

START 9613502.2486

0045550

W0996-QES
Quanterra
Environmental
Services

Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

314 298-8566 Telephone
314 298-8757 Fax

CERTIFICATE OF ANALYSIS

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, Washington 99352

May 15, 1996

Attention: Joan Kessner

Project number	:	550.141
Date Received by Lab	:	May 2, 1996
Number of Samples	:	One (1)
Sample Type	:	Solid
SDG Number	:	W0996
Data Deliverable	:	Summary



I. Introduction

On May 2, 1996, one (1) solid sample was received by Quanterra, Richland and transferred to Quanterra, St. Louis for chemical analyses. Upon receipt, the sample was given the following laboratory ID number to correspond with the specific client ID:

<u>St Louis ID</u>	<u>WHC ID</u>	<u>Richland ID</u>	<u>Matrix</u>	<u>Date of Receipt</u>
11006-001	B0HS01	60502101	Solid	05/02/96

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: Lead by EPA Method 7421.

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9615702, 2487



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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.

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

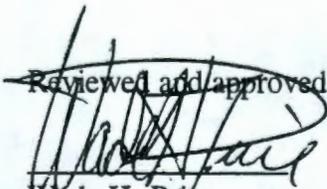
Lead

The sample digestate was screened by ICAP to determine the dilution factor required for GFAA analysis. Due to the high level of lead in the sample (greater than four times higher than the spike level) the spike recoveries have no valid control limits and, therefore, were not evaluated.

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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\$\\abbydave\\hanw0996.nar

Project Manager: W. Price

Draft: Final

Entered and Reviewed by: [Signature]

PH Review: [Signature]

Sample Header Template:

Sample No.	Client ID	C-Matrix	Date: Collected	Received	Due	Shipper	Rad Category	Rad Sample No.
Comments # Container Type Data:		Analysis	Class	Preservative	Anal. Due Date	Hold Date Site		(Container Numbers:% Filled)
11006-001 RICHLAND I.D. 60502101	BOHS01	Solid	26-APR-96 12:30	02-MAY-96 12:20	16-MAY-96	FED-EX	3	Screening not Required
1 VI - Vial-20ml		PB/7421/Q4	S	COLD	14-MAY-96	23-OCT-96 R16C		(227373:100)
11006-001MS RICHLAND I.D. 60502101	BOHS01	Solid	26-APR-96 12:30	02-MAY-96 12:20	16-MAY-96	FED-EX	3	Screening not Required
1 VI - Vial-20ml		PB/7421/Q4	S	COLD	14-MAY-96	23-OCT-96 R16C		(227373:100)
11006-001MSD RICHLAND I.D. 60502101	BOHS01	Solid	26-APR-96 12:30	02-MAY-96 12:20	16-MAY-96	FED-EX	3	Screening not Required
1 VI - Vial-20ml		PB/7421/Q4	S	COLD	14-MAY-96	23-OCT-96 R16C		(227373:100)

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3#-Sample has not been rad screened.

Date Turnaround

Priority

Normal BW
4-29-96

Collector Jeff Gilley	Company Contact Josie Beach	Telephone 373-2151
Project Designation B9610 / 401 building	Sampling Location 241-SX-401	SAF No. B96106 <i>also 5/4/96</i>
Ice Chest No. BZ-001	Field Logbook No. 1996-04-14-002	Method of Shipment
Shipped To Guantanamo	Offsite Property No.	Bill of Lading/Air Bill No.

Possible Sample Hazards/Remarks lead / rad	Preservation	NONE																		
	Type of Container	G																		
	No. of Container(s)	1																		
Special Handling and/or Storage NONE	Volume	20 mL 1" x 11"																		
SAMPLE ANALYSIS 60502101		SDA W0996	lead																	

Sample No.	Matrix*	Date Sampled	Time Sampled																	
BOHS01	SO	4-26-96	12:30	X																
				1																
				100%																

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix*
Relinquished By BJE Date/Time 05:10	Received By ERE Date/Time 0940	1000CPM	<ul style="list-style-type: none"> S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids DL = Drum Liquids T = Tissue WI = Wipe L = Liquid V = Vegetation X = Other
Relinquished By MJ Beach Date/Time 4-29-96	Received By Michelle Bahr Date/Time 4-29-96		
Relinquished By BJE Date/Time 12:20	Received By gicent Date/Time 12:20		
Relinquished By Michelle Bahr Date/Time 5-2-96	Received By Karen Date/Time 5-2-96		
Relinquished By _____ Date/Time _____	Received By _____ Date/Time _____		
Relinquished By _____ Date/Time _____	Received By _____ Date/Time _____		

LABORATORY SECTION	Received By _____	Title _____	Date/Time _____
FINAL SAMPLE DISPOSITION	Disposal Method _____	Disposed By _____	Date/Time _____

76 3502 2491

17/96

CLIENT CODE	ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B			
WHC	B0HCX3		5/2/96 12:20:00 PM	QUAD22B	5/2/96 3:20:24 PM	B0HCX3	30	1	-0.0191667	62	1.2341667			
		LIQUID		Bkg:	5/2/96 4:40:03 AM	BKG	800	42	0.0525	666	0.8325			
And Date:	5/2/96	Tot Sa, Alq:	5.00E-01	1.00E+01	Alp; (Dpm/	-1.01E-01	(uCV	-2.28E-06	(pCV	-4.56E+00	± 2.0E+01	CAT	5.0E-01	Lab
Ppt mg:	6.6 ✓	Units:	L ✓	ml	Bet; Alq):	2.38E+00	Sa):	5.36E-05	Llg):	1.07E+02	± 2.3E+01	I ✓	4.7E-01	Alq
														Lig
WHC	B0HCX4		5/2/96 12:20:00 PM	QUAD22C	5/2/96 3:20:24 PM	B0HCX4	30	2	0.02916667	44	0.5691667			
		LIQUID		Bkg:	5/2/96 4:40:03 AM	BKG	800	30	0.0375	718	0.8975			
And Date:	5/2/96	Tot Sa, Alq:	5.00E-01	1.00E+01	Alp; (Dpm/	7.21E-02	(uCV	1.62E-06	(pCV	3.25E+00	± 2.0E+01	CAT	7.7E+00	Lab
Ppt mg:	6.4 ✓	Units:	L ✓	ml	Bet; Alq):	1.06E+00	Sa):	2.39E-05	Llg):	4.78E+01	± 1.9E+01	I ✓	1.0E+00	Alq
														Lig
WHC	B0HCX5		5/2/96 12:20:00 PM	QUAD22D	5/2/96 3:20:24 PM	B0HCX5	30	634	21.0820833	34575	1151.59			
		LIQUID		Bkg:	5/2/96 4:40:03 AM	BKG	800	41	0.05125	728	0.91			
And Date:	5/2/96	Tot Sa, Alq:	5.00E-01	1.00E-01	Alp; (Dpm/	2.34E+01	(uCV	5.26E-02	(pCV	1.05E+05	± 6.2E+03	CAT	2.4E-04	Lab
Ppt mg:	0 ✓	Units:	L ✓	ml	Bet; Alq):	2.14E+03	Sa):	4.83E+00	Llg):	9.66E+06	± 5.2E+04	III ✓	5.2E-06	Alq
														Lig
WHC	B0HCX8		5/2/96 12:20:00 PM	QUAD23A	5/2/96 3:20:28 PM	B0HCX8	30	669	22.25125	55628	1853.3317			
		LIQUID		Bkg:	5/2/96 4:40:13 AM	BKG	800	39	0.04875	748	0.935			
And Date:	5/2/96	Tot Sa, Alq:	5.00E-01	1.00E-01	Alp; (Dpm/	2.30E+01	(uCV	5.17E-02	(pCV	1.03E+05	± 6.0E+03	CAT	2.4E-04	Lab
Ppt mg:	0 ✓	Units:	L ✓	ml	Bet; Alq):	3.48E+03	Sa):	7.85E+00	Llg):	1.57E+07	± 6.6E+04	III ✓	3.2E-06	Alq
														Lig
WHC	B0HS01		5/2/96 12:20:00 PM	QUAD23B	5/2/96 3:20:28 PM	B0HS01	30	1398	46.56375	118138	3937.0196			
		SOLID		Bkg:	5/2/96 4:40:13 AM	BKG	800	29	0.03625	731	0.91375			
And Date:	5/2/96	Tot Sa, Alq:	7.00E+00	6.33E+01	Alp; (Dpm/	7.78E+01	(uCV	3.87E-03	(pCV	5.53E+02	± 2.5E+01	CAT	9.0E-02	Lab
Ppt mg:	63.3 ✓	Units:	g ✓	mg	Bet; Alq):	8.39E+03	Sa):	4.18E-01	Llg):	5.97E+04	± 1.7E+02	III ✓	1.7E-03	Alq
														Lig

9613502-2492

80000

**"THIS PACKAGE CONFORMS TO THE
CONDITIONS AND LIMITATIONS
SPECIFIED IN 49 CFR 173.421 FOR
RADIOACTIVE MATERIAL"**

60009

9613502-2493

9613502 2494

VALIDATED RESULTS SHORT REPORT

30 Apr 19

Customer ID: BOHS01
Lab Sample#: S96E000492

Sample Date:
Recv. Date: 04/29/96 10:36

PARAMETER	RESULTS	UNITS
Total Activity by LSC		
Total Act. by LSC: ± Uncert.	.85	±Uncertainty
Total Activity by LSC (Solid)	5.83e-3	uCi/g
	5,830 nCi/g	

BOHS01

$$\frac{5.83 \times 10^{-3} \text{ uCi} \times 20\%}{1} = 0.12 \text{ uCi} = .12 \times 10^{-6} \text{ Ci}$$

$$A_2 \text{ for } \begin{matrix} 90\text{Sr} \\ \text{TRAP} \\ \text{BW} \\ 5-1-96 \end{matrix} = 0.4 \text{ Ci} \times 10^{-3} \text{ for solid} = .0004 \text{ Ci}$$

$.12 \times 10^{-6} \text{ Ci} < .0004 \text{ Ci}$ therefore shipment is limited Qty.

00010

POTENTIAL HAZARDS**HEALTH HAZARDS**

Low-level radioactive material; little personal radiation hazard.

Many packages are not required to have radioactive materials labels or markings.

Some radioactive materials cannot be detected by commonly available instruments.

FIRE OR EXPLOSION

Some of these materials may burn, but none of them ignites readily.

Radioactivity does not change flammability or other properties of the material.

EMERGENCY ACTION

Keep unnecessary people away; isolate hazard area and deny entry.

Response actions may be performed prior to any radiation measurements.

Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters' protective clothing will provide limited protection.

Notify Radiation Authority of accident conditions.

Detain uninjured persons, isolate equipment with suspected contamination, and delay cleanup until instruction of Radiation Authority.

FIRE

Do not move damaged containers; move undamaged containers out of fire zone.

Small Fires: Dry chemical, CO₂, water spray or regular foam.

Large Fires: Water spray, fog (flooding amounts).

SPILL OR LEAK

Do not touch damaged containers or spilled material.

Small Liquid Spills: Take up with sand, earth or other noncombustible absorbent material.

Cover powder spill with plastic sheet or tarp to minimize spreading.

FIRST AID

Use first aid treatment according to the nature of the injury.

Advise medical personnel that victim may be contaminated with low-level radioactive material.

Radioactive Material, excepted package - limited
Quantity of material, 7, UN2910

THIS PACKAGE CONFORMS TO THE
CONDITIONS AND LIMITATIONS
SPECIFIED IN 49 CFR 173.421 FOR
RADIOACTIVE MATERIAL, EXCEPTED
PACKAGE-LIMITED QUANTITY OF
MATERIAL, UN2910

BECHTEL HANFORD INC.

9813502.2497

RADIOACTIVE SHIPMENT RECORD

3. Page 1 of 1 34640

1. SHIP TO
Company QUANTERA
Address 2800 GEORGE WASHINGTON
City, State, Zip RICHLAND WA 99352
Attention KAREN ACTENDURGH
Phone 375-3131 EXT 135

2. SHIP FROM U.S. DEPT. OF ENERGY C/O
Company BAI HANFORD
Address 4701-C 400 AREA
City, State, Zip RICHLAND WA 99352
Contact BILL WHITTEN
Phone 376-1878

4. Ship Prepaid Collect
Via Motor-Rail Air Pgr
 Excl. Use Air Cargo
 UPS Surface Mail
 Site Carrier
SHIPMENT AUTHORIZATION NUMBER

5. HM Proper Shipping Name: Radioactive Material, UN2910, UN2974, UN2912, UN2982, UN2918

6. Markings Applied
Package Orientation
Gross Weight
Radioactive - LSA
Type A
Type B
8. Additional RAM Desc.
Limited Quantity Radioactive Material
Highway Route Controlled Quantity

7. For Normal Form Identify
Physical Form Liquid Gas
 Solid
Chemical Form Metal Oxide
 Elemental Nitrate
 Mixture
9. Placards Applied Yes No
If Rail Specify Placards
Route Plan Yes No

11a. TYPE PACKAGE
Strong Tight
Type A
Type B
Type B(U)
Type B(M)
EXCEPTED PACKAGE

11b. CONSTRUCTION
Box, FB
Wood
Steel
Drum
Cask
Other POLYCOOLER

11c. FISSILE CLASS
Non-Fissile
Fissile Exempt
Fissile I
Fissile II
Fissile III
Gms Fissile

11d. Labels Applied
Empty
Radioactive White I
Radioactive Yellow II
Radioactive Yellow III
Subsidiary Hazard

10. EMERGENCY RESPONSE
Telephone (509) 373-3800
Emergency Response Guide(s): #61

Warning - Fissile Class III Shipment. Do Not Load More Than Packages Per Vehicle. In Loading and Storage Areas, Keep at Least 20 Feet From Other Packages Bearing Radioactive Labels.

Table with 10 columns: No. Pkgs., Model Package, COC/Spec, Serial No., Seal No., Isotopes, T.I., Curies/Pkg, Gr. Wt. Includes entry for POLYCOOLER # GWS 008 CONTAINS GROUNDWATER SAMPLES IN PLASTIC JARS.

(Shipper may describe package in detail on one of the unused lines above) TOTALS N/A, .000163 Ci, 20 lbs

13. This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation... Certificate's Signature J.D. Fisher, On behalf of DOE-RL, Date 5/1/96, Organization FIELD SAMPLING, Complete Cost Code X60125

14. Surface Dose Rate of Package <0.5 or mrem/hr (N+g+y), Dose Rate at 1 Meter from Surface of Package <0.5 or mrem/hr (N+g+y), Smears of Outer Container <22 dpm B & Y/cm2, TRUCK LOAD OR EXCLUSIVE USE <200 mrem/hr (N+g+y) Surface, <10 mrem/hr (N+g+y) @ 6 feet, <2 mrem/hr (N+g+y) @ Cab or sleeper. Signature: Gary L. Duffey, Bldg. 4701-C, Survey No. L-AL-0283, Date 5-2-96

15. PICKUP OF SHIPMENT RECEIPT. Vehicle ID2598, Driver BILL WHITTEN, Signature Bill Whitten, Date 5-2-96

16. Shipment has been inspected and verified to be in compliance with DOT regulations. Authorized Signature Larry L. Cole, Printed Name LARRY L. COLE, Date 5-2-96

17. AIR TRANSPORT CERTIFICATION. CARGO/AIRCRAFT: Cargo Aircraft Only Labels Applied. PASSENGER AIRCRAFT: 1. Ltd Qty, 2. <3 T.L., 3. Research/Medical Diagnosis, 4. Human Medical Research. Pkg. Dimensions

18. OFFSITE AUTHORIZATION. BL, Date Shipped, Routing, ETA, Surveyed By, Date, Approved for Shipment Offsite, Date

Figure 1

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 5/2/96 1220 Client Name BHI

Project/Client # _____ Batch or Case # _____

Cooler ID (if noted on outside of cooler) _____

1. Condition of shipping container? QW5008

2. Custody Seals on cooler intact? Yes No

3. Custody Seals dated and signed? Yes No

4. Chain of Custody record is taped on inside of cooler lid? Yes No

5. Vermiculite/packing material is: Wet Dry

6. Each sample is in a plastic bag? Yes No

7. Number of sample containers in cooler: 4

8. Samples have: tape _____ hazard labels

custody seals _____ appropriate sample labels

9. Samples are: in good condition _____ leaking

_____ broken _____ have air bubbles

_____ other

10. Coolant Present? Yes No Sample Temperature n/a

11. The following paperwork should be accounted for (N/A if not applicable):

Chain of Custody #(s) n/a

Request for Analysis #(s) _____

Airbill # _____ Carrier n/a

12. Have any anomalies been identified above? Yes No

13. Memos have been initiated for all anomalies identified above? Yes

Printed Name/Signature Samuel H. ... Date/Time 5-2-96 1220



Environmental Services

9613502 2499 and C.O.C.

COPIED TO: BW & P
DATE: 5-3-96
TIME: 10:00
BY: ZM

Login No.: 11006

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: Richland
Project No: 550-141
Shipper/No: FEDEX 335 8140 457

Date: 5-3-96 Time: 08:50
Initiated by: [Signature]
RFA/COC Numbers: 54344

Condition/Variance (Check all that apply):

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

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) [Signature] Date: 5-3-96

Project Management Review: [Signature] Date: 5-6-96

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

9613502.2500


 Environmental
 Services

 Quanterra-Richland
 3350 George Washington Way
 Richland, WA 99352

Project: 550.141

 Category: Lead-7421
 Method: EPA 7421
 Matrix: SOLID

 Sample Date : 04/26/96
 Receipt Date : 05/02/96
 Report Date : 05/09/96

Client ID	Quanterra ID	Analyte	CAS Number	Blank Sample Name	Prep. Date	Analyses Date	Result	Unit	Qual.	Detection Limit	Dil.
BOHS01	11006-001	Lead	7439-92-1	QCBLK99600-1	05/07/96	05/08/96	9680	MG/KG		1500	5000
BOHS01	11006-001MS	Lead	7439-92-1	QCBLK99600-1	05/07/96	05/08/96	29500	%REC			5000
BOHS01	11006-001MSD	Lead	7439-92-1	QCBLK99600-1	05/07/96	05/08/96	-86750	%REC			5000
NA	QCBLK99600-1	Lead	7439-92-1	QCBLK99600-1	05/07/96	05/08/96	0.13	MG/KG	U	0.30	1
NA	QCCLS99600-1	Lead	7439-92-1	QCBLK99600-1	05/07/96	05/08/96	95	%REC			10

00017

9613502.2502

Sample Disposition Record

Control #: 96-0085
Revision #: 0
Date Initiated: 05/28/96

Section 1 - BACKGROUND

SAF #: B96-106
OU: N/A
Project ID: 100N 90-Day Pad
Task ID: 1
Sampling Event: 401 Building Paint Sample
Laboratory: Quanterra
Project Coordinator: M. E. David
Task Manager: M. J. Beach

Section 2 - SAMPLE INFORMATION

Number of Samples: 1
ID Numbers: B0HFD1
Matrix: Other Solid - Paint
Collection Date: 04/26/96

Section 3 - ISSUE

Class: Lab Direction
NCR Number: N/A
Type: Incorrect Sample Number
Description: Sample number B0HFD1 was assigned, but an incorrect number (B0GS01) was used on the chain of custody. B0GS01 is a WHC sample number with data associated with it.

N/A

NCR Validation (Print/Sign) Date

Section 4 - DISPOSITION

Type: Repair
Description: The data for B96-106 should be associated with sample number B0HFD1. Note in case narrative.

C. C. Koerner/  5/22/96
Project Coordinator (Print/Sign) Date

M. J. Beach/  6/3/96
Task Manager (Print/Sign) Date

N/A

QA (Print/Sign) Date

Section 5 - INSPECTION (Issue Class: Nonconformance Only)

Inspection Number:
Inspection Results:

N/A

Inspector (Print/Sign) Date