B	
Barium		200		28		B		29		B		21.3		B		21.1		B	
Beryllium		5		1		U		1		U		1		U		1		U	
Cadmium		5		2		U		2		U		2		U		2		U	
Calcium		5000		39800				40700				39900				38400			
Chromium		10		6.6		B		13.3				22				16.9			
Cobalt		50		3		U		3.5		B		3		U		3		U	
Copper		25		3		U		4.3		U		8.7		U		6.1		U	
Iron		100		66.5		U		65.3		U		317		U		121		U	
Lead		5		2		UJ		2		UJ		2.9		J		2		UJ	
Magnesium		5000		11400				11600				11100				10700			
Manganese		15		2		U		2.4		U		10.3		B		4		U	
Mercury		0.2		0.1		U		0.1		U		0.29				0.22			
Nickel		40		6		U		6		U		9.1		B		6		U	
Potassium		5000		5470				5520				6490				5880			
Selenium		5		2.4		J		2		UJ		2		UJ		2		UJ	
Silver		10		4		UJ		4		UJ		4		UJ		4		U	
Sodium		5000		22800				23200				29600				28300			
Thallium		10		2		U		2.2		B		2		U		2		U	
Vanadium		50		26.3		U		25.3		U		25.1		U		28.3		U	
Zinc		20		19.5		U		17.5		U		10.9		U		11.5		U	
Cyanide		10		16.9		U						31.6		U		37		U	
Bismuth																			
Silicon																			

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Project		200-BP-1																					
Laboratory		WESTON																					
Case WEST		SDG		CLP758																			
Sample Number		B00XR2		B00XT5		B00XT6		B00XT2		B00XT3		B00XY4		B00XY5									
Location		trip blk		2-33-40		2-33-40		2-33-39		2-33-39		2-33-39		2-33-39									
Remarks		total		total		dissolved		total		dissolved		total		dissolved									
Sample Date		5-30-91		5-30-91		5-30-91		5-30-91		5-30-91		5-30-91		5-30-91									
Inorganic Analytes		CRQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q							
Aluminum	200	84	U	253	J	84	U	84	U	84	U	84	U	84	U								
Antimony	60	18	U	21.4	B	18	U	18	U	29.9	B	18	U	18	U								
Arsenic	10	2	UJ	2.9	J	4	J	6.2	J	6	J	5.4	J	5.7	J								
Barium	200	5	U	73.3	B	69.5	B	34.2	B	34.2	B	34.5	B	33.7	B								
Beryllium	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U								
Cadmium	5	2	U	2.5	B	2	U	2	U	2	U	2	U	2	U								
Calcium	5000	91	U	28617.		29198.		33305.		32956.		32410		33220									
Chromium	10	3	U	15.7	J	3	U	13.4	J	5.3	J	14		4.8	B								
Cobalt	50	3	U	3	U	3	U	3	U	3	U	3	U	3	U								
Copper	25	2.2	U	8.9	U	2	U	5.4	U	3.8	U	5.6	U	4.5	U								
Iron	100	36	U	1178	J	192.1	J	124.9	J	36	U	110.1		36	U								
Lead	5	2	UJ	2	U	2	U	2	U	2	U	2	UJ	2	UJ								
Magnesium	5000	76	U	8065		8247		9497.9		9390		9250.4		9444.1									
Manganese	15	1	U	69.2		52		4.2	B	3.3	B	3.3	B	3	B								
Mercury	0.2	0.2	U	0.2	UJ	0.2	UJ	0.2	UJ	0.2	UJ	0.2	U	0.2	U								
Nickel	40	6	U	7.5	B	6	U	8.7	B	6	U	7.7	B	6	U								
Potassium	5000	955	U	7557.4		7602.3		6297.8		6747.6		6786.5		6786.5									
Selenium	5	2.1	J	2	UJ	2	UJ	2	UJ	2	UJ	2	UJ	3.1	UJ								
Silver	10	4	U	4	U	4	U	4	U	4	U	4	U	4	U								
Sodium	5000	48	U	12600.		12799.		24566.		24326.		24267		24847									
Thallium	10	2	UJ	2	U	2	U	2	UJ	2	UJ	2	UJ	2	UJ								
Vanadium	50	4	U	15.9	U	12.9	U	29.1	U	29.7	U	20.3	B	18.9	B								
Zinc	20	5.1	U	35.7		20.8	U	9.6	U	23.1	U	9.3	U	2	U								
Cyanide	10	10	U	10	U			10	U			10	U										
Bismuth		200	U	200	U	200	U	200	U	200	U	200	U	200	U								
Silicon		100	UJ	23800	J	24900	J	19600	J	19100	J	18900	J	19000	J								

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1
 INORGANIC ANALYSIS DATA SHEET

BOOXW9
 2-33-3

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

Lab Code: WESTON Case No.: 200BP SAS No.: SDG No.: CLP156

Matrix (soil/water): WATER Lab Sample ID: 910715601

Level (low/med): LOW Date Received: 7/12/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	84.00	U		P
7440-36-0	Antimony	18.00	U		P
7440-38-2	Arsenic	8.50	B		F
7440-39-3	Barium	28.00	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	39800.00			P
7440-47-3	Chromium	6.60	B *		P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	3.00	B		P
7439-89-6	Iron	66.50	B		P
7439-92-1	Lead	2.00	U	NW	F
7439-95-4	Magnesium	11400.00			P
7439-96-5	Manganese	2.00	B		P
7439-97-6	Mercury	.10	U		CV
7440-02-0	Nickel	6.00	U		P
7440-09-7	Potassium	5470.00			P
7782-49-2	Selenium	2.40	B	W	F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	22800.00			P
7440-28-0	Thallium	2.00	U		F
7440-62-2	Vanadium	26.30	B		P
7440-66-6	Zinc	19.50	B *		P
	Cyanide	16.90	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture:
 Color After: COLORLESS Clarity After: CLEAR Artifacts:
 Comments:

Handwritten:
 West
 2/20/92
 2/14/92

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U.S. EPA - CLP

EPA SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

BOOXO
2-33-3

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

Lab Code: WESTON Case No.: 200BP SAS No.: SDG No.: CLP156

Matrix (soil/water): WATER Lab Sample ID: 910715602

Level (low/med): LOW Date Received: 7/12/91

* Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	84.00	U		P
7440-36-0	Antimony	20.20	B		P U
7440-38-2	Arsenic	8.40	B		F
7440-39-3	Barium	29.00	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	40700.00			P
7440-47-3	Chromium	13.30		*	P
7440-48-4	Cobalt	3.50	B		P
7440-50-8	Copper	4.30	B		P U
7439-89-6	Iron	65.30	B		P U
7439-92-1	Lead	2.00	U	NW	F UJ
7439-95-4	Magnesium	11600.00			P
7439-96-5	Manganese	2.40	B		P U
7439-97-6	Mercury	.10	U		CV
7440-02-0	Nickel	6.00	U		P
7440-09-7	Potassium	5520.00			P
7782-49-2	Selenium	2.00	B		F UJ
7440-22-4	Silver	4.00	U	N	P UJ
7440-23-5	Sodium	23200.00			P
7440-28-0	Thallium	2.20	B		F
7440-62-2	Vanadium	25.30	B		P U
7440-66-6	Zinc	17.50	B	*	P U
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

Handwritten notes:
2/20/92
2/14/92

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U.S. EPA - CLP

EPA SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

BOOXX2

2-33-4

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

Lab Code: WESTON Case No.: 200BP SAS No.: SDG No.: CLP156

Matrix (soil/water): WATER Lab Sample ID: 910715603

Level (low/med): LOW Date Received: 7/12/91

* Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	84.00	U		P
7440-36-0	Antimony	18.00	U		P
7440-38-2	Arsenic	9.00	B		F
7440-39-3	Barium	21.30	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	39900.00			P
7440-47-3	Chromium	22.00		*	P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	8.70	B		P
7439-89-6	Iron	317.00			P
7439-92-1	Lead	2.90	B	NW	F
7439-95-4	Magnesium	11100.00			P
7439-96-5	Manganese	10.30	B		P
7439-97-6	Mercury	.29			CV
7440-02-0	Nickel	9.10	B		P
7440-09-7	Potassium	6490.00			P
7782-49-2	Selenium	2.00	U		F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	29600.00			P
7440-28-0	Thallium	2.00	U		F
7440-62-2	Vanadium	25.10	B		P
7440-66-6	Zinc	10.90	B	*	P
	Cyanide	31.60	U		C

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

FORM I - IN

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1
INORGANIC ANALYSIS DATA SHEET

BOOXX3
2-33-4

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

Lab Code: WESTON Case No.: 200BP SAS No.: SDG No.: CLP156

Matrix (soil/water): WATER Lab Sample ID: 910715604

Level (low/med): LOW Date Received: 7/12/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	84.00	U		P
7440-36-0	Antimony	18.00	U		P
7440-38-2	Arsenic	9.30	B		P
7440-39-3	Barium	21.10	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	38400.00			P
7440-47-3	Chromium	16.90		*	P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	6.10	B		P
7439-89-6	Iron	121.00			P
7439-92-1	Lead	2.00	B	NW	F
7439-95-4	Magnesium	10700.00			P
7439-96-5	Manganese	4.00	B		P
7439-97-6	Mercury	.22			CV
7440-02-0	Nickel	6.00	U		P
7440-09-7	Potassium	5880.00			P
7782-49-2	Selenium	2.00	B		F
7440-22-4	Silver	4.00	B	N	P
7440-23-5	Sodium	28300.00			P
7440-28-0	Thallium	2.00	U		F
7440-62-2	Vanadium	28.30	B		P
7440-66-6	Zinc	11.50	B	*	P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

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2/14/91

1
INORGANIC ANALYSIS DATA SHEET

BOOXX5
2-33-7

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

Lab Code: WESTON Case No.: 200BP SAS No.: SDG No.: CLP156

Matrix (soil/water): WATER Lab Sample ID: 910715605

Level (low/med): LOW Date Received: 7/12/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	84.00	U		P
7440-36-0	Antimony	18.00	U		P
7440-38-2	Arsenic	9.20	B		F
7440-39-3	Barium	23.60	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	38500.00			P
7440-47-3	Chromium	24.40	*		P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	14.00	B		P
7439-89-6	Iron	240.00			P
7439-92-1	Lead	2.00	U	NW	F
7439-95-4	Magnesium	10700.00			P
7439-96-5	Manganese	4.50	B		P
7439-97-6	Mercury	.22			CV
7440-02-0	Nickel	7.80	B		P
7440-09-7	Potassium	6310.00			P
7782-49-2	Selenium	2.40	B	W	F
7440-22-4	Silver	4.00	U	N	P
7440-23-5	Sodium	27800.00			P
7440-28-0	Thallium	2.00	U		F
7440-62-2	Vanadium	33.50	B		P
7440-66-6	Zinc	22.80	*		P
	Cyanide	37.00	U		C

Color Before: COLORLESS Clarity Before: CLEAR Texture:
 Color After: COLORLESS Clarity After: CLEAR Artifacts:
 Comments:

Handwritten:
2/20/92
2/14/92

1
INORGANIC ANALYSIS DATA SHEET

BOOXX6
2-33-7

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

Lab Code: WESTON Case No.: 200BP SAS No.: SDG No.: CLP156

Matrix (soil/water): WATER Lab Sample ID: 910715606

Level (low/med): LOW Date Received: 7/12/91

‡ Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	84.00	U		P
7440-36-0	Antimony	18.00	U		P
7440-38-2	Arsenic	6.80	B W		P J
7440-39-3	Barium	22.00	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	39100.00			P
7440-47-3	Chromium	8.90	B *		P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	3.60	B		P U
7439-89-6	Iron	45.70	B		P U
7439-92-1	Lead	2.00	U NW		F U J
7439-95-4	Magnesium	10800.00			P
7439-96-5	Manganese	2.50	B		P U
7439-97-6	Mercury	.26			CV
7440-02-0	Nickel	6.00	U		P
7440-09-7	Potassium	6550.00			P U
7782-49-2	Selenium	2.00	U		F
7440-22-4	Silver	4.00	U N		P
7440-23-5	Sodium	28100.00			P
7440-28-0	Thallium	2.00	U		F
7440-62-2	Vanadium	33.70	B		P U
7440-66-6	Zinc	11.60	B *		P U
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

Handwritten signature and date:
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U.S. EPA - CLP

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

BOOKR2

Full Trip Blank 2

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

Lab Code: WESTON Case No.: 200BP SAS No.:

SDG No.: CLP758

Matrix (soil/water): WATER

Lab Sample ID: 910675801

Level (low/med): LOW

Date Received: 6/01/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	84.00	U	N	P
7440-36-0	Antimony	18.00	U		P
7440-38-2	Arsenic	2.00	U	NW	F
7440-39-3	Barium	5.00	U		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	91.00	U		P
7440-47-3	Chromium	3.00	U	N	P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	2.20	B		P
7439-89-6	Iron	36.00	U	N	P
7439-92-1	Lead	2.00	U	NW	F
7439-95-4	Magnesium	76.00	U		P
7439-96-5	Manganese	1.00	U		P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	6.00	U		P
7440-09-7	Potassium	955.00	U		P
7782-49-2	Selenium	2.10	B	N	F
7440-22-4	Silver	4.00	U		P
7440-23-5	Sodium	48.00	U		P
7440-28-0	Thallium	2.00	U	N	F
7440-62-2	Vanadium	4.00	U		P
7440-66-6	Zinc	5.10	B		P
	Cyanide	10.00	U		C

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

FORM I - IN

03/90

Handwritten:
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2/14/92

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U.S. EPA - CLP

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

BOOX T5
2-33-40

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

Lab Code: WESTON Case No.: 200BP SAS No.: SDG No.: CLP758

Matrix (soil/water): WATER Lab Sample ID: 910675803

Level (low/med): LOW Date Received: 6/01/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	253.00	/	N	P J
7440-36-0	Antimony	21.40	B		P
7440-38-2	Arsenic	2.90	B	NW	F J
7440-39-3	Barium	73.30	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.50	B		P
7440-70-2	Calcium	28617.40			P
7440-47-3	Chromium	15.70	/	N*	P J
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	8.90	B		P U
7439-89-6	Iron	1178.00	/	N	P J
7439-92-1	Lead	2.00	U	N	F
7439-95-4	Magnesium	8065.00			P
7439-96-5	Manganese	69.20			P
7439-97-6	Mercury	.20	U		CV UJ
7440-02-0	Nickel	7.50	B		P
7440-09-7	Potassium	7557.40			P
7782-49-2	Selenium	2.00	/	NW	F UJ
7440-22-4	Silver	4.00	U		P
7440-23-5	Sodium	12600.60			P
7440-28-0	Thallium	2.00	U	N	F
7440-62-2	Vanadium	15.90	B		P U
7440-66-6	Zinc	35.70	/		P U 5/2/5/2
	Cyanide	10.00	U		C

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

Handwritten signature and date: 2/14/92

Handwritten signature and date: 2/14/92

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U.S. EPA - CLP

EPA SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

BOOKT6
2-33-40

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

Lab Code: WESTON Case No.: 200BP SAS No.: SDG No.: CLP758

Matrix (soil/water): WATER Lab Sample ID: 910675804

Level (low/med): LOW Date Received: 6/01/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	84.00	U	N	P <i>USU</i>
7440-36-0	Antimony	18.00	U		P
7440-38-2	Arsenic	4.00	B	NW	F <i>J</i>
7440-39-3	Barium	69.50	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	29198.40			P
7440-47-3	Chromium	3.00	U	*N	P <i>USU</i>
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	2.00	U		P
7439-89-6	Iron	192.10		N	P <i>J</i>
7439-92-1	Lead	2.00	U	N	F
7439-95-4	Magnesium	8247.00			P
7439-96-5	Manganese	52.00			P
7439-97-6	Mercury	.20	U		CV <i>US</i>
7440-02-0	Nickel	6.00	U		P
7440-09-7	Potassium	7602.30			P
7782-49-2	Selenium	2.00	U	NW	F <i>US</i>
7440-22-4	Silver	4.00	U		P
7440-23-5	Sodium	12799.70			P
7440-28-0	Thallium	2.00	U	NW	F
7440-62-2	Vanadium	12.90	B		P <i>U</i>
7440-66-6	Zinc	20.80			P <i>U</i>
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

Handwritten signature and date: 2/14/92

Handwritten initials and date: 2/14/92

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U.S. EPA - CLP

EPA SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

BOOKT2
2-33-39

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

Lab Code: WESTON Case No.: 200BP SAS No.: SDG No.: CLP758

Matrix (soil/water): WATER Lab Sample ID: 910675805

Level (low/med): LOW Date Received: 6/01/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	84.00	U	N	P
7440-36-0	Antimony	18.00	U		P
7440-38-2	Arsenic	6.20	B	NW	F
7440-39-3	Barium	34.20	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	33305.10			P
7440-47-3	Chromium	13.40		*N	P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	5.40	B		P
7439-89-6	Iron	124.90		N	P
7439-92-1	Lead	2.00	U	N	F
7439-95-4	Magnesium	9497.90			P
7439-96-5	Manganese	4.20	B		P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	8.70	B		P
7440-09-7	Potassium	6297.80			P
7782-49-2	Selenium	2.00	U	N	F
7440-22-4	Silver	4.00	U		P
7440-23-5	Sodium	24566.40			P
7440-28-0	Thallium	2.00	U	N	F
7440-62-2	Vanadium	29.10	B		P
7440-66-6	Zinc	9.60	B		P
	Cyanide	10.00	U		C

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

Handwritten signature and date: 2/14/92

Handwritten signature and date: 2/14/92

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U.S. EPA - CLP

EPA SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

BOOK3
2-33-39

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

Lab Code: WESTON Case No.: 200BP SAS No.: SDG No.: CLP758

Matrix (soil/water): WATER Lab Sample ID: 910675806

Level (low/med): LOW Date Received: 6/01/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	84.00	U	N	P <i>USU</i>
7440-36-0	Antimony	29.90	B		P
7440-38-2	Arsenic	6.00	B	NW	F <i>J</i>
7440-39-3	Barium	34.20	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	32956.80			P
7440-47-3	Chromium	5.30	B	*N	P <i>J</i>
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	3.80	B		P <i>u</i>
7439-89-6	Iron	36.00	U	N	P <i>USU</i>
7439-92-1	Lead	2.00	U	NW	F
7439-95-4	Magnesium	9390.00			P
7439-96-5	Manganese	3.30	B		P
7439-97-6	Mercury	.20	U		CV <i>uJ</i>
7440-02-0	Nickel	6.00	U		P
7440-09-7	Potassium	6747.60			P
7782-49-2	Selenium	2.00	U	N	F <i>uJ</i>
7440-22-4	Silver	4.00	U		P
7440-23-5	Sodium	24326.40			P
7440-28-0	Thallium	2.00	U	N	F <i>uJ</i>
7440-62-2	Vanadium	29.70	B		P <i>u</i>
7440-66-6	Zinc	23.10			P <i>u</i>
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

CLP 2/14/92

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U.S. EPA - CLP

EPA SAMPLE NO.

1
INORGANIC ANALYSIS DATA SHEET

BOOXY4
Duplicate 4

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

299 E 33-39

Lab Code: WESTON Case No.: 200BP SAS No.:

SDG No.: CLP758

Matrix (soil/water): WATER

Lab Sample ID: 910675807

Level (low/med): LOW

Date Received: 6/01/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	84.00	U	N	P
7440-36-0	Antimony	18.00	U		P
7440-38-2	Arsenic	5.40	B	NW	F J
7440-39-3	Barium	34.50	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	32410.20			P
7440-47-3	Chromium	14.00		*N	P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	5.60	B		P u
7439-89-6	Iron	110.10		N	P
7439-92-1	Lead	2.00	U	N	F u J
7439-95-4	Magnesium	9250.40			P
7439-96-5	Manganese	3.30	B		P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	7.70	B		P
7440-09-7	Potassium	6786.50			P
7782-49-2	Selenium	2.00	U	NS	F u J
7440-22-4	Silver	4.00	U		P
7440-23-5	Sodium	24267.80			P
7440-28-0	Thallium	2.00	U	N	F u J
7440-62-2	Vanadium	20.30	B		P
7440-66-6	Zinc	9.30	B		P u
	Cyanide	10.00	U		C

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

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1
INORGANIC ANALYSIS DATA SHEET

BOOXY5
Duplicate 4
249 E33-39
SDG No.: CLP758

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

Lab Code: WESTON Case No.: 200BP SAS No.:

Matrix (soil/water): WATER

Lab Sample ID: 910675808

Level (low/med): LOW

Date Received: 6/01/91

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	84.00	U	N	P
7440-36-0	Antimony	18.00	U		P
7440-38-2	Arsenic	5.70	B	NW	F J
7440-39-3	Barium	33.70	B		P
7440-41-7	Beryllium	1.00	U		P
7440-43-9	Cadmium	2.00	U		P
7440-70-2	Calcium	33220.80			P
7440-47-3	Chromium	4.80	B	*N	P
7440-48-4	Cobalt	3.00	U		P
7440-50-8	Copper	4.50	B		P u
7439-89-6	Iron	36.00	U	N	P
7439-92-1	Lead	2.00	U	N	F uJ
7439-95-4	Magnesium	9444.10			P
7439-96-5	Manganese	3.00	B		P
7439-97-6	Mercury	.20	U		CV
7440-02-0	Nickel	6.00	U		P
7440-09-7	Potassium	6786.50			P
7782-49-2	Selenium	3.10	B	NW	F uJ
7440-22-4	Silver	4.00	U		P
7440-23-5	Sodium	24847.00			P
7440-28-0	Thallium	2.00	U	N	F uJ
7440-62-2	Vanadium	18.90	B		P
7440-66-6	Zinc	2.00	U		P
	Cyanide				NR

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

Comments:

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ATTACHMENT 4
DATA REVIEW SUPPORTING DOCUMENTATION

INORGANIC ANALYSIS DATA REVIEW CHECKLIST - FORM A-6

PROJECT: 913-1719	REVIEWER: SSchuld	DATE: 2/3/92
LABORATORY: Weston	CASE: 200BP	SDG: CLP156
SAMPLES/MATRIX: B00XW9, XX0, XX2, XX3, XX5, XX6 / water		

1. COMPLETENESS AND CONTRACT COMPLIANCE

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

Data Package Item	Present?:	Yes	No	N/A
Case Narrative		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cover Page		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Traffic Reports		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample Data		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inorganic Analysis Data Sheets		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Standards Data		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Initial and Continuing Calibration Verification		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CRDL Standard for AA and ICP		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
QC Summary		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blanks		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ICP Interference Check Summary		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Spike Sample Recovery		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Post-Digestion Spike Sample Recovery		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Duplicate		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laboratory Control Sample		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Standard Addition Results		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ICP Serial Dilutions		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Instrument Detection Limits		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ICP Interelement Correction Factors		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ICP Linear Ranges		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Preparation Log		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analysis Run Log		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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<u>Data Package Item</u>	<u>Present?:</u>	<u>Yes</u>	<u>No</u>	<u>N/A</u>
Raw Data				
ICP Raw Data		—	—	—
Furnace AA Raw Data		—	—	—
Mercury Raw Data		—	—	—
Cyanide Raw Data		—	—	—
Additional Data				
Internal laboratory chain-of-custody		—	—	—
Laboratory Sample Preparation Records		—	—	—
Percent Solids Analysis Records		—	—	—
Reduction Formulae		—	—	—
Instrument Run Logs		—	—	—
Chemist Notebook Pages		—	—	—

2. HOLDING TIMES

Have all samples been analyzed within holding times? Yes No N/A

ACTION: If any holding times have been exceeded qualify all affected results as estimated (J for detects and UJ for non-detects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used? Yes No N/A

Are the correlation coefficients ≥ 0.995 ? Yes No N/A

Was a midrange CN standard distilled? Yes No N/A

ACTION: Qualify all data as unusable if reported from an analysis in which an instrument was not calibrated or was calibrated with less than the minimum number of standards. Qualify associated sample results $> IDL$ as estimated (J) and results $< IDL$ as estimated (UJ), if the correlation coefficient is < 0.995 or the laboratory did not distill the midrange CN standard.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Are ICV and CCV percent recoveries within control? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

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5. ICP INTERFERENCE CHECK SAMPLE

Has an ICS sample been analyzed at the proper frequency? Yes No N/A

Are the AB solution %R values within control? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

6. LABORATORY BLANKS

Are target analytes present in the field blanks? Yes No N/A

ACTION: Qualify all associated sample results for any analyte <5X the amount in any laboratory blank as non-detected (U).

7. FIELD BLANKS

Are target analytes present in the field blanks? Yes No N/A

ACTION: Qualify all sample results for any analyte <5X the amount in any valid field blank as non-detected (U).

8. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the control limits? Yes No N/A

ACTION: Qualify the affected sample data according to the following requirements:

If spike recovery is >125% and sample results are <IDL no qualification is required. If spike recovery is >125% or <75% qualify all positive results as estimated (J). If spike recovery is 30% to 74% qualify all non-detects as estimated (UJ). If spike recovery is <30%, reject all non-detects (R).

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9. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify the sample data according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results > IDL, for which the LCS %R falls within the range 50-79% or > 120%. Qualify as estimated (UJ), all sample results < IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R < 50%.

SOLID LCS - Qualify as estimated (J), all sample results > IDL for which the LCS result is outside the established control limits. Qualify as estimated (UJ), all sample results < IDL for which the LCS %R are lower than the established control limits.

10. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit sample analyses in the data validation narrative.

11. DUPLICATE SAMPLE ANALYSIS

Are RPD values acceptable? Yes No N/A

ACTION: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD results fall outside the appropriate control limits.

12. ICP SERIAL DILUTION

Are the serial dilution results acceptable? Yes No N/A

Is there evidence of negative interference? Yes No N/A

ACTION: Qualify the associated data as estimated (J) for those analytes in which the %D is outside the control limits. If evidence of negative interference is found, use professional judgment to qualify the data.

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2/20/92

13. FIELD DUPLICATE SAMPLES

Do the RPD values exceed the control limits?

Yes No **N/A**

ACTION: Note the results of the field duplicate samples in the validation narrative.

14. FIELD SPLIT SAMPLES

Do the RPD values exceed the control limits?

Yes No **N/A**

ACTION: Note the results of the field split samples in the validation narrative.

15. FURNACE ATOMIC ABSORPTION QUALITY CONTROL

Do all applicable analyses have duplicate injections?

Yes No N/A

Are applicable duplicate injection RSD values within control?

Yes No N/A

If no, were samples rerun once as required?

Yes No **N/A**

Does the RSD for the rerun fall within the control limits?

Yes No **N/A**

Were analytical spike recoveries within the control limits?

Yes **No** N/A

If no, were MSA analyses performed when required?

Yes No **N/A**Are MSA correlation coefficients ≥ 0.995 ?Yes No **N/A**

If no, was a second MSA analysis performed?

Yes No **N/A**

ACTION: If duplicate injections are outside the acceptance limits and the sample has not been reanalyzed or the reanalysis is outside the acceptance limits, qualify the associated data as estimated (J for detects and UJ for non-detects). If the analytical spike recovery is less than 40 percent qualify detects as estimated (J). If the analytical spike recovery is greater than or equal to 10% but less than 40 percent, qualify all non-detects as estimated (UJ) and if the analytical spike recovery is less than 10 percent, reject all non-detects (R). If the sample absorbance is less than 50% of the analytical spike absorbance and the analytical spike recovery is less than 85% or greater than 115%, qualify all results as estimated (J for detects and UJ for non-detects). If method of standard additions (MSA) was required but was not performed, the MSA samples were spiked incorrectly, or the MSA correlation coefficient was less than 0.995, qualify the associated detected results as estimated (J).

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16. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly?

 Yes No N/A

Are results within the calibrated range of the instruments and within the linear range of the ICP?

 Yes No N/A

Are all detection limits below the CRQL?

 Yes No N/A

Action: If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).

17. OVERALL ASSESSMENT AND SUMMARY

Has the laboratory conducted the analysis in accordance with the analytical SOW?

 Yes No N/A

Were project specific data quality objectives met for this analysis?

 Yes No N/A

ACTION: Summarize all the data qualifications and complete the data validation narrative as specified in Section 10 of the data validation requirements.

*RMH
2/29/92*

HOLDING TIME SUMMARY - FORM B-1

SDG: CLP156 REVIEWER: S. Schioldt DATE: 2/3/92 PAGE 3 OF 4

COMMENTS:

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B00XW9, XX0	GFAA-As	7/10/91	7/17/91	7/17/91	7	7	none
B00XX2, XX3	↓	7/10/91	↓	↓	↓	↓	
B00XX5, XX6	↓	7/10/91	7/25/91	7/29/91	19	19	
B00XX6	↓	↓	↓	8/9/91	15	29	
B00XW9, XX0	GFAA-Pb	7/10/91	7/17/91	7/23/91	7	13	
B00XX2, XX3	↓	↓	↓	7/23/91	↓	↓	
B00XX5, XX6	↓	↓	7/25/91	7/30/91	15	20	
B00XW9, XX0	GFAA-Se	7/10/91	7/17/91	7/17/91	7	7	
B00XX2, XX3	↓	↓	↓	7/17/91	↓	↓	
B00XX5, XX6	↓	↓	7/25/91	7/29/91	15	19	
B00XW9, XX0	GFAA-Tl	7/10/91	7/17/91	7/17/91	7	7	
B00XX2, XX3	↓	↓	↓	↓	↓	↓	
B00XX5, XX6	↓	↓	7/25/91	7/29/91	15	19	↓

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BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG:CLP156		REVIEWER: S Schultz			DATE: 2/4/92.			PAGE 1 OF 4	
COMMENTS: Blanks for BOOXW9, XX0, XX2, XX3									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
ICB	Sb	20.26	B		µg/L	101.3		BOOXX0	20.2 u
CCB1	↓	24.9	↓		↓	124.5			
CCB3	↓	35.9	↓		↓	179.5			
PBIK	↓	29.6	↓		↓	148.0			
ICB	Cu	3.04				15.2		BOOXW9	3.0 u
CCB1	↓	5.2	↓		↓	26.0		BOOXX0	4.3 u
CCB2	↓	2.6	↓		↓	13.0		BOOXX2	8.7 u
CCB3	↓	3.0	↓		↓	15.0		BOOXX3	6.1 u
PBIK	↓	5.2	↓		↓	26.0			
CCB1	Fe	42.7				213.5		BOOXW9	66.5 u
CCB3	↓	37.5	↓		↓	187.5		BOOXX0	65.3 u
PBIK	↓	27.4	↓		↓	387.0		BOOXX2	317.0 u
	↓							BOOXX3	121.0 u
CCB1	Na	67.4	B			337.0		none	
CCB2	↓	60.1	↓		↓	300.5		↓	
CCB3	↓	55.8	↓		↓	279.0		↓	
					↓				

B-3

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BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG: CLP156		REVIEWER: S Scholt			DATE: 02/11/92			PAGE 2 OF 4		
COMMENTS: Blanks for B00XW9, XX0, XX2, XX3										
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER	
CCB1	V	5.4	B		mg/L	37.0		B00XW9	26.3 U	
CCB2		2.4	↓		↓	37.0		B00XX0	25.3 U	
CCB3		7.6	↓		↓	38.0		B00XX2	25.1 U	
								B00XX3	28.3 U	
PB1K	Zn	7.4	B		mg/L	37.0		B00XW9	19.5 U	
								B00XX0	17.5 U	
								B00XX2	10.9 U	
								B00XX3	11.5 U	
PB1K	Mn	1.2	B		mg/L	6.0		B00XW9	2.0 U	
								B00XX0	2.4 U	
								B00XX3	4.0 U	

B-3

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BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG: C/P150		REVIEWER: S Schmidt			DATE: 2/3/92			PAGE 3 OF 4	
COMMENTS: Blanks for X45, X46									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
TCB	Cu	9.3	B		µg/L	46.5		BODXX5	14.0 U
CCB1		6.7				33.5		BODXX6	3.6 U
CCB2		8.3				41.5			
CCB3		4.1				20.5			
PBIK		4.1	↓			20.5			
TCB	Na	65.5	B			327.5		none	
CCB2		79.5				397.5		↓	
CCB3		99.9				499.5			
PBIK		64.3	↓			321.5			
TCB	V	5.7	B			28.5		BODXX5	33.5 U
CCB1		7.2				36.0		BODXX6	33.7 U
CCB2		12.6				63.0			
CCB3		14.1				70.5			
PBIK		6.9	↓			34.5			
TCB	Zn	3.2	B			16.0		BODXX5	22.8 U
CCB3		2.5				12.5		BODXX6	11.6 U
PBIK		11.2	↓		✓	56.0			

B-3

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BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG: CLP156		REVIEWER: S. Schindler			DATE: 2/3/92			PAGE 4 OF 4	
COMMENTS: Blanks for XX5, XX6									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
CCB1	Mg	81.9	B		µg/L	409.5		none	
CCB2	↓	92.3	↓			461.5		↓	
CCB3	↓	122.6	↓			613.0		↓	
CCB2	Mn	1.5	B			7.5		B00XX5	4.5U
PB1K	↓	1.0	↓			5.0		B00XX6	2.5U
CCB2	K	1481.8	B			7409		B00XX5	6310U
CCB3	↓	1577.4	↓			7887		B00XX6	6550U
PB1K	Fe	54.9	B			274.5		B00XX5	240U
								B00XX6	45.7U

B-3

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2/20/92

ACCURACY DATA SUMMARY - FORM B-4

SDG: C'LP156		REVIEWER: S Schukoff	DATE: 2/4/92	PAGE 1 OF 1	
COMMENTS: Spike Sample Recovery					
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED	
B00XW95	Ag	30.2	B00XW9	4 UJ	
			B00XX0	4 UJ	
			B00XX2	4 UJ	
			B00XX3	4 UJ	
B00XX55	Pb	66.5	B00XX5	2 UJ	
			B00XX6	2 UJ	

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ACCURACY DATA SUMMARY - FORM B-4

SDG: CLP156	REVIEWER: S Schilolt	DATE: 2/4/92	PAGE 1 OF 1	
COMMENTS: Analytical Spikes Recovery				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B00XX6	As	80.9		J
B00XW9	Pb	78.2		UJ
B00XX0	↓	84.1		UJ
B00XX2		76.8		J
B00XX3		76.9		UJ
B00XX5		57.3		none
B00XX6		66.1		none
B00XW9		Se	78.8	
B00XX0		81.8		UJ
B00XX2		77.2		UJ
B00XX3		78.5		UJ
B00XX5		79.3		J
B00XX6 ⁵⁸⁵ 2/4/92				

B-4

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INORGANIC ANALYSIS DATA REVIEW CHECKLIST - FORM A-6

PROJECT: 913-1719	REVIEWER: SSchubert	DATE: 2/4/92
LABORATORY: Weston	CASE: 200BP	SDG: CLP 758
SAMPLES/MATRIX: B00XR2, XT5, XT6, XT2, XT3, XY4 XY5 / water		

1. COMPLETENESS AND CONTRACT COMPLIANCE

Review the data package for completeness and check off the items below. If any data review elements are missing contact the laboratory for submittal of the omitted data.

Data Package Item	Present?:	Yes	No	N/A
Case Narrative		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cover Page		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Traffic Reports		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample Data		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inorganic Analysis Data Sheets		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Standards Data		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Initial and Continuing Calibration Verification		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CRDL Standard for AA and ICP		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
QC Summary		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blanks		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ICP Interference Check Summary		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Spike Sample Recovery		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Post-Digestion Spike Sample Recovery		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Duplicate		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laboratory Control Sample		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Standard Addition Results		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ICP Serial Dilutions		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Instrument Detection Limits		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ICP Interelement Correction Factors		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ICP Linear Ranges		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Preparation Log		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analysis Run Log		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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<u>Data Package Item</u>	<u>Present?:</u>	<u>Yes</u>	<u>No</u>	<u>N/A</u>
Raw Data				
ICP Raw Data		/	—	—
Furnace AA Raw Data		/	—	—
Mercury Raw Data		/	—	—
Cyanide Raw Data		/	—	—
Additional Data				
Internal laboratory chain-of-custody		—	/	—
Laboratory Sample Preparation Records		/	—	—
Percent Solids Analysis Records		—	—	/
Reduction Formulae		—	/	—
Instrument Run Logs		/	—	—
Chemist Notebook Pages		/	—	—

2. HOLDING TIMES

Have all samples been analyzed within holding times? Yes No N/A

ACTION: If any holding times have been exceeded qualify all affected results as estimated (J for detects and UJ for non-detects).

3. INITIAL CALIBRATIONS

Were all instruments calibrated daily, each set-up time and were the proper number of standards used? Yes No N/A

Are the correlation coefficients ≥ 0.995 ? Yes No N/A

Was a midrange CN standard distilled? Yes No N/A

ACTION: Qualify all data as unusable if reported from an analysis in which an instrument was not calibrated or was calibrated with less than the minimum number of standards. Qualify associated sample results $>$ IDL as estimated (J) and results $<$ IDL as estimated (UJ), if the correlation coefficient is $<$ 0.995 or the laboratory did not distill the midrange CN standard.

4. INITIAL AND CONTINUING CALIBRATION VERIFICATION

Are ICV and CCV percent recoveries within control? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

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5. ICP INTERFERENCE CHECK SAMPLE

Has an ICS sample been analyzed at the proper frequency? Yes No N/A

Are the AB solution %R values within control? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify all affected data in accordance with Section 8.3 of the validation requirements. If calculation errors are noted, contact the laboratory for clarification.

6. LABORATORY BLANKS

Are target analytes present in the field blanks? Yes No N/A

ACTION: Qualify all associated sample results for any analyte <5X the amount in any laboratory blank as non-detected (U).

7. FIELD BLANKS

Are target analytes present in the field blanks? Yes No N/A

ACTION: Qualify all sample results for any analyte <5X the amount in any valid field blank as non-detected (U).

8. MATRIX SPIKE SAMPLE ANALYSIS

Are spike recoveries within the control limits? Yes No N/A

ACTION: Qualify the affected sample data according to the following requirements:

If spike recovery is >125% and sample results are <IDL no qualification is required. If spike recovery is >125% or <75% qualify all positive results as estimated (J). If spike recovery is 30% to 74% qualify all non-detects as estimated (UJ). If spike recovery is <30%, reject all non-detects (R).

9. LABORATORY CONTROL SAMPLE

Are percent recoveries within the acceptance limits? Yes No N/A

Are there calculation errors? Yes No N/A

ACTION: Qualify the sample data according to the following requirements:

AQUEOUS LCS - Qualify as estimated (J), all sample results > IDL, for which the LCS %R falls within the range 50-79% or > 120%. Qualify as estimated (UJ), all sample results < IDL, for which the LCS falls within the range of 50-79%. Qualify as unusable (R) all sample results, for which the LCS %R < 50%.

SOLID LCS - Qualify as estimated (J), all sample results > IDL for which the LCS result is outside the established control limits. Qualify as estimated (UJ), all sample results < IDL for which the LCS %R are lower than the established control limits.

10. PERFORMANCE AUDIT ANALYSES

Are the performance audit sample results within the acceptance limits? Yes No N/A

ACTION: Note the results of the performance audit sample analyses in the data validation narrative.

11. DUPLICATE SAMPLE ANALYSIS

Are RPD values acceptable? Yes No N/A

ACTION: Qualify the results for all associated samples of the same matrix as estimated (J) if the RPD results fall outside the appropriate control limits.

12. ICP SERIAL DILUTION

Are the serial dilution results acceptable? Yes No N/A

Is there evidence of negative interference? Yes No N/A

ACTION: Qualify the associated data as estimated (J) for those analytes in which the %D is outside the control limits. If evidence of negative interference is found, use professional judgment to qualify the data.

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13. FIELD DUPLICATE SAMPLES

Do the RPD values exceed the control limits?

Yes No N/A

ACTION: Note the results of the field duplicate samples in the validation narrative.

14. FIELD SPLIT SAMPLES

Do the RPD values exceed the control limits?

Yes No N/A

ACTION: Note the results of the field split samples in the validation narrative.

15. FURNACE ATOMIC ABSORPTION QUALITY CONTROL

Do all applicable analyses have duplicate injections?

 Yes No N/A

Are applicable duplicate injection RSD values within control?

Yes No N/A

If no, were samples rerun once as required?

 Yes No N/A

Does the RSD for the rerun fall within the control limits?

 Yes No N/A

Were analytical spike recoveries within the control limits?

Yes No N/A

If no, were MSA analyses performed when required?

 Yes No N/AAre MSA correlation coefficients ≥ 0.995 ?Yes No N/A

If no, was a second MSA analysis performed?

 Yes No N/A

ACTION: If duplicate injections are outside the acceptance limits and the sample has not been reanalyzed or the reanalysis is outside the acceptance limits, qualify the associated data as estimated (J for detects and UJ for non-detects). If the analytical spike recovery is less than 40 percent qualify detects as estimated (J). If the analytical spike recovery is greater than or equal to 10% but less than 40 percent, qualify all non-detects as estimated (UJ) and if the analytical spike recovery is less than 10 percent, reject all non-detects (R). If the sample absorbance is less than 50% of the analytical spike absorbance and the analytical spike recovery is less than 85% or greater than 115%, qualify all results as estimated (J for detects and UJ for non-detects). If method of standard additions (MSA) was required but was not performed, the MSA samples were spiked incorrectly, or the MSA correlation coefficient was less than 0.995, qualify the associated detected results as estimated (J).

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16. ANALYTE QUANTITATION AND DETECTION LIMITS

Have results been reported and calculated correctly?

 Yes No N/A

Are results within the calibrated range of the instruments and within the linear range of the ICP?

 Yes No N/A

Are all detection limits below the CRQL?

 Yes No N/A**Action:** If analyte quantitation is in error, contact the laboratory for explanation. If errors or deficiencies can not be resolved with the laboratory, qualify associated data as unusable (R).**17. OVERALL ASSESSMENT AND SUMMARY**

Has the laboratory conducted the analysis in accordance with the analytical SOW?

 Yes No N/A

Were project specific data quality objectives met for this analysis?

 Yes No N/A**ACTION:** Summarize all the data qualifications and complete the data validation narrative as specified in Section 10 of the data validation requirements.*Handwritten signature*
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HOLDING TIME SUMMARY - FORM B-1

SDG: CLP758 REVIEWER: S Schildt DATE: 2/4/92 PAGE 3 OF 5

COMMENTS:

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
BOOXR2	GFAA-AS	5/30/91	6/20/91	7/12/91	21	43	none
BOOXT5,6	↓	↓	7/1/91	7/12/91	32	43	↓
BOOXT2,3	↓	↓	7/1/91	7/12/91	32	43	↓
BOOXY4,5	↓	↓	6/20/91	7/12/91	21	43	↓
BOOXR2	GFAA-Pb	5/30/91	6/20/91	7/15/91	21	46	none
BOOXT5,6	↓	↓	7/1/91	↓	32	↓	↓
BOOXT2,3	↓	↓	7/1/91	↓	32	↓	↓
BOOXY4,5	↓	↓	6/20/91	↓	21	↓	↓
BOOXR2	GFAA-Se	5/30/91	6/20/91	7/15/91	21	46	none
BOOXT5,6	↓	↓	7/1/91	↓	32	↓	↓
BOOXT2,3	↓	↓	7/1/91	↓	32	↓	↓
BOOXY4,5	↓	↓	6/20/91	↓	21	↓	↓

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with
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HOLDING TIME SUMMARY - FORM B-1

SDG: CLP758 REVIEWER: S. Schildt DATE: 2/4/92 PAGE 5 OF 5

COMMENTS:

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
BOOXR2	ICP	5/30/91	6/20/91	7/15/91	21	46	none
BOOXT5,6	↓	↓	7/1/91	↓	32	↓	↓
BOOXT2,3	↓	↓	7/1/91	↓	32	↓	↓
BOOXY4,5	↓	↓	6/20/91	↓	21	↓	↓

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BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG: <i>CLP758</i>		REVIEWER: <i>S Schilolt</i>			DATE: <i>2/5/92</i>			PAGE <u>1</u> OF <u>2</u>	
COMMENTS: <i>Laboratory blanks</i>									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
<i>CCB2</i>	<i>Cu</i>	<i>2.2</i>	<i>B</i>		<i>ug/L</i>	<i>11.0</i>		<i>BOOXR2</i>	<i>2.2 U</i>
<i>CCB2</i>		<i>2.3</i>	<i>B</i>		<i>↓</i>	<i>11.5</i>		<i>BOOXT5</i>	<i>8.9 U</i>
								<i>BOOXT2</i>	<i>5.4 U</i>
								<i>BOOXT3</i>	<i>3.8 U</i>
								<i>BOOXY4</i>	<i>5.6 U</i>
								<i>BOOXY5</i>	<i>4.5 U</i>
<i>CCB2</i>	<i>Co</i>	<i>4.4</i>	<i>B</i>		<i>ug/L</i>	<i>22.0</i>		<i>none</i>	
<i>CCB3</i>		<i>3.1</i>	<i>B</i>		<i>↓</i>	<i>15.5</i>		<i>↓</i>	
<i>CCB2</i>	<i>Na</i>	<i>109.8</i>	<i>B</i>		<i> </i>	<i>549.0</i>		<i>none</i>	
<i>CCB3</i>		<i>72.1</i>	<i>B</i>		<i> </i>	<i>360.5</i>		<i>↓</i>	
<i>PB1K</i>		<i>76.4</i>	<i>B</i>		<i> </i>	<i>382.0</i>		<i>↓</i>	
<i>TCB</i>	<i>H1</i>	<i>-7.5</i>	<i>B</i>		<i> </i>	<i>37.5</i>		<i>none</i>	
<i>CCB1</i>		<i>-3.5</i>	<i>B</i>		<i> </i>	<i>17.5</i>		<i>↓</i>	
<i>CCB2</i>		<i>-2.4</i>	<i>B</i>		<i> </i>	<i>12.0</i>		<i>↓</i>	
<i>PB1K</i>		<i>-4.6</i>	<i>B</i>		<i> </i>	<i>23.0</i>		<i>↓</i>	
<i>PB1K</i>		<i>-6.1</i>	<i>B</i>		<i>↓</i>	<i>30.5</i>		<i>↓</i>	

B-3

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1992

*Blank
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*all
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BLANK AND SAMPLE DATA SUMMARY - FORM B-3

SDG: CLP758		REVIEWER: S Schulz			DATE: 2/5/92			PAGE 2 OF 2	
COMMENTS: Laboratory blanks									
SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
CCB2	V	9.3	B		ug/L	46.5		BOOT5	15.94
CCB3		6.1	B		↓	30.5		BOOT6	12.94
PBIK		4.2	B		↓	21.0		BOOT2	29.14
								BOOT3	29.74
CCB2	Zn	2.2	B		ug/L	11.0		BOOTR2	5.14
PBIK		6.3	B		↓	31.5		BOOT6	20.84
PBIK		7.2	B		↓	36.0		BOOT2	9.64
								BOOT3	23.14
								BOOXY4	9.34
CCB3	Se	2.7	B		ug/L	13.5		none	

B-3

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check
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1/92

all
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ACCURACY DATA SUMMARY - FORM B-4

SDG: CLP758	REVIEWER: S. Schindler	DATE: 2/5/92	PAGE 1 OF 1	
COMMENTS: Spike Sample Recovery				
SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER REQUIRED
B00XT5S	Al	133.4	B00XT5	J
↓	↓		B00XT6, XT2, XT3	UJ none
↓	As	73	B00XR2	UJ
↓	↓		B00XT5, XT6	J
↓	↓		XT2, XT3, XY4, XY5	J
↓	Cr	130.7	B00XT5, XT2, XT3	J
↓	↓		B00XT6	UJ none
↓	Fe	253.6	B00XT5, XT6, XT2	J
↓	↓		B00XT3	UJ none
↓	Se	65	B00XT5, XT6, XT2, XT3	UJ
B00XR2S	↓	0	B00XY4, XY5	UJ
↓	↓	0	B00XR2	J
↓	Pb	0	B00XR2, XY4, XY5	UJ
↓	Tl	0	B00XR2, XY4, XY5	UJ
B00XT5S	Si	195	B00XT5, XT6, XT2	J
↓	↓	↓	XT3, XR2, XY4	J
B00XR2S	↓	116	XY5, XR2, XY4	↓

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Mark 1/14/92

Mark 2/14/92

Mark 2/14/92

Mark 2/14/92

SS 2/6/92

PRECISION DATA SUMMARY - FORM B-5

SDG: CLP758		REVIEWER S Schildt	DATE: 2/5/92	PAGE 1 OF 2	
COMMENTS: Field Duplicate Analysis					
COMPOUND	SAMPLE ID: <i>BOOKT3</i>	SAMPLE ID: <i>BOOKYS</i>	RPD	SAMPLES AFFECTED	QUALIFIER
Al	84.0 uJ	84.0 u			
Sb	29.9 B	18.0 u	200	<i>multi for 2/14/92</i>	
As	6.0 J	5.7 J	15.1		
Ba	34.2 B	33.7 B	1.5		
Be	1.0 u	1.0 u			
Cd	2.0 u	2.0 u			
Ca	32956.8	33220.8	0.8		
Cr	5.3 J	4.8 B	200		
Co	3.0 u	3.0 u			
Cu	3.8 u	4.5 u			
Fe	36.0 uJ	36.0 u			
Pb	2.0 u	2.0 uJ			
Mg	9390.0	9444.1	0.6		
Mn	3.3 B	3.0 B	9.5		
Hg	.2 uJ	0.2 u			
Ni	6.0 u	6.0 u			
K	6747.6	6786.5	0.6		

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multi for 2/14/92

SS 2/14/92

PRECISION DATA SUMMARY - FORM B-5

SDG: CLP758	REVIEWER S. Schlott	DATE: 2/5/92	PAGE 2 OF 2			
COMMENTS: Field Duplicate Analysis						
COMPOUND	SAMPLE ID: B00XT3	SAMPLE ID: B00XY5	RPD	SAMPLES AFFECTED	QUALIFIER	
Se	2.0 uJ	3.1 uJ				
Ag	4.0 u	4.0 u				
Na	24326.4	24847.0	2.1			
Tl	2.0 uJ	2.0 u				
V	29.7 u	18.9 B	200			
Zn	23.1 u	2.0 u				
CN						
Si	19150 J	19040 J	0.6			

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PRECISION DATA SUMMARY - FORM B-5

SDG: CLP758	REVIEWER S Schilolt	DATE: 2/5/92	PAGE 1 OF 2		
COMMENTS: Field Duplicate Analysis					
COMPOUND	SAMPLE ID: B00XT2	SAMPLE ID: B00XY4	RPD	SAMPLES AFFECTED	QUALIFIER
Al	84.0 UJ	84.0 U			
Sb	18.0 U	18.0 U			
As	6.2 J	5.4 J			
Ba	34.2 B	34.5 B	0.9		
Be	1.0 U	1.0 U			
Cd	2.0 U	2.0 U			
Ce	33305.1	32410.2	2.7		
Cr	13.4 J	14.0	4.4		
Co	3.0 U	3.0 U			
Cu	5.4 U	5.6 U			
Fe	124.9 J	110.1	12.6		
Pb	2.0 U	2.0 UJ			
Mg	9497.9	9250.4	2.6		
Mn	4.2 B	3.3 B	21.0		
Hg	.2 UJ	0.2 U			
Ni	8.7 B	7.7 B	12.2		
K	6297.8	6786.5	7.5		

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2/14/92

PRECISION DATA SUMMARY - FORM B-5

SDG: CLP758		REVIEWER: S Schickel	DATE: 2/5/92	PAGE 2 OF 2		
COMMENTS: Field Duplicate Analysis						
COMPOUND	SAMPLE ID: B00XT2	SAMPLE ID: B00XY4	RPD	SAMPLES AFFECTED	QUALIFIER	
Se	2.0 UJ	2.0 UJ				
Ag	4.0 U	4.0 U				
Na	24566.4	24267.8	1.2			
Fl	2.0 UJ	2.0 UJ				
V	29.1 U	20.3 B	200			
Zn	9.6 U	9.3 U				
CN	10.0 U	10.0 U				
Si	19610 J	18860 J	3.9			

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MSK
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AS
1.12