W01918

Quanterra
Environmental Services

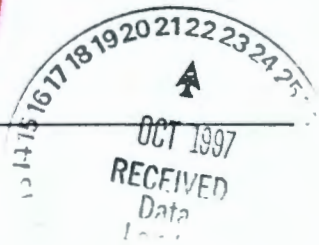
Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

314 298-8566 Telephone
314 298-8757 Fax

0048828

CASE NARRATIVE

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, Washington 99352



October 18, 1997

Attention: Joan Kessner

Project number	:	550.237
Date Received by Lab	:	September 12, 1997
Number of Samples	:	One (1)
Sample Type	:	Solid Other
SDG Number	:	W01918
Data Deliverable	:	Summary

I. Introduction

On September 12, 1997, one (1) solid other sample was received by Quanterra, Richland and was transferred to Quanterra, St. Louis for chemical analysis. Upon receipt, the sample was given the following laboratory ID number to correspond with the specific client ID:

St. Louis ID	BHI ID	Richland ID	Matrix	Date of Receipt
15908-001	B0LW31	70920001	Solid Other	09/12/97

II. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits.

Analyses requested: TCLP Metals using EPA Methods 6010/7470 following TCLP Extraction by EPA Method 1311. Total TAL ICP Metals using EPA Method 6010.

III. Quality Control

A Laboratory Control Sample and Method Blank were analyzed with each preparation batch. Matrix Spike and Matrix Spike Duplicate analyses were performed per the protocol for each analyte in this SDG.

Bechtel Hanford Incorporated
October 18, 1997
Project Number: 550.237
SDG: W01918

IV. Definitions

The following codes are used to denote laboratory quality control samples and can be found in the data summary section of this report:

QCBLK- Quality Control Blank, Method Blank
QCLCS- Quality Control Laboratory Control Sample, Blank Spike

V. Comments

Shipping and Receiving
There were no variances associated with sample receipt.

Total Metals
The Matrix Spike recoveries for Antimony, Potassium, Silver, and Vanadium and the matrix Spike Duplicate recoveries for Antimony and Vanadium were outside of suggested control limits. The associated sample data is flagged with an "N".

Both the Matrix Spike and Matrix Spike Duplicate recoveries for Iron and Lead and the Matrix Spike Duplicatee for Manganese were outside of suggested control limits, however, the concentration in the native sample was greater that four times the spike amount, making the recovery limits invalid.

TCLP Metals
Due to the sample matrix, the sample had to be diluted 1:100 prior to analysis.

I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Reviewed and approved:

Wade H. Price
Project Manager
e:\\price$\hanford\hanw1918.nar

Sample Disposition Record

Control #: B97-056
Revision#: 0
Date Initiated: 9/17/97

Section 1 - BACKGROUND

SAF#: B97-160
OU: 300-FF-1
Project ID: 300-FF-1 RD
Task ID: 8
Sampling Event: 300-FF-1 Process Trenches - Asbestos Sampling
Laboratory: Quanterra Incorporated
Project Coordinator: Koerner, CC
Task Manager: Johnson, CR

Section 2 - SAMPLE INFORMATION

Number of Samples: 1
ID Numbers: B0LW31
MATRIX: Roofing Material
Collection Date: 09/10/97

Section 3 - ISSUE

Class: Lab Direction
NCR Number: N/A
Type: Other-Turnaround Time Correction
Description: B0LW31 was received under a Chain-of-Custody that requested a "normal", 45-day turnaround time.

N/A
NCR Validation (Print/Sign) Date

Section 4 - DISPOSITION

Type: Repair
Description: Quanterra is directed to change the turnaround time to 7-days.

Koerner, CC CL-KL . 9-17-97.
Project Coordinator (Print/Sign) Date

Johnson, CR Charlie K. Johnson 9/26/97
Task Manager (Print/Sign) Date

N/A
QA (Print/Sign) Date

Section 5 - INSPECTION (Issue Class: Nonconformance Only)

Inspection Number: N/A
Inspection Results: N/A

N/A
Inspector (Print/Sign) Date

Quanterra September 25, 1997 10:40 am

Account: 10722 Project: 550.237 Quanterra-Richland QAS No. 550.237 Rev. 1

Master Sample Login: 15903

Project Manager: W. Price

Draft: Final Entered and Reviewed by: _____ PM Review: _____

Sample Header Template:

Sample No. / Client ID	C-Matrix	Date: Collected / Received / Due / Shipper	Rad Category / Rad Sample No.
Comments			
# Container Type	Analysis	Class Preservative Anal. Due Date Hold Date Site	(Container Numbers:% Filled)
Data:			
15903-001 BOLW31	Solid	10-SEP-97 14:15 12-SEP-97 17:00 30-SEP-97 AIRBORNE	1 Screening not Required
RICHLAND I.D. 70920001			
1 AN - Amber Glass-60ML	EXTMETAL/TCLP/Q4	S COLD 30-SEP-97 08-OCT-97 S1D	(333390:99)
1	HG/TCLP/Q4	S COLD 30-SEP-97 08-OCT-97 S1D	(333390:99)
1	ICAP/6010/Q4	S COLD 30-SEP-97 09-MAR-98 S1D	(333391:98)
1	ICAP/TCLP/Q4	S COLD 30-SEP-97 09-MAR-98 S1D	(333390:99)
15903-001MS BOLW31	Solid	10-SEP-97 14:15 12-SEP-97 17:00 30-SEP-97 AIRBORNE	1 Screening not Required
RICHLAND I.D. 70920001			
1 AN - Amber Glass-60ML	EXTMETAL/TCLP/Q4	S COLD 30-SEP-97 08-OCT-97 S1D	(333390:99)
1	HG/TCLP/Q4	S COLD 30-SEP-97 08-OCT-97 S1D	(333390:99)
1	ICAP/6010/Q4	S COLD 30-SEP-97 09-MAR-98 S1D	(333391:98)
1	ICAP/TCLP/Q4	S COLD 30-SEP-97 09-MAR-98 S1D	(333390:99)
15903-001MSD BOLW31	Solid	10-SEP-97 14:15 12-SEP-97 17:00 30-SEP-97 AIRBORNE	1 Screening not Required
RICHLAND I.D. 70920001			
1 AN - Amber Glass-60ML	EXTMETAL/TCLP/Q4	S COLD 30-SEP-97 08-OCT-97 S1D	(333390:99)
1	HG/TCLP/Q4	S COLD 30-SEP-97 08-OCT-97 S1D	(333390:99)
1	ICAP/6010/Q4	S COLD 30-SEP-97 09-MAR-98 S1D	(333391:98)
1	ICAP/TCLP/Q4	S COLD 30-SEP-97 09-MAR-98 S1D	(333390:99)

3*=Sample has not been rad screened.

000005

SLD Temp 4°C CUR 012828 ST LOUIS

Chain of Custody Record

Quanterra Environmental Services

QUA-4124-1

Client	Project Manager	Date	Chain Of Custody Number
Bechtel	Jodie Carnes	9-15-97	64867
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
City / State / Zip Code	**Site Contact**	**Lab Contact**	**Analysis (Attach list if more space is needed)**
Project Name SAF B97-160	**Carrier Waybill Number**		SEE COC
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Aqueous	Sed	Soil	Containers & Preservatives: Unpres	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	Special Instructions/ Conditions of Receipt
10920001 BOHW31	all Bottles											

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal

☒ Return To Client ☐ Disposal By Lab ☐ Archive For ___ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required

☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other

QC Requirements (Specify) SDG W01918

1 Relinquished By: Heidelberg Quanterra	Date: 9-15-97	Time: 16:00	1 Received By: Jimmie Jackson	Date: 9-17-97	Time: 8:15
2 Relinquished By	Date	Time	2 Received By	Date	Time
3 Relinquished By	Date	Time	3 Received By	Date	Time

Comments

00005

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

ANALYSIS REQUEST

Data Turnaround: ☐ Priority ■ Normal

Collector: Doug Bowers	Company Contact: Frank Gustafson	Telephone: 373-5904
Project Designation: 300FF-1 Analytical Waste	Sampling Location: 300FF-1 (Chandrail by process trench hood works)	SAF No.: 097-160
Chest No.:	Field Logbook No.:	Method of Shipment: Courier C/O
Shipped To: Quanterra	Offsite Property No.:	Bill of Lading/Air Bill No.:

Possible Sample Hazards/Remarks:

Special Handling and/or Storage:

SAMPLE ANALYSIS: 70920001 SDG W01918

Preservation	none	none								
Type of Container	aG	aG								
No. of Container(s)	1	1								
Volume	60 ml	60 ml								
	TCLP metals 100%	ICP metals 100%								

Sample No.	Matrix*	Date Sampled	Time Sampled								
30LW31	X	9-10-97	1415	X	X			B0LW32 Total Activity			

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By: [signature]	Date/Time: 1700 09/12/97	Received By: [signature]	Date/Time: 1700 9/12/97
Relinquished By:	Date/Time:	Received By: [signature] 1100	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:

SPECIAL INSTRUCTIONS:

Matrix*: S = Soil; SE = Sediment; SO = Solid; SL = Sludge; W = Water; O = Oil; A = Air; DS = Drum; DL = Drum; T = Tissue; WI = Wipe; L = Liquid; V = Vegetation; X = Other

LABORATORY SECTION — Received By | Title | Date/Time

FINAL SAMPLE DISPOSITION — Disposal Method | Disposed By | Date/Time

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GAMMA-RAY ENERGY ANALYSIS REPORT

Thermo Hanford Inc.
Radiological Counting Facility THI - RCF

Project	300-FF-1		
Customer ID	B0LW32 Soil		
RCF ID	RCF1727		
	Sample time, date	1415	9/10/97
	Analysis date		9/12/97

Isotope		Activity pCi/gm	2 s err	Ci/gm	
K40	<	6.1e+01		6.1e-11	
Co60	<	7.6e+00		7.6e-12	
I129	<	7.0e+02		7.0e-10	
Cs137	<	5.2e+00		5.2e-12	
Eu152	<	2.9e+01		2.9e-11	
Eu154	<	1.5e+01		1.5e-11	
Eu155	<	1.6e+01		1.6e-11	
Th32dau	<	6.7e+00		6.7e-12	
U235	<	3.0e+01		3.0e-11	
U238	<	6.8e+02		6.8e-10	
U238dau	<	9.0e+00		9.0e-12	
Np237	<	1.1e+01		1.1e-11	
Am241	<	1.9e+01		1.9e-11	
Tot Act Gam (pCi/gm)		0.0e+00	Ci/gm	0.0e+00	
Y/Sr-90	<	N/R			
Gross Alpha	<	7.3e-01		7.3e-13	
Gross Beta		6.2e+00	+/- 2.0e+00	6.2e-12	Reported as 137-Cs Betas.
AEA total	<	N/R			
			Total Activity (pCi/gm)		6.2e+00
			(Ci/gm)		6.2e-12

Definitions:

Note! 152-Eu is not a 100% Beta emitter.

- All errors reported at 2 standard deviations
A Assigned as residual beta from Gamma/Beta balance

For soils and natural samples, the following applies:

The analysis of U238 is based on the activity of Pa234m

The analysis of Np237 is based on the activity of Pa233

U238dau is the activity of Pb214 and Bi214 short lived daughter products of U238. Equilibrium between parent and daughter products probably does not exist in disturbed materials.

Th32dau is the activity of Ac228, Pb212, and Tl208, short lived daughter products of 232Th. Equilibrium between parent and daughter products may not exist in disturbed materials.

Other samples, not containing natural materials, may have inapplicable results for the Th, U, transuranics and daughter products. The results must then be balanced for the gross alpha analysis.

N/R means no result or analysis not requested.

S E Huffaker 9-12-97
Radiological analyst Date

Albert I. Davis 09-12-97
Albert I. Davis Date
Radiological Manager

Figure 1

SAMPLE CHECK-IN LIST

[illegible]

Data/Time Received 9/12/97 1700 Client Name BHI

Project/Client # B97-160 Batch or Case # _____

- Cooler ID (if noted on outside of cooler) SMC-547

1. Condition of shipping container? ok
2. Custody Seals on cooler intact? Yes [✓] No [ ]
3. Custody Seals dated and signed? Yes [✓] No [ ]
4. Chain of Custody record is taped to inside of cooler lid? Yes [ ] No [✓]
5. Vermiculite/packing material is: Wet [ ] Dry [ ] N/A
6. Each sample is in a plastic bag? Yes [✓] No [ ] _____
7. Number of sample containers in cooler: 2
8. Samples have:
   - [✓] tape
   - [✓] custody seals
   - [ ] hazard labels
   - [✓] appropriate sample labels
9. Samples are:
   - [✓] in good condition
   - [✓] broken 9/12/97
   - [ ] leaking
   - [ ] have air bubbles
   - [ ] other
10. Coolant Present? Yes [✓] No [ ] Sample Temperature 6 °C
11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #(s) N/A
    Request for Analysis #(s) [illegible]
    Airbill # [illegible] Carrier [illegible]
12. Have any anomalies been identified above? Yes [ ] No [✓]
13. Memos have been initiated for all anomalies identified above? Yes [ ]

Printed Name/Signature Tom Gilmore [signature] Date/Time 9/12/97 1700

GAMMA-RAY ENERGY ANALYSIS REPORT

Thermo Hanford Inc.
Radiological Counting Facility THI - RCF

Project	300-FF-1		
Customer ID	B0LW32	Soil	
RCF ID	RCF1727		
	Sample time, date	1415	9/10/97
	Analysis date		9/12/97

Isotope		Activity pCi/gm	2 s err	Ci/gm	
K40	<	6.1e+01		6.1e-11	
Co60	<	7.8e+00		7.8e-12	
I129	<	7.0e+02		7.0e-10	
Cs137	<	5.2e+00		5.2e-12	
Eu152	<	2.9e+01		2.9e-11	
Eu154	<	1.5e+01		1.5e-11	
Eu155	<	1.8e+01		1.8e-11	
Th32dau	<	6.7e+00		6.7e-12	
U235	<	3.0e+01		3.0e-11	
U238	<	6.8e+02		6.8e-10	
U238dau	<	9.0e+00		9.0e-12	
Np237	<	1.1e+01		1.1e-11	
Am241	<	1.9e+01		1.9e-11	
Tot Act Gam (pCi/gm)		0.0e+00		Ci/gm 0.0e+00	
Y/Sr-90	<	N/R			
Gross Alpha	<	7.3e-01		7.3e-13	< 10K pCi
Gross Beta		6.2e+00	+/- 2.0e+00	6.2e-12	Reported as 137-Cs Betas. < 100K pCi
AEA total	<	N/R			
			Total Activity (pCi/gm)		6.2e+00 < 2K pCi/g
			(Ci/gm)		6.2e-12

CAT I 9-15-97
9/15/97

Definitions:

All errors reported as 2 standard deviations
A Assigned as residual beta from Gamma/Beta balance.

Note! 152-Eu is not a 100% Beta emitter.

For soils and natural samples, the following applies:

The analyses of U238 is based on the activity of Pa234m

The analysis of Np237 is based on the activity of Pa233

U238dau is the activity of Pb214 and Bi214, short lived daughter products of U238. Equilibrium between parent and daughter products probably does not exist in disturbed materials.

Th32dau is the activity of Ac228, Pb212, and Tl208, short lived daughter products of 232Th. Equilibrium between parent and daughter products may not exist in disturbed materials.

Other samples, not containing natural materials, may have inapplicable results for the Th, U, transuranics and daughter products. The results must then be balanced for the gross alpha analysis.

N/R means no result or analysis not requested.

S B Hall 9-12-97
Radiological analyst Date

Albert I. Davis 09-12-97
Albert I. Davis Date
Radiological Manager

Quanterra
Environmental Services

BWSWP

012038

Login No.: 15963

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: Richland Date: 9-17-97 Time: 8:15

Project No: 678.30 Initiated by: Jimmie Jackson

Shipper/No: FEDEX RFA/COC Numbers: 64867

Condition/Variance (Check all that apply):

1. ☐ Sample received broken/leaking.
2. ☐ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4C ± 2C
     Record temperature: _____
   - ☐ pH _____
   - ☐ other: _____
3. ☐ Sample received in improper container.
4. ☐ Sample received without proper paperwork. Explain: _____
5. ☐ Paperwork received without sample.
6. ☐ No sample ID on sample container.
7. ☐ Custody tape disturbed/broken/missing.
8. ☐ Sample ID on container does not match sample ID on paperwork. Explain: _____
9. ☐ All coolers on airbill not received with shipment.
10. ☐ Other (explain below): _____

☑ No variances were noted during sample receipt. Cooler Temperature Upon Receipt: 4°C

Notes:

Corrective Action:

☐ Client's Name: _____ Informed verbally on: _____ By: _____

☐ Client's Name: _____ Informed in writing on: _____ By: _____

☐ Sample(s) processed "as is". _____

☐ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: (or designee) Fred Mitchell Date: 9-17-97

Project Management Review: [signature] Date: 10/1/97

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.237

Category : TCLP Mercury EPA 7470
Matrix : SOLID

Client ID: B0LW31

Sample Date : 09/10/97
Receipt Date : 09/12/97
Report Date : 10/03/97

Quanterra ID : 15903-001

Analyte	Method	Extract Date	Prep Date	Analyses Date	Result	Units	Qual.	Detection Limit	Regulatory Level	Dilution
Mercury	EPA 7470	09/30/97	10/01/97	10/01/97	0.010	MG/L	U	0.020	0.2	100
Arsenic	EPA 6010	09/30/97	10/01/97	10/01/97	0.21	MG/L	U	1.0	5.0	100
Barium	EPA 6010	09/30/97	10/01/97	10/01/97	0.76	MG/L	B	20.0	100	100
Cadmium	EPA 6010	09/30/97	10/01/97	10/01/97	0.070	MG/L	U	0.50	1.0	100
Chromium	EPA 6010	09/30/97	10/01/97	10/01/97	0.080	MG/L	U	1.0	5.0	100
Lead	EPA 6010	09/30/97	10/01/97	10/01/97	7.6	MG/L		0.30	5.0	100
Selenium	EPA 6010	09/30/97	10/01/97	10/01/97	0.30	MG/L	B	0.50	1.0	100
Silver	EPA 6010	09/30/97	10/01/97	10/01/97	0.11	MG/L	U	1.0	5.0	100

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.237

Category : TCLP Mercury EPA 7470
Matrix : SOLID

Client ID: B0LW31

Sample Date : 09/10/97
Receipt Date : 09/12/97
Report Date : 10/03/97

Quanterra ID : 15903-001MS

Analyte	Method	Extract Date	Prep Date	Analyses Date	Result	Units	Qual.	Detection Limit	Regulatory Level	Dilution
Mercury	EPA 7470	09/30/97	10/01/97	10/01/97	101	%REC				100
Arsenic	EPA 6010	09/30/97	10/01/97	10/01/97	103	%REC				100
Barium	EPA 6010	09/30/97	10/01/97	10/01/97	103	%REC				100
Cadmium	EPA 6010	09/30/97	10/01/97	10/01/97	103	%REC				100
Chromium	EPA 6010	09/30/97	10/01/97	10/01/97	100	%REC				100
Lead	EPA 6010	09/30/97	10/01/97	10/01/97	99	%REC				100
Selenium	EPA 6010	09/30/97	10/01/97	10/01/97	99	%REC				100
Silver	EPA 6010	09/30/97	10/01/97	10/01/97	98	%REC				100

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.237

Category : TCLP Mercury EPA 7470
Matrix : SOLID

Sample Date : 09/10/97
Receipt Date : 09/12/97
Report Date : 10/03/97

Client ID: B0LW31

Quanterra ID : 15903-001MSD

Analyte	Method	Extract Date	Prep Date	Analyses Date	Result	Units	Qual.	Detection Limit	Regulatory Level	Dilution
Mercury	EPA 7470	09/30/97	10/01/97	10/01/97	95	%REC				100
Arsenic	EPA 6010	09/30/97	10/01/97	10/01/97	103	%REC				100
Barium	EPA 6010	09/30/97	10/01/97	10/01/97	104	%REC				100
Cadmium	EPA 6010	09/30/97	10/01/97	10/01/97	104	%REC				100
Chromium	EPA 6010	09/30/97	10/01/97	10/01/97	100	%REC				100
Lead	EPA 6010	09/30/97	10/01/97	10/01/97	100	%REC				100
Selenium	EPA 6010	09/30/97	10/01/97	10/01/97	99	%REC				100
Silver	EPA 6010	09/30/97	10/01/97	10/01/97	94	%REC				100

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: QUANTERRA_MO_____ Contract: 550.237___

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: W01918_____

SOW No.: SW846

EPA Sample No.	Lab Sample ID
B0LW31	P15903-001
B0LW31SD	P15903-001SD
B0LW31S	P15903-001S
PBT154566	PBT154566

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES

If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:

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

Signature: _____ Name: _____

Date: _____ Title: _____

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U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0LW31

Lab Name: QUANTERRA_MO Contract: 550.237

Lab Code: ITMO Case No.: SAS No.: SDG No.: W01918

Matrix (soil/water): WATER Lab Sample ID: P15903-001

Level (low/med): LOW Date Received: 10/01/97

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	210	U		P
7440-39-3	Barium	755	B		P
7440-43-9	Cadmium	70.0	U		P
7440-47-3	Chromium	80.0	U		P
7439-92-1	Lead	7560			P
7439-97-6	Mercury	10.0	U		CV
7782-49-2	Selenium	305	B		P
7440-22-4	Silver	110	U		P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

FORM I - IN

TCLP

~~000027~~ 10/15

000022

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.237

Category: ICP Metals-6010A (7 days)
Method: EPA 6010
Matrix: SOLID

Sample Date : 09/10/97
Receipt Date : 09/12/97
Report Date : 10/03/97

Client ID: 80LW31

Quanterra ID : 15903-001

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK154576-1	09/30/97	09/30/97	1540	MG/KG		100	5
Antimony	7440-36-0	QCBLK154576-1	09/30/97	09/30/97	21.2	MG/KG	UN	30.0	5
Arsenic	7440-38-2	QCBLK154576-1	09/30/97	09/30/97	35.6	MG/KG	U	150	5
Barium	7440-39-3	QCBLK154576-1	09/30/97	09/30/97	32.6	MG/KG	B	100	5
Beryllium	7440-41-7	QCBLK154576-1	09/30/97	09/30/97	0.20	MG/KG	U	2.5	5
Cadmium	7440-43-9	QCBLK154576-1	09/30/97	09/30/97	1.5	MG/KG	B	2.5	5
Calcium	7440-70-2	QCBLK154576-1	09/30/97	09/30/97	3300	MG/KG		2500	5
Chromium	7440-47-3	QCBLK154576-1	09/30/97	09/30/97	98.2	MG/KG		5.0	5
Cobalt	7440-48-4	QCBLK154576-1	09/30/97	09/30/97	167	MG/KG		25.0	5
Copper	7440-50-8	QCBLK154576-1	09/30/97	09/30/97	51.2	MG/KG		12.5	5
Iron	7439-89-6	QCBLK154576-1	09/30/97	09/30/97	128000	MG/KG		50.0	5
Lead	7439-92-1	QCBLK154576-1	09/30/97	09/30/97	208000	MG/KG		1000	100
Magnesium	7439-95-4	QCBLK154576-1	09/30/97	09/30/97	1400	MG/KG	B	2500	5
Manganese	7439-96-5	QCBLK154576-1	09/30/97	09/30/97	422	MG/KG		7.5	5
Nickel	7440-02-0	QCBLK154576-1	09/30/97	09/30/97	40.9	MG/KG		20.0	5
Potassium	7440-09-7	QCBLK154576-1	09/30/97	09/30/97	887	MG/KG	UN	2500	5
Silver	7440-22-4	QCBLK154576-1	09/30/97	09/30/97	4.7	MG/KG	BN	5.0	5
Sodium	7440-23-5	QCBLK154576-1	09/30/97	09/30/97	140	MG/KG	B	2500	5
Thallium	7440-28-0	QCBLK154576-1	09/30/97	09/30/97	18.8	MG/KG	U	1000	5
Vanadium	7440-62-2	QCBLK154576-1	09/30/97	09/30/97	2.4	MG/KG	UN	25.0	5
Zinc	7440-66-6	QCBLK154576-1	09/30/97	09/30/97	214	MG/KG		10.0	5

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.237

Category: ICP Metals-6010A (7 days)
Method: EPA 6010
Matrix: SOLID

Sample Date : 09/10/97
Receipt Date : 09/12/97
Report Date : 10/03/97

Client ID: B0LW31

Quanterra ID : 15903-001MS

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK154576-1	09/30/97	09/30/97	112	%REC			5
Antimony	7440-36-0	QCBLK154576-1	09/30/97	09/30/97	59	%REC	N		5
Arsenic	7440-38-2	QCBLK154576-1	09/30/97	09/30/97	97	%REC			5
Barium	7440-39-3	QCBLK154576-1	09/30/97	09/30/97	96	%REC			5
Beryllium	7440-41-7	QCBLK154576-1	09/30/97	09/30/97	103	%REC			5
Cadmium	7440-43-9	QCBLK154576-1	09/30/97	09/30/97	85	%REC			5
Calcium	7440-70-2	QCBLK154576-1	09/30/97	09/30/97	102	%REC			5
Chromium	7440-47-3	QCBLK154576-1	09/30/97	09/30/97	84	%REC			5
Cobalt	7440-48-4	QCBLK154576-1	09/30/97	09/30/97	101	%REC			5
Copper	7440-50-8	QCBLK154576-1	09/30/97	09/30/97	85	%REC			5
Iron	7439-89-6	QCBLK154576-1	09/30/97	09/30/97	-6810	%REC			5
Lead	7439-92-1	QCBLK154576-1	09/30/97	09/30/97	-1280	%REC			100
Magnesium	7439-95-4	QCBLK154576-1	09/30/97	09/30/97	102	%REC			5
Manganese	7439-96-5	QCBLK154576-1	09/30/97	09/30/97	91	%REC			5
Nickel	7440-02-0	QCBLK154576-1	09/30/97	09/30/97	92	%REC			5
Potassium	7440-09-7	QCBLK154576-1	09/30/97	09/30/97	122	%REC	N		5
Silver	7440-22-4	QCBLK154576-1	09/30/97	09/30/97	73	%REC	N		5
Sodium	7440-23-5	QCBLK154576-1	09/30/97	09/30/97	98	%REC			5
Thallium	7440-28-0	QCBLK154576-1	09/30/97	09/30/97	100	%REC			5
Vanadium	7440-62-2	QCBLK154576-1	09/30/97	09/30/97	67	%REC	N		5
Zinc	7440-66-6	QCBLK154576-1	09/30/97	09/30/97	102	%REC			5

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, WA 99352

Project: 550.237

Category: ICP Metals-6010A (7 days)
Method: EPA 6010
Matrix: SOLID

Sample Date : 09/10/97
Receipt Date : 09/12/97
Report Date : 10/03/97

Client ID: B0LW31

Quanterra ID : 15903-001MSD

Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dilution
Aluminum	7429-90-5	QCBLK154576-1	09/30/97	09/30/97	100	%REC			5
Antimony	7440-36-0	QCBLK154576-1	09/30/97	09/30/97	64	%REC	N		5
Arsenic	7440-38-2	QCBLK154576-1	09/30/97	09/30/97	110	%REC			5
Barium	7440-39-3	QCBLK154576-1	09/30/97	09/30/97	101	%REC			5
Beryllium	7440-41-7	QCBLK154576-1	09/30/97	09/30/97	104	%REC			5
Cadmium	7440-43-9	QCBLK154576-1	09/30/97	09/30/97	107	%REC			5
Calcium	7440-70-2	QCBLK154576-1	09/30/97	09/30/97	105	%REC			5
Chromium	7440-47-3	QCBLK154576-1	09/30/97	09/30/97	114	%REC			5
Cobalt	7440-48-4	QCBLK154576-1	09/30/97	09/30/97	99	%REC			5
Copper	7440-50-8	QCBLK154576-1	09/30/97	09/30/97	93	%REC			5
Iron	7439-89-6	QCBLK154576-1	09/30/97	09/30/97	2540	%REC			5
Lead	7439-92-1	QCBLK154576-1	09/30/97	09/30/97	-70200	%REC			100
Magnesium	7439-95-4	QCBLK154576-1	09/30/97	09/30/97	104	%REC			5
Manganese	7439-96-5	QCBLK154576-1	09/30/97	09/30/97	156	%REC			5
Nickel	7440-02-0	QCBLK154576-1	09/30/97	09/30/97	96	%REC			5
Potassium	7440-09-7	QCBLK154576-1	09/30/97	09/30/97	103	%REC			5
Silver	7440-22-4	QCBLK154576-1	09/30/97	09/30/97	115	%REC			5
Sodium	7440-23-5	QCBLK154576-1	09/30/97	09/30/97	100	%REC			5
Thallium	7440-28-0	QCBLK154576-1	09/30/97	09/30/97	109	%REC			5
Vanadium	7440-62-2	QCBLK154576-1	09/30/97	09/30/97	64	%REC	N		5
Zinc	7440-66-6	QCBLK154576-1	09/30/97	09/30/97	118	%REC			5

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: QUANTERRA_MO_____ Contract: 550.237___

Lab Code: ITMO__ Case No.: _____ SAS No.: _____ SDG No.: W01918_____

SOW No.: SW846

EPA Sample No.	Lab Sample ID
B0LW31	15903-001
B0LW31SD	15903-001SD
B0LW31S	15903-001S

58318

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES

If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:

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

Signature: _____ Name: _____

Date: _____ Title: _____

U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

B0LW31 5x Pb-100x

Lab Name: QUANTERRA_MO_____ Contract: 550.237___
Lab Code: ITMO___ Case No.:_____ SAS No.:_____ SDG No.: W01918_____
Matrix (soil/water): SOIL_ Lab Sample ID: 15903-001
Level (low/med): LOW__ Date Received: 09/12/97
% Solids: 100.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1540			P
7440-36-0	Antimony	21.2	U	N	P
7440-38-2	Arsenic	35.6	U		P
7440-39-3	Barium	32.6	B		P
7440-41-7	Beryllium	0.20	U		P
7440-43-9	Cadmium	1.5	B		P
7440-70-2	Calcium	3300			P
7440-47-3	Chromium	98.2			P
7440-48-4	Cobalt	167			P
7440-50-8	Copper	51.2			P
7439-89-6	Iron	128000			P
7439-92-1	Lead	208000			P
7439-95-4	Magnesium	1400	B		P
7439-96-5	Manganese	422			P
7440-02-0	Nickel	40.9			P
7440-09-7	Potassium	887	U	N	P
7440-22-4	Silver	4.7	B	N	P
7440-23-5	Sodium	140	B		P
7440-28-0	Thallium	18.8	U		P
7440-62-2	Vanadium	2.4	U	N	P
7440-66-6	Zinc	214			P

Color Before: _____ Clarity Before: _____ Texture: _____
Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

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