W03009-QES

Quanterra
Environmental Services

Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

314 298-8566 Telephone
314 298-8757 Fax

0052823

CASE NARRATIVE

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, Washington 99352

RECEIVED
MAR 28 2000
EDMC

February 29, 2000

Attention: Joan Kessner

MAR 2000
RECEIVED
Data
Log In

Quote Number	:	33985
SDG	:	W03009A
Number of Samples	:	one (1)
Sample Matrix	:	Soil
Data Deliverable	:	Summary
Date SDG Closed	:	January 7, 2000

II. Introduction

On January 7, 2000, one (1) "soil" sample was received by Quanterra, Richland and transferred to Quanterra, St. Louis for chemical analysis. The samples were received at the St. Louis lab on 1/7/00 at 2 degrees C. See the attached Sample Summary for a listing of Client Ids and their associated Lab numbers. This data package contains only the TCLP Metals data. The rest of the data was sent out on January 27, 2000 as SDG W03009.

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 ICP Metals - 1311/6010A

Deviation from Request: None

Quanterra

Bechtel Hanford Incorporated
February 28, 2000
Quote Number: 33985
SDG: W03009A
Page 2

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.

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.

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.

The ICP MSD was accidentally doubled-spiked. The spike recoveries were calculated using the double spike amount and were within acceptable criteria except for Silver. All MS recoveries and LCS recoveries met QC criteria.

I certify that this Summary 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

F0B030166

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
D86AK	001	B0X4W4	01/05/00	14:30

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

F0B030166

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
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.

PSL20300
Page 1

QUANTERRA INCORPORATED
CLIENT ANALYSIS SUMMARY
Quanterra - St. Louis

Run Date: 2/04/00
Time: 7:25:50
User Id.: PACEM

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: 3X60G
STORAGE LOC: T7F
LOT COMMENTS: 7 day TAT
MATRIX: SOLID
SAMPLE ID: B0X4W4
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:

QUOTE/SAR #: 33985
LAB ID: F-0B030166-001
WORK ORDER: D86AK
RECEIVING DATE: 1/06/00
SAMPLING DATE: 1/05/00
ANALYTICAL DUE DATE: 2/15/00N
REPORT DUE DATE: 2/15/00
PRIORITY: 40
SAMPLING TIME: 14:30
RECEIVING TIME: 10:55

SDG# : 3009A

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) D86AK Protocol: A QC Program: STANDARD TEST SET	06	2/03/00	0/00/00	2/02/00
Inductively Coupled Plasma (6010B) TCLP(1311) -> METALS, TOTAL M6010TP AG,AS,BA,CD,CR,PB,SE (A-34-QO-01) D86AK Protocol: A QC Program: STANDARD TEST SET	06	2/03/00	7/03/00	12/30/00

PSL20300
Page 1

QUANTERRA INCORPORATED
CLIENT ANALYSIS SUMMARY
Quanterra - St. Louis

Run Date: 2/04/00
Time: 7:25:50
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: 3X60G
STORAGE LOC: T7F
LOT COMMENTS: 7 day TAT
MATRIX: SOLID
SAMPLE ID: B0X4W4
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:

QUOTE/SAR #: 33985
LAB ID: F-0B030166-001-D
WORK ORDER: D86AK MSD
RECEIVING DATE: 1/06/00
SAMPLING DATE: 1/05/00
ANALYTICAL DUE DATE: 2/15/00N
REPORT DUE DATE: 2/15/00
PRIORITY: 40
SAMPLING TIME: 14:30
RECEIVING TIME: 10:55

SDG# : 3009A

Beginning Depth: .00 **Ending Depth:** .00

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
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PSL20300
Page 1

QUANTERRA INCORPORATED
CLIENT ANALYSIS SUMMARY
Quanterra - St. Louis

Run Date: 2/04/00
Time: 7:25:50
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: 3X60G
STORAGE LOC: T7F
LOT COMMENTS: 7 day TAT
MATRIX: SOLID
SAMPLE ID: B0X4W4
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:

QUOTE/SAR #: 33985
LAB ID: F-0B030166-001-S
WORK ORDER: D86AK MS
RECEIVING DATE: 1/06/00
SAMPLING DATE: 1/05/00
ANALYTICAL DUE DATE: 2/15/00N
REPORT DUE DATE: 2/15/00
PRIORITY: 40
SAMPLING TIME: 14:30
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SDG# : 3009A

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) D86AK Protocol: A QC Program: STANDARD TEST SET	06	2/04/00	0/00/00	2/02/00
Inductively Coupled Plasma (6010B) TCLP(1311) -> METALS, TOTAL M6010TP AG,AS,BA,CD,CR,PB,SE (A-34-QO-01) D86AK Protocol: A QC Program: STANDARD TEST SET	06	2/04/00	7/03/00	12/30/00

SDG = 3009A Quote 33935

login TCLP Metals (ICP + Hg)

Ward, Marti

FCA070144

due date 2/15

RECT 106 1055A

SAMPLE DATE 105 230P

BOTTLE ID BOX4W4 609

From: Waddell, Jackie
Sent: Wednesday, February 02, 2000 10:54 AM
To: Ward, Marti
Subject: RE: W03009
Importance: High

Thank you...

From: Ward, Marti
Sent: Wednesday, February 02, 2000 8:40 AM
To: Waddell, Jackie
Subject: RE: W03009

We have some sample left. I'm not positive we have the full 100 ml needed for TCLP extraction, but we can use a lesser amount and "narrate" that. We are looking at about a two week TAT. If it gets done sooner, I will definitely send it on.

From: Waddell, Jackie
Sent: Tuesday, February 01, 2000 4:04 PM
To: Ward, Marti
Subject: RE: W03009
Importance: High

Can we run TCLP metals for this SDG from a remaining bottle? If so, how long would it take?

From: Ward, Marti
Sent: Tuesday, February 01, 2000 12:25 PM
To: Waddell, Jackie
Subject: RE: W03009

we did not receive a container, so we did not analyze for this. I find their chains very confusing. Items are marked with an "X" and we either don't do the analysis here (i.e. the RAD stuff or Cr6) or the container is crossed off our chain. If we erred here, blame the chains.

From: Waddell, Jackie
Sent: Tuesday, February 01, 2000 1:04 PM
To: Ward, Marti
Subject: RE: W03009
Importance: High

I'm assuming that you didn't run them then? Did you receive a container marked TCLP Metals?

From: Ward, Marti
Sent: Tuesday, February 01, 2000 9:38 AM
To: Waddell, Jackie
Subject: RE: W03009

The chain listed TCLP metals, but "zero" containers.

From: Waddell, Jackie
Sent: Tuesday, February 01, 2000 11:36 AM
To: Ward, Marti
Subject: W03009
Importance: High

Marti,
Were TCLP Metals requested on this SDG?

CWI 020587 Temp 2°

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-011-01	Page 1 of 2
Collector: Doug Bowers W03009	Company Contact: Jeff Learch; Telephone No.: 373-5904	Project Coordinator: TRENT, SJ	Price Code: 2 D; Data Turnaround: 5 20 1-5-00
Project Designation: 300-FF-1 Landfill 1B Cleanup	Sampling Location: 300 FF-1 land fill 1B	SAF No.: B00-011	Air Quality ☐; 7 Days
Ice Chest No.: ERC 96087	Field Logbook No.: EL 1395-2; COA: RNDF1B2600	Method of Shipment: Gov Vehicle	
Shipped To: Quantera Incorporated	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None
Type of Container	P	aG	aG	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	20mL	60mL	60mL	60mL	60mL	60mL	60mL	60mL	60mL	60mL

SAMPLE ANALYSIS

SDG W03009

Sample No.	Matrix *	Sample Date	Sample Time	Activity Scan	See item (1) in Special Instructions.	Sulfides - 9030	Total Cyanide - 9010	VOA - 8260A (TCL)	Gross Alpha; Gross Beta	See item (2) in Special Instructions.	Isotopic Uranium	Mercury - 7471 - (CV)	pH (Soil) - 9045
				100%	100%					100%			100%
BOX4W4	Soil	1-5-00	1430	X	X					X			X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	1-5-00/1545	REF 2C	1-5-00/1545
Ref 2C	1-6-00/0800	R. Thoren	1-6-00/0800
R. Thoren	1-6-00/1055	K. Ashenberg	1-6-00/1055
K. Ashenberg	1-6-00 1600	[illegible]	1-7-00 1000

SPECIAL INSTRUCTIONS

** Friability shall be described in the WSCF case narrative.

** COC Note-- The ERC Contractor acknowledges the 48-hour holding time for nitrate, nitrite, and phosphate is not likely achievable.

(1) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) (Arsenic, Beryllium, Lead, Selenium, Thallium)

(2) IC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate)

Matrix *: S=Soil; SE=Sediment; SO=Solid; S=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; 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

BHI-EE-011 (10/99)

STL - St. Louis

Data is incomplete without Case Narrative

10

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B00-011-01	Page 2 of 2
Collector: Doug Bowers W03009	Company Contact: Jeff Leach	Telephone No.: 373-5904	Project Coordinator: TRENT, SJ	Price Code / Data Turnaround
Project Designation: 300-FF-1 Landfill 1B Cleanup	Sampling Location: 300 FF-1 land fill 1B		SAF No.: B00-011	Air Quality ☐
Ice Chest No.: ERC 96087	Field Logbook No.: EL 1395-2	COA: RNDF1B2600	Method of Shipment: Gov Vehicle	
Shipped To: Quanterra Incorporated	Offsite Property No.: N/A		Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	None	None	None					
Type of Container	aG	aG	aG	aG	aG	aG					
No. of Container(s)	1	1	1	1	~~1~~ 0	1					
Volume	120mL	120mL	250mL	250mL	250mL	1000mL					
SAMPLE ANALYSIS	Pesticides - 8081	Semi-VOA - 8270A (TCL)	PCBs - 8082	Ignitability - 1010	Metals by ICP (TCLP) - 1311/6010, Mercury (TCLP) - 1311/7470	See item (1) in Special Instructions.					
Sample No.	Matrix **	Sample Date	Sample Time								
BOX4W4	Soil	1-5-00	1430					X			

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	1-5-00/1445	ERC	1-5-00/1445
ERC	1-6-00/0800	R. Thoren	1-6-00/0800
R. Thoren	1-6-00/1055	K. Schlenley	1-6-00 1055
K. Schlenley	1-6-00 1600	[illegible]	1-7-00 1000

SPECIAL INSTRUCTIONS

** Friability shall be described in the WSCF case narrative.

** COC Note– The ERC Contractor acknowledges the 48-hour holding time for nitrate, nitrite, and phosphate is not likely achievable.

(1) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)

Matrix *

S=Soil
SE=Sediment
SO=Solid
S=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
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

BHI-EE-011 (10/99)

Data is incomplete without Case Narrative

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ERC RADIOLOGICAL SURVEY RECORD

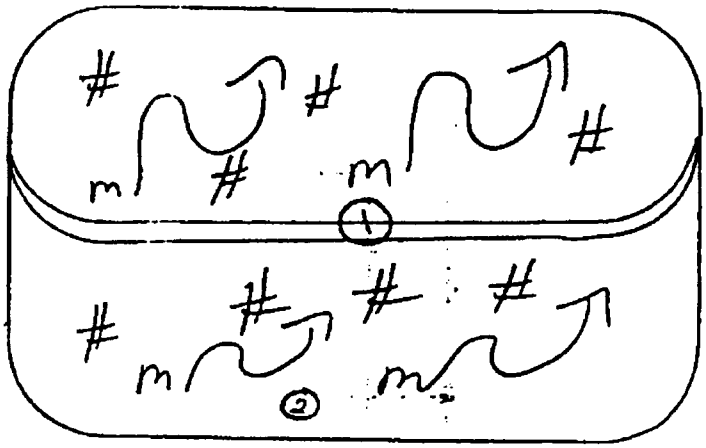
Page 1 of 4

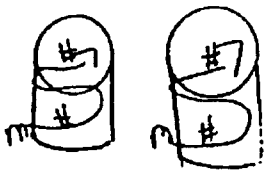
Type of Survey (check one only)	Survey #
☐ *Release ☐ Routine N/A ☐ Work Progress ☒ Shipment * The potential for internal contamination was evaluated.	RSR - FF12-00-0031

RWP # / Rev. #	Date	Time	Location Code/Description
FF12-010 / Rev 0	1-5-00	1520	FF1

TIE TO BOX 4W4

20.5





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TA-9

All radiation readings are γ dose rates in units of mR/hr unless otherwise indicated. Technical Assessment # TA-9

CA Contamination Area	HCA High Contamination Area	RBA Radiological Buffer Area	ARA Airborne Radioactivity Area	RMA Radioactive Materials Area	RA Radiation Area	HRA High Radiation Area	VHRA Very High Radiation Area
○ Technical Smear # Direct M Large Area Wipe	Contact / 30 cm General Area Dose Rates or Uncorrected Meter Reading (mR/hr)	Radiological Boundary	△ Micro Rem (μR/hr)	N Neutrons (mRem/hr)	[AS] Air Sample Location	SCA Special Contamination Area	

Instruments

Model	Serial #	Source ✓(Initial)	CF	Cal Due Date	Model	Serial #	Source ✓(Initial)	CF	Cal Due Date
E600 / 38043	1610 / 1047	9&94	9.1 / 6.75	12-14-00 / 10-25-00	2929	143881 / PR099105	9&94	3.2 / 7.9	1-10-00
Bo 20	1300	6&94	1	6-14-00		N/A			

RCT Name/Signature/Date:	RCT Supervisor Name/Signature/Date:
1-5-00 Annette L Howell / Annette L Howell	Tommy L Warfield / Tommy L Warfield 1-5-00

RSR completed in accordance with BHI-SH-04, Instruction 3.1.

ERC RADIOLOGICAL SURVEY RECORD (continuation)

Contamination Measurement Information

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²) α	α C-F	β-γ	β-γ C-F	Total (dpm/100 cm²) α	α C-F	β-γ	β-γ C-F
-	Inside Ice Chest	n/A →	→	<1k	6.7	n/A →	→	<5k	6.7
-	Outside Ice Chest	n/A →	→	<1k	6.7	n/A →	→	<5k	6.7
-	Inside Jar	n/A →	→	n/A →	→	n/A →	→	<5k	6.7
-	Outside Jar	n/A →	→	<1k	6.7	n/A →	→	<5k	6.7
-	Suburban	n/A →	→	<1k	6.7	n/A →	→	<5k	6.7

N/A

COPY

Corrected Dose Rate Calculations

Show all work. CF = 1 unless noted.

Location	Contact Readings β (mrad/hr) (WO-WC) X CF = DR	Contact Readings γ (mR/hr) WC X CF = DR	30 cm Readings β (mrad/hr) (WO-WC) X CF = DR	30 cm Readings γ (mR/hr) WC X CF = DR
Ice Chest	<0.5	<0.5	<0.5	<0.5

N/A

BHI-TM-R006a (12/98)

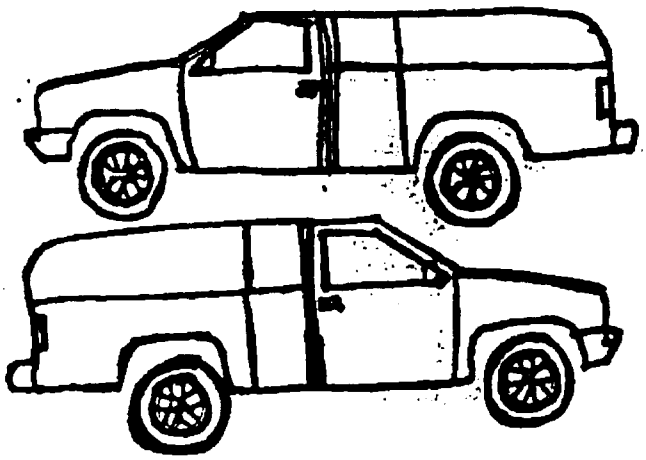
ERC RADIOLOGICAL SURVEY RECORD (Continuation)

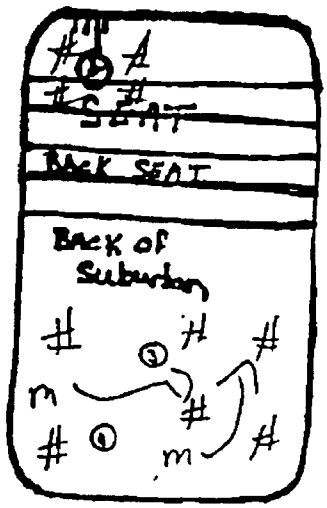
Survey # RSR-FF½-06

0031

Additional Information
(Drawing, Map, Etc.)

* PACKAGES WERE SHIPPED FROM IN THIS VEHICAL





LIC # G43 19584
Green Suburban

COPY

ERC RADIOLOGICAL SURVEY RECORD (continuation)
Smear Counting Results

Page 4 of 4

Survey #RSR- FF1/2-00-0031

Counter Location:		Background (cpm)	MDCR (cpm)	MDA (dpm)	Counter Eff.
	α	1	6.08	18	.344
	βγ	47	25.73	83	.31

Sample		Counting Results				Final Analysis
No	Description of Smear Location	Con. Type	Sample Count Duration (min)	Gross CPM	Net CPM	Removable (dpm/100 cm²)
1	Ice chest	α	1	0	(<MDCR)	(<20)
		βγ	1	39	(<MDCR)	(<1000)
2	Ice chest	α	1	1	↓	↓
		βγ	1	40		
3	Suburban	α	1	1		
		βγ	1	42		
4	Suburban	α	1	0		
		βγ	1	39		
		α				
		βγ				
		α				
		βγ				
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		α				
		βγ				

COPY

N
A

BHI-TM-R006k (12/9

Figure 1

SAMPLE CHECK-IN LIST

Date/Time Received: 1-6-00 1055 SG#: W03009

Work Order Number: _____ SAF #: B99-005, B00-011

Shipping Container ID: ERC96-087 Chain of Custody #: _____

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: 11
7. Sample holding times exceeded? Yes [ ] No [✓]

8. Samples have:
   - ✓ tape
   - ✓ custody seals
   - ____ hazard labels
   - ____ appropriate sample labels

9. Samples are:
   - ✓ in good condition
   - ____ broken
   - ____ leaking
   - ____ have air bubbles

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

Sample Custodian/Laboratory: K Deldenburg Date: 1-6-00

Telephoned To: _____ On _____ By _____

STL - Quanterra Environmental Services

020587

Login No.: FOA07014
W03009

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: Bechtel Hanford

Date: ~~12~~ 1-7-00 1-31-7-00 Time: 1000

Project No:

Initiated by: [illegible]

Shipper/No: Airborne

RFA/COC Numbers: B00-011-01

Condition/Variance (Check all that apply):

1. ☐ Sample received broken/leaking.
2. ☐ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4-C ± 2-C
     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: 2°

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: [illegible] Date: 1/7/00

Project Management Review: Jennifer Smith Date: 1-07-2000

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

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

BECHTEL HANFORD, INC.

Client Sample ID: B0X4W4

TCLP Metals

Lot-Sample #...: F0B030166-001
Date Sampled...: 01/05/00
Leach Date.....: 02/18/00
Date Received..: 01/06/00
Leach Batch #..: P004907
Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0052409						
Mercury	0.36	0.20	ug/L	SW846 7470A	02/21-02/22/00	D86AK108
		Dilution Factor: 1				
Prep Batch #...: 0053344						
Arsenic	ND	300	ug/L	SW846 6010B	02/22/00	D86AK101
		Dilution Factor: 1				
Barium	142 B	200	ug/L	SW846 6010B	02/22/00	D86AK102
		Dilution Factor: 1				
Cadmium	10.7	5.0	ug/L	SW846 6010B	02/22/00	D86AK103
		Dilution Factor: 1				
Chromium	11.8	10.0	ug/L	SW846 6010B	02/22/00	D86AK104
		Dilution Factor: 1				
Lead	72.6 B	100	ug/L	SW846 6010B	02/22/00	D86AK105
		Dilution Factor: 1				
Silver	ND	10.0	ug/L	SW846 6010B	02/22/00	D86AK106
		Dilution Factor: 1				
Selenium	ND	250	ug/L	SW846 6010B	02/22/00	D86AK107
		Dilution Factor: 1				

NOTE(S):

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

B Estimated result. Result is less than RL.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: F0B030166
Date Sampled...: 01/05/00 **Date Received..:** 01/06/00 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F0B030166-001 **Prep Batch #...:** 0053344					
Arsenic	105	(80 - 120)	SW846 6010B Dilution Factor: 1	02/22/00	D86AK10T
Arsenic	104	(80 - 120)	SW846 6010B Dilution Factor: 1	02/22/00	D86AK109
Barium	92	(80 - 120)	SW846 6010B Dilution Factor: 1	02/22/00	D86AK10C
Barium	92	(80 - 120)	SW846 6010B Dilution Factor: 1	02/22/00	D86AK10U
Cadmium	99	(80 - 120)	SW846 6010B Dilution Factor: 1	02/22/00	D86AK10E
Cadmium	100	(80 - 120)	SW846 6010B Dilution Factor: 1	02/22/00	D86AK10V
Chromium	93	(80 - 120)	SW846 6010B Dilution Factor: 1	02/22/00	D86AK10G
Chromium	94	(80 - 120)	SW846 6010B Dilution Factor: 1	02/22/00	D86AK10W
Lead	94	(80 - 120)	SW846 6010B Dilution Factor: 1	02/22/00	D86AK10J
Lead	95	(80 - 120)	SW846 6010B Dilution Factor: 1	02/22/00	D86AK10X
Silver	94	(49 - 135)	SW846 6010B Dilution Factor: 1	02/22/00	D86AK10L
Silver	71	(49 - 135)	SW846 6010B Dilution Factor: 1	02/22/00	D86AK110
Selenium	101	(80 - 120)	SW846 6010B Dilution Factor: 1	02/22/00	D86AK10N
Selenium	103	(80 - 120)	SW846 6010B Dilution Factor: 1	02/22/00	D86AK111

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: F0B030166
Date Sampled...: 01/05/00 Date Received..: 01/06/00 Matrix.....: SOLID

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: F0B030166 **Matrix.....:** SOLID
Date Sampled...: 01/05/00 **Date Received..:** 01/06/00

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F0B030166-001 **Prep Batch #...:** 0052409							
Leach Date.....: 02/18/00 **Leach Batch #..:** P004907							
Mercury	108	(75 - 125)			SW846 7470A	02/21-02/22/00	D86AK10Q
	107	(75 - 125)	0.69	(0-20)	SW846 7470A	02/21-02/22/00	D86AK10R

Dilution Factor: 1

NOTE(S):

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

METHOD BLANK REPORT

TCLP Metals

Client Lot #...: F0B030166

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F0B180000-261	**Prep Batch #...:** 0053344					
Leach Date.....: 02/18/00	**Leach Batch #..:** P004907					
Arsenic	ND	300	ug/L	SW846 6010B	02/22/00	D8QKQ101
		Dilution Factor: 1				
Barium	**1.0 B**	**200**	**ug/L**	**SW846 6010B**	**02/22/00**	**D8QKQ102**
		Dilution Factor: 1				
Cadmium	ND	5.0	ug/L	SW846 6010B	02/22/00	D8QKQ103
		Dilution Factor: 1				
Chromium	ND	10.0	ug/L	SW846 6010B	02/22/00	D8QKQ104
		Dilution Factor: 1				
Lead	ND	100	ug/L	SW846 6010B	02/22/00	D8QKQ105
		Dilution Factor: 1				
Silver	ND	10.0	ug/L	SW846 6010B	02/22/00	D8QKQ106
		Dilution Factor: 1				
Selenium	ND	250	ug/L	SW846 6010B	02/22/00	D8QKQ107
		Dilution Factor: 1				
MB Lot-Sample #: F0B180000-261	**Prep Batch #...:** 0052409					
Leach Date.....: 02/18/00	**Leach Batch #..:** P004907					
Mercury	ND	0.20	ug/L	SW846 7470A	02/21-02/22/00	D8QKQ108
		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.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: F0B030166 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F0B220000-344 **Prep Batch #...:** 0053344					
Arsenic	106	(80 - 120)	SW846 6010B Dilution Factor: 1	02/22/00	D8VA7101
Barium	95	(80 - 120)	SW846 6010B Dilution Factor: 1	02/22/00	D8VA7102
Cadmium	97	(80 - 120)	SW846 6010B Dilution Factor: 1	02/22/00	D8VA7103
Chromium	94	(80 - 120)	SW846 6010B Dilution Factor: 1	02/22/00	D8VA7104
Lead	94	(80 - 120)	SW846 6010B Dilution Factor: 1	02/22/00	D8VA7105
Silver	97	(49 - 135)	SW846 6010B Dilution Factor: 1	02/22/00	D8VA7106
Selenium	102	(80 - 120)	SW846 6010B Dilution Factor: 1	02/22/00	D8VA7107

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TCLP Metals

Lot-Sample #...: F0B030166 Matrix.....: SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP-BATCH #
Mercury	101	(80 - 120)			SW846 7470A	02/21-02/22/00	0052409
	100	(80 - 120)	0.39	(0-20)	SW846 7470A	02/21-02/22/00	0052409

Dilution Factor: 1

NOTE(S):

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

Quanterra Environmental Services

Quanterra Incorporated
13715 Rider Trail North
Earth City, Missouri 63045

314 298-8566 Telephone
314 298-8757 Fax

CASE NARRATIVE

JAN 2000 RECEIVED Data Log In

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, Washington 99352

January 27, 2000

Attention: Joan Kessner

Quote Number	:	33985
SDG	:	W03009
Number of Samples	:	one (1)
Sample Matrix	:	Soil
Data Deliverable	:	Summary
Date SDG Closed	:	January 7, 2000

II. Introduction

On January 7, 2000, one (1) "soil" sample was received by Quanterra, Richland and transferred to Quanterra, St. Louis for chemical analysis. The samples were received at the St. Louis lab on 1/7/00 at 2 degrees C. See the attached Sample Summary for a listing of Client Ids and their associated Lab numbers.

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: ICP Metals - 6010A (TAL + add ons)
IC Anions - 300.0 (Cl,Fl,NO2,NO3,OPO4,SO4)
pH -9045

Deviation from Request: None

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.

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.

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.

There were no comments or non-conformances associated with this data.

Wet Chemistry: A Laboratory Control Sample, Method Blank, Matrix Spike and Matrix Duplicate were analyzed with each preparation batch per the protocol for this analysis. A duplicate was done with the pH analysis.

There were no comments or non-conformances associated with this data.

I certify that this Summary 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

F0A070144

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
D76J7	001	B0X4W4	01/05/00	14:30

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

F0A070144

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
pH Non-Aqueous	SW846 9045A	
Chloride	MCAWW 300.0A	MCAWW 300.0A
Fluoride	MCAWW 300.0A	MCAWW 300.0A
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3050B
Nitrate as N	MCAWW 300.0A	MCAWW 300.0A
Nitrite as N	MCAWW 300.0A	MCAWW 300.0A
Percent Moisture	MCAWW 160.3 MOD	MCAWW 160.3 MOD
Phosphate as P, Ortho	MCAWW 300.0A	MCAWW 300.0A
Sulfate	MCAWW 300.0A	MCAWW 300.0A

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

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

QUANTERRA INCORPORATED
CLIENT ANALYSIS SUMMARY
Quanterra - St. Louis

Run Date: 1/07/00
Time: 15:27:09
User Id.: SMITHJE

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: 3X60G,20MLP
STORAGE LOC: T7F
LOT COMMENTS: 7 day TAT
MATRIX: SOLID
SAMPLE ID: B0X4W4
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:
RUN DUP ON PH AND ANIONS
Beginning Depth: .00 **Ending Depth:** .00

QUOTE/SAR #: 33985
LAB ID: F-0A070144-001
WORK ORDER: D76J7
RECEIVING DATE: 1/06/00
SAMPLING DATE: 1/05/00
ANALYTICAL DUE DATE: 1/12/00N
REPORT DUE DATE: 1/13/00
PRIORITY: 06
SAMPLING TIME: 14:30
RECEIVING TIME: 10:55

SDG# : W03009

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Moisture, Percent (160.3)	06	1/07/00	0/00/00	4/13/00
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(A-88-WM-01) D76J7-1-01 Protocol: A QC Program: STANDARD TEST SET				
Inductively Coupled Plasma (6010B)	06	1/07/00	0/00/00	7/03/00
METALS, TOTAL - Soils				
M6010_S AG,AL,AS,BA,BE,CA,CD,CO,CR,CU,FE,KX,MG,MN,NA,NI,PB,SB,SE,TL,VX,ZN				
(A-46-QO-01) D76J7 Protocol: A QC Program: STANDARD TEST SET				
Chloride (300.0, Ion Chromatography)	06	1/07/00	4/13/00	2/02/00
LEACHATE, DI (Routine)				
(A-82-CX-01) D76J7-1-28 Protocol: A QC Program: STANDARD TEST SET				
Fluoride (300.0, Ion Chromatography)	06	1/07/00	4/13/00	2/02/00
LEACHATE, DI (Routine)				
(A-82-C8-01) D76J7-1-2C Protocol: A QC Program: STANDARD TEST SET				
Nitrate as N (300.0, Ion Chromatography)	06	1/07/00	4/13/00	4/15/00
LEACHATE, DI (Routine)				
(A-82-C9-01) D76J7-1-2F Protocol: A QC Program: STANDARD TEST SET				
Nitrite as N (300.0, Ion Chromatography)	06	1/07/00	4/13/00	4/15/00
LEACHATE, DI (Routine)				
(A-82-GO-01) D76J7-1-2J Protocol: A QC Program: STANDARD TEST SET				
Phosphate as P, Ortho (300.0, Ion Chroma	06	1/07/00	4/13/00	4/15/00
LEACHATE, DI (Routine)				
(A-82-DO-01) D76J7-1-2M Protocol: A QC Program: STANDARD TEST SET				
Sulfate (300.0, Ion Chromatography)	06	1/07/00	4/13/00	2/02/00
LEACHATE, DI (Routine)				
(A-82-CY-01) D76J7-1-2Q Protocol: A QC Program: STANDARD TEST SET				
pH (9045) - Non-Aqueous	06	1/07/00	0/00/00	1/07/00
LEACHATE, DI (Routine)				

QUANTERRA INCORPORATED
CLIENT ANALYSIS SUMMARY
Quanterra - St. Louis

Run Date: 1/07/00
Time: 15:27:09
User Id.: SMITHJE

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: 3X60G,20MLP
STORAGE LOC: T7F
LOT COMMENTS: 7 day TAT
MATRIX: SOLID
SAMPLE ID: B0X4W4
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:
RUN DUP ON PH AND ANIONS
Beginning Depth: .00 **Ending Depth:** .00

QUOTE/SAR #: 33985
LAB ID: F-0A070144-001-D
WORK ORDER: D76J7 MSD
RECEIVING DATE: 1/06/00
SAMPLING DATE: 1/05/00
ANALYTICAL DUE DATE: 1/12/00N
REPORT DUE DATE: 1/13/00
PRIORITY: 06
SAMPLING TIME: 14:30
RECEIVING TIME: 10:55
SDG# : W03009

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Inductively Coupled Plasma (6010B)	06	1/07/00	0/00/00	7/03/00

METALS, TOTAL - Soils
M6010_S AG,AL,AS,BA,BE,CA,CD,CO,CR,CU,FE,KX,MG,MN,NA,NI,PB,SB,SE,TL,VX,ZN
(A-46-QO-01) D76J7 Protocol: A QC Program: STANDARD TEST SET

QUANTERRA INCORPORATED
CLIENT ANALYSIS SUMMARY
Quanterra - St. Louis

Run Date: 1/07/00
Time: 15:27:09
User Id.: SMITHJE

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: 3X60G,20MLP
STORAGE LOC: T7F
LOT COMMENTS: 7 day TAT
MATRIX: SOLID
SAMPLE ID: B0X4W4
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:
RUN DUP ON PH AND ANIONS
Beginning Depth: .00 **Ending Depth:** .00

QUOTE/SAR #: 33985
LAB ID: F-0A070144-001-S
WORK ORDER: D76J7 MS
RECEIVING DATE: 1/06/00
SAMPLING DATE: 1/05/00
ANALYTICAL DUE DATE: 1/12/00N
REPORT DUE DATE: 1/13/00
PRIORITY: 06
SAMPLING TIME: 14:30
RECEIVING TIME: 10:55
SDG# : W03009

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Inductively Coupled Plasma (6010B) METALS, TOTAL - Soils M6010_S AG,AL,AS,BA,BE,CA,CD,CO,CR,CU,FE,KX,MG,MN,NA,NI,PB,SB,SE,TL,VX,ZN (A-46-QO-01) D76J7 Protocol: A QC Program: STANDARD TEST SET	06	1/07/00	0/00/00	7/03/00
Chloride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CX-01) D76J7-1-29 Protocol: A QC Program: STANDARD TEST SET	06	1/07/00	4/13/00	2/02/00
Fluoride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C8-01) D76J7-1-2D Protocol: A QC Program: STANDARD TEST SET	06	1/07/00	4/13/00	2/02/00
Nitrate as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C9-01) D76J7-1-2G Protocol: A QC Program: STANDARD TEST SET	06	1/07/00	4/13/00	4/15/00
Nitrite as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-GO-01) D76J7-1-2K Protocol: A QC Program: STANDARD TEST SET	06	1/07/00	4/13/00	4/15/00
Phosphate as P, Ortho (300.0, Ion Chroma LEACHATE, DI (Routine) (A-82-DO-01) D76J7-1-2N Protocol: A QC Program: STANDARD TEST SET	06	1/07/00	4/13/00	4/15/00
Sulfate (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CY-01) D76J7-1-2R Protocol: A QC Program: STANDARD TEST SET	06	1/07/00	4/13/00	2/02/00

CUL 020587 Temp 2°

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-011-01	Page 1 of 2

Collector: Doug Bowers W03009	Company Contact: Jeff Learch; Telephone No.: 373-5904	Project Coordinator: TRENT, SJ	Price Code: 2D; Data Turnaround: 5 20 1-5-00
Project Designation: 300-FF-1 Landfill 1B Cleanup	Sampling Location: 300 FF-1 land fill 1B	SAF No.: B00-011	Air Quality ☐ 7 Days
Ice Chest No.: ERC 96 087	Field Logbook No.: EL 1395-2; COA: RNDF1B2600	Method of Shipment: Gov Vehicle	
Shipped To: Quanterra Incorporated	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None	None	None
Type of Container	P	aG	aG	aG	aG	aG	aG	aG	aG	aG
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	20mL	60mL	60mL	60mL	60mL	60mL	60mL	60mL	60mL	60mL

SAMPLE ANALYSIS

SDG W03009

Sample No.	Matrix *	Sample Date	Sample Time	Activity Scan	See item (1) in Special Instructions.	Sulfides - 9030	Total Cyanide - 9010	VOA - 8260A (TCL)	Gross Alpha; Gross Beta	See item (2) in Special Instructions.	Isotopic Uranium	Mercury - 7471 - (CV)	pH (Soil) - 9045
				100%	100%					100%			100%
BOX4W4	Soil	1-5-00	1430	0 X ✓	0 X ✓					0 X ✓			0 X ✓

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	1-5-00/1545	REF 2C	1-5-00/1545
Ref 2C	1-6-00/0800	R. Thoren	1-6-00/0800
R. Thoren	1-6-00/1055	K. Aldenberg	1-6-00/1055
K. Aldenberg	1-6-00/600	[illegible]	1-7-00/1000

SPECIAL INSTRUCTIONS

** Friability shall be described in the WSCF case narrative.

** COC Note-- The ERC Contractor acknowledges the 48-hour holding time for nitrate, nitrite, and phosphate is not likely achievable.

(1) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Lead, Selenium, Thallium}

(2) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}

Matrix *

S=Soil
SE=Sediment
SO=Solid
S =Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
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

BHI-EE-011 (10/99)

000009

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-011-01	Page 2 of 2

Collector: Doug Bowers (W03009)	Company Contact: Jeff Learch	Telephone No.: 373-5904	Project Coordinator: TRENT, SJ
Project Designation: 300-FF-1 Landfill 1B Cleanup	Sampling Location: 300 FF-1 land fill 1B		SAF No.: B00-011
Ice Chest No.: ERC 96-087	Field Logbook No.: EL 1395-2	COA: RNDF1B2600	Method of Shipment: Gov Vehicle
Shipped To: Quanterra Incorporated	Offsite Property No.: N/A		Bill of Lading/Air Bill No.: N/A

Price Code: Data Turnaround

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	None	None	None					
Type of Container	aG	aG	aG	aG	aG	aG					
No. of Container(s)	1	1	1	1	1	1					
Volume	120mL	120mL	250mL	250mL	250mL	1000mL					
SAMPLE ANALYSIS	Pesticides - 8081	Semi-VOA - 8270A (TCL)	PCBs - 8082	Ignitability - 1010	Metals by ICP (TCLP) - 1311/6010; Mercury (TCLP) - 1311/7470	See item (1) in Special Instructions.					

Sample No.	Matrix **	Sample Date	Sample Time										
B0X4W4	Soil	1-5-00	1430					X					

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Doug Bowers	Date/Time: 1-5-00/1545	Received By: ACFZC	Date/Time: 1-5-00/1545
Relinquished By: ACFZC	Date/Time: 1-6-00/0800	Received By: R. Thoren	Date/Time: 1-6-00/0800
Relinquished By: R. Thoren	Date/Time: 1-6-00/1055	Received By: K. Geldenhuy	Date/Time: 1-6-00/1055
Relinquished By: K. Geldenhuy	Date/Time: 1-6-00 1600	Received By: [illegible]	Date/Time: 1-7-00 1000
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

** Friability shall be described in the WSCF case narrative.

** COC Note– The ERC Contractor acknowledges the 48-hour holding time for nitrate, nitrite, and phosphate is not likely achievable.

(1) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Matrix *

S=Soil
SE=Sediment
SO=Solid
S =Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
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

BHI-EE-011 (10/99)

000010

ERC RADIOLOGICAL SURVEY RECORD

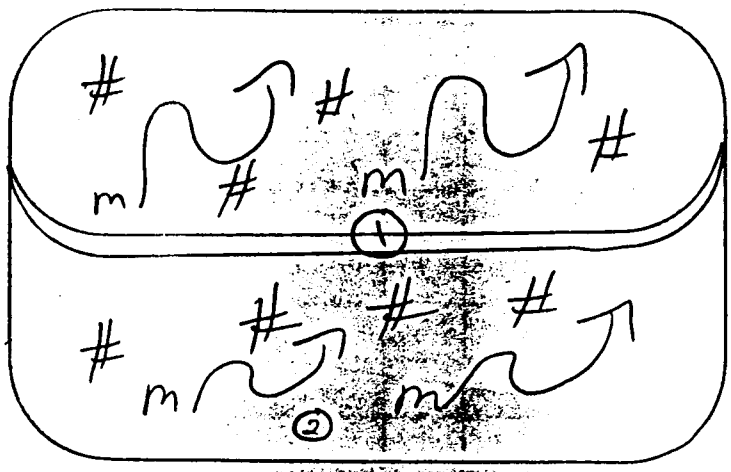
Page 1 of 4

Type of Survey (check one only)	Survey #
☐ *Release ☐ Routine n/a ☐ Work Progress ☒ Shipment * The potential for internal contamination was evaluated.	RSR - FF12-00-0031

RWP # / Rev. #	Date	Time	Location Code/Description
FF12-010 / Rev 0	1.5.00	1520	FF1

TIE TO BOX 4W4

<20.5



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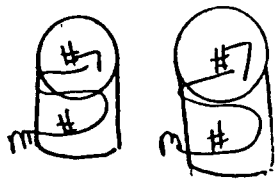

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TA-9

All radiation readings are γ dose rates in units of mR/hr unless otherwise indicated. Technical Assessment # TA-97

CA Contamination Area	HCA High Contamination Area	RBA Radiological Buffer Area	ARA Airborne Radioactivity Area	RMA Radioactive Materials Area	RA Radiation Area	HRA High Radiation Area	VHRA Very High Radiation Area
○ Technical Smear # Direct M Large Area Wipe	Contact / 30 cm General Area Dose Rates =Uncorrected Meter Reading (mR/hr)	Radiological Boundary	△ Micro Rem (μR/hr)	N Neutrons (mRem/hr)	[AS] Air Sample Location	SCA Special Contamination Area	

Instruments

Model	Serial #	Source ✓(Initial)	CF	Cal Due Date	Model	Serial #	Source ✓(Initial)	CF	Cal Due Date
E600 / 380AB	1610 / 1047	g&H	9.1 / 6.75	12.14.00 / 10.25.00	2929	143881 / PR099105	g&H	3.2 / 2.9	1.10.00
Bo 20	1300	g&H	1	6.14.00		n/A			

RCT Name/Signature/Date: 1.5.00 Annette L Howell / Annette L Howell

RCT Supervisor Name/Signature/Date: Todd L Warthen / Todd L Warthen

BHI-TM-R006a (12/98) RSR completed in accordance with BHI-SH-04, Instruction 3.1.

ERC RADIOLOGICAL SURVEY RECORD (continuation)

Contamination Measurement Information

Circled values indicate Removable β contamination in mrad/hr β

No.	Description of Item or Location	Removable (dpm/100 cm²) α	Removable α C-F	Removable β-γ	Removable β-γ C-F	Total (dpm/100 cm²) α	Total α C-F	Total β-γ	Total β-γ C-F
–	Inside Ice Chest	n/A →		<1k	6.7	n/A →		<5k	6.7
–	Outside Ice Chest	n/A →		<1k	6.7	n/A →		<5k	6.7
–	Inside Jar	n/A →		n/A →		n/A →		<5k	6.7
–	Outside Jar	n/A →		<1k	6.7	n/A →		<5k	6.7
–	Suburban	n/A →		<1k	6.7	n/A →		<5k	6.7
				N					
				A					

COPY

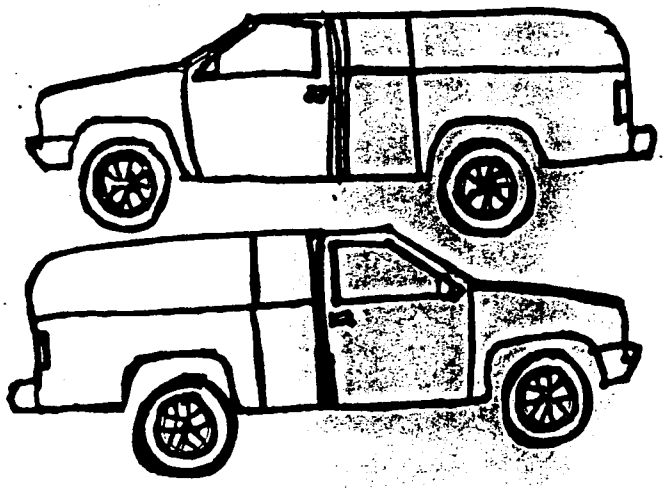
Corrected Dose Rate Calculations

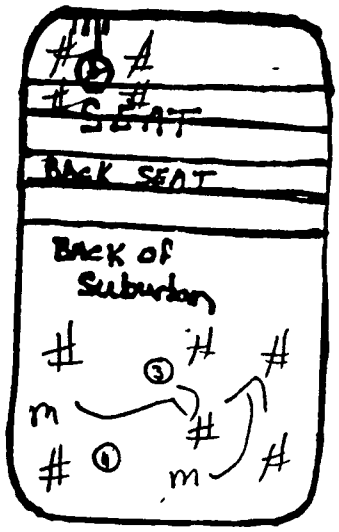
Show all work. CF = 1 unless noted.

Location	Contact Readings β (mrad/hr) (WO-WC) X CF = DR	Contact Readings γ (mR/hr) WC X CF = DR	30 cm Readings β (mrad/hr) (WO-WC) X CF = DR	30 cm Readings γ (mR/hr) WC X CF = DR
Ice Chest	<0.5	<0.5	<0.5	<0.5
		N		
		A		

Additional Information
(Drawing, Map, Etc.)

* PACKAGES WERE SHIPPED FROM IN THIS VEHICAL





LIC # GL3 19584
Green Suburban

COPY

ERC RADIOLOGICAL SURVEY RECORD (continuation)
Smear Counting Results

Survey #RSR- FF1/2-00-0031

Counter Location:		Background (cpm)	MDCR (cpm)	MDA (dpm)	Counter Eff.
	α	1	6.08	18	.344
	βγ	47	25.73	83	.31

Sample		Counting Results				Final Analysis
No	Description of Smear Location	Con. Type	Sample Count Duration (min)	Gross CPM	Net CPM	Removable (dpm/100 cm²)
1	Ice chest	α	1	0	(<MDCR)	(<20)
		βγ	1	39	(<MDCR)	(<1000)
2	Ice chest	α	1	1	↓	↓
		βγ	1	40		
3	Suburban	α	1	1		
		βγ	1	42		
4	Suburban	α	1	0		
		βγ	1	39		
		α				
		βγ				
		α				
		βγ				
		α				
		βγ				
		α				
		βγ				
		α		N		
		βγ		A		
		α				
		βγ				
		α				
		βγ				
		α				
		βγ				
		α				
		βγ				
		α				
		βγ				

COPY

Figure 1

SAMPLE CHECK-IN LIST

Date/Time Received: 1-6-00 1055 SG#: W03009

Work Order Number: _____ SAF #: B99-005, B00-011

Shipping Container ID: ERC96-087 Chain of Custody # _____

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: 11
7. Sample holding times exceeded? Yes [ ] No [✓]

8. Samples have:
   - ✓ tape
   - ✓ custody seals
   - ____ hazard labels
   - ____ appropriate sample labels

9. Samples are:
   - ✓ in good condition
   - ____ broken
   - ____ leaking
   - ____ have air bubbles

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

Sample Custodian/Laboratory: K. Deldenbuck Date: 1-6-00

Telephoned To: _____ On _____ By _____

000015

Quanterra Environmental Services

020587

Login No.: FOA070144

W03009

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: Bechtel Hanford

Date: ~~12~~ 1-7-00 (1-7-00) Time: 1000

Project No:

Initiated by: Bethel

Shipper/No: Airborne

RFA/COC Numbers: BØØ-011-Ø1

Condition/Variance (Check all that apply):

1. ☐ Sample received broken/leaking.
2. ☐ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4-C ± 2-C
     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: 2°

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: Bethel Date: 1/7/00

Project Management Review: Jennifer Smith Date: 1-07-2000

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

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

BECHTEL HANFORD, INC.

Client Sample ID: B0X4W4

TOTAL Metals

Lot-Sample #...: F0A070144-001 Matrix.....: SOLID
Date Sampled...: 01/05/00 Date Received..: 01/06/00
% Moisture.....: 56

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0020288						
Aluminum	**303000**	**452**	**mg/kg**	**SW846 6010B**	**01/20-01/21/00**	**D76J7102**
		Dilution Factor: 10				
Antimony	ND	13.6	mg/kg	SW846 6010B	01/20/00	D76J7105
		Dilution Factor: 1				
Barium	**25.9 B**	**45.2**	**mg/kg**	**SW846 6010B**	**01/20/00**	**D76J7108**
		Dilution Factor: 1				
Beryllium	ND	1.1	mg/kg	SW846 6010B	01/20/00	D76J710C
		Dilution Factor: 1				
Cadmium	**1.8**	**1.1**	**mg/kg**	**SW846 6010B**	**01/20/00**	**D76J710F**
		Dilution Factor: 1				
Calcium	**1490 B**	**11300**	**mg/kg**	**SW846 6010B**	**01/20-01/21/00**	**D76J710J**
		Dilution Factor: 10				
Chromium	**229**	**2.3**	**mg/kg**	**SW846 6010B**	**01/20/00**	**D76J710M**
		Dilution Factor: 1				
Cobalt	**9.0 B**	**11.3**	**mg/kg**	**SW846 6010B**	**01/20/00**	**D76J710Q**
		Dilution Factor: 1				
Copper	**1890**	**5.7**	**mg/kg**	**SW846 6010B**	**01/20/00**	**D76J710U**
		Dilution Factor: 1				
Iron	**6600**	**22.6**	**mg/kg**	**SW846 6010B**	**01/20/00**	**D76J710X**
		Dilution Factor: 1				
Magnesium	**4650 B**	**11300**	**mg/kg**	**SW846 6010B**	**01/20-01/21/00**	**D76J7112**
		Dilution Factor: 10				
Manganese	**71.2**	**3.4**	**mg/kg**	**SW846 6010B**	**01/20/00**	**D76J7115**
		Dilution Factor: 1				
Nickel	**468**	**9.0**	**mg/kg**	**SW846 6010B**	**01/20/00**	**D76J7118**
		Dilution Factor: 1				
Potassium	ND	11300	mg/kg	SW846 6010B	01/20-01/21/00	D76J711C
		Dilution Factor: 10				

(Continued on next page)

BECHTEL HANFORD, INC.

Client Sample ID: B0X4W4

TOTAL Metals

Lot-Sample #...: F0A070144-001 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Silver	ND	2.3	mg/kg	SW846 6010B	01/20/00	D76J711F
		Dilution Factor: 1				
Arsenic	ND	67.9	mg/kg	SW846 6010B	01/20/00	D76J711J
		Dilution Factor: 1				
Sodium	**351 B**	**11300**	**mg/kg**	**SW846 6010B**	**01/20-01/21/00**	**D76J711M**
		Dilution Factor: 10				
Vanadium	**23.5**	**11.3**	**mg/kg**	**SW846 6010B**	**01/20/00**	D76J711Q
		Dilution Factor: 1				
Zinc	**283**	**4.5**	**mg/kg**	**SW846 6010B**	**01/20/00**	D76J711U
		Dilution Factor: 1				
Lead	**61.5**	**22.6**	**mg/kg**	**SW846 6010B**	**01/20/00**	D76J711X
		Dilution Factor: 1				
Selenium	ND	56.6	mg/kg	SW846 6010B	01/20/00	D76J7122
		Dilution Factor: 1				
Thallium	ND	452	mg/kg	SW846 6010B	01/20/00	D76J7125
		Dilution Factor: 1				

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: F0A070144 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F0A200000-288 **Prep Batch #...:** 0020288						
Aluminum	**16.7 B**	**20.0**	**mg/kg**	**SW846 6010B**	**01/20-01/21/00**	**D7LW3108**
		Dilution Factor: 1				
Antimony	ND	6.0	mg/kg	SW846 6010B	01/20/00	D7LW3109
		Dilution Factor: 1				
Barium	**0.13 B**	**20.0**	**mg/kg**	**SW846 6010B**	**01/20/00**	**D7LW310A**
		Dilution Factor: 1				
Beryllium	ND	0.50	mg/kg	SW846 6010B	01/20/00	D7LW3101
		Dilution Factor: 1				
Cadmium	ND	0.50	mg/kg	SW846 6010B	01/20/00	D7LW3102
		Dilution Factor: 1				
Calcium	**31.7 B**	**500**	**mg/kg**	**SW846 6010B**	**01/20-01/21/00**	**D7LW3103**
		Dilution Factor: 1				
Chromium	ND	1.0	mg/kg	SW846 6010B	01/20/00	D7LW3104
		Dilution Factor: 1				
Cobalt	ND	5.0	mg/kg	SW846 6010B	01/20/00	D7LW3105
		Dilution Factor: 1				
Copper	ND	2.5	mg/kg	SW846 6010B	01/20/00	D7LW3106
		Dilution Factor: 1				
Iron	**5.0 B**	**10.0**	**mg/kg**	**SW846 6010B**	**01/20/00**	**D7LW3107**
		Dilution Factor: 1				
Magnesium	**14.0 B**	**500**	**mg/kg**	**SW846 6010B**	**01/20-01/21/00**	**D7LW310K**
		Dilution Factor: 1				
Manganese	ND	1.5	mg/kg	SW846 6010B	01/20/00	D7LW310L
		Dilution Factor: 1				
Nickel	ND	4.0	mg/kg	SW846 6010B	01/20/00	D7LW310M
		Dilution Factor: 1				
Potassium	ND	500	mg/kg	SW846 6010B	01/20-01/21/00	D7LW310C
		Dilution Factor: 1				
Arsenic	ND	30.0	mg/kg	SW846 6010B	01/20/00	D7LW310E
		Dilution Factor: 1				

(Continued on next page)

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: F0A070144 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Silver	ND	1.0	mg/kg	SW846 6010B	01/20/00	D7LW310D
		Dilution Factor: 1				
Sodium	**33.9 B**	**500**	**mg/kg**	**SW846 6010B**	**01/20-01/21/00**	**D7LW310F**
		Dilution Factor: 1				
Vanadium	ND	5.0	mg/kg	SW846 6010B	01/20/00	D7LW310G
		Dilution Factor: 1				
Zinc	ND	2.0	mg/kg	SW846 6010B	01/20/00	D7LW310H
		Dilution Factor: 1				
Lead	ND	10.0	mg/kg	SW846 6010B	01/20/00	D7LW310J
		Dilution Factor: 1				
Selenium	ND	25.0	mg/kg	SW846 6010B	01/20/00	D7LW310N
		Dilution Factor: 1				
Thallium	ND	200	mg/kg	SW846 6010B	01/20/00	D7LW310P
		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.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F0A070144 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F0A200000-288 **Prep Batch #...:** 0020288					
Aluminum	88	(60 - 140)	SW846 6010B	01/20-01/21/00	D7LW3111
		Dilution Factor: 1			
Antimony	119	(18 - 182)	SW846 6010B	01/20/00	D7LW3112
		Dilution Factor: 1			
Barium	113	(77 - 123)	SW846 6010B	01/20/00	D7LW310Q
		Dilution Factor: 1			
Beryllium	113	(78 - 122)	SW846 6010B	01/20/00	D7LW310R
		Dilution Factor: 1			
Cadmium	108	(77 - 123)	SW846 6010B	01/20/00	D7LW310T
		Dilution Factor: 1			
Calcium	102	(75 - 125)	SW846 6010B	01/20-01/21/00	D7LW310U
		Dilution Factor: 1			
Chromium	101	(77 - 123)	SW846 6010B	01/20/00	D7LW310V
		Dilution Factor: 1			
Cobalt	104	(80 - 121)	SW846 6010B	01/20/00	D7LW310W
		Dilution Factor: 1			
Copper	112	(82 - 118)	SW846 6010B	01/20/00	D7LW310X
		Dilution Factor: 1			
Iron	120	(58 - 142)	SW846 6010B	01/20/00	D7LW3110
		Dilution Factor: 1			
Magnesium	98	(81 - 119)	SW846 6010B	01/20-01/21/00	D7LW311C
		Dilution Factor: 1			
Manganese	111	(77 - 123)	SW846 6010B	01/20/00	D7LW311D
		Dilution Factor: 1			
Nickel	104	(78 - 122)	SW846 6010B	01/20/00	D7LW3113
		Dilution Factor: 1			
Potassium	98	(74 - 132)	SW846 6010B	01/20-01/21/00	D7LW3114
		Dilution Factor: 1			

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F0A070144 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Silver	114	(75 - 126)	SW846 6010B	01/20/00	D7LW3115
		Dilution Factor: 1			
Arsenic	116	(74 - 126)	SW846 6010B	01/20/00	D7LW3116
		Dilution Factor: 1			
Sodium	102	(63 - 137)	SW846 6010B	01/20-01/21/00	D7LW3117
		Dilution Factor: 1			
Vanadium	114	(68 - 132)	SW846 6010B	01/20/00	D7LW3118
		Dilution Factor: 1			
Zinc	105	(77 - 123)	SW846 6010B	01/20/00	D7LW3119
		Dilution Factor: 1			
Lead	108	(76 - 124)	SW846 6010B	01/20/00	D7LW311A
		Dilution Factor: 1			
Selenium	111	(74 - 126)	SW846 6010B	01/20/00	D7LW311E
		Dilution Factor: 1			
Thallium	109	(51 - 149)	SW846 6010B	01/20/00	D7LW311F
		Dilution Factor: 1			

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F0A070144 **Matrix.....:** SOLID
Date Sampled...: 01/05/00 **Date Received..:** 01/06/00

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F0A070144-001 **Prep Batch #...:** 0020288							
Aluminum	0.0 N	(75 - 125)			SW846 6010B	01/20-01/21/00	D76J7103
	600 N,*	(75 - 125)	200	(0-20)	SW846 6010B	01/20-01/21/00	D76J7104
		Dilution Factor: 10					
Antimony	93	(75 - 125)			SW846 6010B	01/20/00	D76J7106
	94	(75 - 125)	0.96	(0-20)	SW846 6010B	01/20/00	D76J7107
		Dilution Factor: 1					
Barium	106	(75 - 125)			SW846 6010B	01/20/00	D76J7109
	109	(75 - 125)	3.1	(0-20)	SW846 6010B	01/20/00	D76J710A
		Dilution Factor: 1					
Beryllium	109	(75 - 125)			SW846 6010B	01/20/00	D76J710D
	112	(75 - 125)	3.0	(0-20)	SW846 6010B	01/20/00	D76J710E
		Dilution Factor: 1					
Cadmium	86	(75 - 125)			SW846 6010B	01/20/00	D76J710G
	90	(75 - 125)	3.2	(0-20)	SW846 6010B	01/20/00	D76J710H
		Dilution Factor: 1					
Calcium	135 N	(75 - 125)			SW846 6010B	01/20-01/21/00	D76J710K
	138 N	(75 - 125)	2.0	(0-20)	SW846 6010B	01/20-01/21/00	D76J710L
		Dilution Factor: 10					
Chromium	22 N	(75 - 125)			SW846 6010B	01/20/00	D76J710N
	121	(75 - 125)	17	(0-20)	SW846 6010B	01/20/00	D76J710P
		Dilution Factor: 1					
Cobalt	93	(75 - 125)			SW846 6010B	01/20/00	D76J710R
	97	(75 - 125)	3.0	(0-20)	SW846 6010B	01/20/00	D76J710T
		Dilution Factor: 1					
Copper	0.0 N	(75 - 125)			SW846 6010B	01/20/00	D76J710V
	0.0 N	(75 - 125)	0.0	(0-20)	SW846 6010B	01/20/00	D76J710W
		Dilution Factor: 1					
Iron	0.0 N	(75 - 125)			SW846 6010B	01/20/00	D76J7110
	0.0 N	(75 - 125)	0.0	(0-20)	SW846 6010B	01/20/00	D76J7111
		Dilution Factor: 1					
Magnesium	98	(75 - 125)			SW846 6010B	01/20-01/21/00	D76J7113
	101	(75 - 125)	2.5	(0-20)	SW846 6010B	01/20-01/21/00	D76J7114
		Dilution Factor: 10					

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F0A070144 **Matrix.....:** SOLID
Date Sampled...: 01/05/00 **Date Received..:** 01/06/00

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Manganese	94	(75 - 125)			SW846 6010B	01/20/00	D76J7116
	102	(75 - 125)	5.2	(0-20)	SW846 6010B	01/20/00	D76J7117
		Dilution Factor: 1					
Nickel	0.0 N	(75 - 125)			SW846 6010B	01/20/00	D76J7119
	47 N,*	(75 - 125)	200	(0-20)	SW846 6010B	01/20/00	D76J711A
		Dilution Factor: 1					
Potassium	134 N	(75 - 125)			SW846 6010B	01/20-01/21/00	D76J711D
	123	(75 - 125)	8.8	(0-20)	SW846 6010B	01/20-01/21/00	D76J711E
		Dilution Factor: 10					
Arsenic	100	(75 - 125)			SW846 6010B	01/20/00	D76J711K
	103	(75 - 125)	2.5	(0-20)	SW846 6010B	01/20/00	D76J711L
		Dilution Factor: 1					
Silver	103	(75 - 125)			SW846 6010B	01/20/00	D76J711G
	105	(75 - 125)	2.2	(0-20)	SW846 6010B	01/20/00	D76J711H
		Dilution Factor: 1					
Sodium	130 N	(75 - 125)			SW846 6010B	01/20-01/21/00	D76J711N
	140 N	(75 - 125)	6.7	(0-20)	SW846 6010B	01/20-01/21/00	D76J711P
		Dilution Factor: 10					
Vanadium	98	(75 - 125)			SW846 6010B	01/20/00	D76J711R
	100	(75 - 125)	1.8	(0-20)	SW846 6010B	01/20/00	D76J711T
		Dilution Factor: 1					
Zinc	135 N	(75 - 125)			SW846 6010B	01/20/00	D76J711V
	35 N,*	(75 - 125)	30	(0-20)	SW846 6010B	01/20/00	D76J711W
		Dilution Factor: 1					
Lead	71 N	(75 - 125)			SW846 6010B	01/20/00	D76J7120
	81	(75 - 125)	7.9	(0-20)	SW846 6010B	01/20/00	D76J7121
		Dilution Factor: 1					
Selenium	97	(75 - 125)			SW846 6010B	01/20/00	D76J7123
	99	(75 - 125)	2.5	(0-20)	SW846 6010B	01/20/00	D76J7124
		Dilution Factor: 1					
Thallium	91	(75 - 125)			SW846 6010B	01/20/00	D76J7126
	93	(75 - 125)	2.7	(0-20)	SW846 6010B	01/20/00	D76J7127
		Dilution Factor: 1					

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F0A070144 Matrix.....: SOLID
Date Sampled...: 01/05/00 Date Received..: 01/06/00

NOTE(S):

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

Results and reporting limits have been adjusted for dry weight.

N Spiked analyte recovery is outside stated control limits.

* Relative percent difference (RPD) is outside stated control limits.

BECHTEL HANFORD, INC.

Client Sample ID: B0X4W4

General Chemistry

Lot-Sample #...: F0A070144-001 Work Order #...: D76J7 Matrix.....: SOLID
Date Sampled...: 01/05/00 Date Received..: 01/06/00
% Moisture.....: 56

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Phosphate as P, Ortho	ND	11.3	mg/kg	MCAWW 300.0A	01/11/00	0014296
		Dilution Factor: 1				
pH (solid)	7.8		No Units	SW846 9045A	01/13/00	0013323
		Dilution Factor: 1				
Chloride	23.8	4.5	mg/kg	MCAWW 300.0A	01/11/00	0014288
		Dilution Factor: 1				
Fluoride	26.0	2.3	mg/kg	MCAWW 300.0A	01/11/00	0014285
		Dilution Factor: 1				
Nitrogen, Nitrate	14.4	0.45	mg/kg	MCAWW 300.0A	01/11/00	0014294
		Dilution Factor: 1				
Nitrogen, Nitrite	2.2	0.45	mg/kg	MCAWW 300.0A	01/11/00	0014292
		Dilution Factor: 1				
Percent Moisture	55.8	0.10	%	MCAWW 160.3 MOD	01/10-01/11/00	0011155
		Dilution Factor: 1				
Sulfate	52.2	11.3	mg/kg	MCAWW 300.0A	01/11/00	0014297
		Dilution Factor: 1				

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: F0A070144 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)		Work Order #: D7DWQ101		MB Lot-Sample #:	F0A130000-323	
	5.6		**No Units**	**SW846 9045A**	**01/13/00**	**0013323**
		Dilution Factor: 1				
Chloride		Work Order #: D7FL0101		MB Lot-Sample #:	F0A140000-288	
	ND	2.0	mg/kg	MCAWW 300.0A	01/11/00	0014288
		Dilution Factor: 1				
Fluoride		Work Order #: D7FKN101		MB Lot-Sample #:	F0A140000-285	
	ND	1.0	mg/kg	MCAWW 300.0A	01/11/00	0014285
		Dilution Factor: 1				
Nitrogen, Nitrate		Work Order #: D7FLD101		MB Lot-Sample #:	F0A140000-294	
	ND	0.20	mg/kg	MCAWW 300.0A	01/11/00	0014294
		Dilution Factor: 1				
Nitrogen, Nitrite		Work Order #: D7FL6101		MB Lot-Sample #:	F0A140000-292	
	ND	0.20	mg/kg	MCAWW 300.0A	01/11/00	0014292
		Dilution Factor: 1				
Phosphate as P, Ortho		Work Order #: D7FLK101		MB Lot-Sample #:	F0A140000-296	
	ND	5.0	mg/kg	MCAWW 300.0A	01/11/00	0014296
		Dilution Factor: 1				
Sulfate		Work Order #: D7FLM101		MB Lot-Sample #:	F0A140000-297	
	ND	5.0	mg/kg	MCAWW 300.0A	01/11/00	0014297
		Dilution Factor: 1				

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: F0A070144 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		Work Order #: D7FL0102	LCS Lot-Sample#: F0A140000-288		
	95	(80 - 120)	MCAWW 300.0A	01/11/00	0014288
		Dilution Factor: 1			
Fluoride		Work Order #: D7FKN102	LCS Lot-Sample#: F0A140000-285		
	101	(80 - 120)	MCAWW 300.0A	01/11/00	0014285
		Dilution Factor: 1			
Nitrogen, Nitrate		Work Order #: D7FLD102	LCS Lot-Sample#: F0A140000-294		
	100	(80 - 120)	MCAWW 300.0A	01/11/00	0014294
		Dilution Factor: 1			
Nitrogen, Nitrite		Work Order #: D7FL6102	LCS Lot-Sample#: F0A140000-292		
	96	(80 - 120)	MCAWW 300.0A	01/11/00	0014292
		Dilution Factor: 1			
Phosphate as P, Ortho		Work Order #: D7FLK102	LCS Lot-Sample#: F0A140000-296		
	101	(80 - 120)	MCAWW 300.0A	01/11/00	0014296
		Dilution Factor: 1			
Sulfate		Work Order #: D7FLM102	LCS Lot-Sample#: F0A140000-297		
	97	(80 - 120)	MCAWW 300.0A	01/11/00	0014297
		Dilution Factor: 1			

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: F0A070144 **Matrix.....:** SOLID
Date Sampled...: 01/05/00 **Date Received..:** 01/06/00

Percnt Moisture: 0.0

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
ortho-Phosphate	0.0	Work Order #...: D76J712N (75 - 125) Dilution Factor: 1	MCAWW 300.0A	MS Lot-Sample #: F0A070144-001 01/11/00	0014296
Chloride	126 N	Work Order #...: D76J7129 (75 - 125) Dilution Factor: 1	MCAWW 300.0A	MS Lot-Sample #: F0A070144-001 01/11/00	0014288
Fluoride	88	Work Order #...: D76J712D (75 - 125) Dilution Factor: 1	MCAWW 300.0A	MS Lot-Sample #: F0A070144-001 01/11/00	0014285
Nitrogen, Nitrate	156 N	Work Order #...: D76J712G (75 - 125) Dilution Factor: 1	MCAWW 300.0A	MS Lot-Sample #: F0A070144-001 01/11/00	0014294
Nitrogen, Nitrite	124	Work Order #...: D76J712K (75 - 125) Dilution Factor: 1	MCAWW 300.0A	MS Lot-Sample #: F0A070144-001 01/11/00	0014292
Sulfate	52 N	Work Order #...: D76J712R (75 - 125) Dilution Factor: 1	MCAWW 300.0A	MS Lot-Sample #: F0A070144-001 01/11/00	0014297

NOTE(S):

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

N Spiked analyte recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F0A070144 **Work Order #...:** D76J7-SMP D76J7-DUP **Matrix.....:** SOLID

Date Sampled...: 01/05/00 **Date Received..:** 01/06/00

% Moisture.....: 56

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride						SD Lot-Sample #:	F0A070144-001	
	23.8	25.0	mg/kg	4.9	(0-20)	MCAWW 300.0A	01/11/00	0014288
			Dilution Factor: 1					
Fluoride						SD Lot-Sample #:	F0A070144-001	
	26.0	28.2	mg/kg	8.4	(0-35)	MCAWW 300.0A	01/11/00	0014285
			Dilution Factor: 1					
Nitrogen, Nitrate						SD Lot-Sample #:	F0A070144-001	
	14.4	15.6	mg/kg	8.0	(0-0.0)	MCAWW 300.0A	01/11/00	0014294
			Dilution Factor: 1					
Nitrogen, Nitrite						SD Lot-Sample #:	F0A070144-001	
	2.2	2.4	mg/kg	5.9	(0-0.0)	MCAWW 300.0A	01/11/00	0014292
			Dilution Factor: 1					
Phosphate as P, Ortho						SD Lot-Sample #:	F0A070144-001	
	ND	ND	mg/kg	0	(0-35)	MCAWW 300.0A	01/11/00	0014296
			Dilution Factor: 1					
Sulfate						SD Lot-Sample #:	F0A070144-001	
	52.2	53.0	mg/kg	1.6	(0-35)	MCAWW 300.0A	01/11/00	0014297
			Dilution Factor: 1					
pH (solid)						SD Lot-Sample #:	F0A070144-001	
	7.8	7.8	No Units	0.13	(0-20)	SW846 9045A	01/13/00	0013323
			Dilution Factor: 1					

NOTE(S):

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

Results and reporting limits have been adjusted for dry weight.