

Quanterra
2800 George Washington Way
Richland, Washington 99352-1613

0053543

509 375-3131 Telephone
509 375-5590 Fax

CERTIFICATE OF ANALYSIS

Bechtel Hanford, Inc.
3350 George Washington Way
Richland, WA 99352

May 22, 2000

Attention: Joan Kessner



SAF Number : B99-028
Date SDG Closed : April 24, 2000
Number of Samples : One (1)
Sample Type : Other
SDG Number : W03142
Data Deliverable : 45-Day / Summary

RECEIVED
AUG 17 2000

EDMC

I. Introduction

On April 10, 2000, one other (matrix: solid) sample was received at STL Richland (STLR) for radiochemical analysis. Upon receipt, the sample was assigned the following laboratory ID number to correspond with the Bechtel Hanford, Inc. (BHI) specific ID:

<u>STLR ID#</u>	<u>BHI ID#</u>	<u>MATRIX</u>	<u>DATE OF RECEIPT</u>
9DAP4510	B0Y0F5	OTHER	4/10/00

II. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analyses were:

- Gas Proportional Counting**
Total Strontium by method RICH-RC-5006
- Alpha Spectroscopy**
Uranium-234, -235, -238 by method RICH-RC-5079
- Liquid Scintillation Counting**
Tritium by method RICH-RC-5037
Technetium-99 by method RICH-RC-5078

Bechtel Hanford, Inc.

May 23, 2000

Page 2

III. Quality Control

The analytical results for each analysis performed under SDG W03142 include a minimum of one Laboratory Control Sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

IV. Comments

Gas Proportional Counting

Total Strontium by method RICH-RC-5006:

The LCS, batch blank, samples and sample duplicate (B0Y0F5) results are within contractual requirements.

Alpha Spectroscopy

Uranium-234, -235, -238 by method RICH-RC-5079:

The LCS, batch blank, samples and sample duplicate (B0Y0F5) results are within contractual requirements.

Liquid Scintillation Counting

Tritium by method RICH-RC-5037:

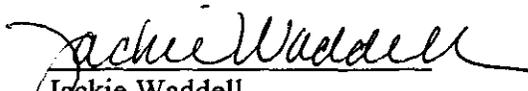
The LCS, batch blank, samples and sample duplicate (B0Y0F5) results are within contractual requirements.

Technetium-99 by method RICH-RC-5078:

The LCS, batch blank, samples, sample duplicate (B0Y0F5) and sample matrix spike (B0Y0F5) results are within contractual requirements.

I certify that this Certificate of Analysis 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:


Jackie Waddell
Project Manager

DUPLICATE RESULTS

LAB NAME: STL Richland SDG: /RPT GRP: W03142 / 10514
LOT,RPT DB ID: J0D100161-1 DAP451AR MATRIX: OTHER
CLIENT ID: B0Y0F5 DATE RECEIVED: 4/10/2000 1:55:00 P
ORIG LAB ID: 9DAP4510

ANALYTE	DUP RESULT	COUNTING Q	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD	
H-3	2.49E+00	J	1.4E-01	2.7E-01	1.57E-01	pCi/g	100.00%	RICHRC5037	2.35E+00	5.85%

Number of Results:

BLANK RESULTS

LAB NAME: STL Richland

SDG /RPT GRP: W03142 / 10514

LOT,RPT DB ID: J0D280000-271 DCHMT11B

MATRIX: OTHER

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	RPT UNIT	YIELD	METHOD NUMBER	WORK ORDE	BAT- CH
U-234	1.87E-03	U	8.7E-03	8.7E-03	2.64E-02	pCi/g	95.93%	RICHRC5079	DCHMT	0119271
U-235	-1.02E-03	U	1.2E-03	1.2E-03	2.12E-02	pCi/g	95.93%	RICHRC5079	DCHMT	0119271
U-238	-3.41E-04	U	6.8E-04	6.8E-04	1.71E-02	pCi/g	95.93%	RICHRC5079	DCHMT	0119271

Number of Results:

LABORATORY CONTROL SAMPLE

LAB NAME: STL Richland SDG: /RPT GRP: W03142 / 10514
LAB SAMPLE ID: DCHN012S MATRIX: OTHER

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
STRONTIUM	1.08E+00		8.5E-02	3.0E-01	5.58E-02	pCi/g	98.60%	1.14E+00	94.91%

Number of Results:

**STL RICHLAND
Data Review Checklist
RADIOCHEMISTRY**

Lot Number: JOD100161					
Client ID: BNF					
Due Date: 5-1-00					
QC Batch Number: 0119271			SDG Number: W43142		
Method Test Parameter: UISO					
Matrix: Resin (Other)					
Review Item	Yes (✓)	No (✓)	N/A (✓)	2 nd Level Review (✓)	
A. Calibration					
1. Is the calibration documentation included where applicable?			✓		
B. Sample Analysis					
1. Are the sample yields within acceptance criteria?	✓				
2. Were all sample holding times met?	✓				
3. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓				
C. QC Samples					
1. Is the blank yield within acceptance criteria?	✓				
2. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓				
3. Does the blank result meet the Contract criteria?	✓				
4. Is the blank result < the Contract Detection Limit?	✓				
5. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓		
6. Is the LCS result within acceptance criteria?	✓				
7. Is the LCS yield within acceptance criteria?	✓				
8. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓				
9. Do the MS/MSD results and yields meet acceptance criteria?			✓		
10. Do the duplicate sample results and yields meet acceptance criteria?	✓				
D. Other					
1. Are all Nonconformances included and noted?			✓		
2. Are all required forms filled out?	✓				
3. Was the correct methodology used?	✓				
4. Was transcription checked?	✓				
5. Were all calculations checked at a minimum frequency?	✓				
6. Were units checked?	✓				

Comments on any "No" response: _____

First Level Review: Jacki Waddell Date: 5/10/00
 Second Level Review: [Signature] Date: 5/4/00

STL RICHLAND
Data Review Checklist
RADIOCHEMISTRY

Lot Number: <u>JOD100161</u>					
Client ID: <u>BHZ</u>					
Due Date: <u>5-1-00</u>					
QC Batch Number: <u>0119272</u>			SDG Number: <u>W03142</u>		
Method Test Parameter: <u>TZ-99</u>					
Matrix: <u>Other / Resin</u>					
Review Item	Yes (✓)	No (✓)	N/A (✓)	2 nd Level Review (✓)	
A. Calibration					
1. Is the calibration documentation included where applicable?			✓	✓	
B. Sample Analysis					
1. Are the sample yields within acceptance criteria?			✓		
2. Were all sample holding times met?	✓				
3. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓				
C. QC Samples					
1. Is the blank yield within acceptance criteria?			✓		
2. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓				
3. Does the blank result meet the Contract criteria?	✓				
4. Is the blank result < the Contract Detection Limit?	✓				
5. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓		
6. Is the LCS result within acceptance criteria?	✓				
7. Is the LCS yield within acceptance criteria?			✓		
8. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓				
9. Do the MS/MSD results and yields meet acceptance criteria?	✓				
10. Do the duplicate sample results and yields meet acceptance criteria?	✓				
D. Other					
1. Are all Nonconformances included and noted?			✓		
2. Are all required forms filled out?	✓				
3. Was the correct methodology used?	✓				
4. Was transcription checked?	✓				
5. Were all calculations checked at a minimum frequency?	✓				
6. Were units checked?	✓			✓	

Comments on any "No" response: _____

First Level Review: Jamie Kunitzki Date: 5-15-00
 Second Level Review: Jacqui Waddell Date: 5/22/00

**Data Review Checklist
RADIOCHEMISTRY**

Lot Number: <u>JOD100161</u>				
Client ID: <u>BNI</u>				
Due Date: <u>5-1-00</u>				
QC Batch Number: <u>0119274</u>		SDG Number: <u>3142</u>		
Method Test Parameter: <u>Tritium</u>				
Matrix: <u>Other (Resin)</u>				
Review Item	Yes (✓)	No (✓)	N/A (✓)	2 nd Level Review (✓)
A. Calibration				
1. Is the calibration documentation included where applicable?			✓	
B. Sample Analysis				
1. Are the sample yields within acceptance criteria?			✓	
2. Were all sample holding times met?			✓	
3. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓			
C. QC Samples				
1. Is the blank yield within acceptance criteria?			✓	
2. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓			
3. Does the blank result meet the Contract criteria?	✓			
4. Is the blank result < the Contract Detection Limit?	✓			
5. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓	
6. Is the LCS result within acceptance criteria?	✓			
7. Is the LCS yield within acceptance criteria?			✓	
8. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓			
9. Do the MS/MSD results and yields meet acceptance criteria?			✓	
10. Do the duplicate sample results and yields meet acceptance criteria?	✓			
D. Other				
1. Are all Nonconformances included and noted?			✓	
2. Are all required forms filled out?	✓			
3. Was the correct methodology used?	✓			
4. Was transcription checked?	✓			
5. Were all calculations checked at a minimum frequency?	✓			
6. Were units checked?	✓			✓

Comments on any "No" response: _____

First Level Review: *Jacqui Waddell*
 Second Level Review: *[Signature]*

Date: 5/6/00
 Date: 5/8/00

CHAIN OF CUSTODY

Collector Fahlberg	Company Contact T Pickett	Telephone No. 373-4630	Project Coordinator TRENT, SJ	Price Code 9N	Data Turnaround 45 Days
Project Designation 100-HR-3 Pump & Treat - Resin Sampling	Sampling Location 100-HR-3	SAF No. B99-028	Air Quality <input type="checkbox"/>		
Ice Chest No. ERC 96-072	Field Logbook No. EL-1424	COA R10HR3C570	Method of Shipment Hand Delivered		
Shipped To Quanterra Incorporated	Offsite Property No. NA	Bill of Lading/Air Bill No. NA			

POSSIBLE SAMPLE HAZARDS/REMARKS NONE	Preservation	None	None	None	None	None	None	None	Cool 4C	Cool 4C	None
	Type of Container	G/P	aG	aG	aG	aG	aG	aG	aG	aG	aG
	No. of Container(s)	1	1	1	1	1	1	1	1	1	1
	Special Handling and/or Storage NONE	Volume	20g	60mL	60mL	60mL	250mL	250mL	500mL	500mL	1000mL

SDG-W03142 SAMPLE ANALYSIS JOD100159RA H/doo	Activity Scan	Isotopic Uranium	Strontium-89,90 - Total Sr	Technetium-99	IC Anions - 300.0 (Nitrogen in Nitrate)	Tritium - H3	Semi-VOA - #270A (TCL) (Bis(2-ethylhexyl) phthalate)	See item (1) in Special Instructions	See item (2) in Special Instructions
		✓	✓	✓	✗		✗	✗	✗

Sample No.	Matrix *	Sample Date	Sample Time	Activity Scan	Isotopic Uranium	Strontium-89,90 - Total Sr	Technetium-99	IC Anions - 300.0 (Nitrogen in Nitrate)	Tritium - H3	Semi-VOA - #270A (TCL) (Bis(2-ethylhexyl) phthalate)	See item (1) in Special Instructions	See item (2) in Special Instructions	
BOY0F5 / DAP43	Other Solid	4-7-00	1000	✗	✗	✗	✗	✗	✗	✗	✗	✗	OF6

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By R. Fahlberg	Date/Time 4-7-00 1330	Received By R. Thoren	Date/Time 4-7-00 1330
Relinquished By R. Thoren	Date/Time 4-10-00 1355	Received By P. Miller	Date/Time 4-10-00 1355
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS SAMPLE ORIGINATED IN NON CONTROLLED RADIOLOGICAL AREA. < 2000 PCI/G. NO TOTAL ACTIVITY REQUIRED. (1) VOA - 8260A (TCL) [Chloroform, Methylenechloride]; VOA - 8260A (Add-On) (Trichloromonofluoromethane) (2) Metals by ICP (TCLP) - 1311/6010 [Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver]; Metals by ICP (TCLP) Add-on - 1311/6010 [Antimony, Beryllium, Nickel]	Matrix * S=Soil SE=Soilmen SO=Solid S=Sludge W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Timec WI=Wipe L=Liquid V=Vegetation X=Other
✗ ✗	

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

Figure 1. Sample Check-in List

Date/Time Received: 4-10-00 1355 SDG#: W03142

Work Order Number: JOD100159 SAF#: B99-028/B99-029

Shipping Container ID: ERC 96-072 Chain of Custody #: B99-028-35/B99-029-44

1. Outermost shipping container damaged? Yes No
2. Custody Seals on shipping container intact? Yes No
3. Custody Seals dated and signed? Yes No
4. Chain-of-Custody record present? Yes No
5. Chain-of-Custody includes the following information:
 - Client name Yes No
 - Project name or number Yes No
 - Sample date/time for each sample Yes No
 - Container types, sizes and number of containers Yes No
 - Short description of sample, i.e., matrix Yes No
 - Analyses requested Yes No
 - Preservation used or "none" or N/A if not applicable Yes No
 - Date and time of relinquish and receipt Yes No
 - Signatures of those persons relinquishing and receiving Yes No
6. Sample numbers on chain of custody match those on sample containers? 18 Yes No
7. Collection date and date of laboratory receipt are within project specific holding time requirements? Yes No
8. Cooler temperature: 4°C
9. Vermiculite/packing materials is: Wet Dry

10. Samples have: <u> </u> tape <u> </u> custody seals	<u> </u> hazard labels <u> </u> appropriate sample labels
11. Samples are: <u> </u> in good condition <u> </u> broken	<u> </u> leaking <u> </u> have air bubbles

12. Were any anomalies identified in sample receipt? Yes No
13. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory: *[Signature]* Date: 4-10-00

Telephone/Fax/E-mailed to: _____ On _____ By _____

Client Sample Screening Results

11-Apr-00

Biological

CLIENT CODE	ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B	
BIII	BOY0F5DAP45		4/11/2000 11:16:00 AM	QUAD21B	4/11/2000 3:05:30 PM	BOY0F5DAP45	30	11	0.191666667	62	1.073333333	
	DAP45	SOLID		Bkg:	4/11/2000 1:33:00 AM	BKG	600	105	0.175	596	0.993333333	
Anl Date:	4/11/00	Tot Sa, Alq:	2.07E+02	1.13E+02	Alp:	(Dpm/ 1.38E+00	(uCi/ 1.14E-03	(pCi/ 5.49E+00	+ 5.1E+00	CAT	9.1E+00	Lab
Ppt mg:	113.1	Units:	g	mg	Bet:	Alq): 2.33E+00	Sa): 1.92E-03	Ljg): 9.27E+00	+ 2.5E+00	I	1.1E+01	Alq Ljg
BIII	BOY0H7DAP4K		4/11/2000 11:16:00 AM	QUAD21C	4/11/2000 3:05:30 PM	BOY0H7DAP4K	30	11	0.251666667	51	0.793333333	
	DAP4K	SOLID		Bkg:	4/11/2000 1:33:00 AM	BKG	600	69	0.115	544	0.906666667	
Anl Date:	4/11/00	Tot Sa, Alq:	1.42E+02	1.15E+02	Alp:	(Dpm/ 1.83E+00	(uCi/ 1.02E-03	(pCi/ 7.17E+00	+ 4.9E+00	CAT	7.0E+00	Lab
Ppt mg:	115	Units:	g	mg	Bet:	Alq): 1.63E+00	Sa): 9.10E-04	Ljg): 6.39E+00	+ 2.2E+00	I	1.6E+01	Alq Ljg

0025

11-Apr-00

RQC053

Severn Trent Laboratories, Inc.
Information Sheet Rad Prep

Run Date: 4/28/00
Time: 11:54:55

Parent Batch:
Associated Batches:
:
:
:
:

* QC BATCH: 0119271 *
*

Page: 1

SR: Uranium-234,235,238 by Alpha Spec
7W: UIso PrpRC5016, SepRC5079(5039)
SI: CLIENT: HANFORD

Analytical Due Date: 5/01/00
Project Manager: JW2

W03142

Lot# Work Order	Analyst Due Client Matrix	Client Name Aliquot	Client Name Geometry	Count	Ave Time	Mid/Ave Date/Time	Tracer ID Spike ID	CRDL	Units	Screen Info - (Ci) Alpha	Beta	PM Bin
J0D100161-001 DAP45-1-01	5/01/00 OTHER SOLID	Bechtel Hanford, .0000		.000	4/07/00	10:00		1.00E+00	pCi/g	5.49E-12	9.27E-12	JW2
Comments: RESIN												
J0D100161-001 X DAP45-1-06	5/01/00 OTHER SOLID	Bechtel Hanford, .0000		.000	4/07/00	10:00		1.00E+00	pCi/g	5.49E-12	9.27E-12	JW2
Comments: RESIN												
J0D280000-271 B DCHMT-1-01	5/01/00 BIOLOGICAL	Bechtel Hanford,			4/07/00	10:00		1.00E+00	pCi/g	**NA	**NA	JW2
Comments:												
J0D280000-271 C DCHMT-1-02	5/01/00 BIOLOGICAL	Bechtel Hanford,			4/07/00	10:00			pCi/g	**NA	**NA	JW2
Comments:												

Total Number of Samples In Batch: 00004

Batch Information:

Dry Wt: ?

Decay Correct: Y

Blank Sub: None

Call In:

Uncert: Both

Sigma: 1.960

ODR: Target List + Other Detected

BLANK CRDL

Uranium 234
Uranium 238

1.00E+00
1.00E+00

Tracer Yield

Type
RPD
RPD

QC Control Limits

** NYS = Not Yet Screened

** NA = Not Applicable

** Other = Other than Gross Alpha or Gross Beta

++ Indicates that Batch Information has changed for this sample. Print worksheet for details.

0026

COC Signature Page

1003142

Lot or Batch #: 0119271

Initials/Date

Procedure #

Released By	<u>PMOK 4-28-00</u>	<u>RICHR00009</u>
Received	<u>W 4-28-00</u>	<u>Rich RL 5016</u>
Released By	<u>W 5-01-00</u>	<u>n/a</u>
Received	<u>SIC 5/1/00</u>	<u>RC5016</u>
Released By	<u>SLS/3/00</u>	<u>n/a</u>
Received	<u>Line 5/3-00</u>	<u>RC 5079</u>
Released By	<u>Line 05-04-00</u>	<u>n/a</u>
Received	<u>SD 5/4/00</u>	<u>RC5039-2</u>
Released By	<u>SD 5/5/00</u>	<u>n/a</u>
Received	<u>CO 5/5/00</u>	<u>RICHR00008RC1</u>
Released By	<u>CO 5/9/00</u>	<u>n/a</u>
Received	<u>W 5/9/00</u>	<u>RICHR00002/2</u>
Released By	<u>W 5/10/00</u>	<u>n/a</u>
Received		

RQC053

Severn Trent Laboratories, Inc.
Information Sheet Rad Prep

Run Date: 4/28/00
Time: 11:56:12

Parent Batch:
Associated Batches:
:
:
:
:

* QC BATCH: 0119273 *
*

Page: 1

W03143

TH: Total Strontium by GPC
CI: Sr-Total PrpRc5016, SepRC5006
SI: CLIENT: HANFORD

Analytical Due Date: 5/01/00
Project Manager: JW2

Lot# Work Order	Analyt Due Client Matrix	Client Name Aliquot	Client Name Geometry	Count	Time	Mid/Ave Date/Time	Tracer ID Spike ID	CRDL	Units	Screen Info - (Ci) Alpha Beta	PM Bin
J0D100161-001 DAP45-1-03 Comments: RESIN	5/01/00 OTHER SOLID	Bechtel Hanford, .0000	Hanford	.000		4/07/00 10:00		1.00E+00	pCi/g	5.49E-12 9.27E-12 44 04/00	JW2
J0D100161-001 X DAP45-1-09 Comments: RESIN	5/01/00 OTHER SOLID	Bechtel Hanford, .0000	Hanford	.000		4/07/00 10:00		1.00E+00	pCi/g	5.49E-12 9.27E-12 44 04/00	JW2
J0D280000-273 B DCHN0-1-01 Comments:	5/01/00 BIOLOGICAL	Bechtel Hanford,	Hanford			4/07/00 10:00		1.00E+00	pCi/g	**NA **NA	JW2
J0D280000-273 C DCHN0-1-02 Comments:	5/01/00 BIOLOGICAL	Bechtel Hanford,	Hanford			4/07/00 10:00			pCi/g	**NA **NA	JW2

Total Number of Samples In Batch: 00004

Batch Information: Dry Wt: ? Decay Correct: Y Blank Sub: None Call In:

 Uncert: Both Sigma: 1.960 ODR: Target List + Other Detected

BLANK CRDL Tracer Yield Type QC Control Limits

 Strontium 1.00E+00 RPD

** NYS = Not Yet Screened
 ** NA = Not Applicable
 ** Other = Other than Gross Alpha or Gross Beta
 ++ Indicates that Batch Information has changed for this sample. Print worksheet for details.

0028

COC Signature Page

W03142

Lot or Batch #: 0119273 Initials/Date Procedure #

Released By	<u>PMK 4-28-00</u>	<u>RICHRC0009</u>
Received	<u>in 4-28-00</u>	<u>Rich RC 506</u>
Released By	<u>W 5-01-00</u>	<u>n/a</u>
Received	<u>SK 5/1/00</u>	<u>RC5016</u>
Released By	<u>SIL 5/3/00</u>	<u>n/a</u>
Received	<u>RTM 5/3/00</u>	<u>Rich RC 5006</u>
Released By	<u>RTM 5/9/00</u>	<u>n/a</u>
Received	<u>NO, 5/9/2000</u>	<u>RICHRC0003 Rev 2</u>
Released By	<u>W 5/10/00 W 5/11/00</u>	<u>n/a</u>
Received	<u>JMS-11-00</u>	<u>Radcalc v2.8.2.1</u>
Released By	<u>JMS-11-00</u>	<u>n/a</u>
Received	<u>JW 5/11/00</u>	<u>RICHRC0002/2</u>
Released By	<u>JW 5/11/00</u>	<u>n/a</u>
Received		

RQC053

Severn Trent Laboratories, Inc.
Information Sheet Rad Prep

Run Date: 5/02/00
Time: 12:48:32

Parent Batch:
Associated Batches:

:
:
:
:

* QC BATCH: 0119272 *
*

Page: 1

S5: Technetium-99 by Liquid Scint
AO: Tc-99 Prp/SepRC5016/5078
SI: CLIENT: HANFORD

Analytical Due Date: 5/01/00

Project Manager: JW2

Lot# Work Order	Client	Analyst Due Matrix	Aliquot	Client Name Geometry	Count	Time	Mid/Ave Date/Time	Tracer ID Spike ID	CRDL	Units	Screen Info - (Ci) Alpha Beta	PM Bin
J0D100161-001 DAP45-1-02 Comments: RESIN		5/01/00 OTHER SOLID		Bechtel Hanford, .0000	.000		4/07/00 10:00		1.50E+01	pCi/g	5.49E-12 9.27E-12 44 04/00	JW2
J0D100161-001 S DAP45-1-07 Comments: RESIN		5/01/00 OTHER SOLID		Bechtel Hanford, .0000	.000		4/07/00 10:00			pCi/g	5.49E-12 9.27E-12 44 04/00	JW2
J0D100161-001 X DAP45-1-08 Comments: RESIN		5/01/00 OTHER SOLID		Bechtel Hanford, .0000	.000		4/07/00 10:00		1.50E+01	pCi/g	5.49E-12 9.27E-12 44 04/00	JW2
J0D280000-272 B DCHMW-1-01 Comments:		5/01/00 BIOLOGICAL		Bechtel Hanford,			4/07/00 10:00		1.50E+01	pCi/g	**NA **NA	JW2
J0D280000-272 C DCHMW-1-02 Comments:		5/01/00 BIOLOGICAL		Bechtel Hanford,			4/07/00 10:00			pCi/g	**NA **NA	JW2
J0D280000-272 B DCHMW-1-03 Comments:		5/01/00 BIOLOGICAL		Bechtel Hanford,			4/07/00 10:00		1.50E+01	pCi/g	**NA **NA	JW2

Total Number of Samples In Batch: 00006

Batch Information:

Dry Wt: ?

Decay Correct: Y

Blank Sub: None

Call In:

Uncert: Both

Sigma: 1.960

ODR: Target List + Other Detected

BLANK CRDL

Technetium 99

1.50E+01

Tracer Yield

Type
RPD

QC Control Limits

** NYS = Not Yet Screened

** NA = Not Applicable

** Other = Other than Gross Alpha or Gross Beta

** Indicates that Batch Information has changed for this sample. Print worksheet for details.

0030

COC Signature Page

W03148

Lot or Batch #: 0119272

Initials/Date

Procedure #

Released By	Initials/Date	Procedure #
Released By	<u>PTWK 4-28-00</u>	<u>RICHRC0009</u>
Received	<u>MM 4-28-00</u>	<u>RICHRC 5016</u>
Released By	<u>MM 5-01-00</u>	<u>n/a</u>
Received	<u>RS 5-1-00</u>	<u>RL5078</u>
Released By	<u>RS 5-11-00</u>	<u>n/a</u>
Received	<u>M 5/11/00</u>	<u>RICHRC0001</u>
Released By	<u>M 5/12/00</u>	<u>n/a</u>
Received	<u>JM 5-12-00</u>	<u>Radial c v 2.58.2.1</u>
Released By	<u>JM 5-12-00</u>	<u>n/a</u>
Received	<u>PKS-15-00</u>	<u>RICHRC0002</u>
Released By	<u>PKS-15-00</u>	<u>n/a</u>
Received	<u>_____</u>	<u>_____</u>
Released By	<u>_____</u>	<u>n/a</u>
Received	<u>_____</u>	<u>_____</u>

RQC053

Severn Trent Laboratories, Inc.
Information Sheet Rad Prep

Run Date: 5/01/00
Time: 14:42:26

Parent Batch:
Associated Batches:
:
:
:
:

*
* QC BATCH: 0119274 *
*

Page: 1

S6: Tritium by Liquid Scint
AT: H-3 Prp/SepRC5037
SI: CLIENT: HANFORD

Analytical Due Date: 5/01/00
Project Manager: JW2

Lot# Work Order	Analyt Due Client Matrix	Client Name Aliquot	Client Name Geometry	Count	Time	Mid/Ave Date/Time	Tracer ID Spike ID	CRDL	Units	Screen Info - (Ci) Alpha Beta	PM Bin
J0D100161-001 X DAP45-1-0A Comments: RESIN	5/01/00 OTHER SOLID	Bechtel Hanford, .0000		.000		4/07/00 10:00		400	pCi/g	5.49E-12 9.27E-12 44 04/00	JW2
J0D100161-001 DAP45-1-04 Comments: RESIN	5/01/00 OTHER SOLID	Bechtel Hanford, .0000		.000		4/07/00 10:00		400	pCi/g	5.49E-12 9.27E-12 44 04/00	JW2
J0D280000-274 B DCHN2-1-01 Comments:	5/01/00 BIOLOGICAL	Bechtel Hanford,				4/07/00 10:00		400	pCi/g	**NA **NA	JW2
J0D280000-274 C DCHN2-1-02 Comments:	5/01/00 BIOLOGICAL	Bechtel Hanford,				4/07/00 10:00			pCi/g	**NA **NA	JW2
J0D280000-274 B DCHN2-1-03 Comments:	5/01/00 BIOLOGICAL	Bechtel Hanford,				4/07/00 10:00		400	pCi/g	**NA **NA	JW2

Total Number of Samples In Batch: 00005

Batch Information:

Dry Wt:

Decay Correct: Y

Blank Sub: None

Call In:

Uncert: Both

Sigma: 1.960

ODR: Target List + Other Detected

BLANK CRDL
Tritium

400

Tracer Yield

Type
RPD

QC Control Limits

** NYS = Not Yet Screened

** NA = Not Applicable

** Other = Other than Gross Alpha or Gross Beta

++ Indicates that Batch Information has changed for this sample. Print worksheet for details.

0032

COC Signature Page

W03142

Lot or Batch #: 0119274

Initials/Date

Procedure #

Released By	Initials/Date	Procedure #
Released By	<u>BMK 4-28-00</u>	<u>RICHRC00029</u>
Received	<u>DM 4-28-00</u>	<u>RICHRC5037</u>
Released By	<u>DM 5-1-00</u>	n/a
Received	<u>MD 5/1/00</u>	<u>RICHRC00001</u>
Released By	<u>CS 5/3/00</u>	n/a
Received	<u>JM 5-5-00</u>	<u>Radical v2.8.2</u>
Released By	<u>JM 5-5-00</u>	n/a
Received	<u>JW 5/5/00</u>	<u>RICHRC00021/2</u>
Released By	<u>JW 5/6/00</u>	n/a
Received		
Released By		n/a
Received		
Released By		n/a
Received		

CASE NARRATIVE

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, Washington 99352

May 15, 2000

Attention: Joan Kessner

Project Number	:	35630
SDG	:	W03142
Number of Samples	:	one (1)
Sample Matrix	:	Soil
Data Deliverable	:	Summary
Date SDG Closed	:	April 24, 2000

**II. Introduction**

On April 10, 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 4/11/00 at 2 degrees C. See the attached Sample Summary form for the Lab ID's and corresponding Client Ids.

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 – 1311/6010 + add ons
 VOA – 8260 (TCL) Chloroform, Methylene Chloride + add on
 Trichlorofluoromethane
 BNA – 8270C (TCL) bis-2-ethylhexyl phthalate
 IC Anions – 300.0 Nitrogen in Nitrate

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.
 DUP- Matrix Duplicate
 MSD- Matrix Spike Duplicate.

Bechtel Hanford Incorporated
May 15, 2000
Project Number: 35630
SDG: W03142
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.

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 Antimony ICSA solution was recovered above the control limit at 84 ug/l (the limit is 60 ug/l). The blank, LCS and MS/MSD all met QC criteria. The data is being reported with non-conformance memo F00269.

A Cadmium continuing calibration blank was outside the control limits (< 5 ug/l) with a result of 5 ug/l. All samples bracketed by this blank were non-detects. The data is reported with non-conformance memo F00268.

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

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

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

The surrogate 2,4,6-Tribromophenol had low recovery in the sample and its MS/MSD. The surrogate had acceptable recoveries in the blank and LCS indicating a sample matrix problem. No further action is required.

The MSD recovery for Phenol is outside the QC limits at 88%. This compound was in control in the MS and the LCS. No corrective action is required.

VOA: 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 surrogate Toluene-d8 had high recovery in the sample, the MS and the MSD. This surrogate had acceptable recovery in the blank and LCS, indicating a sample matrix problem. The compound Toluene was high in the MS/MSD. LCS recoveries were within criteria. No further corrective action is required.

Bechtel Hanford Incorporated
May 15, 2000
Project Number: 35630
SDG: W03142
Page 3

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:

Martl Ward
St. Louis Project Manager

SAMPLE SUMMARY

F0D120227

<u>WO #</u>	<u>SAMPLE#</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
DAT1J	001	BOYOP5	04/07/00	10:00

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

F0D120227

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 1311/3010
Nitrate as N	MCAWW 300.0A	MCAWW 300.0A
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3550B
Volatile Organics by GC/MS	SW846 8260A	SW846 5030/8260

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.



Clouseau Nonconformance Memo

NCM #: F00268	Classification: Deficiency
NCM Initiated By: Kao, Ed	Status: INREVIEW
Date Opened: 04/24/00	Production Area: Metals
Date Closed: N/A	Tests: 6010B
	Lot #'s (Sample #'s): F0D030134 (3); F0D050236 (12,17); F0D080155 (1); F0D110195 (1); F0D110199 (1); F0D120227 (1); F0D120233 (1)
	QC Batch: 0108226
Nonconformance: QC data exceeded criteria	
Subcategory: Other (explanation required)	

Problem Description / Root Cause

Name	Date	Description
Kao, Ed	04/24/00	The CCB for cadmium is out of control limits at 5ppb (RL 5ppb). However, all associated samples were N/A with suspected high bias.

Corrective Action

Name	Date	Corrective Action
Kleszczewski, Jim	04/27/00	CA will hold a meeting with metals group leader on 5/2/00 to discuss the QC decision making process and dates to date acceptance.

Quality Assurance Verification

Verified By	Due Date	Status	Notes:
Kleszczewski, Jim	05/02/00	Pending	

Client Notification Summary

Client	Project Manager	Date Notified	Response Date	How Notified
TETRA TECH EM INC.	Loeb, Mark	04/25/00	04/25/00	by narrative
	Response	Response Details		
	Process "as-is"			

Approval History

Name	Date Approved:	Position
Kao, Ed	04/24/00	Group Leader
Loeb, Mark	04/25/00	Project Manager



Clouseau Nonconformance Memo

NCM #: F00269	Classification: Deficiency
NCM Initiated By: Kao, Ed	Status: PM REVIEW
Date Opened: 04/24/00	Production Area: Metals
Date Closed: N/A	Tests: 6010B
	Lot #'s (Sample #'s): F0D050236 (12,17); F0D120227 (1); F0D120233 (1)
	QC Batch: 0108226
Nonconformance: QC data exceeded criteria	
Subcategory: Other (explanation required)	

Problem Description / Root Cause

Name	Date	Description
Kao, Ed	04/24/00	The ICSA solution for antimony is outside of control limits at 84ppb (RL 60ppb). However, there were insignificant levels of interfering elements to affect the results.

Corrective Action

Name	Date	Corrective Action
Kleszczewski, Jim	04/27/00	QA will hold a meeting with metals group leader on 5/2/00 to discuss the QC decision making process as it relates to date acceptance.

Quality Assurance Verification

Verified By	Due Date	Status	Notes:
Kleszczewski, Jim	05/02/00	Pending	

Approval History

Name	Date Approved:	Position
Kao, Ed	04/24/00	Group Leader
Kleszczewski, Jim	04/27/00	Quality Assurance

PSL20300
Page 1

SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 4/12/00
Time: 14:05:19
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100-HR-3 TS
REPORT TO: Bechtel Hanford, Inc. ✓
P.O. NUMBER: MRC-SBB-A-19981
SITE: B99-028
AMOUNT REC'D: 250G, 2X500G, LG
STORAGE LOC: R20D, *V3 SN 412-00*
LOT COMMENTS:
MATRIX: SOLID
SAMPLE ID: BOY0P5 ✓
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:
RUN A DUPLICATE ON ANIONS.
Beginning Depth: .00 Ending Depth: .00

QUOTE/SAR #: 35630
LAB ID: F-0D120227-001 ✓
WORK ORDER: DAT1J
RECEIVING DATE: 4/10/00
SAMPLING DATE: 4/07/00
ANALYTICAL DUE DATE: 5/19/00N
REPORT DUE DATE: 5/23/00
PRIORITY: 39
SAMPLING TIME: 10:00
RECEIVING TIME: 13:55
SDG# : W03142 ✓

***** ANALYSIS *****

	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Volatile Organics, GC/MS (8260A) PURGE AND TRAP - 5 mL purge (A-15-MZ-01) DAT1J-1-01 Protocol: A	06 ✓	4/12/00	0/00/00	4/21/00
QC Program: STANDARD TEST SET				
Base/Neutrals and Acids (8270C) SONICATION - Low Level (A-13-QL-01) DAT1J-1-04 Protocol: A	06 ✓	4/12/00	4/21/00	5/31/00
QC Program: STANDARD TEST SET				
Inductively Coupled Plasma (6010B) TCLP(1311) -> METALS, TOTAL M6010TP AG,AS,BA,BE,CD,CR,NI,PB,SB,SE (A-34-QO-01) DAT1J Protocol: A	06 ✓	4/12/00	10/04/00	4/02/01
QC Program: STANDARD TEST SET				
Nitrate as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C9-01) DAT1J-1-17 Protocol: A	06 ✓	4/12/00	7/15/00	7/17/00
QC Program: STANDARD TEST SET				

PSL20300
Page 1

SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 4/12/00
Time: 14:05:19
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100-HR-3 TS
REPORT TO: Bechtel Hanford, Inc.
P.O. NUMBER: MRC-SBB-A-19981
SITE: B99-028
AMOUNT REC'D: 250G, 2X500G, LG
STORAGE LOC: R20D, *V3 2-4-2-11*
LOT COMMENTS:
MATRIX: SOLID
SAMPLE ID: B0Y0F5
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:
RUN A DUPLICATE ON ANIONS.
Beginning Depth: .00 Ending Depth: .00

QUOTE/SAR #: 35630
LAB ID: F-0D120227-001-D
WORK ORDER: DAT1J MSD
RECEIVING DATE: 4/10/00
SAMPLING DATE: 4/07/00
ANALYTICAL DUE DATE: 5/19/00N
REPORT DUE DATE: 5/23/00
PRIORITY: 39
SAMPLING TIME: 10:00
RECEIVING TIME: 13:55
SDG# : W03142

***** ANALYSIS *****

	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Volatile Organics, GC/MS (8260A) PURGE AND TRAP - 5 mL purge (A-15-MZ-01) DAT1J-1-03 Protocol: A	06 ✓	4/12/00	0/00/00	4/21/00
QC Program: STANDARD TEST SET				
Base/Neutrals and Acids (8270C) SONICATION - Low Level (A-13-QL-01) DAT1J-1-06 Protocol: A	06 ✓	4/12/00	4/21/00	5/31/00
QC Program: STANDARD TEST SET				
Inductively Coupled Plasma (6010B) TCLP(1311) -> METALS, TOTAL M6010TP AG,AS,BA,BE,CD,CR,NI,PB,SB,SE (A-34-QO-01) DAT1J Protocol: A	06 ✓	4/12/00	10/04/00	4/02/01
QC Program: STANDARD TEST SET				
Nitrate as N <i>deleted in</i> Nitrate as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C9-01) DAT1J-1-19 Protocol: A	06	4/12/00	7/15/00	7/17/00
QC Program: STANDARD TEST SET				

PSL20300
Page 1

SEVERN TRENT LABORATORIES, INC
CLIENT ANALYSIS SUMMARY
STL St. Louis

Run Date: 4/12/00
Time: 14:05:19
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100-HR-3 TS
REPORT TO: Bechtel Hanford, Inc.
P.O. NUMBER: MRC-SBB-A-19981
SITE: B99-028
AMOUNT REC'D: 250G, 2X500G, LG
STORAGE LOC: R20D, *R3 4.12.00*
LOT COMMENTS:
MATRIX: SOLID
SAMPLE ID: B0Y0F5
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:
RUN A DUPLICATE ON ANIONS.
Beginning Depth: .00 Ending Depth: .00

QUOTE/SAR #: 35630
LAB ID: F-0D120227-001-S
WORK ORDER: DAT1J MS
RECEIVING DATE: 4/10/00
SAMPLING DATE: 4/07/00
ANALYTICAL DUE DATE: 5/19/00N
REPORT DUE DATE: 5/23/00
PRIORITY: 39
SAMPLING TIME: 10:00
RECEIVING TIME: 13:55
SDG# : W03142

***** ANALYSIS *****

WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
06 ✓	4/12/00	0/00/00	4/21/00
Volatile Organics, GC/MS (8260A) PURGE AND TRAP - 5 mL purge (A-15-MZ-01) DAT1J-1-02 Protocol: A QC Program: STANDARD TEST SET			
06 ✓	4/12/00	4/21/00	5/31/00
Base/Neutrals and Acids (8270C) SONICATION - Low Level (A-13-QL-01) DAT1J-1-05 Protocol: A QC Program: STANDARD TEST SET			
06 ✓	4/12/00	10/04/00	4/02/01
Inductively Coupled Plasma (6010B) TCLP(1311) -> METALS, TOTAL M6010TP AG,AS,BA,BE,CD,CR,NI,PB,SB,SE (A-34-QO-01) DAT1J Protocol: A QC Program: STANDARD TEST SET			
06	4/12/00	7/15/00	7/17/00
<i>deleted set</i> Nitrate as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C9-01) DAT1J-1-18 Protocol: A QC Program: STANDARD TEST SET			

Nitrate as N

Add Nitrate

FOD120227

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B99-028-35		Page 1 of 1	
Collector Fahberg	Company Contact T Pickett	Telephone No. 373-4630		Project Coordinator TRENT, SJ		Price Code 9N		Data Turnaround 45 Days	
Project Designation 100-HR-3 Pump & Treat - Resin Sampling		Sampling Location 100-HR-3		SAF No. B99-028		Air Quality <input type="checkbox"/>			
Ice Chest No. ERC 96-072		Field Logbook No. EL-1424		COA R10HR3C570		Method of Shipment Hand Delivered 4012669216 Airborne			
Shipped To Quantara Incorporated		Offsite Property No. NA		Bill of Lading/Air Bill No. NA					

POSSIBLE SAMPLE HAZARDS/REMARKS NONE Quote #35630	Preservation	None	None	None	None	None	None	None	Cool 4C	Cool 4C	None
	Type of Container	GP	aG	aG	aG	aG	aG	aG	aG	aG	aG
	Na. of Container(s)	1	1	1	1	1	1	1	1	1	1
	Volume	20g	60mL	60mL	60mL	250mL	250mL	500mL	500mL	1000mL	

SDG-1003142 Use Richland receipt data
SAMPLE ANALYSIS
JOD1001579A
H/12/00

Activity Scan	Isotopic Uranium	Strontium-90, 90 - Total Sr	Technetium-99	IC Anion - 300.0 (Nitrogen in Nitrate)	Tritium - H3	Semi-VOA - 8278A (TCL) (Dioxin/Polychlorinated Biphenyls)	See item (1) in Special Instructions	See item (2) in Special Instructions
	✓	✓	✓	78 X		284 X	X 208	X 170

Sample No.	Matrix *	Sample Date	Sample Time	Activity Scan	Isotopic Uranium	Strontium-90, 90 - Total Sr	Technetium-99	IC Anion - 300.0 (Nitrogen in Nitrate)	Tritium - H3	Semi-VOA - 8278A (TCL) (Dioxin/Polychlorinated Biphenyls)	See item (1) in Special Instructions	See item (2) in Special Instructions
BOYDF5 / DAP4-5	Other Solid	4-7-00	1000	X	X	X	X	X	X	X	X	X
								MS/Dep		MS/MSG	MS/MSG	MS/MSG

CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix * S=Soil SE=Settlement SO=Solid S=Sludge W=Water O=Oil A=Air OS=Dross Solid OL=Dross Liquid T=Traces WI=Wipe L=Liquid V=Vegetation X=Other	
Relinquished By R. Falla		Date/Time 4-7-00 1330		Received By R. Thoren		Date/Time 4-7-00 1330			SAMPLE ORIGINATED IN NON CONTROLLED RADIOLOGICAL AREA. < 2000 FC/G. NO TOTAL ACTIVITY REQUIRED. (1) VOA - 8260A (TCL) [Chloroform, Methylenechloride]; VOA - 8260A (Add-On) [Trichloroethylene] X (2) Metals by ICP (TCLP) - 1311/6010 (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Metals by ICP (TCLP) Add-on 1311/6010 (Antimony, Beryllium, Nickel) X
Relinquished By R. Thoren		Date/Time 4-10-00 1355		Received By PMD/IL		Date/Time 4-10-00 1355			
Relinquished By PMD/IL		Date/Time 4-10-00 1600		Received By		Date/Time			
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



Lot No.: F0D12-0227

**Condition Upon Receipt Variance Report
St. Louis Laboratory**

Client: Bechtel Hanford

Date: 4.11.00 Time: 11:10

Quote No: 35630 & 35632

Initiated by: Sue Johnson

Shipper/No: Carbine 4012669216

RFA/COC Numbers: ~~899-028-44~~ 8/4.12.00
899-028-35

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 _____ <input type="checkbox"/> other: _____	9. <input type="checkbox"/> All coolers on airbill not received with shipment.
3. <input type="checkbox"/> Sample received in improper container.	10. <input type="checkbox"/> Sample volume insufficient for analysis
4. <input type="checkbox"/> Sample received without proper paperwork. Explain: _____	11. <input type="checkbox"/> Other (explain below) _____
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/not tamper evident type (circle all that apply).	

No variances were noted during sample receipt.

Cooler Temperature Upon Receipt in °C: 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". _____

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

Sample Control Supervisor Review: (or designate) Sue Johnson Date: 4.11.00

Project Management Review: [Signature] Date: 4/12/00

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

BECHTEL HANFORD, INC.

Client Sample ID: B0Y0F5

GC/MS Volatiles

Lot-Sample #...: F0D120227-001 Work Order #...: DAT1J101 Matrix.....: SOLID
 Date Sampled...: 04/07/00 Date Received...: 04/10/00
 Prep Date.....: 04/13/00 Analysis Date...: 04/13/00
 Prep Batch #...: 0105157
 Dilution Factor: 1 Method.....: SW846 8260A

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
Methylene chloride	4.1 J	5.0	ug/kg	1.8
Chloroform	8.1	5.0	ug/kg	1.5
Fluorotrichloromethane	ND	10	ug/kg	2.4

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
4-Bromofluorobenzene	104	(72 - 113)
Toluene-d8	185 *	(79 - 122)
Dibromofluoromethane	91	(75 - 141)

NOTE(S):

- * Surrogate recovery is outside stated control limits.
- J Estimated result. Result is less than RL.

BECHTEL HANFORD, INC.

BOYOF5

GC/MS Volatiles

Lot-Sample #: F0D120227-001

Work Order #: DAT1J101

Matrix: SOLID

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

<u>PARAMETER</u>	<u>CAS #</u>	<u>ESTIMATED RESULT</u>	<u>RETENTION TIME</u>	<u>UNITS</u>
UNKNOWN		46	M 6.246	ug/kg

NOTE(S):

M: Result was measured against nearest internal standard assuming a response factor of 1.

BECHTEL HANFORD, INC.

Client Sample ID: B0Y0F5

GC/MS Semivolatiles

Lot-Sample #...: F0D120227-001 Work Order #...: DAT1J104 Matrix.....: SOLID
 Date Sampled...: 04/07/00 Date Received...: 04/10/00
 Prep Date.....: 04/17/00 Analysis Date...: 04/20/00
 Prep Batch #...: 0108295
 Dilution Factor: 1 Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
bis (2-Ethylhexyl) phthalate	ND	330	ug/kg	36

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
2-Fluorophenol	74	(22 - 96)
Phenol-d5	82	(23 - 108)
Nitrobenzene-d5	76	(16 - 104)
2-Fluorobiphenyl	65	(20 - 99)
2,4,6-Tribromophenol	6.2 *	(22 - 111)
Terphenyl-d14	68	(9.0- 117)

NOTE(S) :

* Surrogate recovery is outside stated control limits.

BECHTEL HANFORD, INC.

BOY0F5

GC/MS Semivolatiles

Lot-Sample #: F0D120227-001

Work Order #: DAT1J104

Matrix: SOLID

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

<u>PARAMETER</u>	<u>CAS #</u>	<u>ESTIMATED RESULT</u>	<u>RETENTION TIME</u>	<u>UNITS</u>
None				ug/kg

BECHTEL HANFORD, INC.

Client Sample ID: BOY0F5

TCLP Metals

Lot-Sample #...: F0D120227-001

Date Sampled...: 04/07/00

Leach Date.....: 04/13/00

Date Received...: 04/10/00

Leach Batch #...: P010405

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...:	0108226					
Arsenic	ND	1500	ug/L	SW846 6010B	04/17-04/20/00	DAT1J107
		Dilution Factor: 5		MDL.....: 244		
Barium	15.8 B	1000	ug/L	SW846 6010B	04/17-04/20/00	DAT1J10A
		Dilution Factor: 5		MDL.....: 4.5		
Cadmium	16.2 B	25.0	ug/L	SW846 6010B	04/17-04/20/00	DAT1J10E
		Dilution Factor: 5		MDL.....: 10.0		
Chromium	4870	50.0	ug/L	SW846 6010B	04/17-04/20/00	DAT1J10H
		Dilution Factor: 5		MDL.....: 13.5		
Lead	ND	500	ug/L	SW846 6010B	04/17-04/20/00	DAT1J10L
		Dilution Factor: 5		MDL.....: 45.0		
Silver	ND	50.0	ug/L	SW846 6010B	04/17-04/20/00	DAT1J10P
		Dilution Factor: 5		MDL.....: 40.0		
Selenium	ND	1250	ug/L	SW846 6010B	04/17-04/20/00	DAT1J10T
		Dilution Factor: 5		MDL.....: 228		
Beryllium	2.0 B	25.0	ug/L	SW846 6010B	04/17-04/20/00	DAT1J10W
		Dilution Factor: 5		MDL.....: 1.0		
Nickel	ND	200	ug/L	SW846 6010B	04/17-04/20/00	DAT1J111
		Dilution Factor: 5		MDL.....: 50.0		
Antimony	124 B	300	ug/L	SW846 6010B	04/17-04/20/00	DAT1J114
		Dilution Factor: 5		MDL.....: 98.5		

NOTE(S):

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

B Estimated result. Result is less than RL.

BECHTEL HANFORD, INC.

Client Sample ID: B0Y0F5

General Chemistry

Lot-Sample #...: F0D120227-001

Work Order #...: DAT1J

Matrix.....: SOLID

Date Sampled...: 04/07/00

Date Received...: 04/10/00

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate	23.1	2.0	mg/kg	MCAWW 300.0A	05/01/00	0130267
		Dilution Factor: 1		MDL.....: 0.10		