



Environmental Services

Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

CASE NARRATIVE

0052824

314 298-8566 Telephone
314 298-8757 Fax

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, Washington 99352

RECEIVED
MAR 28 2000

EDMC



February 25, 2000

Attention: Joan Kessner

Project Number	:	33985
SDG	:	W03031
Number of Samples	:	one (1)
Sample Matrix	:	soil
Data Deliverable	:	Summary
Date SDG Closed	:	January 26, 2000

II. Introduction

On January 26, 2000, one (1) "soil" sample was received by Quanterra, Richland and transferred to Quanterra, St. Louis for chemical analysis. The samples were received within temperature criteria. See the attached Sample Summary sheet for the client and lab Ids for these samples.

III. 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 - 1311/6010/7470

Deviation from Request: There were no deviations.

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
- MS- Matrix Spike.
- MSD- Matrix Spike Duplicate.

Bechtel Hanford Incorporated
February 25, 2000
Project Number: 33985
SDG: W03031
Page 2

V. Comments

General: The term "Detection Limit" used in the analytical data reports refers to either the lab's standard reporting limits or contractually required reporting limits, whichever is applicable.

Please refer to the attached cross-reference table for the standard preparation methods used at Quanterra, St. Louis.

The data was sent via facsimile on 2/14/00.

TCLP Metals: A Laboratory Control Sample, Method Blank, Matrix Spike and Matrix Spike Duplicate were analyzed with each preparation batch per the protocol for this analysis.

ICP metals and associated QC were prepped 100 mls to 100 mls.

Mercury and associated QC was prepped 25 mls to 100 mls. The initial run of Mercury was analyzed using standards that were prepped more than twenty four hours before analysis. (See NCM F00073.) The samples were re-digested for Mercury and re-analyzed. The re-digested Mercury spikes were spiked after the sample was preserved. This is not compliant with the method with states that spiking should occur before preservation. See NCM F00095.

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:



Marti Ward
St. Louis Project Manager

SAMPLE SUMMARY

FOA270174

<u>WO #</u>	<u>SAMPLE#</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
D7X8V	001	BOX4X8	01/24/00	13:30

NOTE (S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

METHODS SUMMARY

FOA270174

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 1311/3010
Mercury in Liquid Waste (Manual Cold-Vapor)	SW846 7470A	

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.



Nonconformance Memo

NCM #: F00073	Classification: Deficiency
NCM Initiated By: Clay, Kay	Status: PMREVIEW
Date Opened: 02/15/00	Production Area: Metals
Date Closed: N/A	Tests: None
Nonconformance: Other (describe in detail)	Lot #'s (Sample #'s): F0A270126 (1,2,3,4); F0A270174 (1); F0B030156 (1,2); F0B030177 (1,11,12,2,3,4,5,6,7,8)
Subcategory: Other (explanation required)	QC Batch: 0041393, 0041394, 0041401

Problem Description / Root Cause

Name	Date	Description
Clay, Kay	02/15/00	Standards prepped on 02/10/00 and data analyzed on 02/12/00.

Corrective Action

Name	Date	Corrective Action

Client Notification Summary

Client	Project Manager	Date Notified	Response Date	How Notified
BECHTEL HANFORD, INC.	Ward, Marti	02/16/00	02/16/00	by telephone
	<u>Response</u>	<u>Response Details</u>		
	Other	RX		

Approval History

Name	Date Approved:	Position
Clay, Kay	02/15/00	Chemist
Ed Kao	02/15/00	Group Leader
Ward, Marti	02/16/00	Project Manager



Nonconformance Memo

NCM #: F00095	Classification: Anomaly
NCM Initiated By: Clay, Kay	Status: QAREVIEW
Date Opened: 02/24/00	Production Area: Metals
Date Closed: N/A	Tests: 7470A
	Lot #'s (Sample #'s): F0A270174 (1)
	QC Batch: None.
Nonconformance: Other (describe in detail)	
Subcategory: Other (explanation required)	

Problem Description / Root Cause

<u>Name</u>	<u>Date</u>	<u>Description</u>
Clay, Kay	02/24/00	TCLP extract was spiked for the MS/MSD after the sample was preserved. TCLP states samples should be spiked before preservation.

Corrective Action

<u>Name</u>	<u>Date</u>	<u>Corrective Action</u>
Ed Kao	02/24/00	None. This was a re-analysis.

Client Notification Summary

<u>Client</u>	<u>Project Manager</u>	<u>Date Notified</u>	<u>Response Date</u>	<u>How Notified</u>
BECHTEL HANFORD, INC.	Ward, Marti	02/25/00	02/25/00	by narrative
	<u>Response</u>	<u>Response Details</u>		
	Process "as-is"			

Approval History

<u>Name</u>	<u>Date Approved:</u>	<u>Position</u>
Clay, Kay	02/24/00	Chemist
Ed Kao	02/24/00	Group Leader
Ward, Marti	02/25/00	Project Manager

STL - St. Louis

PSL20300
Page 1

QUANTERRA INCORPORATED
CLIENT ANALYSIS SUMMARY
Quanterra - St. Louis

Run Date: 1/27/00
Time: 13:22:34
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 300-FF-1
REPORT TO: Bechtel Hanford, Inc.
P.O. NUMBER: MRC-SBB-A-19981
SITE: B00-011
AMOUNT REC'D: 120G
STORAGE LOC: T7E
LOT COMMENTS: 7 day TAT
MATRIX: SOLID
SAMPLE ID: B0X4X8
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:

QUOTE/SAR #: 33985
LAB ID: F-0A270174-001
WORK ORDER: D7X8V
RECEIVING DATE: 1/26/00
SAMPLING DATE: 1/24/00
ANALYTICAL DUE DATE: 2/03/00N
REPORT DUE DATE: 2/03/00
PRIORITY: 07
SAMPLING TIME: 13:30
RECEIVING TIME: 9:00
SDG# : W03031

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****

	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Mercury (7470A, Cold Vapor) - Liquid TCLP (1311) -> METALS, TOTAL RECOVERABLE M7470_S HG (A-2J-08-01) D7X8V Protocol: A QC Program: STANDARD TEST SET	06	1/27/00	0/00/00	2/21/00
Inductively Coupled Plasma (6010B) TCLP(1311) -> METALS, TOTAL M6010TP AG,AS,BA,CD,CR,PB,SE (A-34-Q0-01) D7X8V Protocol: A QC Program: STANDARD TEST SET	06	1/27/00	7/22/00	1/18/01

PSL20300
Page 1

QUANTERRA INCORPORATED
CLIENT ANALYSIS SUMMARY
Quanterra - St. Louis

Run Date: 1/27/00
Time: 13:22:34
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 300-FF-1
REPORT TO: Bechtel Hanford, Inc.
P.O. NUMBER: MRC-SBB-A-19981
SITE: B00-011
AMOUNT REC'D: 120G
STORAGE LOC: T7E
LOT COMMENTS: 7 day TAT
MATRIX: SOLID
SAMPLE ID: BOX4X8
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:

QUOTE/SAR #: 33985
LAB ID: F-0A270174-001-D
WORK ORDER: D7X8V MSD
RECEIVING DATE: 1/26/00
SAMPLING DATE: 1/24/00
ANALYTICAL DUE DATE: 2/03/00N
REPORT DUE DATE: 2/03/00
PRIORITY: 07
SAMPLING TIME: 13:30
RECEIVING TIME: 9:00
SDG# : W03031

Beginning Depth: .00 Ending Depth: .00

	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
<u>***** ANALYSIS *****</u>				
Mercury (7470A, Cold Vapor) - Liquid TCLP (1311) -> METALS, TOTAL RECOVERABLE M7470_S HG (A-2J-08-01) D7X8V Protocol: A QC Program: STANDARD TEST SET	06	1/27/00	0/00/00	2/21/00
Inductively Coupled Plasma (6010B) TCLP(1311) -> METALS, TOTAL M6010TP AG,AS,BA,CD,CR,PB,SE (A-34-QO-01) D7X8V Protocol: A QC Program: STANDARD TEST SET	06	1/27/00	7/22/00	1/18/01

STL - St. Louis

PSL20300
Page 1

QUANTERRA INCORPORATED
CLIENT ANALYSIS SUMMARY
Quanterra - St. Louis

Run Date: 1/27/00
Time: 13:22:34
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 300-FF-1
REPORT TO: Bechtel Hanford, Inc.
P.O. NUMBER: MRC-SBB-A-19981
SITE: B00-011
AMOUNT REC'D: 120G
STORAGE LOC: T7E
LOT COMMENTS: 7 day TAT
MATRIX: SOLID
SAMPLE ID: BOX4X8
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:

QUOTE/SAR #: 33985
LAB ID: F-0A270174-001-S
WORK ORDER: D7X8V MS
RECEIVING DATE: 1/26/00
SAMPLING DATE: 1/24/00
ANALYTICAL DUE DATE: 2/03/00N
REPORT DUE DATE: 2/03/00
PRIORITY: 07
SAMPLING TIME: 13:30
RECEIVING TIME: 9:00
SDG# : W03031

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****

	<u>WRK LOC</u>	<u>REQUEST DATE</u>	<u>EXTRACTION EXP DATE</u>	<u>ANALYSIS EXP DATE</u>
Mercury (7470A, Cold Vapor) - Liquid TCLP (1311) -> METALS, TOTAL RECOVERABLE M7470_S HG (A-2J-08-01) D7X8V Protocol: A QC Program: STANDARD TEST SET	06	1/27/00	0/00/00	2/21/00
Inductively Coupled Plasma (6010B) TCLP(1311) -> METALS, TOTAL M6010TP AG,AS,BA,CD,CR,PB,SE (A-34-QQ-01) D7X8V Protocol: A QC Program: STANDARD TEST SET	06	1/27/00	7/22/00	1/18/01

Figure 1

SAMPLE CHECK-IN LIST

Date/Time Received: 126-00 0900 SG#: _____
 Work Order Number: _____ SAF #: B00-011
 Shipping Container ID: ERC99-033 Chain of Custody #: B00-011-02

1. Custody Seals on shipping container intact? Yes No
2. Custody Seals dated and signed? Yes No
3. Chain-of-Custody record present? Yes No
4. Cooler temperature 4°C
5. Vermiculite/packing materials is Wet Dry
6. Number of samples in shipping container: 1
7. Sample holding times exceeded? Yes No

8.	Samples have:	<input checked="" type="checkbox"/> tape	<input type="checkbox"/> hazard labels	<input type="checkbox"/> appropriate sample labels
		<input checked="" type="checkbox"/> custody seals		

9.	Samples are:	<input checked="" type="checkbox"/> in good condition	<input type="checkbox"/> leaking	<input type="checkbox"/> have air bubbles
		<input type="checkbox"/> broken		

10. Where any anomalies identified in sample receipt? Yes No
11. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory: A. Ackerman Date: 126-00
 Telephoned To: _____ On _____ By _____



020717

Condition Upon Receipt Variance Report
St. Louis Laboratory

Login No.: FOA270174
W03031

Client: Bechtel

Date: 1-27-00 Time: 830

Project No: 33985

Initiated by: Sue [Signature]

Shipper/No: Airborne 004012605914

RFA/COC Numbers: B00-011-02

Condition/Variance (Check all that apply):

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

No variances were noted during sample receipt.

Cooler Temperature Upon Receipt: 40

Temperature Variance Does Not Affect the Following Analyses: _____

Notes: _____

Corrective Action:

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

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

Sample(s) processed "as is".

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

Sample Control Supervisor Review: (or designate) [Signature] Date: 1-27-00

Project Management Review: [Signature] Date: 1-27-00

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

SL-ADMIN-0004, Revised 12/12/98

BECHTEL HANFORD, INC.

Client Sample ID: B0X4X8

TCLP Metals

Lot-Sample #...: FOA270174-001
 Date Sampled...: 01/24/00
 Leach Date.....: 02/01/00

Date Received...: 01/26/00
 Leach Batch #...: P003302

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
		LIMIT	UNITS			
Prep Batch #...: 0040336						
Arsenic	ND	300	ug/L	SW846 6010B	02/09-02/10/00	D7X8V101
		Dilution Factor: 1				
Barium	2600	200	ug/L	SW846 6010B	02/09-02/10/00	D7X8V104
		Dilution Factor: 1				
Cadmium	ND	5.0	ug/L	SW846 6010B	02/09-02/10/00	D7X8V107
		Dilution Factor: 1				
Chromium	20.5	10.0	ug/L	SW846 6010B	02/09-02/10/00	D7X8V10A
		Dilution Factor: 1				
Lead	ND	100	ug/L	SW846 6010B	02/09-02/10/00	D7X8V10E
		Dilution Factor: 1				
Silver	ND	10.0	ug/L	SW846 6010B	02/09-02/10/00	D7X8V10H
		Dilution Factor: 1				
Selenium	ND	250	ug/L	SW846 6010B	02/09-02/10/00	D7X8V10L
		Dilution Factor: 1				
Prep Batch #...: 0055284						
Mercury	ND	0.80	ug/L	SW846 7470A	02/21-02/22/00	D7X8V20P
		Dilution Factor: 4				

NOTE (S) :

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

MATRIX SPIKE SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: F0A270174
 Date Sampled...: 01/24/00

Date Received...: 01/26/00

Matrix.....: SOLID

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>RPD</u>	<u>RPD LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
MS Lot-Sample #: F0A270174-001 Prep Batch #...: 0040336							
Leach Date.....: 02/01/00 Leach Batch #...: P003302							
Arsenic	110	(80 - 120)			SW846 6010B	02/09-02/10/00	D7X8V102
	106	(80 - 120)	3.7	(0-20)	SW846 6010B	02/09-02/10/00	D7X8V103
Dilution Factor: 1							
Barium	98	(80 - 120)			SW846 6010B	02/09-02/10/00	D7X8V105
	92	(80 - 120)	4.1	(0-20)	SW846 6010B	02/09-02/10/00	D7X8V106
Dilution Factor: 1							
Cadmium	101	(80 - 120)			SW846 6010B	02/09-02/10/00	D7X8V108
	98	(80 - 120)	3.1	(0-20)	SW846 6010B	02/09-02/10/00	D7X8V109
Dilution Factor: 1							
Chromium	97	(80 - 120)			SW846 6010B	02/09-02/10/00	D7X8V10C
	93	(80 - 120)	3.3	(0-20)	SW846 6010B	02/09-02/10/00	D7X8V10D
Dilution Factor: 1							
Lead	96	(80 - 120)			SW846 6010B	02/09-02/10/00	D7X8V10F
	93	(80 - 120)	3.2	(0-20)	SW846 6010B	02/09-02/10/00	D7X8V10G
Dilution Factor: 1							
Silver	103	(49 - 135)			SW846 6010B	02/09-02/10/00	D7X8V10J
	99	(49 - 135)	4.5	(0-20)	SW846 6010B	02/09-02/10/00	D7X8V10K
Dilution Factor: 1							
Selenium	111	(80 - 120)			SW846 6010B	02/09-02/10/00	D7X8V10M
	105	(80 - 120)	5.0	(0-20)	SW846 6010B	02/09-02/10/00	D7X8V10N
Dilution Factor: 1							

MS Lot-Sample #: F0A270174-001 Prep Batch #...: 0055284

Leach Date.....: 02/01/00 Leach Batch #...: P003302

Mercury	100	(75 - 125)			SW846 7470A	02/21-02/22/00	D7X8V114
	100	(75 - 125)	0.20	(0-20)	SW846 7470A	02/21-02/22/00	D7X8V115
Dilution Factor: 4							

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

TCLP Metals

Client Lot #....: F0A270174

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F0B020000-145 Prep Batch #....: 0040336 Leach Date.....: 02/01/00 Leach Batch #...: P003302						
Arsenic	ND	300	ug/L	SW846 6010B	02/09-02/10/00	D849N10E
		Dilution Factor: 1				
Barium	1.3 B	200	ug/L	SW846 6010B	02/09-02/10/00	D849N107
		Dilution Factor: 1				
Cadmium	ND	5.0	ug/L	SW846 6010B	02/09-02/10/00	D849N108
		Dilution Factor: 1				
Chromium	ND	10.0	ug/L	SW846 6010B	02/09-02/10/00	D849N109
		Dilution Factor: 1				
Lead	ND	100	ug/L	SW846 6010B	02/09-02/10/00	D849N103
		Dilution Factor: 1				
Silver	ND	10.0	ug/L	SW846 6010B	02/09-02/10/00	D849N10A
		Dilution Factor: 1				
Selenium	ND	250	ug/L	SW846 6010B	02/09-02/10/00	D849N10C
		Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

TCLP Metals

Client Lot #...: F0A270174

Matrix.....: SOLID

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
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MB Lot-Sample #: F0B240000-284 Prep Batch #...: 0055284

Mercury	ND	0.80	ug/L	SW846 7470A	02/21-02/22/00	D8XXW101
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Dilution Factor: 4

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: FOA270174

Matrix.....: SOLID

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
LCS Lot-Sample#: FOB090000-336 Prep Batch #...: 0040336					
Arsenic	106	(80 - 120)	SW846 6010B	02/09-02/10/00	D8DK3105
		Dilution Factor: 1			
Barium	95	(80 - 120)	SW846 6010B	02/09-02/10/00	D8DK3106
		Dilution Factor: 1			
Cadmium	95	(80 - 120)	SW846 6010B	02/09-02/10/00	D8DK3107
		Dilution Factor: 1			
Chromium	93	(80 - 120)	SW846 6010B	02/09-02/10/00	D8DK3101
		Dilution Factor: 1			
Lead	92	(80 - 120)	SW846 6010B	02/09-02/10/00	D8DK3102
		Dilution Factor: 1			
Silver	100	(49 - 135)	SW846 6010B	02/09-02/10/00	D8DK3103
		Dilution Factor: 1			
Selenium	107	(80 - 120)	SW846 6010B	02/09-02/10/00	D8DK3104
		Dilution Factor: 1			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TCLP Metals

Lot-Sample #....: F0A270174

Matrix.....: SOLID

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>RPD</u>	<u>RPD LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP- BATCH #</u>
Mercury	104	(80 - 120)			SW846 7470A	02/21-02/22/00	0055284
	103	(80 - 120)	1.5	(0-20)	SW846 7470A	02/21-02/22/00	0055284

Dilution Factor: 4

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.