SEVERN TRENT SERVICES

STL St. Louis
13715 Rider Trail North
Earth City, MO 63045

Tel 314 298 8566
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www.stl-inc.com

ANALYTICAL REPORT

PROJECT NO. 216-Z-11 DITCH

B02-050

Lot #: F2E030265
SDG #: W03765

Joan Kessner

Bechtel Hanford, Inc.
3190 George Washington Way
Richland, WA 99352

SEVERN TRENT LABORATORIES, INC.

M Ward

MARTI WARD
Project Manager

RECEIVED JUN 2002

May 30, 2002

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STL St. Louis

CASE NARRATIVE

Bechtel Hanford Incorporated
3190 George Washington Way
Richland, Washington 99352

May 30, 2002

Attention: Joan Kessner

Project Number	:	47520
SAF	:	B02-050
SDG	:	W03765
Number of Samples	:	one
Sample Matrix	:	soil
Data Deliverable	:	Summary
Date SDG Closed	:	May 16, 2002

II. Introduction

On May 3, 2002, one (1) "solid" sample was received by STL-St. Louis for chemical analysis. The sample was received at the St. Louis lab at a temperature of 4 degrees C. See the COC and CUR forms for details of sample condition and temperature. 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. This report is not complete without the Case Narrative. Results are reported "as received"; i.e. wet weight, unless otherwise noted on the data sheets.

Analyses requested: see the attached methods summary sheet

Deviation from Request: The compounds Cyclohexanone and 1,2,4-Trimethylbenznene are reported from the VOA 8260 analysis instead of the 8270 BNA run.

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.

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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.

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 MS and/or MSD recoveries for Cadmium, Vanadium and Manganese are outside the control limits. The % RPD meets criteria indicating a possible matrix interference. The Manganese result in the unspiked sample was greater than four times the spike amount added, therefore percent recovery information is of little value. Method performance is demonstrated by acceptable LCS recovery.

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

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

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.

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

BNA: 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 LCS recoveries are outisde criteria for less than 10% of the compounds spiked. Laboratory QC preactices, based on Federal Guidance documents, allow for up to 10% of the spike compounds to be outside QC criteria without necessitating re-extraction/re-analysis. Sample extration efficiency and compliance are demonstrated by the remaining acceptable LCS recoveries.

The MS/MSD has several compounds with recovery outside QC limits. The spike data is flagged with an "a" qualifier.

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Bechtel Hanford Incorporated
May 30, 2002
Project Number: 47520
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TPH: 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 either the Gasoline or Diesel data.

PCB: 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 of non-conformances associated with the PCB 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

Marti Ward
St. Louis Project Manager

SAMPLE SUMMARY

F2E030265

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
E0WMP	001	B14DL0	04/25/02	09:54

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

F2E030265

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Extractable Petroleum Hydrocarbons	SW846 8015 MOD	SW846 3550
Fluoride	MCAWW 300.0A	MCAWW 300.0A
Mercury in Solid Waste (Manual Cold-Vapor)	SW846 7471A	SW846 7471A
Nitrate as N	MCAWW 300.0A	MCAWW 300.0A
Nitrate-Nitrite	MCAWW 353.1	
Nitrogen, Ammonia	MCAWW 350.1	
Percent Moisture	MCAWW 160.3 MOD	MCAWW 160.3 MOD
PCBs by SW-846 8082	SW846 8082	SW846 3550
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3550B
Sulfate	MCAWW 300.0A	MCAWW 300.0A
Sulfide	SW846 9030	
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3050B
Volatile Organics by GC/MS	SW846 8260B	SW846 5030

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.

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

Run Date: 5/03/02
Time: 14:29:43
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 216-Z-11 DITCH
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B02-050
AMOUNT REC"D: 4X60G,3X120G,20ML
STORAGE LOC: VE2,S33
LOT COMMENTS: Anions/Metals: CRDL standard required
MATRIX: SOLID
USAF MATRIX:
SAMPLE ID: B14DL0
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 47520
LAB ID: F-2E030265-001
WORK ORDER: E0WMP
RECEIVING DATE: 5/02/02
SAMPLING DATE: 4/25/02
ANALYTICAL DUE DATE: 6/11/02N
REPORT DUE DATE: 6/11/02
PRIORITY: 40
+ SAMPLING TIME: 9:54
RECEIVING TIME: 7:30

SDG# : W03744

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

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Inductively Coupled Plasma (6010B Trace)	06	5/03/02	0/00/00	10/22/02
METALS, TOTAL - Soils				
MT6010_S AG,AS,BA,BE,BX,CD,CR,CU,MG,MN,MO,NI,PB,SE,VX,ZN				
(A-46-QM-01) E0WMP Protocol: A QC Program: STANDARD TEST SET				
Mercury (7471A, Cold Vapor) - Solids	06	5/03/02	0/00/00	5/23/02
METALS, TOTAL (Method Exclusive) - Solids				
M7471_S HG				
(A-70-09-01) E0WMP Protocol: A QC Program: STANDARD TEST SET				
Nitrate-Nitrite (353.1)	06	5/03/02	5/23/02	5/23/02
LEACHATE, DI (Routine)				
(A-82-HN-01) E0WMP-1-AC Protocol: A QC Program: STANDARD TEST SET				
Fluoride (300.0, Ion Chromatography)	06	5/03/02	8/02/02	8/30/02
LEACHATE, DI (Routine)				
(A-82-C8-01) E0WMP-1-AW Protocol: A QC Program: STANDARD TEST SET				
Nitrate as N (300.0, Ion Chromatography)	06	5/03/02	8/02/02	8/04/02
LEACHATE, DI (Routine)				
(A-82-C9-01) E0WMP-1-AX Protocol: A QC Program: STANDARD TEST SET				
Sulfate (300.0, Ion Chromatography)	06	5/03/02	8/02/02	8/30/02
LEACHATE, DI (Routine)				
(A-82-CY-01) E0WMP-1-A0 Protocol: A QC Program: STANDARD TEST SET				
Nitrogen, Ammonia (350.1, Automated)	06	5/03/02	0/00/00	5/23/02
LEACHATE, DI (Routine)				
(A-82-VM-01) E0WMP-1-A1 Protocol: A QC Program: STANDARD TEST SET				
Sulfide (9030)	06	5/03/02	5/23/02	5/24/02
LEACHATE, DI (Routine)				
(A-82-P3-01) E0WMP-1-A2 Protocol: A QC Program: STANDARD TEST SET				

Hydrocarbons, Extractable Petroleum (801 06 5/03/02 5/09/02 6/18/02
SONICATION - Low Level
(A-13-HS-01) E0WMP-1-A3 Protocol: A QC Program: STANDARD TEST SET

Volatile Organics, GC/MS (8260B) 06 5/03/02 0/00/00 5/09/02
PURGE AND TRAP - 5 mL purge
STL: SW-846 8260B
(A-15-QK-01) E0WMP-1-A4 Protocol: A QC Program: STANDARD TEST SET

PCBs (8082) 06 5/03/02 5/09/02 6/18/02
SONICATION w/ACID STRIP (PCB)
STL: HANFORD PCB GC:LIST-1(7)
(A-71-QH-01) E0WMP-1-A5 Protocol: A QC Program: STANDARD TEST SET

Moisture, Percent (160.3) 06 5/03/02 0/00/00 8/02/02
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION
(A-88-WM-01) E0WMP-1-A6 Protocol: A QC Program: STANDARD TEST SET

Base/Neutrals and Acids (8270C) 06 5/03/02 5/09/02 6/18/02
SONICATION - Low Level
STL: SW-846 8270C
(A-13-QL-01) E0WMP-1-A7 Protocol: A QC Program: STANDARD TEST SET

Hydrocarbons, Volatile Petroleum (8015 M 06 5/03/02 0/00/00 5/09/02
PURGE AND TRAP - 5 mL purge
STL: HANFORD LBH GC:GASOLINE(1)
(A-15-WU-01) E0WMP-1-A8 Protocol: A QC Program: STANDARD TEST SET

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

Run Date: 5/03/02
Time: 14:29:43
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 216-Z-11 DITCH
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B02-050
AMOUNT REC"D: 4X60G,3X120G,20ML
STORAGE LOC: VE2,S33
LOT COMMENTS: Anions/Metals: CRDL standard required
MATRIX: SOLID
USAF MATRIX:
SAMPLE ID: B14DL0
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 47520
LAB ID: F-2E030265-001-D
WORK ORDER: E0WMP MSD
RECEIVING DATE: 5/02/02
SAMPLING DATE: 4/25/02
ANALYTICAL DUE DATE: 6/11/02N
REPORT DUE DATE: 6/11/02
PRIORITY: 40
+ SAMPLING TIME: 9:54
RECEIVING TIME: 7:30

SDG# : W03744

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

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Hydrocarbons, Extractable Petroleum (801	06	5/03/02	5/09/02	6/18/02
SONICATION - Low Level				
(A-13-HS-01) E0WMP-1-CE Protocol: A QC Program: STANDARD TEST SET				
Volatile Organics, GC/MS (8260B)	06	5/03/02	0/00/00	5/09/02
PURGE AND TRAP - 5 mL purge				
STL: SW-846 8260B				
(A-15-QK-01) E0WMP-1-CG Protocol: A QC Program: STANDARD TEST SET				
PCBs (8082)	06	5/03/02	5/09/02	6/18/02
SONICATION w/ACID STRIP (PCB)				
STL: HANFORD PCB GC:LIST-1(7)				
(A-71-QH-01) E0WMP-1-CJ Protocol: A QC Program: STANDARD TEST SET				
Base/Neutrals and Acids (8270C)	06	5/03/02	5/09/02	6/18/02
SONICATION - Low Level				
STL: SW-846 8270C				
(A-13-QL-01) E0WMP-1-CL Protocol: A QC Program: STANDARD TEST SET				
Hydrocarbons, Volatile Petroleum (8015 M	06	5/03/02	0/00/00	5/09/02
PURGE AND TRAP - 5 mL purge				
STL: HANFORD LBH GC:GASOLINE(1)				
(A-15-WU-01) E0WMP-1-CN Protocol: A QC Program: STANDARD TEST SET				
Inductively Coupled Plasma (6010B Trace)	06	5/03/02	0/00/00	10/22/02
METALS, TOTAL - Soils				
MT6010_S AG,AS,BA,BE,BX,CD,CR,CU,MG,MN,MO,NI,PB,SE,VX,ZN				
(A-46-QM-01) E0WMP Protocol: A QC Program: STANDARD TEST SET				
Mercury (7471A, Cold Vapor) - Solids	06	5/03/02	0/00/00	5/23/02
METALS, TOTAL (Method Exclusive) - Solids				
M7471_S HG				
(A-70-09-01) E0WMP Protocol: A QC Program: STANDARD TEST SET				

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

Run Date: 5/03/02
Time: 14:29:43
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 216-Z-11 DITCH
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B02-050
AMOUNT REC"D: 4X60G,3X120G,20ML
STORAGE LOC: VE2,S33
LOT COMMENTS: Anions/Metals: CRDL standard required
MATRIX: SOLID
USAF MATRIX:
SAMPLE ID: B14DL0
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 47520
LAB ID: F-2E030265-001-S
WORK ORDER: E0WMP MS
RECEIVING DATE: 5/02/02
SAMPLING DATE: 4/25/02
ANALYTICAL DUE DATE: 6/11/02N
REPORT DUE DATE: 6/11/02
PRIORITY: 40
+ SAMPLING TIME: 9:54
RECEIVING TIME: 7:30

SDG# : W03744

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

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Sulfate (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CY-01) E0WMP-1-A9 Protocol: A QC Program: STANDARD TEST SET	06	5/03/02	8/02/02	8/30/02
Nitrogen, Ammonia (350.1, Automated) LEACHATE, DI (Routine) (A-82-VM-01) E0WMP-1-CA Protocol: A QC Program: STANDARD TEST SET	06	5/03/02	0/00/00	5/23/02
Sulfide (9030) LEACHATE, DI (Routine) (A-82-P3-01) E0WMP-1-CC Protocol: A QC Program: STANDARD TEST SET	06	5/03/02	5/23/02	5/24/02
Hydrocarbons, Extractable Petroleum (801 SONICATION - Low Level (A-13-HS-01) E0WMP-1-CD Protocol: A QC Program: STANDARD TEST SET	06	5/03/02	5/09/02	6/18/02
Volatile Organics, GC/MS (8260B) PURGE AND TRAP - 5 mL purge STL: SW-846 8260B (A-15-QK-01) E0WMP-1-CF Protocol: A QC Program: STANDARD TEST SET	06	5/03/02	0/00/00	5/09/02
PCBs (8082) SONICATION w/ACID STRIP (PCB) STL: HANFORD PCB GC:LIST-1(7) (A-71-QH-01) E0WMP-1-CH Protocol: A QC Program: STANDARD TEST SET	06	5/03/02	5/09/02	6/18/02
Base/Neutrals and Acids (8270C) SONICATION - Low Level STL: SW-846 8270C (A-13-QL-01) E0WMP-1-CK Protocol: A QC Program: STANDARD TEST SET	06	5/03/02	5/09/02	6/18/02
Hydrocarbons, Volatile Petroleum (8015 M PURGE AND TRAP - 5 mL purge STL: HANFORD LBH GC:GASOLINE(1)	06	5/03/02	0/00/00	5/09/02

(A-15-WU-01) E0WMP-1-CM Protocol: A QC Program: STANDARD TEST SET

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

Run Date: 5/03/02
Time: 14:29:43
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 216-Z-11 DITCH
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B02-050
AMOUNT REC"D: 4X60G,3X120G,20ML
STORAGE LOC: VE2,S33
LOT COMMENTS: Anions/Metals: CRDL standard required
MATRIX: SOLID
USAF MATRIX:
SAMPLE ID: B14DL0
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 47520
LAB ID: F-2E030265-001-S
WORK ORDER: E0WMP MS
RECEIVING DATE: 5/02/02
SAMPLING DATE: 4/25/02
ANALYTICAL DUE DATE: 6/11/02N
REPORT DUE DATE: 6/11/02
PRIORITY: 40
+ SAMPLING TIME: 9:54
RECEIVING TIME: 7:30

SDG# : W03744

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

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Inductively Coupled Plasma (6010B Trace)	06	5/03/02	0/00/00	10/22/02
METALS, TOTAL - Soils				
MT6010_S AG,AS,BA,BE,BX,CD,CR,CU,MG,MN,MO,NI,PB,SE,VX,ZN				
(A-46-QM-01) E0WMP Protocol: A QC Program: STANDARD TEST SET				
Mercury (7471A, Cold Vapor) - Solids	06	5/03/02	0/00/00	5/23/02
METALS, TOTAL (Method Exclusive) - Solids				
M7471_S HG				
(A-70-09-01) E0WMP Protocol: A QC Program: STANDARD TEST SET				
Nitrate-Nitrite (353.1)	06	5/03/02	5/23/02	5/23/02
LEACHATE, DI (Routine)				
(A-82-HN-01) E0WMP-1-CR Protocol: A QC Program: STANDARD TEST SET				
Fluoride (300.0, Ion Chromatography)	06	5/03/02	8/02/02	8/30/02
LEACHATE, DI (Routine)				
(A-82-C8-01) E0WMP-1-DV Protocol: A QC Program: STANDARD TEST SET				
Nitrate as N (300.0, Ion Chromatography)	06	5/03/02	8/02/02	8/04/02
LEACHATE, DI (Routine)				
(A-82-C9-01) E0WMP-1-DW Protocol: A QC Program: STANDARD TEST SET				

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

Run Date: 5/03/02
Time: 14:29:43
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 216-Z-11 DITCH
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: B02-050
AMOUNT REC"D: 4X60G,3X120G,20ML
STORAGE LOC: VE2,S33
LOT COMMENTS: Anions/Metals: CRDL standard required
MATRIX: SOLID
USAF MATRIX:
SAMPLE ID: B14DL0 DUP
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 47520
LAB ID: F-2E030265-001-X
WORK ORDER: E0WMP SMPDUP
RECEIVING DATE: 5/02/02
SAMPLING DATE: 4/25/02
ANALYTICAL DUE DATE: 6/11/02N
REPORT DUE DATE: 6/11/02
PRIORITY: 40
+ SAMPLING TIME: 9:54
RECEIVING TIME: 7:30

SDG# : W03744

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

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Sulfate (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CY-01) E0WMP-1-DX Protocol: A QC Program: STANDARD TEST SET	06	5/03/02	8/02/02	8/30/02
Nitrogen, Ammonia (350.1, Automated) LEACHATE, DI (Routine) (A-82-VM-01) E0WMP-1-D0 Protocol: A QC Program: STANDARD TEST SET	06	5/03/02	0/00/00	5/23/02
Sulfide (9030) LEACHATE, DI (Routine) (A-82-P3-01) E0WMP-1-D1 Protocol: A QC Program: STANDARD TEST SET	06	5/03/02	5/23/02	5/24/02
Nitrate-Nitrite (353.1) LEACHATE, DI (Routine) (A-82-HN-01) E0WMP-1-D2 Protocol: A QC Program: STANDARD TEST SET	06	5/03/02	5/23/02	5/23/02
Fluoride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C8-01) E0WMP-1-D3 Protocol: A QC Program: STANDARD TEST SET	06	5/03/02	8/02/02	8/30/02
Nitrate as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C9-01) E0WMP-1-D4 Protocol: A QC Program: STANDARD TEST SET	06	5/03/02	8/02/02	8/04/02

ERC Radiological Counting Facility Analysis Report

RCF Number RCF10218 **Sample Date & Time** 4/25/2002 0954

Project ID: 200 WEST **SAF Number:** B02-050 **Date Analyzed** 4/29/2002 12:2

Sample ID: B14DM0

Gamma Energy Analysis

Nuclide		Activity (pCi/g)		Error (pCi/g)	MDC (pCi/g)
K-40	<	9.3E+00			9.3E+00
Co-60	<	9.1E-01			9.1E-01
Cs-137	<	5.8E-01			5.8E-01
Eu-152	<	1.9E+00			1.9E+00
Eu-154	<	2.6E+00			2.6E+00
Eu-155	<	1.6E+00			1.6E+00
Am-241		4.0E+01	+/-	3.7E+00	1.7E+00

TIE TO B14DL0

Self absorption curve applied.

Total GEA (pCi/g)	4.0E+01	+/-	3.7E+00	

	Activity (pCi/g)		Error (pCi/g)	Alpha MDC (pCi/g)	Beta MDC (pCi/g)
Gross Alpha**	73pCi 2.~~3E+01~~ 3	+/-	2.~~1E+00~~ 17pCi	8.3E+00	1.1E+01
Gross Beta	2.0E+01	+/-	1.6E+00		

Definitions:

All errors reported at 2 standard deviations.
N/R = no result or analysis not requested. <MDC = Less than detection limit.
All GEA results reported as "<" list the Minimum Detectable Concentration (MDC) value for that radionuclide.
Rounding error may result in the reported total GEA activity differing from the sum of the > MDC GEA values in the second significant digit.

For soils and natural samples, the following applies:

The analysis of U-238 is based on the activity of Pa-234m.
The analysis of Np-237 is based on the activity of Pa-233.
U-238dau is the activity of Pb-214 and Bi-214, short lived daughter products of U-238. Equilibrium between parent and daughter products probably does not exist in disturbed materials.
Th-232dau is the activity of Ac-228, Pb-212, and Tl-208, short lived daughter products of Th-232. Equilibrium between parent and daughter products may not exist in disturbed materials.
Other samples, not containing natural materials, may have inapplicable results for the Th, U, transuranics and daughter products. The results must then be balanced for the gross alpha analysis.
**The gross alpha results are not corrected for mass absorbtion
No peaks for this radionuclide were visible above background in the spectrum. The result was reported as less than MDC.

Analyst T.J.Snider 4/30/2002

Report To	Fax
ID Jacques	373-7711
SJ Trent	372-9292

Report Printed: Tuesday, April 30, 2002

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NO. (To be obtained from PROPERTY MANAGEMENT)
BHI-HANFORD		A02000

PART I - TO BE COMPLETED BY ORIGINATOR

Department: ~~Engineering Support~~ ~~Field Analytical Support~~ ~~Field Sampling Support~~

The following items are to be shipped from [X] Contractor [ ] Vendor

Routing FED EX [X] Prepaid [ ] Collect

Shipped to Company: SEVERN TRENT INC.
Address: 13715 RIDER TRAIL NORTH
City: EARTH CITY, MO 63045
Country: ATTENTION: MARTI WARD
State Zip Code
(314) 298-8566

Off-site Custodian

On-site Custodian HID

Qty.	Property No.	Description (Include Manufacture Name, Model, Serial No.)	Acquisition Cost
	2516	ERC 01-062	
		SAF# B02-050 (1)	(1)

[ ] Classified [X] Unclassified [ ] Shipped Under DOE Contract [ ] Shipped Under Contractor's Use Permit Contract

Necessity for the off-site use of this property

[ ] Required for Project Work. List Project No. #1) 7911-8794-9298

[ ] Business Trip

[ ] Off-site Assignment

[ ] Shipment to Subcontractor. List Subcontract No.

[ ] Other (Please specify)

ENVIRONMENTAL SAMPLES PACKAGED IN POLYCOOLER WITH WET ICE AND DRY SORB

CERTIFICATION OF THE RADIATION MONITORING RELEASE MUST BE SECURED THE SAME DAY THAT MATERIAL IS DELIVERED TO SHIPPING.

RM Clearance for Public Release NA | RM Survey No. NA | Date

Location of and Contact for Property (Name/Phone No./Bldg./Area)
RIKKI THOREN/521-8003/3728 BUILDING/300 AREA

Date Ready for Shipment: 5/2/02
Cost Code to be Charged: B20CW5674K
Approximate Date This Property will be Returned

Originated By: [signature] Date: 5/2/02
Authorized By: Date:
Property Representative Signature: Date:
Property Management Approval: Date:

PART II - TO BE COMPLETED BY SHIPPING

Authorized Shipping Signature: [signature] Date: 5-2-02

SEVERN TRENT SERVICES

Lot No.: F2E030265
~~W03744~~
W03765
per JHK
NC 6/5/02

Condition Upon Receipt Form
St. Louis Laboratory

Client: Bechtel Hanford

Quote No: 47520

Shipper/No: FedX 791187949298

Date: 05.03.02 Time: 0900

Initiated by: SV

COC/RFA Numbers: B02-050-16

Condition/Variance (Circle "Y" for yes and "N" for no. If "N" is circled, see notes for explanation):

1.	Y N	Sample received in undamaged condition.	5.	Y N	Sample volume sufficient for analysis.
2.	Y N	Sample received within 4°C ± 2°C*	6.	Y N	Sample received with Chain of Custody.
		Record temperature: 4.6	7.	Y N	Chain of Custody matches sample IDs on containers.
3.	Y N N/A	Sample received with proper pH**.	8.	Y N	Custody seal received intact and tamper evident on cooler.
4.	Y N	Sample received in proper containers.	9.	Y N	Custody seal received intact and tamper evident on bottles.

*** Temperature Variance Does Not Affect the Following Analyses:** _____

**** For DOE-AL (Pantex, LANL, Sandia, Timet) sites, remember to pH all containers received, except for VOA, TOX, and soils.**

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 (or designate) Review: [signature] Date: 05.03.02

Project Management Review: MWard Date: 5.3.02

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE
THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED
IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIALS AND THE DATE NEXT TO THAT ITEM

VOLATILE ORGANICS

BECHTEL HANFORD, INC.

Client Sample ID: B14DL0

GC/MS Volatiles

Lot-Sample #...: F2E030265-001 **Work Order #...:** E0WMP1A4 **Matrix.....:** SOLID
Date Sampled...: 04/25/02 **Date Received..:** 05/02/02
Prep Date.....: 05/06/02 **Analysis Date..:** 05/06/02
Prep Batch #...: 2127382
Dilution Factor: 1
% Moisture.....: 6.9 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Tetrahydrofuran	ND	27	ug/kg	3.1
Cyclohexanone	ND	110	ug/kg	54
1,2,4-Trimethylbenzene	ND	5.4	ug/kg	0.42
Chloromethane	ND	11	ug/kg	1.0
Vinyl chloride	ND	5.4	ug/kg	0.86
Bromomethane	ND	11	ug/kg	1.1
Chloroethane	ND	11	ug/kg	0.58
Acetone	**8.7 J,B**	**21**	**ug/kg**	**2.6**
1,1-Dichloroethene	ND	5.4	ug/kg	0.33
Methylene chloride	**1.0 J,B**	**5.4**	**ug/kg**	**0.26**
Carbon disulfide	ND	5.4	ug/kg	0.34
1,1-Dichloroethane	ND	5.4	ug/kg	0.29
2-Butanone	ND	21	ug/kg	1.8
1,2-Dichloroethene (total)	ND	11	ug/kg	0.59
Chloroform	ND	5.4	ug/kg	0.25
1,1,1-Trichloroethane	ND	5.4	ug/kg	0.30
Carbon tetrachloride	ND	5.4	ug/kg	0.26
1,2-Dichloroethane	ND	5.4	ug/kg	0.28
Benzene	ND	5.4	ug/kg	0.15
Trichloroethene	ND	5.4	ug/kg	0.24
1,2-Dichloropropane	ND	5.4	ug/kg	0.24
Bromodichloromethane	ND	5.4	ug/kg	0.15
4-Methyl-2-pentanone	ND	21	ug/kg	0.75
cis-1,3-Dichloropropene	ND	5.4	ug/kg	0.47
Toluene	ND	5.4	ug/kg	0.26
trans-1,3-Dichloropropene	ND	5.4	ug/kg	0.86
1,1,2-Trichloroethane	ND	5.4	ug/kg	0.68
2-Hexanone	ND	21	ug/kg	1.9
Tetrachloroethene	ND	5.4	ug/kg	1.1
Dibromochloromethane	ND	5.4	ug/kg	0.37
Chlorobenzene	ND	5.4	ug/kg	0.29
Ethylbenzene	ND	5.4	ug/kg	0.80
Xylenes (total)	ND	11	ug/kg	1.0
Styrene	ND	5.4	ug/kg	0.39
Bromoform	ND	5.4	ug/kg	0.27
1,1,2,2-Tetrachloroethane	ND	5.4	ug/kg	0.45

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BECHTEL HANFORD, INC.

Client Sample ID: B14DL0

GC/MS Volatiles

Lot-Sample #...: F2E030265-001 Work Order #...: E0WMP1A4 Matrix.....: SOLID

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	108	(85 - 125)
Dibromofluoromethane	101	(78 - 119)
1,2-Dichloroethane-d4	103	(69 - 133)
4-Bromofluorobenzene	104	(76 - 143)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

BECHTEL HANFORD, INC.

B14DL0

GC/MS Volatiles

Lot-Sample #: F2E030265-001 **Work Order #:** E0WMP1A4 **Matrix:** SOLID

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

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

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: F2E030265
MS Lot-Sample #: F2E030265-001
Date Sampled...: 04/25/02
Prep Date.....: 05/06/02
Prep Batch #...: 2127382
Dilution Factor: 1

Work Order #...: E0WMP1CF-MS
E0WMP1CG-MSD
Date Received..: 05/02/02
Analysis Date..: 05/06/02

% Moisture.....: 6.9

Matrix.....: SOLID

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Chloromethane	ND	53.7	52.8	ug/kg	98		SW846 8260B
	ND	53.7	53.3	ug/kg	99	0.93	SW846 8260B
Vinyl chloride	ND	53.7	56.9	ug/kg	106		SW846 8260B
	ND	53.7	57.0	ug/kg	106	0.09	SW846 8260B
Bromomethane	ND	53.7	43.9	ug/kg	82		SW846 8260B
	ND	53.7	44.7	ug/kg	83	1.9	SW846 8260B
Chloroethane	ND	53.7	58.5	ug/kg	109		SW846 8260B
	ND	53.7	58.9	ug/kg	110	0.71	SW846 8260B
Acetone	8.7	53.7	59.2	ug/kg	94		SW846 8260B
	8.7	53.7	60.7	ug/kg	97	2.4	SW846 8260B
1,1-Dichloroethene	ND	53.7	54.8	ug/kg	102		SW846 8260B
	ND	53.7	55.2	ug/kg	103	0.72	SW846 8260B
Methylene chloride	1.0	53.7	45.7	ug/kg	83		SW846 8260B
	1.0	53.7	46.2	ug/kg	84	1.1	SW846 8260B
Carbon disulfide	ND	53.7	59.2	ug/kg	110		SW846 8260B
	ND	53.7	60.5	ug/kg	113	2.2	SW846 8260B
1,1-Dichloroethane	ND	53.7	53.2	ug/kg	99		SW846 8260B
	ND	53.7	54.0	ug/kg	100	1.5	SW846 8260B
2-Butanone	ND	53.7	62.5	ug/kg	116		SW846 8260B
	ND	53.7	65.4	ug/kg	122	4.6	SW846 8260B
1,2-Dichloroethene (total)	ND	107	107	ug/kg	100		SW846 8260B
	ND	107	109	ug/kg	101	1.1	SW846 8260B
Chloroform	ND	53.7	54.6	ug/kg	102		SW846 8260B
	ND	53.7	55.2	ug/kg	103	1.0	SW846 8260B
1,1,1-Trichloroethane	ND	53.7	55.9	ug/kg	104		SW846 8260B
	ND	53.7	56.8	ug/kg	106	1.6	SW846 8260B
Carbon tetrachloride	ND	53.7	54.9	ug/kg	102		SW846 8260B
	ND	53.7	55.6	ug/kg	103	1.2	SW846 8260B
1,2-Dichloroethane	ND	53.7	50.3	ug/kg	94		SW846 8260B
	ND	53.7	50.7	ug/kg	94	0.82	SW846 8260B
Benzene	ND	53.7	51.1	ug/kg	95		SW846 8260B
	ND	53.7	51.8	ug/kg	96	1.2	SW846 8260B
Trichloroethene	ND	53.7	47.9	ug/kg	89		SW846 8260B
	ND	53.7	48.0	ug/kg	89	0.31	SW846 8260B
1,2-Dichloropropane	ND	53.7	54.3	ug/kg	101		SW846 8260B
	ND	53.7	54.7	ug/kg	102	0.84	SW846 8260B
Bromodichloromethane	ND	53.7	55.3	ug/kg	103		SW846 8260B
	ND	53.7	56.2	ug/kg	105	1.6	SW846 8260B

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MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: F2E030265 Work Order #...: E0WMP1CF-MS Matrix.....: SOLID
MS Lot-Sample #: F2E030265-001 E0WMP1CG-MSD

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
4-Methyl-2-pentanone	ND	53.7	43.3	ug/kg	81		SW846 8260B
	ND	53.7	43.3	ug/kg	81	0.07	SW846 8260B
cis-1,3-Dichloropropene	ND	53.7	55.0	ug/kg	102		SW846 8260B
	ND	53.7	55.3	ug/kg	103	0.50	SW846 8260B
Toluene	ND	53.7	56.5	ug/kg	105		SW846 8260B
	ND	53.7	57.3	ug/kg	107	1.5	SW846 8260B
trans-1,3-Dichloropropene	ND	53.7	64.4	ug/kg	120		SW846 8260B
	ND	53.7	65.4	ug/kg	122	1.6	SW846 8260B
1,1,2-Trichloroethane	ND	53.7	53.6	ug/kg	100		SW846 8260B
	ND	53.7	55.3	ug/kg	103	3.2	SW846 8260B
2-Hexanone	ND	53.7	64.2	ug/kg	119		SW846 8260B
	ND	53.7	64.7	ug/kg	120	0.83	SW846 8260B
Tetrachloroethene	ND	53.7	49.8	ug/kg	93		SW846 8260B
	ND	53.7	50.1	ug/kg	93	0.60	SW846 8260B
Dibromochloromethane	ND	53.7	58.4	ug/kg	109		SW846 8260B
	ND	53.7	60.1	ug/kg	112	2.8	SW846 8260B
Chlorobenzene	ND	53.7	56.1	ug/kg	104		SW846 8260B
	ND	53.7	57.1	ug/kg	106	1.7	SW846 8260B
Ethylbenzene	ND	53.7	58.6	ug/kg	109		SW846 8260B
	ND	53.7	56.5	ug/kg	105	3.6	SW846 8260B
Styrene	ND	53.7	54.6	ug/kg	102		SW846 8260B
	ND	53.7	55.5	ug/kg	103	1.7	SW846 8260B
Bromoform	ND	53.7	60.4	ug/kg	112		SW846 8260B
	ND	53.7	62.1	ug/kg	116	2.8	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	53.7	53.5	ug/kg	100		SW846 8260B
	ND	53.7	55.0	ug/kg	102	2.7	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	108	(85 - 125)
	110	(85 - 125)
Dibromofluoromethane	98	(78 - 119)
	100	(78 - 119)
1,2-Dichloroethane-d4	99	(69 - 133)
	101	(69 - 133)
4-Bromofluorobenzene	110	(76 - 143)
	112	(76 - 143)

NOTE(S):

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

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: F2E030265 **Work Order #...:** E02T51AA **Matrix.....:** SOLID
MB Lot-Sample #: F2E070000-382

Prep Date.....: 05/06/02
Analysis Date..: 05/06/02 **Prep Batch #...:** 2127382
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Cyclohexanone	ND	100	ug/kg	SW846 8260B
Tetrahydrofuran	ND	25	ug/kg	SW846 8260B
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260B
Chloromethane	ND	10	ug/kg	SW846 8260B
Vinyl chloride	ND	5.0	ug/kg	SW846 8260B
Bromomethane	ND	10	ug/kg	SW846 8260B
Chloroethane	ND	10	ug/kg	SW846 8260B
Acetone	**6.2 J**	**20**	**ug/kg**	**SW846 8260B**
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
Methylene chloride	**1.5 J**	**5.0**	**ug/kg**	**SW846 8260B**
Carbon disulfide	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
2-Butanone	ND	20	ug/kg	SW846 8260B
1,2-Dichloroethene (total)	ND	10	ug/kg	SW846 8260B
Chloroform	ND	5.0	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
Benzene	ND	5.0	ug/kg	SW846 8260B
Trichloroethene	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260B
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260B
4-Methyl-2-pentanone	ND	20	ug/kg	SW846 8260B
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
Toluene	**0.26 J**	**5.0**	**ug/kg**	**SW846 8260B**
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
2-Hexanone	ND	20	ug/kg	SW846 8260B
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260B
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260B
Chlorobenzene	ND	5.0	ug/kg	SW846 8260B
Ethylbenzene	ND	5.0	ug/kg	SW846 8260B
Xylenes (total)	ND	10	ug/kg	SW846 8260B
Styrene	ND	5.0	ug/kg	SW846 8260B
Bromoform	ND	5.0	ug/kg	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	104	(85 - 125)

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: F2E030265 **Work Order #...:** E02T51AA **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Dibromofluoromethane	104	(78 - 119)		
1,2-Dichloroethane-d4	105	(69 - 133)		
4-Bromofluorobenzene	100	(76 - 143)		

NOTE(S):

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

J Estimated result. Result is less than RL.

BECHTEL HANFORD, INC.

Method Blank Report

GC/MS Volatiles

Lot-Sample #: F2E070000-382 B **Work Order #:** E02T51AA **Matrix:** SOLID

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: F2E030265 Work Order #...: E02T51AC Matrix.....: SOLID
LCS Lot-Sample#: F2E070000-382
Prep Date.....: 05/06/02 Analysis Date..: 05/06/02
Prep Batch #...: 2127382
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Chloromethane	50.0	52.7	ug/kg	105	SW846 8260B
Vinyl chloride	50.0	56.1	ug/kg	112	SW846 8260B
Bromomethane	50.0	41.6	ug/kg	83	SW846 8260B
Chloroethane	50.0	55.5	ug/kg	111	SW846 8260B
Acetone	50.0	43.4	ug/kg	87	SW846 8260B
1,1-Dichloroethene	50.0	50.4	ug/kg	101	SW846 8260B
Methylene chloride	50.0	42.8	ug/kg	86	SW846 8260B
Carbon disulfide	50.0	56.1	ug/kg	112	SW846 8260B
1,1-Dichloroethane	50.0	48.6	ug/kg	97	SW846 8260B
2-Butanone	50.0	53.8	ug/kg	108	SW846 8260B
1,2-Dichloroethene (total)	100	99.3	ug/kg	99	SW846 8260B
Chloroform	50.0	50.5	ug/kg	101	SW846 8260B
1,1,1-Trichloroethane	50.0	51.7	ug/kg	103	SW846 8260B
Carbon tetrachloride	50.0	51.2	ug/kg	102	SW846 8260B
1,2-Dichloroethane	50.0	46.8	ug/kg	94	SW846 8260B
Benzene	50.0	46.9	ug/kg	94	SW846 8260B
Trichloroethene	50.0	44.6	ug/kg	89	SW846 8260B
1,2-Dichloropropane	50.0	49.5	ug/kg	99	SW846 8260B
Bromodichloromethane	50.0	51.9	ug/kg	104	SW846 8260B
4-Methyl-2-pentanone	50.0	38.3	ug/kg	77	SW846 8260B
cis-1,3-Dichloropropene	50.0	50.3	ug/kg	101	SW846 8260B
Toluene	50.0	50.0	ug/kg	100	SW846 8260B
trans-1,3-Dichloropropene	50.0	57.5	ug/kg	115	SW846 8260B
1,1,2-Trichloroethane	50.0	49.6	ug/kg	99	SW846 8260B
2-Hexanone	50.0	56.1	ug/kg	112	SW846 8260B
Tetrachloroethene	50.0	45.8	ug/kg	92	SW846 8260B
Dibromochloromethane	50.0	54.0	ug/kg	108	SW846 8260B
Chlorobenzene	50.0	50.0	ug/kg	100	SW846 8260B
Ethylbenzene	50.0	48.3	ug/kg	97	SW846 8260B
Styrene	50.0	49.3	ug/kg	99	SW846 8260B
Bromoform	50.0	55.5	ug/kg	111	SW846 8260B
1,1,2,2-Tetrachloroethane	50.0	48.6	ug/kg	97	SW846 8260B

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LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: F2E030265 **Work Order #...:** E02T51AC **Matrix.....:** SOLID
LCS Lot-Sample#: F2E070000-382

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	104	(84 - 116)
Dibromofluoromethane	100	(85 - 115)
1,2-Dichloroethane-d4	100	(79 - 126)
4-Bromofluorobenzene	106	(73 - 126)

NOTE(S):

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

Bold print denotes control parameters

SEMI-VOLATILE ORGANICS

BECHTEL HANFORD, INC.

Client Sample ID: B14DL0

GC/MS Semivolatiles

Lot-Sample #...: F2E030265-001 Work Order #...: E0WMP1A7 Matrix.....: SOLID
Date Sampled...: 04/25/02 Date Received..: 05/02/02
Prep Date.....: 05/09/02 Analysis Date..: 05/24/02
Prep Batch #...: 2129111
Dilution Factor: 1
% Moisture.....: 6.9 Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Phenol	ND	350	ug/kg	78
bis(2-Chloroethyl)-ether	ND	350	ug/kg	55
2-Chlorophenol	ND	350	ug/kg	73
1,3-Dichlorobenzene	ND	350	ug/kg	35
1,4-Dichlorobenzene	ND	350	ug/kg	32
1,2-Dichlorobenzene	ND	350	ug/kg	38
2-Methylphenol	ND	350	ug/kg	66
2,2'-oxybis(1-Chloropropane)	ND	350	ug/kg	69
4-Methylphenol	ND	710	ug/kg	54
N-Nitrosodi-n-propyl-amine	ND	350	ug/kg	75
Hexachloroethane	ND	350	ug/kg	31
Nitrobenzene	ND	350	ug/kg	62
Isophorone	ND	350	ug/kg	81
2-Nitrophenol	ND	350	ug/kg	49
2,4-Dimethylphenol	ND	350	ug/kg	71
bis(2-Chloroethoxy) methane	ND	350	ug/kg	77
2,4-Dichlorophenol	ND	350	ug/kg	77
1,2,4-Trichloro-benzene	ND	350	ug/kg	64
Naphthalene	ND	350	ug/kg	67
4-Chloroaniline	ND	350	ug/kg	69
Hexachlorobutadiene	ND	350	ug/kg	67
4-Chloro-3-methylphenol	ND	350	ug/kg	79
2-Methylnaphthalene	ND	350	ug/kg	80
Hexachlorocyclopenta-diene	ND	1700	ug/kg	24
2,4,6-Trichloro-phenol	ND	350	ug/kg	94
2,4,5-Trichloro-phenol	ND	350	ug/kg	100
2-Chloronaphthalene	ND	350	ug/kg	92
2-Nitroaniline	ND	1700	ug/kg	92
Dimethyl phthalate	ND	350	ug/kg	100
Acenaphthylene	ND	350	ug/kg	91
2,6-Dinitrotoluene	ND	350	ug/kg	66

(Continued on next page)

BECHTEL HANFORD, INC.

Client Sample ID: B14DL0

GC/MS Semivolatiles

Lot-Sample #...: F2E030265-001 **Work Order #...:** E0WMP1A7 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
3-Nitroaniline	ND	1700	ug/kg	110
Acenaphthene	ND	350	ug/kg	97
2,4-Dinitrophenol	ND	1700	ug/kg	58
4-Nitrophenol	ND	1700	ug/kg	74
Dibenzofuran	ND	350	ug/kg	110
2,4-Dinitrotoluene	ND	350	ug/kg	78
Diethyl phthalate	ND	350	ug/kg	100
Fluorene	ND	350	ug/kg	94
4-Chlorophenyl phenyl ether	ND	350	ug/kg	110
4-Nitroaniline	ND	1700	ug/kg	96
4,6-Dinitro-2-methylphenol	ND	1700	ug/kg	29
N-Nitrosodiphenylamine	ND	350	ug/kg	100
4-Bromophenyl phenyl ether	ND	350	ug/kg	100
Hexachlorobenzene	ND	350	ug/kg	110
Pentachlorophenol	ND	1700	ug/kg	66
Phenanthrene	ND	350	ug/kg	110
Anthracene	ND	350	ug/kg	92
Carbazole	ND	350	ug/kg	100
Di-n-butyl phthalate	ND	350	ug/kg	95
Fluoranthene	ND	350	ug/kg	94
Pyrene	ND	350	ug/kg	120
Butyl benzyl phthalate	ND	350	ug/kg	86
Benzo(a)anthracene	ND	350	ug/kg	95
3,3'-Dichlorobenzidine	ND	1700	ug/kg	86
Chrysene	ND	350	ug/kg	110
bis(2-Ethylhexyl) phthalate	ND	350	ug/kg	76
Di-n-octyl phthalate	ND	350	ug/kg	74
Benzo(b)fluoranthene	ND	350	ug/kg	100
Benzo(k)fluoranthene	ND	350	ug/kg	130
Benzo(a)pyrene	ND	350	ug/kg	99
Indeno(1,2,3-cd)pyrene	ND	350	ug/kg	85
Benzo(ghi)perylene	ND	350	ug/kg	140
Dibenzo(a,h)anthracene	ND	350	ug/kg	110
Tributyl phosphate	ND	350	ug/kg	350

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BECHTEL HANFORD, INC.

Client Sample ID: B14DL0

GC/MS Semivolatiles

Lot-Sample #...: F2E030265-001 **Work Order #...:** E0WMP1A7 **Matrix.....:** SOLID

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	73	(10 - 112)
Phenol-d5	79	(10 - 113)
Nitrobenzene-d5	71	(10 - 116)
2-Fluorobiphenyl	76	(10 - 116)
2,4,6-Tribromophenol	66	(10 - 117)
Terphenyl-d14	100	(10 - 137)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

BECHTEL HANFORD, INC.

B14DL0

GC/MS Semivolatiles

Lot-Sample #: F2E030265-001 **Work Order #:** E0WMP1A7 **Matrix:** SOLID

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown aldol condensate		2200	M	3.426	ug/kg
Unknown aldol condensate		1500	M	3.613	ug/kg

NOTE(S):

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

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: F2E030265 Work Order #...: E0WMP1CK-MS Matrix.....: SOLID
MS Lot-Sample #: F2E030265-001 E0WMP1CL-MSD
Date Sampled...: 04/25/02 Date Received..: 05/02/02
Prep Date.....: 05/09/02 Analysis Date..: 05/24/02
Prep Batch #...: 2129111
Dilution Factor: 1 % Moisture.....: 6.9

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Phenol	ND	3580	2610	ug/kg	73		SW846 8270C
	ND	3580	2350	ug/kg	66	11	SW846 8270C
bis(2-Chloroethyl)-ether	ND	3580	2260	ug/kg	63		SW846 8270C
	ND	3580	2050	ug/kg	57	9.7	SW846 8270C
2-Chlorophenol	ND	3580	2430	ug/kg	68		SW846 8270C
	ND	3580	2190	ug/kg	61	11	SW846 8270C
2-Methylphenol	ND	3580	2500	ug/kg	70		SW846 8270C
	ND	3580	2240	ug/kg	63	11	SW846 8270C
2,2'-oxybis(1-Chloropropa	ND	3580	2010	ug/kg	56		SW846 8270C
	ND	3580	2110	ug/kg	59	4.5	SW846 8270C
4-Methylphenol	ND	3580	2690	ug/kg	75		SW846 8270C
	ND	3580	2410	ug/kg	67	11	SW846 8270C
N-Nitrosodi-n-propyl-amine	ND	3580	2510	ug/kg	70		SW846 8270C
	ND	3580	2300	ug/kg	64	9.0	SW846 8270C
Hexachloroethane	ND	3580	1580	ug/kg	44 a		SW846 8270C
	ND	3580	1700	ug/kg	48 a	7.2	SW846 8270C
Nitrobenzene	ND	3580	2250	ug/kg	63		SW846 8270C
	ND	3580	2080	ug/kg	58	7.6	SW846 8270C
Isophorone	ND	3580	2470	ug/kg	69		SW846 8270C
	ND	3580	2210	ug/kg	62	11	SW846 8270C
2-Nitrophenol	ND	3580	2330	ug/kg	65		SW846 8270C
	ND	3580	2100	ug/kg	59	11	SW846 8270C
2,4-Dimethylphenol	ND	3580	2440	ug/kg	68		SW846 8270C
	ND	3580	2210	ug/kg	62	10	SW846 8270C
bis(2-Chloroethoxy) methane	ND	3580	2420	ug/kg	68		SW846 8270C
	ND	3580	2180	ug/kg	61	10	SW846 8270C
2,4-Dichlorophenol	ND	3580	2400	ug/kg	67		SW846 8270C
	ND	3580	2140	ug/kg	60	11	SW846 8270C
1,2,4-Trichloro-benzene	ND	3580	1890	ug/kg	53		SW846 8270C
	ND	3580	1840	ug/kg	51	2.6	SW846 8270C
Naphthalene	ND	3580	2060	ug/kg	58		SW846 8270C
	ND	3580	2000	ug/kg	56	3.1	SW846 8270C

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MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: F2E030265 Work Order #...: E0WMP1CK-MS Matrix.....: SOLID
MS Lot-Sample #: F2E030265-001 E0WMP1CL-MSD

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
4-Chloroaniline	ND	3580	2240	ug/kg	63		SW846 8270C
	ND	3580	2090	ug/kg	58	6.9	SW846 8270C
Hexachlorobutadiene	ND	3580	1720	ug/kg	48 a		SW846 8270C
	ND	3580	1730	ug/kg	48 a	0.74	SW846 8270C
4-Chloro-3-methylphenol	ND	3580	2620	ug/kg	73		SW846 8270C
	ND	3580	2770	ug/kg	77	5.5	SW846 8270C
2-Methylnaphthalene	ND	3580	2030	ug/kg	57		SW846 8270C
	ND	3580	1940	ug/kg	54	4.7	SW846 8270C
Hexachlorocyclopenta-diene	ND	3580	1600	ug/kg	45 a		SW846 8270C
	ND	3580	1620	ug/kg	45 a	1.1	SW846 8270C
2,4,6-Trichloro-phenol	ND	3580	2480	ug/kg	69		SW846 8270C
	ND	3580	2670	ug/kg	75	7.4	SW846 8270C
2,4,5-Trichloro-phenol	ND	3580	2630	ug/kg	74		SW846 8270C
	ND	3580	2910	ug/kg	81	10	SW846 8270C
2-Nitroaniline	ND	3580	2820	ug/kg	79		SW846 8270C
	ND	3580	3180	ug/kg	89	12	SW846 8270C
Dimethyl phthalate	ND	3580	2900	ug/kg	81		SW846 8270C
	ND	3580	3290	ug/kg	92	12	SW846 8270C
Acenaphthylene	ND	3580	2420	ug/kg	68		SW846 8270C
	ND	3580	2610	ug/kg	73	7.6	SW846 8270C
2,6-Dinitrotoluene	ND	3580	3030	ug/kg	85		SW846 8270C
	ND	3580	3410	ug/kg	95	12	SW846 8270C
3-Nitroaniline	ND	3580	2920	ug/kg	82		SW846 8270C
	ND	3580	3310	ug/kg	92	12	SW846 8270C
Acenaphthene	ND	3580	2410	ug/kg	67		SW846 8270C
	ND	3580	2630	ug/kg	74	8.9	SW846 8270C
2,4-Dinitrophenol	ND	3580	1180	ug/kg	33 a		SW846 8270C
	ND	3580	983	ug/kg	27 a	19	SW846 8270C
4-Nitrophenol	ND	3580	3330	ug/kg	93		SW846 8270C
	ND	3580	3650	ug/kg	102	9.2	SW846 8270C
Dibenzofuran	ND	3580	2470	ug/kg	69		SW846 8270C
	ND	3580	2760	ug/kg	77	11	SW846 8270C
2,4-Dinitrotoluene	ND	3580	3400	ug/kg	95		SW846 8270C
	ND	3580	3800	ug/kg	106	11	SW846 8270C
Diethyl phthalate	ND	3580	3200	ug/kg	90		SW846 8270C
	ND	3580	3670	ug/kg	103	14	SW846 8270C

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: F2E030265 Work Order #...: E0WMP1CK-MS Matrix.....: SOLID
MS Lot-Sample #: F2E030265-001 E0WMP1CL-MSD

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Fluorene	ND	3580	2620	ug/kg	73		SW846 8270C
	ND	3580	3010	ug/kg	84	14	SW846 8270C
4-Chlorophenyl phenyl ether	ND	3580	2720	ug/kg	76		SW846 8270C
	ND	3580	3110	ug/kg	87	13	SW846 8270C
4-Nitroaniline	ND	3580	3200	ug/kg	89		SW846 8270C
	ND	3580	3550	ug/kg	99	10	SW846 8270C
4,6-Dinitro-2-methylphenol	ND	3580	2620	ug/kg	73		SW846 8270C
	ND	3580	2940	ug/kg	82	11	SW846 8270C
N-Nitrosodiphenylamine	ND	3580	3140	ug/kg	88		SW846 8270C
	ND	3580	3590	ug/kg	100	13	SW846 8270C
4-Bromophenyl phenyl ether	ND	3580	3000	ug/kg	84		SW846 8270C
	ND	3580	3440	ug/kg	96	14	SW846 8270C
Hexachlorobenzene	ND	3580	3240	ug/kg	91		SW846 8270C
	ND	3580	3700	ug/kg	103	13	SW846 8270C
Pentachlorophenol	ND	3580	3180	ug/kg	89		SW846 8270C
	ND	3580	3620	ug/kg	101 a	13	SW846 8270C
Phenanthrene	ND	3580	3150	ug/kg	88		SW846 8270C
	ND	3580	3680	ug/kg	103	15	SW846 8270C
Anthracene	ND	3580	2870	ug/kg	80		SW846 8270C
	ND	3580	3330	ug/kg	93	15	SW846 8270C
Carbazole	ND	3580	3210	ug/kg	90		SW846 8270C
	ND	3580	3660	ug/kg	102	13	SW846 8270C
Di-n-butyl phthalate	ND	3580	3310	ug/kg	92		SW846 8270C
	ND	3580	3820	ug/kg	107	14	SW846 8270C
Fluoranthene	ND	3580	3280	ug/kg	92		SW846 8270C
	ND	3580	3730	ug/kg	104	13	SW846 8270C
Pyrene	ND	3580	3350	ug/kg	94		SW846 8270C
	ND	3580	3910	ug/kg	109	15	SW846 8270C
Butyl benzyl phthalate	ND	3580	3460	ug/kg	97		SW846 8270C
	ND	3580	4030	ug/kg	113	15	SW846 8270C
Benzo(a)anthracene	ND	3580	3470	ug/kg	97		SW846 8270C
	ND	3580	4010	ug/kg	112	15	SW846 8270C
3,3'-Dichlorobenzidine	ND	3580	3180	ug/kg	89		SW846 8270C
	ND	3580	3720	ug/kg	104	16	SW846 8270C
Chrysene	ND	3580	3360	ug/kg	94		SW846 8270C
	ND	3580	3940	ug/kg	110	16	SW846 8270C

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MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: F2E030265 **Work Order #...:** E0WMP1CK-MS **Matrix.....:** SOLID
MS Lot-Sample #: F2E030265-001 E0WMP1CL-MSD

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
bis(2-Ethylhexyl) phthalate	ND	3580	3420	ug/kg	96		SW846 8270C
	ND	3580	3950	ug/kg	110	14	SW846 8270C
Di-n-octyl phthalate	ND	3580	3150	ug/kg	88		SW846 8270C
	ND	3580	3610	ug/kg	101	13	SW846 8270C
Benzo(b)fluoranthene	ND	3580	3440	ug/kg	96		SW846 8270C
	ND	3580	4150	ug/kg	116	19	SW846 8270C
Benzo(k)fluoranthene	ND	3580	3460	ug/kg	97		SW846 8270C
	ND	3580	3690	ug/kg	103	6.5	SW846 8270C
Benzo(a)pyrene	ND	3580	3350	ug/kg	94		SW846 8270C
	ND	3580	3860	ug/kg	108	14	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	3580	3990	ug/kg	111		SW846 8270C
	ND	3580	4550	ug/kg	127	13	SW846 8270C
Benzo(ghi)perylene	ND	3580	3820	ug/kg	107		SW846 8270C
	ND	3580	4530	ug/kg	126	17	SW846 8270C
Dibenzo(a,h)anthracene	ND	3580	4830	ug/kg	135		SW846 8270C
	ND	3580	5740	ug/kg	160 a	17	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	72	(10 - 112)
	63	(28 - 115)
Phenol-d5	74	(10 - 113)
	67	(34 - 115)
Nitrobenzene-d5	66	(10 - 116)
	60	(27 - 115)
2-Fluorobiphenyl	68	(10 - 116)
	67	(33 - 115)
2,4,6-Tribromophenol	90	(10 - 117)
	100	(29 - 115)
Terphenyl-d14	90	(10 - 137)
	104	(26 - 115)

NOTE(S):

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

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

a Spiked analyte recovery is outside stated control limits.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: F2E030265 **Work Order #...:** E06G11AA **Matrix.....:** SOLID
MB Lot-Sample #: F2E090000-111

Prep Date.....: 05/09/02
Analysis Date..: 05/24/02 **Prep Batch #...:** 2129111
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Phenol	ND	330	ug/kg	SW846 8270C
bis(2-Chloroethyl)-ether	ND	330	ug/kg	SW846 8270C
2-Chlorophenol	ND	330	ug/kg	SW846 8270C
1,3-Dichlorobenzene	ND	330	ug/kg	SW846 8270C
1,4-Dichlorobenzene	ND	330	ug/kg	SW846 8270C
1,2-Dichlorobenzene	ND	330	ug/kg	SW846 8270C
2-Methylphenol	ND	330	ug/kg	SW846 8270C
2,2'-oxybis(1-Chloropropa	ND	330	ug/kg	SW846 8270C
4-Methylphenol	ND	660	ug/kg	SW846 8270C
N-Nitrosodi-n-propyl-amine	ND	330	ug/kg	SW846 8270C
Hexachloroethane	ND	330	ug/kg	SW846 8270C
Nitrobenzene	ND	330	ug/kg	SW846 8270C
Isophorone	ND	330	ug/kg	SW846 8270C
2-Nitrophenol	ND	330	ug/kg	SW846 8270C
2,4-Dimethylphenol	ND	330	ug/kg	SW846 8270C
bis(2-Chloroethoxy) methane	ND	330	ug/kg	SW846 8270C
2,4-Dichlorophenol	ND	330	ug/kg	SW846 8270C
1,2,4-Trichloro-benzene	ND	330	ug/kg	SW846 8270C
Naphthalene	ND	330	ug/kg	SW846 8270C
4-Chloroaniline	ND	330	ug/kg	SW846 8270C
Hexachlorobutadiene	ND	330	ug/kg	SW846 8270C
4-Chloro-3-methylphenol	ND	330	ug/kg	SW846 8270C
2-Methylnaphthalene	ND	330	ug/kg	SW846 8270C
Hexachlorocyclopenta-diene	ND	1600	ug/kg	SW846 8270C
2,4,6-Trichloro-phenol	ND	330	ug/kg	SW846 8270C
2,4,5-Trichloro-phenol	ND	330	ug/kg	SW846 8270C
2-Chloronaphthalene	ND	330	ug/kg	SW846 8270C
2-Nitroaniline	ND	1600	ug/kg	SW846 8270C
Dimethyl phthalate	ND	330	ug/kg	SW846 8270C
Acenaphthylene	ND	330	ug/kg	SW846 8270C
2,6-Dinitrotoluene	ND	330	ug/kg	SW846 8270C
3-Nitroaniline	ND	1600	ug/kg	SW846 8270C
Acenaphthene	ND	330	ug/kg	SW846 8270C
2,4-Dinitrophenol	ND	1600	ug/kg	SW846 8270C

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METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: F2E030265 **Work Order #...:** E06G11AA **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
4-Nitrophenol	ND	1600	ug/kg	SW846 8270C
Dibenzofuran	ND	330	ug/kg	SW846 8270C
2,4-Dinitrotoluene	ND	330	ug/kg	SW846 8270C
Diethyl phthalate	ND	330	ug/kg	SW846 8270C
Fluorene	ND	330	ug/kg	SW846 8270C
4-Chlorophenyl phenyl ether	ND	330	ug/kg	SW846 8270C
4-Nitroaniline	ND	1600	ug/kg	SW846 8270C
4,6-Dinitro-2-methylphenol	ND	1600	ug/kg	SW846 8270C
N-Nitrosodiphenylamine	ND	330	ug/kg	SW846 8270C
4-Bromophenyl phenyl ether	ND	330	ug/kg	SW846 8270C
Hexachlorobenzene	ND	330	ug/kg	SW846 8270C
Pentachlorophenol	ND	1600	ug/kg	SW846 8270C
Phenanthrene	ND	330	ug/kg	SW846 8270C
Anthracene	ND	330	ug/kg	SW846 8270C
Carbazole	ND	330	ug/kg	SW846 8270C
Di-n-butyl phthalate	ND	330	ug/kg	SW846 8270C
Fluoranthene	ND	330	ug/kg	SW846 8270C
Pyrene	ND	330	ug/kg	SW846 8270C
Butyl benzyl phthalate	ND	330	ug/kg	SW846 8270C
Benzo(a)anthracene	ND	330	ug/kg	SW846 8270C
3,3'-Dichlorobenzidine	ND	1600	ug/kg	SW846 8270C
Chrysene	ND	330	ug/kg	SW846 8270C
bis(2-Ethylhexyl) phthalate	ND	330	ug/kg	SW846 8270C
Di-n-octyl phthalate	ND	330	ug/kg	SW846 8270C
Benzo(b)fluoranthene	ND	330	ug/kg	SW846 8270C
Benzo(k)fluoranthene	ND	330	ug/kg	SW846 8270C
Benzo(a)pyrene	ND	330	ug/kg	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	330	ug/kg	SW846 8270C
Benzo(ghi)perylene	ND	330	ug/kg	SW846 8270C
Dibenzo(a,h)anthracene	ND	330	ug/kg	SW846 8270C
Tributyl phosphate	ND	330	ug/kg	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	63	(10 - 112)
Phenol-d5	71	(10 - 113)
Nitrobenzene-d5	63	(10 - 116)
2-Fluorobiphenyl	68	(10 - 116)
2,4,6-Tribromophenol	43	(10 - 117)
Terphenyl-d14	91	(10 - 137)

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BECHTEL HANFORD, INC.

Method Blank Report

GC/MS Semivolatiles

Lot-Sample #: F2E090000-111 B **Work Order #:** E06G11AA **Matrix:** SOLID

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown aldol condensate		3200	M	3.42	ug/kg

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: F2E030265 Work Order #...: E06G11AC Matrix.....: SOLID
LCS Lot-Sample#: F2E090000-111
Prep Date.....: 05/09/02 Analysis Date..: 05/24/02
Prep Batch #...: 2129111
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Phenol	3330	2470	ug/kg	74	SW846 8270C
bis(2-Chloroethyl)-ether	3330	2260	ug/kg	68	SW846 8270C
2-Chlorophenol	3330	2360	ug/kg	71	SW846 8270C
2-Methylphenol	3330	2440	ug/kg	73	SW846 8270C
2,2'-oxybis(1-Chloropropa	3330	2130	ug/kg	64	SW846 8270C
4-Methylphenol	3330	2580	ug/kg	77	SW846 8270C
N-Nitrosodi-n-propyl-amine	3330	2460	ug/kg	74	SW846 8270C
Hexachloroethane	3330	1940	ug/kg	58	SW846 8270C
Nitrobenzene	3330	2250	ug/kg	68	SW846 8270C
Isophorone	3330	2400	ug/kg	72	SW846 8270C
2-Nitrophenol	3330	2290	ug/kg	69	SW846 8270C
2,4-Dimethylphenol	3330	2350	ug/kg	71	SW846 8270C
bis(2-Chloroethoxy) methane	3330	2360	ug/kg	71	SW846 8270C
2,4-Dichlorophenol	3330	2330	ug/kg	70	SW846 8270C
1,2,4-Trichloro-benzene	3330	2110	ug/kg	63	SW846 8270C
Naphthalene	3330	2190	ug/kg	66	SW846 8270C
4-Chloroaniline	3330	2110	ug/kg	63	SW846 8270C
Hexachlorobutadiene	3330	2010	ug/kg	60	SW846 8270C
4-Chloro-3-methylphenol	3330	2570	ug/kg	77	SW846 8270C
2-Methylnaphthalene	3330	2140	ug/kg	64	SW846 8270C
Hexachlorocyclopenta-diene	3330	1940	ug/kg	58	SW846 8270C
2,4,6-Trichloro-phenol	3330	2510	ug/kg	75	SW846 8270C
2,4,5-Trichloro-phenol	3330	2680	ug/kg	80	SW846 8270C
2-Nitroaniline	3330	2850	ug/kg	85	SW846 8270C
Dimethyl phthalate	3330	2940	ug/kg	88	SW846 8270C
Acenaphthylene	3330	2530	ug/kg	76	SW846 8270C
2,6-Dinitrotoluene	3330	3070	ug/kg	92	SW846 8270C

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LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: F2E030265 Work Order #...: E06G11AC Matrix.....: SOLID
LCS Lot-Sample#: F2E090000-111

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
3-Nitroaniline	3330	2830	ug/kg	85	SW846 8270C
Acenaphthene	3330	2530	ug/kg	76	SW846 8270C
2,4-Dinitrophenol	3330	2590	ug/kg	78	SW846 8270C
4-Nitrophenol	3330	3260	ug/kg	98	SW846 8270C
Dibenzofuran	3330	2560	ug/kg	77	SW846 8270C
2,4-Dinitrotoluene	3330	3430	ug/kg	103	SW846 8270C
Diethyl phthalate	3330	3280	ug/kg	98	SW846 8270C
Fluorene	3330	2710	ug/kg	81	SW846 8270C
4-Chlorophenyl phenyl ether	3330	2840	ug/kg	85	SW846 8270C
4-Nitroaniline	3330	3170	ug/kg	95	SW846 8270C
4,6-Dinitro-2-methylphenol	3330	3260	ug/kg	98	SW846 8270C
N-Nitrosodiphenylamine	3330	3220	ug/kg	97	SW846 8270C
4-Bromophenyl phenyl ether	3330	3140	ug/kg	94	SW846 8270C
Hexachlorobenzene	3330	3320	ug/kg	100	SW846 8270C
Pentachlorophenol	3330	2660	ug/kg	80	SW846 8270C
Phenanthrene	3330	3290	ug/kg	99	SW846 8270C
Anthracene	3330	2970	ug/kg	89	SW846 8270C
Carbazole	3330	3300	ug/kg	99	SW846 8270C
Di-n-butyl phthalate	3330	3420	ug/kg	103	SW846 8270C
Fluoranthene	3330	3340	ug/kg	100	SW846 8270C
Pyrene	3330	3540 a	ug/kg	106	SW846 8270C
Butyl benzyl phthalate	3330	3620	ug/kg	109	SW846 8270C
Benzo(a)anthracene	3330	3610	ug/kg	108	SW846 8270C
3,3'-Dichlorobenzidine	3330	3370	ug/kg	101	SW846 8270C
Chrysene	3330	3530	ug/kg	106	SW846 8270C
bis(2-Ethylhexyl) phthalate	3330	3540	ug/kg	106	SW846 8270C
Di-n-octyl phthalate	3330	3280	ug/kg	98	SW846 8270C
Benzo(b)fluoranthene	3330	3750	ug/kg	112	SW846 8270C
Benzo(k)fluoranthene	3330	3380	ug/kg	102	SW846 8270C
Benzo(a)pyrene	3330	3440	ug/kg	103	SW846 8270C
Indeno(1,2,3-cd)pyrene	3330	4220	ug/kg	127	SW846 8270C
Benzo(ghi)perylene	3330	3990	ug/kg	120	SW846 8270C
Dibenzo(a,h)anthracene	3330	5040 a	ug/kg	151	SW846 8270C

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: F2E030265 **Work Order #...:** E06G11AC **Matrix.....:** SOLID
LCS Lot-Sample#: F2E090000-111

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	71	(10 - 120)
Phenol-d5	75	(10 - 114)
Nitrobenzene-d5	68	(10 - 110)
2-Fluorobiphenyl	75	(10 - 112)
2,4,6-Tribromophenol	94	(10 - 108)
Terphenyl-d14	99	(14 - 108)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

GC

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BECHTEL HANFORD, INC.

Client Sample ID: B14DL0

GC Volatiles

Lot-Sample #...: F2E030265-001 **Work Order #...:** E0WMP1A8 **Matrix.....:** SOLID
Date Sampled...: 04/25/02 **Date Received..:** 05/02/02
Prep Date.....: 05/06/02 **Analysis Date..:** 05/06/02
Prep Batch #...: 2126282
Dilution Factor: 1
% Moisture.....: 6.9 **Method.....:** SW846 8015 MOD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Volatile Petroleum Hydrocarbons	ND	0.11	mg/kg	0.054

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	65	(50 - 150)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: F2E030265 **Work Order #...:** E0WMP1CM-MS **Matrix.....:** SOLID
MS Lot-Sample #: F2E030265-001 E0WMP1CN-MSD
Date Sampled...: 04/25/02 **Date Received..:** 05/02/02
Prep Date.....: 05/06/02 **Analysis Date..:** 05/06/02
Prep Batch #...: 2126282
Dilution Factor: 1 **% Moisture.....:** 6.9

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Volatile Petroleum Hydrocarbons	**ND**	**1.07**	**0.883**	**mg/kg**	**82**		**SW846 8015 MOD**
	ND	**1.07**	**0.897**	**mg/kg**	**83**	**1.5**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	85	(50 - 150)
	86	(50 - 150)

NOTE(S):

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

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: F2E030265 **Work Order #...:** E00XQ1AA **Matrix.....:** SOLID
MB Lot-Sample #: F2E060000-282
Prep Date.....: 05/06/02
Analysis Date..: 05/06/02 **Prep Batch #...:** 2126282
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Volatile Petroleum Hydrocarbons	ND	0.10	mg/kg	SW846 8015 MOD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	79	(50 - 150)

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: F2E030265 **Work Order #...:** E00XQ1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F2E060000-282
Prep Date.....: 05/06/02 **Analysis Date..:** 05/06/02
Prep Batch #...: 2126282
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Volatile Petroleum Hydrocarbons	**1.00**	**0.985**	**mg/kg**	**99**	**SW846 8015 MC**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	95	(65 - 131)

NOTE(S):

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

Bold print denotes control parameters

GC

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BECHTEL HANFORD, INC.

Client Sample ID: B14DL0

GC Semivolatiles

Lot-Sample #...:	F2E030265-001	**Work Order #...:**	E0WMP1A3	**Matrix.....:**	SOLID
Date Sampled...:	04/25/02	**Date Received..:**	05/02/02		
Prep Date.....:	05/06/02	**Analysis Date..:**	05/06/02		
Prep Batch #...:	2126224				
Dilution Factor:	1				
% Moisture.....:	6.9	**Method.....:**	SW846 8015 MOD		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
TPH - Diesel Range - WTPH-D	ND	27	mg/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	51	(30 - 170)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: F2E030265 **Work Order #...:** E0WMP1CD-MS **Matrix.....:** SOLID
MS Lot-Sample #: F2E030265-001 E0WMP1CE-MSD
Date Sampled...: 04/25/02 **Date Received..:** 05/02/02
Prep Date.....: 05/06/02 **Analysis Date..:** 05/06/02
Prep Batch #...: 2126224
Dilution Factor: 1 **% Moisture.....:** 6.9

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
TPH - Diesel Range - WTPH	**ND**	**89.3**	**56.7**	**mg/kg**	**64**		**SW846 8015 MOD**
	ND	**89.2**	**56.3**	**mg/kg**	**63**	**0.70**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	92	(30 - 170)
	90	(30 - 170)

NOTE(S):

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

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: F2E030265 **Work Order #...:** E00PM1AA **Matrix.....:** SOLID
MB Lot-Sample #: F2E060000-224

Prep Date.....: 05/06/02
Analysis Date..: 05/06/02 **Prep Batch #...:** 2126224
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
TPH - Diesel Range - WTPH	ND	25	mg/kg	SW846 8015 MOD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	45	(30 - 170)

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: F2E030265 **Work Order #...:** E00PM1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F2E060000-224
Prep Date.....: 05/06/02 **Analysis Date..:** 05/06/02
Prep Batch #...: 2126224
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
TPH - Diesel Range - WTPH	83.3	53.2	mg/kg	64	**SW846 8015 MO**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	94	(42 - 157)

NOTE(S):

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

Bold print denotes control parameters

BECHTEL HANFORD, INC.

Client Sample ID: B14DL0

GC Semivolatiles

Lot-Sample #...: F2E030265-001 **Work Order #...:** E0WMP1A5 **Matrix.....:** SOLID
Date Sampled...: 04/25/02 **Date Received..:** 05/02/02
Prep Date.....: 05/09/02 **Analysis Date..:** 05/17/02
Prep Batch #...: 2129118
Dilution Factor: 1
% Moisture.....: 6.9 **Method.....:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aroclor 1016	ND	35	ug/kg	13
Aroclor 1221	ND	35	ug/kg	13
Aroclor 1232	ND	35	ug/kg	13
Aroclor 1242	ND	35	ug/kg	13
Aroclor 1248	ND	35	ug/kg	13
Aroclor 1254	ND	35	ug/kg	7.7
Aroclor 1260	ND	35	ug/kg	7.7

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	105	(50 - 150)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: F2E030265
MS Lot-Sample #: F2E030265-001
Date Sampled...: 04/25/02
Prep Date.....: 05/09/02
Prep Batch #...: 2129118
Dilution Factor: 1

Work Order #...: E0WMP1CH-MS
E0WMP1CJ-MSD
Date Received..: 05/02/02
Analysis Date..: 05/17/02
% Moisture.....: 6.9

Matrix.....: SOLID

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Aroclor 1016	**ND**	**179**	**222**	**ug/kg**	**124**		**SW846 8082**
	ND	**178**	**213**	**ug/kg**	**119**	**4.2**	**SW846 8082**
Aroclor 1260	**ND**	**179**	**238**	**ug/kg**	**134**		**SW846 8082**
	ND	**178**	**236**	**ug/kg**	**132**	**1.1**	**SW846 8082**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	112	(50 - 150)
	111	(50 - 150)

NOTE(S):

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

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: F2E030265 **Work Order #...:** E05PP1AA **Matrix.....:** SOLID
MB Lot-Sample #: F2E090000-118

Prep Date.....: 05/09/02
Analysis Date..: 05/17/02 **Prep Batch #...:** 2129118
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Aroclor 1016	ND	33	ug/kg	SW846 8082
Aroclor 1221	ND	33	ug/kg	SW846 8082
Aroclor 1232	ND	33	ug/kg	SW846 8082
Aroclor 1242	ND	33	ug/kg	SW846 8082
Aroclor 1248	ND	33	ug/kg	SW846 8082
Aroclor 1254	ND	33	ug/kg	SW846 8082
Aroclor 1260	ND	33	ug/kg	SW846 8082

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	110	(50 - 150)

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: F2E030265 **Work Order #...:** E05PP1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F2E090000-118
Prep Date.....: 05/09/02 **Analysis Date..:** 05/17/02
Prep Batch #...: 2129118
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Aroclor 1016	**167**	**180**	**ug/kg**	**108**	**SW846 8082**
Aroclor 1260	**167**	**192**	**ug/kg**	**115**	**SW846 8082**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	109	(59 - 150)

NOTE(S):

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

Bold print denotes control parameters

METALS

BECHTEL HANFORD, INC.

Client Sample ID: B14DL0

TOTAL Metals

Lot-Sample #...: F2E030265-001
Date Sampled...: 04/25/02 Date Received..: 05/02/02
% Moisture.....: 6.9
Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 2127225						
Boron	ND	21.5	mg/kg	SW846 6010B	05/07-05/10/02	E0WMP1AD
		Dilution Factor: 1		MDL.....: 0.58		
Arsenic	3.9	1.1	mg/kg	SW846 6010B	05/07-05/09/02	E0WMP1AE
		Dilution Factor: 1		MDL.....: 0.10		
Barium	83.5	21.5	mg/kg	SW846 6010B	05/07-05/09/02	E0WMP1AF
		Dilution Factor: 1		MDL.....: 0.45		
Beryllium	0.22 B	0.54	mg/kg	SW846 6010B	05/07-05/09/02	E0WMP1AG
		Dilution Factor: 1		MDL.....: 0.019		
Cadmium	ND	0.54	mg/kg	SW846 6010B	05/07-05/09/02	E0WMP1AH
		Dilution Factor: 1		MDL.....: 0.29		
Chromium	8.2	1.1	mg/kg	SW846 6010B	05/07-05/09/02	E0WMP1AJ
		Dilution Factor: 1		MDL.....: 0.12		
Copper	12.5	2.7	mg/kg	SW846 6010B	05/07-05/09/02	E0WMP1AK
		Dilution Factor: 1		MDL.....: 0.45		
Lead	3.4	0.32	mg/kg	SW846 6010B	05/07-05/09/02	E0WMP1AL
		Dilution Factor: 1		MDL.....: 0.072		
Magnesium	4140	537	mg/kg	SW846 6010B	05/07-05/09/02	E0WMP1AM
		Dilution Factor: 1		MDL.....: 13.6		
Manganese	328	1.6	mg/kg	SW846 6010B	05/07-05/09/02	E0WMP1AN
		Dilution Factor: 1		MDL.....: 0.039		
Nickel	9.1	4.3	mg/kg	SW846 6010B	05/07-05/09/02	E0WMP1AP
		Dilution Factor: 1		MDL.....: 0.77		
Selenium	ND	0.54	mg/kg	SW846 6010B	05/07-05/09/02	E0WMP1AQ
		Dilution Factor: 1		MDL.....: 0.21		
Silver	ND	1.1	mg/kg	SW846 6010B	05/07-05/09/02	E0WMP1AR
		Dilution Factor: 1		MDL.....: 0.67		
Vanadium	49.2	5.4	mg/kg	SW846 6010B	05/07-05/09/02	E0WMP1AT
		Dilution Factor: 1		MDL.....: 0.33		

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BECHTEL HANFORD, INC.

Client Sample ID: B14DL0

TOTAL Metals

Lot-Sample #...: F2E030265-001 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Zinc	**38.7 J**	**2.1**	**mg/kg**	**SW846 6010B**	**05/07-05/09/02**	**E0WMP1AU**
		Dilution Factor: 1		MDL.....: 0.46		
Molybdenum	ND	4.3	mg/kg	SW846 6010B	05/07-05/09/02	E0WMP1AV
		Dilution Factor: 1		MDL.....: 0.63		
Prep Batch #...: 2130164						
Mercury	**0.031 B,J**	**0.036**	**mg/kg**	**SW846 7471A**	**05/10/02**	**E0WMP1AA**
		Dilution Factor: 1		MDL.....: 0.0084		

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

J Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: F2E030265 **Matrix.....:** SOLID
Date Sampled...: 04/25/02 **Date Received..:** 05/02/02

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F2E030265-001 **Prep Batch #...:** 2127225									
Boron									
	ND	215	182	mg/kg	85		SW846 6010B	05/07-05/10/02	E0WMP1CT
	ND	215	182	mg/kg	85	0.06	SW846 6010B	05/07-05/10/02	E0WMP1CU
			Dilution Factor: 1						
Arsenic									
	3.9	215	207	mg/kg	95		SW846 6010B	05/07-05/09/02	E0WMP1CV
	3.9	215	207	mg/kg	95	0.08	SW846 6010B	05/07-05/09/02	E0WMP1CW
			Dilution Factor: 1						
Barium									
	83.5	215	304	mg/kg	103		SW846 6010B	05/07-05/09/02	E0WMP1CX
	83.5	215	304	mg/kg	102	0.19	SW846 6010B	05/07-05/09/02	E0WMP1C0
			Dilution Factor: 1						
Beryllium									
	0.22	5.37	5.43	mg/kg	97		SW846 6010B	05/07-05/09/02	E0WMP1C1
	0.22	5.37	5.43	mg/kg	97	0.0	SW846 6010B	05/07-05/09/02	E0WMP1C2
			Dilution Factor: 1						
Cadmium									
	ND	5.37	3.84 N	mg/kg	72		SW846 6010B	05/07-05/09/02	E0WMP1C3
	ND	5.37	3.91 N	mg/kg	73	1.8	SW846 6010B	05/07-05/09/02	E0WMP1C4
			Dilution Factor: 1						
Chromium									
	8.2	21.5	29.6	mg/kg	99		SW846 6010B	05/07-05/09/02	E0WMP1C5
	8.2	21.5	27.4	mg/kg	89	7.4	SW846 6010B	05/07-05/09/02	E0WMP1C6
			Dilution Factor: 1						
Copper									
	12.5	26.9	42.4	mg/kg	112		SW846 6010B	05/07-05/09/02	E0WMP1C7
	12.5	26.9	42.3	mg/kg	111	0.32	SW846 6010B	05/07-05/09/02	E0WMP1C8
			Dilution Factor: 1						
Lead									
	3.4	53.7	52.2	mg/kg	91		SW846 6010B	05/07-05/09/02	E0WMP1C9
	3.4	53.7	52.2	mg/kg	91	0.02	SW846 6010B	05/07-05/09/02	E0WMP1DA
			Dilution Factor: 1						

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: F2E030265 **Matrix.....:** SOLID
Date Sampled...: 04/25/02 **Date Received..:** 05/02/02

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Magnesium									
	4140	5370	10900	mg/kg	125		SW846 6010B	05/07-05/09/02	E0WMP1DC
	4140	5370	10400	mg/kg	117	4.3	SW846 6010B	05/07-05/09/02	E0WMP1DD
			Dilution Factor: 1						
Manganese									
	328	53.7	422 N	mg/kg	175		SW846 6010B	05/07-05/09/02	E0WMP1DE
	328	53.7	471 N	mg/kg	266	11	SW846 6010B	05/07-05/09/02	E0WMP1DF
			Dilution Factor: 1						
Nickel									
	9.1	53.7	59.0	mg/kg	93		SW846 6010B	05/07-05/09/02	E0WMP1DG
	9.1	53.7	57.1	mg/kg	89	3.2	SW846 6010B	05/07-05/09/02	E0WMP1DH
			Dilution Factor: 1						
Selenium									
	ND	215	193	mg/kg	90		SW846 6010B	05/07-05/09/02	E0WMP1DJ
	ND	215	190	mg/kg	89	1.1	SW846 6010B	05/07-05/09/02	E0WMP1DK
			Dilution Factor: 1						
Silver									
	ND	5.37	5.20	mg/kg	97		SW846 6010B	05/07-05/09/02	E0WMP1DL
	ND	5.37	5.30	mg/kg	99	1.9	SW846 6010B	05/07-05/09/02	E0WMP1DM
			Dilution Factor: 1						
Vanadium									
	49.2	53.7	119 N	mg/kg	129		SW846 6010B	05/07-05/09/02	E0WMP1DN
	49.2	53.7	112	mg/kg	116	6.1	SW846 6010B	05/07-05/09/02	E0WMP1DP
			Dilution Factor: 1						
Zinc									
	38.7	53.7	99.6	mg/kg	113		SW846 6010B	05/07-05/09/02	E0WMP1DQ
	38.7	53.7	98.4	mg/kg	111	1.2	SW846 6010B	05/07-05/09/02	E0WMP1DR
			Dilution Factor: 1						
Molybdenum									
	ND	107	101	mg/kg	94		SW846 6010B	05/07-05/09/02	E0WMP1DT
	ND	107	100	mg/kg	93	0.23	SW846 6010B	05/07-05/09/02	E0WMP1DU
			Dilution Factor: 1						

MS Lot-Sample #: F2E030265-001 **Prep Batch #...:** 2130164

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MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: F2E030265 **Matrix.....:** SOLID
Date Sampled...: 04/25/02 **Date Received..:** 05/02/02

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Mercury									
	0.031	0.179	0.211	mg/kg	101		SW846 7471A	05/10/02	E0WMP1CP
	0.031	0.179	0.217	mg/kg	104	2.5	SW846 7471A	05/10/02	E0WMP1CQ

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.

N Spiked analyte recovery is outside stated control limits.

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

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: F2E030265 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F2E070000-225 **Prep Batch #...:** 2127225						
Boron	**1.2 B**	**20.0**	**mg/kg**	**SW846 6010B**	**05/07-05/10/02**	**E014F1AA**
		Dilution Factor: 1				
Arsenic	ND	1.0	mg/kg	SW846 6010B	05/07-05/09/02	E014F1AC
		Dilution Factor: 1				
Barium	ND	20.0	mg/kg	SW846 6010B	05/07-05/09/02	E014F1AD
		Dilution Factor: 1				
Beryllium	ND	0.50	mg/kg	SW846 6010B	05/07-05/09/02	E014F1AE
		Dilution Factor: 1				
Cadmium	ND	0.50	mg/kg	SW846 6010B	05/07-05/09/02	E014F1AF
		Dilution Factor: 1				
Chromium	ND	1.0	mg/kg	SW846 6010B	05/07-05/09/02	E014F1AG
		Dilution Factor: 1				
Copper	ND	2.5	mg/kg	SW846 6010B	05/07-05/09/02	E014F1AH
		Dilution Factor: 1				
Lead	ND	0.30	mg/kg	SW846 6010B	05/07-05/09/02	E014F1AJ
		Dilution Factor: 1				
Magnesium	ND	500	mg/kg	SW846 6010B	05/07-05/09/02	E014F1AK
		Dilution Factor: 1				
Manganese	ND	1.5	mg/kg	SW846 6010B	05/07-05/09/02	E014F1AL
		Dilution Factor: 1				
Nickel	ND	4.0	mg/kg	SW846 6010B	05/07-05/09/02	E014F1AM
		Dilution Factor: 1				
Selenium	ND	0.50	mg/kg	SW846 6010B	05/07-05/09/02	E014F1AN
		Dilution Factor: 1				
Silver	ND	1.0	mg/kg	SW846 6010B	05/07-05/09/02	E014F1AP
		Dilution Factor: 1				
Vanadium	ND	5.0	mg/kg	SW846 6010B	05/07-05/09/02	E014F1AQ
		Dilution Factor: 1				
Zinc	**0.58 B**	**2.0**	**mg/kg**	**SW846 6010B**	**05/07-05/09/02**	**E014F1AR**
		Dilution Factor: 1				

(Continued on next page)

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: F2E030265 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Molybdenum	ND	4.0	mg/kg	SW846 6010B	05/07-05/09/02	E014F1AT

Dilution Factor: 1

MB Lot-Sample #: F2E100000-164 **Prep Batch #...:** 2130164

Mercury	**0.028 B**	**0.033**	**mg/kg**	**SW846 7471A**	**05/10/02**	**E07PQ1AA**

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 DATA REPORT

TOTAL Metals

Client Lot #...: F2E030265 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F2E070000-225 **Prep Batch #...:** 2127225							
Boron	122	122 N	mg/kg	100	SW846 6010B	05/07-05/10/02	E014F1AU
			Dilution Factor: 1				
Arsenic	47.5	50.4	mg/kg	106	SW846 6010B	05/07-05/09/02	E014F1AV
			Dilution Factor: 1				
Barium	509	506	mg/kg	99	SW846 6010B	05/07-05/09/02	E014F1AW
			Dilution Factor: 1				
Beryllium	55.9	59.2	mg/kg	106	SW846 6010B	05/07-05/09/02	E014F1AX
			Dilution Factor: 1				
Cadmium	157	158	mg/kg	101	SW846 6010B	05/07-05/09/02	E014F1A0
			Dilution Factor: 1				
Chromium	51.4	48.5	mg/kg	94	SW846 6010B	05/07-05/09/02	E014F1A1
			Dilution Factor: 1				
Copper	69.5	74.6	mg/kg	107	SW846 6010B	05/07-05/09/02	E014F1A2
			Dilution Factor: 1				
Lead	186	180	mg/kg	97	SW846 6010B	05/07-05/09/02	E014F1A3
			Dilution Factor: 1				
Magnesium	3070	3050	mg/kg	99	SW846 6010B	05/07-05/09/02	E014F1A4
			Dilution Factor: 1				
Manganese	674	673	mg/kg	100	SW846 6010B	05/07-05/09/02	E014F1A5
			Dilution Factor: 1				
Nickel	112	111	mg/kg	99	SW846 6010B	05/07-05/09/02	E014F1A6
			Dilution Factor: 1				
Selenium	109	110	mg/kg	100	SW846 6010B	05/07-05/09/02	E014F1A7
			Dilution Factor: 1				
Silver	84.3	90.0	mg/kg	107	SW846 6010B	05/07-05/09/02	E014F1A8
			Dilution Factor: 1				
Vanadium	136	139	mg/kg	102	SW846 6010B	05/07-05/09/02	E014F1A9
			Dilution Factor: 1				

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: F2E030265 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Zinc	289	289	mg/kg	100	SW846 6010B	05/07-05/09/02	E014F1CA
			Dilution Factor: 1				
Molybdenum	62.7	69.4	mg/kg	111	SW846 6010B	05/07-05/09/02	E014F1CC
			Dilution Factor: 1				

NOTE(S):

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

N Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Lot-Sample #...: F2E030265 Matrix.....: SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Mercury	6.21	5.69	mg/kg	92		SW846 7471A	05/10/02	2130164
	6.21	5.63	mg/kg	91	1.2	SW846 7471A	05/10/02	2130164

Dilution Factor: 5

NOTE(S):

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

N Spiked analyte recovery is outside stated control limits.

WET CHEMISTRY

BECHTEL HANFORD, INC.

Client Sample ID: B14DL0

General Chemistry

Lot-Sample #...: F2E030265-001 Work Order #...: E0WMP Matrix.....: SOLID
Date Sampled...: 04/25/02 Date Received..: 05/02/02
% Moisture.....: 6.9

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Fluoride	ND	1.1	mg/kg	MCAWW 300.0A	05/28-05/29/02	2148537
		Dilution Factor: 1		MDL.....: 0.33		
Nitrate	5.9	0.21	mg/kg	MCAWW 300.0A	05/28-05/29/02	2148538
		Dilution Factor: 1		MDL.....: 0.047		
Nitrate/Nitrite as N	10.5	0.54	mg/kg	MCAWW 353.1	05/16-05/17/02	2137131
		Dilution Factor: 1		MDL.....: 0.039		
Nitrogen, as Ammonia	ND	0.54	mg/kg	MCAWW 350.1	05/06/02	2126533
		Dilution Factor: 1		MDL.....: 0.13		
Percent Moisture	6.9	0.10	%	MCAWW 160.3 MOD	05/03-05/06/02	2126159
		Dilution Factor: 1		MDL.....:		
Sulfate	34.9	5.4	mg/kg	MCAWW 300.0A	05/28-05/29/02	2148539
		Dilution Factor: 1		MDL.....: 0.40		
Total Sulfide	ND	10.7	mg/kg	SW846 9030	05/29/02	2142371
		Dilution Factor: 1		MDL.....: 7.5		

NOTE(S):

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F2E030265 **Work Order #...:** E0WMP-SMP E0WMP-DUP **Matrix.....:** SOLID

Date Sampled...: 04/25/02 **Date Received..:** 05/02/02

% Moisture.....: 6.9

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate/Nitrite as N						SD Lot-Sample #:	F2E030265-001	
	10.5	10.2	mg/kg	2.8	(0-15)	MCAWW 353.1	05/16-05/17/02	2137131
			Dilution Factor: 1					
Fluoride						SD Lot-Sample #:	F2E030265-001	
	ND	ND	mg/kg	0	(0-25)	MCAWW 300.0A	05/28-05/29/02	2148537
			Dilution Factor: 1					
Nitrate						SD Lot-Sample #:	F2E030265-001	
	5.9	5.4	mg/kg	9.4	(0-13)	MCAWW 300.0A	05/28-05/29/02	2148538
			Dilution Factor: 1					
Sulfate						SD Lot-Sample #:	F2E030265-001	
	34.9	29.3	mg/kg	18	(0-15)	MCAWW 300.0A	05/28-05/29/02	2148539
			Dilution Factor: 1					
Nitrogen, as Ammonia						SD Lot-Sample #:	F2E030265-001	
	ND	ND	mg/kg	0	(0-15)	MCAWW 350.1	05/06/02	2126533
			Dilution Factor: 1					
Total Sulfide						SD Lot-Sample #:	F2E030265-001	
	ND	ND	mg/kg	0	(0-35)	SW846 9030	05/29/02	2142371
			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.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: F2E030265
Date Sampled...: 04/25/02 **Date Received..:** 05/02/02
Matrix.....: SOLID

Percnt Moisture: 0.0

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Fluoride			Work Order #...:		E0WMP1DV		MS Lot-Sample #:	F2E030265-001
	ND	21.5	20.4	mg/kg	95	MCAWW 300.0A	05/28-05/29/02	2148537
			Dilution Factor: 1					
Nitrate			Work Order #...:		E0WMP1DW		MS Lot-Sample #:	F2E030265-001
	5.9	4.30	10.8	mg/kg	113	MCAWW 300.0A	05/28-05/29/02	2148538
			Dilution Factor: 1					
Nitrate/Nitrite as N			Work Order #...:		E0WMP1CR		MS Lot-Sample #:	F2E030265-001
	10.5	21.5	36.2	mg/kg	120	MCAWW 353.1	05/16-05/17/02	2137131
			Dilution Factor: 4					
Nitrogen, as Ammonia			Work Order #...:		E0WMP1CA		MS Lot-Sample #:	F2E030265-001
	ND	5.37	4.79	mg/kg	89	MCAWW 350.1	05/06/02	2126533
			Dilution Factor: 1					
Sulfate			Work Order #...:		E0WMP1A9		MS Lot-Sample #:	F2E030265-001
	34.9	43.0	72.0	mg/kg	86	MCAWW 300.0A	05/28-05/29/02	2148539
			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.

N Spiked analyte recovery is outside stated control limits.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: F2E030265 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Fluoride		Work Order #: E15XH1AA		MB Lot-Sample #:	F2E280000-537	
	ND	1.0	mg/kg	MCAWW 300.0A	05/28/02	2148537
		Dilution Factor: 1				
Nitrate		Work Order #: E15XJ1AA		MB Lot-Sample #:	F2E280000-538	
	ND	0.20	mg/kg	MCAWW 300.0A	05/28/02	2148538
		Dilution Factor: 1				
Nitrate/Nitrite as N		Work Order #: E1KWA1AA		MB Lot-Sample #:	F2E170000-131	
	ND	0.50	mg/kg	MCAWW 353.1	05/16-05/17/02	2137131
		Dilution Factor: 1				
Nitrogen, as Ammonia		Work Order #: E01J21AA		MB Lot-Sample #:	F2E060000-533	
	ND	0.50	mg/kg	MCAWW 350.1	05/06/02	2126533
		Dilution Factor: 1				
Sulfate		Work Order #: E15XL1AA		MB Lot-Sample #:	F2E280000-539	
	ND	5.0	mg/kg	MCAWW 300.0A	05/28/02	2148539
		Dilution Factor: 1				
Total Sulfide		Work Order #: E1VPM1AA		MB Lot-Sample #:	F2E220000-371	
	ND	10.0	mg/kg	SW846 9030	05/29/02	2142371
		Dilution Factor: 1				

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: F2E030265 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Fluoride		WO#:E15XH1AC-LCS/E15XH1AD-LCSD				LCS Lot-Sample#: F2E280000-537		
	5.00	4.28	mg/kg	86		MCAWW 300.0A	05/28/02	2148537
	5.00	4.70	mg/kg	94	9.3	MCAWW 300.0A	05/28/02	2148537
		Dilution Factor: 1						
Nitrate		WO#:E15XJ1AC-LCS/E15XJ1AD-LCSD				LCS Lot-Sample#: F2E280000-538		
	2.00	1.94	mg/kg	97		MCAWW 300.0A	05/28/02	2148538
	2.00	1.95	mg/kg	98	0.37	MCAWW 300.0A	05/28/02	2148538
		Dilution Factor: 1						
Nitrate/Nitrite as N		WO#:E1KWA1AC-LCS/E1KWA1AD-LCSD				LCS Lot-Sample#: F2E170000-131		
	4.00	4.02	mg/kg	100		MCAWW 353.1	05/16-05/17/02	2137131
	4.00	3.99	mg/kg	100	0.74	MCAWW 353.1	05/16-05/17/02	2137131
		Dilution Factor: 1						
Nitrogen, as Ammonia		WO#:E01J21AC-LCS/E01J21AD-LCSD				LCS Lot-Sample#: F2E060000-533		
	4.00	4.32	mg/kg	108		MCAWW 350.1	05/06/02	2126533
	4.00	4.37	mg/kg	109	1.2	MCAWW 350.1	05/06/02	2126533
		Dilution Factor: 1						
Sulfate		WO#:E15XL1AC-LCS/E15XL1AD-LCSD				LCS Lot-Sample#: F2E280000-539		
	40.0	37.7	mg/kg	94		MCAWW 300.0A	05/28/02	2148539
	40.0	38.0	mg/kg	95	0.75	MCAWW 300.0A	05/28/02	2148539
		Dilution Factor: 1						

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: F2E030265 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Sulfide			Work Order #:	E1VPM1AC	LCS Lot-Sample#:	F2E220000-371	
	10.0	9.80	mg/kg	98	SW846 9030	05/29/02	2142371
			Dilution Factor: 1				

NOTE(S):

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

Analytical Data Package Prepared For

Bechtel Hanford

Radiochemical Analysis By

STL Richland

2800 G.W. Way, Richland Wa, 99352, (509)-375-3131.

Assigned Laboratory Code: STLRL

Data Package Contains 95 *Pages*

Report No.: 19889

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
W03765	B02-050	B14DK7	J2E020288-1	E0TNN2AG	9E0TNN20	2142450
		B14DK7	J2E020288-1	E0TNN1AH	9E0TNN10	2142451
		B14DK7	J2E020288-1	E0TNN1AC	9E0TNN10	2142452
		B14DK7	J2E020288-1	E0TNN1AF	9E0TNN10	2142453
		B14DK7	J2E020288-1	E0TNN1AE	9E0TNN10	2142454
		B14DK7	J2E020288-1	E0TNN1AK	9E0TNN10	2142455
		B14DK7	J2E020288-1	E0TNN1AJ	9E0TNN10	2142456
		B14DK7	J2E020288-1	E0TNN1AA	9E0TNN10	2142457

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SEVERN TRENT SERVICES

CERTIFICATE OF ANALYSIS

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

June 27, 2002

Attention: Joan Kessner

SAF Number	:	B02-050
Date SDG Closed	:	May 16, 2002
Number of Samples	:	One (1)
Sample Type	:	Soil
SDG Number	:	W03765
Data Deliverable	:	45-Day / Summary

I. Introduction

On May 2, 2002, one soil 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:

STLR ID#	BHI ID#	MATRIX	DATE OF RECEIPT
E0TNN	B14DK7	SOIL	5/2/02

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:

Alpha Spectroscopy
Americium-241 and Curium- 242, 243/244 by method RICH-RC-5080
Plutonium-238, -239/40 by method RICH-RC-5010
Neptunium-237 by method RICH-RC-5009
Uranium-234, 235, 238 by method RICH-RC-5079
Thorium-228, 230, 232 by method RICH-RC-5084
Gamma Spectroscopy
Gamma Scan by method RICH-RC-5017
Gas Proportional Counting
Total Strontium by method RICH-RC-5006

Liquid Scintillation Counting
Tritium by method RICH-RC-5037

III. Quality Control

The analytical results for each analysis performed under SDG W03765 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

Alpha Spectroscopy

Americium-241 and Curium- 242, 243/244 by method RICH-RC-5080:
The LCS, matrix spike, matrix blank, batch blank, sample and sample duplicate (B14DK7) results are within contractual requirements.

Plutonium-238, -239/40 by method RICH-RC-5010:
The sample duplicate MDA is greater than the CRDL and the sample result is greater than the CRDL and MDA. Except as noted, the LCS, matrix spike, matrix blank, batch blank, sample and sample duplicate (B14DK7) results are within contractual requirements.

Neptunium-237 by method RICH-RC-5009:
The LCS, batch blank, sample and sample duplicate (B14DX7) results are within contractual requirements.

Uranium-234, 235, 238 by method RICH-RC-5079:
The LCS, batch blank, sample and sample duplicate (B14DX7) results are within contractual requirements.

Thorium-228, 230, 232 by method RICH-RC-5084:
The sample duplicate does not agree within limits with the sample result. This is attributed to the use of a very small aliquot due to high screen results. Except as noted, the LCS, batch blank, sample and sample duplicate (B14DX7) results are within contractual requirements.

Gamma Spectroscopy

Gamma Scan by method RICH-RC-5017:

The LCS, batch blank, sample and sample duplicate (B14DX7) results are within contractual requirements.

Gas Proportional Counting

Total Strontium by method RICH-RC-5006:

The sample and it's duplicate's MDA are greater than the CRDL due to the small aliquot size required by the high screen results. Except as noted, the LCS, batch blank, sample and sample duplicate (B14DX7) results are within contractual requirements.

Liquid Scintillation Counting

Tritium by method RICH-RC-5037:

The LCS, batch blank, sample and sample duplicate (B14DX7) 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:

Barbara M. Gillespie
Project Manager

Drinking Water Method Cross References

	DRINKING WATER ASTM METHOD CROSS REFERENCES	
Referenced Method	**Isotope(s)**	**STL Richland's SOP number**
EPA 901.1	Cs-134, I-131	RICH-RC-5017
EPA 900.0	Alpha & Beta	RICH-RC-5014
EPA 903.1	Ra-226	RICH-RC-5005
EPA 904.0	Ra-228	RICH-RC-5005
EPA 905.0	Sr89/90	RICH-RC-5006
ASTM D2460	Total Radium	RICH-RC-5027
Standard Method 7500-U-C & ASTM D5174	Uranium	RICH-RC-5058
EPA 906.0	Tritium	RICH-RC-5007
NOTE:		
The Gross Alpha LCS is prepared with Am-241 (unless otherwise specified in the case narrative)		
The Gross Beta LCS is prepared with Sr/Y-90 (unless otherwise specified in the case narrative)		

Uncertainty Estimation

STL Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, R = constants * f(x,y,z,...). The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/vn), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or STL Richland.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) *u_c - Combined Uncertainty.*	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, *u_c the combined uncertainty.* The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or STL Richland "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. Lc=(1.645 * Sqrt(2*(BkgrndCnt/BkgrndCntMin)/SCntMin)) * (ConvFct/(Eff*Yld*Abn*Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC|MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. MDC = (4.65 * Sqrt((BkgrndCnt/BkgrndCntMin)/SCntMin) + 2.71/SCntMin) * (ConvFct/(Eff * Yld * Abn * Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the **Work Order** Number.
RER	The equation Replicate Error Ratio = (S-D)/[sqrt($TPUs^2$ + $TPUd^2$)] as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by STL Richland upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Date: 28-Jun-02

Report No. : 19889

SDG No: W03765

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER
B14DK7	E0TNN2AG	AM-241	1.76E+02 +- 1.9E+01		pCi/g		2.84E-01	
		CO-60	-2.69E-03 +- 1.2E-02	U	pCi/g		2.08E-02	
		CS-137	3.97E-02 +- 1.6E-02		pCi/g		1.99E-02	
		EU-152	1.94E-03 +- 2.9E-02	U	pCi/g		4.88E-02	
		EU-154	-2.23E-02 +- 4.0E-02	U	pCi/g		6.54E-02	
		EU-155	8.89E-02 +- 3.8E-02	U	pCi/g		5.60E-02	
		NB-94	-6.23E-03 +- 1.2E-02	U	pCi/g		1.94E-02	
		RA-226	6.69E-01 +- 9.3E-02		pCi/g		3.55E-02	
		RA-228	8.15E-01 +- 1.4E-01		pCi/g		7.38E-02	
B14DK7	E0TNN1AH	NP-237	3.88E-01 +- 5.5E-01	U	pCi/g	85.47%	5.26E-01	
B14DK7	E0TNN1AC	STRONTIUM	3.94E+00 +- 3.5E+00	U	pCi/g	100.00%	6.72E+00	
	E0TNN1AN	STRONTIUM	2.53E+00 +- 3.1E+00	U	pCi/g	100.00%	6.56E+00	
B14DK7	E0TNN1AF	H-3	-1.36E-02 +- 3.9E-02	U	pCi/g	100.00%	6.59E-02	
B14DK7	E0TNN1AE	TH-228	3.17E+00 +- 1.8E+00		pCi/g	94.14%	1.52E+00	
		TH-230	8.78E-01 +- 9.1E-01	U	pCi/g	94.14%	9.02E-01	
		TH-232	2.69E+00 +- 1.6E+00		pCi/g	94.14%	6.07E-01	
	E0TNN1AQ	TH-228	1.46E+00 +- 1.1E+00		pCi/g	93.03%	9.38E-01	
		TH-230	6.96E-01 +- 7.2E-01	U	pCi/g	93.03%	7.15E-01	
		TH-232	7.10E-01 +- 7.2E-01	U	pCi/g	93.03%	4.81E-01	
B14DK7	E0TNN1AK	PU-238	4.42E+01 +- 9.3E+00		pCi/g	62.51%	5.35E-01	
		PU239/40	2.75E+03 +- 4.5E+02		pCi/g	62.51%	5.34E-01	
	E0TNN1AR	PU-238	3.92E+01 +- 1.0E+01		pCi/g	36.32%	1.46E+00	
		PU239/40	2.23E+03 +- 4.0E+02		pCi/g	36.32%	1.59E+00	
B14DK7	E0TNN1AJ	AM-241	3.10E+02 +- 5.4E+01		pCi/g	111.69%	4.05E-01	
		CM-242	0.00E+00 +- 4.7E-01	U	pCi/g	111.69%	5.17E-01	
		CM-244	0.00E+00 +- 3.7E-01	U	pCi/g	111.69%	4.07E-01	
B14DK7	E0TNN1AA	U-234	9.34E-01 +- 8.3E-01		pCi/g	73.52%	8.78E-01	
		U-235	-1.32E-02 +- 2.6E-02	U	pCi/g	73.52%	6.62E-01	
		U-238	1.30E+00 +- 9.6E-01		pCi/g	73.52%	6.62E-01	
B14DK7 DUP	E0TNN2AL	AM-241	1.85E+02 +- 2.0E+01		pCi/g		3.04E-01	
		CO-60	-8.63E-04 +- 1.1E-02	U	pCi/g		1.82E-02	
		CS-137	5.05E-02 +- 1.7E-02		pCi/g		1.93E-02	
		EU-152	-1.73E-02 +- 3.0E-02	U	pCi/g		5.04E-02	
		EU-154	-4.86E-03 +- 3.5E-02	U	pCi/g		5.89E-02	

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

Sample Results Summary

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Date: 28-Jun-02

Report No. : 19889

SDG No: W03765

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC|MDA	RER
B14DK7 DUP	E0TNN2AL	EU-155	1.17E-01 +- 4.0E-02	U	pCi/g		5.83E-02	
		NB-94	-5.80E-04 +- 1.0E-02	U	pCi/g		1.72E-02	
		RA-226	7.01E-01 +- 9.3E-02		pCi/g		3.26E-02	
		RA-228	9.23E-01 +- 1.4E-01		pCi/g		6.40E-02	
B14DK7 DUP	E0TNN1AM	NP-237	0.00E+00 +- 4.9E-01	U	pCi/g	81.08%	5.43E-01	
B14DK7 DUP	E0TNN1AP	H-3	-7.44E-03 +- 3.6E-02	U	pCi/g	100.00%	6.14E-02	
B14DK7 DUP	E0TNN1AT	AM-241	2.70E+02 +- 4.7E+01		pCi/g	108.35%	5.99E-01	
		CM-242	0.00E+00 +- 4.7E-01	U	pCi/g	108.35%	5.15E-01	
		CM-244	0.00E+00 +- 3.7E-01	U	pCi/g	108.35%	4.06E-01	
B14DK7 DUP	E0TNN1AU	U-234	6.67E-01 +- 7.2E-01	U	pCi/g	67.92%	8.85E-01	
		U-235	-1.42E-02 +- 2.9E-02	U	pCi/g	67.92%	7.14E-01	
		U-238	8.73E-01 +- 8.1E-01		pCi/g	67.92%	7.14E-01	

Number of Results: 46

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

QC Results Summary
STL Richland STLRL

Ordered by QC Type, Batch No.

Date: 28-Jun-02

Report No. : 19889

SDG No.: W03765

QC Type	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	Recovery	Bias	MDC|MDA
BLANK QC	E1V2J2AA	CO-60	-3.49E-03 +- 8.1E-03	U	pCi/g				1.36E-02
		CS-137	1.98E-03 +- 7.8E-03	U	pCi/g				1.36E-02
		EU-152	-1.02E-02 +- 2.4E-02	U	pCi/g				3.59E-02
		EU-154	2.21E-02 +- 2.2E-02	U	pCi/g				4.18E-02
		EU-155	5.68E-03 +- 2.3E-02	U	pCi/g				4.04E-02
		NB-94	-4.42E-03 +- 8.0E-03	U	pCi/g				1.33E-02
		RA-226	1.01E-01 +- 2.6E-02	U	pCi/g				3.90E-02
		RA-228	3.66E-02 +- 3.6E-02	U	pCi/g				6.06E-02
BLANK QC	E1V2P1AA	NP-237	0.00E+00 +- 1.4E-02	U	pCi/g	73.32%			1.52E-02
BLANK QC	E1V2Q1AA	STRONTIUM	1.06E-02 +- 5.2E-02	U	pCi/g	97.70%			1.21E-01
BLANK QC	E1V2V1AA	H-3	7.10E-03 +- 1.8E-01	U	pCi/g	100.00%			2.97E-01
BLANK QC	E1V221AA	TH-228	2.77E-03 +- 1.6E-02	U	pCi/g	70.39%			4.97E-02
		TH-230	-5.85E-04 +- 1.2E-03	U	pCi/g	70.39%			2.94E-02
		TH-232	-5.85E-04 +- 1.2E-03	U	pCi/g	70.39%			2.94E-02
BLANK QC	E1V261AA	PU-238	0.00E+00 +- 2.0E-02	U	pCi/g	38.21%			2.20E-02
		PU239/40	1.70E-01 +- 8.0E-02		pCi/g	38.21%			2.20E-02
BLANK QC	E1V291AA	AM-241	6.66E-03 +- 1.3E-02	U	pCi/g	61.73%			1.80E-02
		CM-242	-6.80E-04 +- 1.4E-03	U	pCi/g	61.73%			3.42E-02
		CM-244	-5.36E-04 +- 1.1E-03	U	pCi/g	61.73%			2.70E-02
BLANK QC	E1V3F1AA	U-234	-3.17E-03 +- 2.7E-03	U	pCi/g	46.19%			3.92E-02
		U-235	-5.29E-04 +- 1.1E-03	U	pCi/g	46.19%			2.66E-02
		U-238	-5.29E-04 +- 1.1E-03	U	pCi/g	46.19%			2.66E-02
LCS	E1V2J2AC	CS-137	3.18E-01 +- 5.3E-02		pCi/g		1.63%	-1.0	3.67E-02
		K-40	2.06E+01 +- 2.6E+00		pCi/g		7053.38%	69.5	2.59E-01
		RA-226	9.69E-01 +- 1.4E-01		pCi/g		84.19%	-0.2	5.97E-02
		RA-228	2.25E+00 +- 3.2E-01		pCi/g		119.91%	0.2	1.19E-01
		U-238DHP	1.40E+00 +- 5.8E-01		pCi/g		133.39%	0.3	6.46E-01
LCS	E1V2P1AC	NP-237	7.65E-01 +- 1.8E-01		pCi/g	70.99%	83.96%	-0.2	2.39E-02
LCS	E1V2Q1AC	STRONTIUM	1.08E+00 +- 3.3E-01		pCi/g	99.10%	94.37%	-0.1	1.10E-01
LCS	E1V2V1AC	H-3	6.83E+00 +- 5.7E-01		pCi/g	100.00%	100.01%	0.0	3.04E-01

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

QC Results Summary
STL Richland STLRL

Ordered by QC Type, Batch No.

Date: 28-Jun-02

Report No. : 19889

SDG No.: W03765

QC Type	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	Recovery	Bias	MDC|MDA
LCS	E1V221AC	TH-230	1.01E+00 +- 2.5E-01		pCi/g	53.77%	88.49%	-0.1	2.75E-02
LCS	E1V261AC	PU239/40	3.31E+00 +- 7.2E-01		pCi/g	30.85%	95.29%	0.0	4.54E-02
LCS	E1V291AC	AM-241	3.09E+00 +- 6.0E-01		pCi/g	79.43%	68.59%	-0.3	1.44E-02
LCS	E1V3F1AC	U-234	1.77E+00 +- 4.1E-01		pCi/g	51.20%	107.62%	0.1	2.97E-02
		U-235	5.31E-02 +- 3.7E-02		pCi/g	51.20%	70.89%	-0.3	2.40E-02
		U-238	1.56E+00 +- 3.7E-01		pCi/g	51.20%	90.69%	-0.1	2.40E-02

Number of Results: 36

FORM I

SAMPLE RESULTS

Date: 28-Jun-02

Lab Name:	**STL Richland**	**SDG:**	W03765	**Collection Date:**	4/24/2002 1:45:00 PM
Lot-Sample No.:	**J2E020288-1**	**Report No. :**	19889	**Received Date:**	5/2/2002 11:27:00 AM
Client Sample ID:	**B14DK7**	**COC No. :**		**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2142450	**Work Order:** E0TNN2AG			**Report DB ID:** 9E0TNN20								
AM-241	1.76E+02		1.9E+01	1.9E+01	2.84E-01	pCi/g		*(620.2)*	6/10/02 06:46 p		371.3	GAMMA_GS
								(18.4)			g	GER6$1
CO-60	-2.69E-03	U	1.2E-02	1.2E-02	2.08E-02	pCi/g		*-0.13*	6/10/02 06:46 p		371.3	GAMMA_GS
							5.00E-02	*-0.44*			g	GER6$1
CS-137	3.97E-02		1.6E-02	1.6E-02	1.99E-02	pCi/g		*(2.)*	6/10/02 06:46 p		371.3	GAMMA_GS
							1.00E-01	*(4.9)*			g	GER6$1
EU-152	1.94E-03	U	2.9E-02	2.9E-02	4.88E-02	pCi/g		*0.04*	6/10/02 06:46 p		371.3	GAMMA_GS
							1.00E-01	*0.13*			g	GER6$1
EU-154	-2.23E-02	U	4.0E-02	4.0E-02	6.54E-02	pCi/g		*-0.34*	6/10/02 06:46 p		371.3	GAMMA_GS
							1.00E-01	*-(1.1)*			g	GER6$1
EU-155	8.89E-02	U	3.8E-02	3.8E-02	5.60E-02	pCi/g		*(1.6)*	6/10/02 06:46 p		371.3	GAMMA_GS
							1.00E-01	*(4.7)*			g	GER6$1
NB-94	-6.23E-03	U	1.2E-02	1.2E-02	1.94E-02	pCi/g		*-0.32*	6/10/02 06:46 p		371.3	GAMMA_GS
								-(1.1)			g	GER6$1
RA-226	6.69E-01		9.3E-02	9.3E-02	3.55E-02	pCi/g		*(18.9)*	6/10/02 06:46 p		371.3	GAMMA_GS
								(14.4)			g	GER6$1
RA-228	8.15E-01		1.4E-01	1.4E-01	7.38E-02	pCi/g		*(11.)*	6/10/02 06:46 p		371.3	GAMMA_GS
								(11.7)			g	GER6$1
Batch: 2142451	**Work Order:** E0TNN1AH			**Report DB ID:** 9E0TNN10								
NP-237	3.88E-01	U	5.5E-01	5.5E-01	5.26E-01	pCi/g	85.47%	*0.74*	6/6/02 05:58 p		0.0507	NP237_LLE_PLATE_
							1.00E+00	*(1.4)*			G	ALP127
Batch: 2142452	**Work Order:** E0TNN1AC			**Report DB ID:** 9E0TNN10								

STL Richland

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MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 28-Jun-02

Lab Name:	**STL Richland**	**SDG:**	W03765	**Collection Date:**	4/24/2002 1:45:00 PM
Lot-Sample No.:	**J2E020288-1**	**Report No. :**	19889	**Received Date:**	5/2/2002 11:27:00 AM
Client Sample ID:	**B14DK7**	**COC No. :**		**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
STRONTIUM	3.94E+00	U	3.3E+00	3.5E+00	6.72E+00	pCi/g	100.00%	*0.59*	6/20/02 06:49 p		0.1005	SRTOT_SEP_PRECIP
						3.12E+00		*(2.3)*			G	GPC28A
Batch: 2142453	**Work Order:**	E0TNN1AF		**Report DB ID:**	9E0TNN10							
H-3	-1.36E-02	U	2.5E-02	3.9E-02	6.59E-02	pCi/g	100.00%	*-0.21*	6/7/02 11:27 p		50.0	906.0_H3_LSC
						3.06E-02	4.00E+02	*-0.7*			G	LSC4
Batch: 2142454	**Work Order:**	E0TNN1AE		**Report DB ID:**	9E0TNN10							
TH-228	3.17E+00		1.8E+00	1.8E+00	1.52E+00	pCi/g	94.14%	*(2.1)*	6/14/02 12:34 p		0.0497	THISO_IE_PRECIP_
						4.41E-01	1.00E+00	*(3.5)*			G	ALP115
TH-230	8.78E-01	U	9.0E-01	9.1E-01	9.02E-01	pCi/g	94.14%	*0.97*	6/14/02 12:34 p		0.0497	THISO_IE_PRECIP_
						1.47E-01	1.00E+00	*(1.9)*			G	ALP115
TH-232	2.69E+00		1.6E+00	1.6E+00	6.07E-01	pCi/g	94.14%	*(4.4)*	6/14/02 12:34 p		0.0497	THISO_IE_PRECIP_
							1.00E+00	*(3.4)*			G	ALP115
Batch: 2142455	**Work Order:**	E0TNN1AK		**Report DB ID:**	9E0TNN10							
PU-238	4.42E+01		5.9E+00	9.3E+00	5.35E-01	pCi/g	62.51%	*(82.7)*	6/19/02 01:31 p		0.0503	PUISO_IE_PLATE_A
							1.00E+00	*(9.5)*			G	ALP37
PU239/40	2.75E+03		4.7E+01	4.5E+02	5.34E-01	pCi/g	62.51%	*(5153.5)*	6/19/02 01:31 p		0.0503	PUISO_IE_PLATE_A
							1.00E+00	*(12.2)*			G	ALP37
Batch: 2142456	**Work Order:**	E0TNN1AJ		**Report DB ID:**	9E0TNN10							
AM-241	3.10E+02		1.4E+01	5.4E+01	4.05E-01	pCi/g	111.69%	*(766.1)*	6/20/02 06:38 p		0.0503	AMCMISO_IE_PLATE
							1.00E+00	*(11.5)*			G	ALP127
CM-242	0.00E+00	U	0.0E+00	4.7E-01	5.17E-01	pCi/g	111.69%	*0.*	6/20/02 06:38 p		0.0503	AMCMISO_IE_PLATE
							1.00E+00	*0.*			G	ALP127

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MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM I

SAMPLE RESULTS

Date: 28-Jun-02

Lab Name:	**STL Richland**	**SDG:**	W03765	**Collection Date:**	4/24/2002 1:45:00 PM
Lot-Sample No.:	**J2E020288-1**	**Report No. :**	19889	**Received Date:**	5/2/2002 11:27:00 AM
Client Sample ID:	**B14DK7**	**COC No. :**		**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
CM-244	0.00E+00	U	0.0E+00	3.7E-01	4.07E-01	pCi/g	111.69%	*0.*	6/20/02 06:38 p		0.0503	AMCMISO_IE_PLATE
							1.00E+00	*0.*			G	ALP127
Batch: 2142457	**Work Order:** E0TNN1AA			**Report DB ID:** 9E0TNN10								
U-234	9.34E-01		8.1E-01	8.3E-01	8.78E-01	pCi/g	73.52%	*(1.1)*	6/13/02 11:12 a		0.0505	UISO_IE_PLATE_AE
						2.16E-01	1.00E+00	*(2.3)*			G	ALP1
U-235	-1.32E-02	U	2.6E-02	2.6E-02	6.62E-01	pCi/g	73.52%	*-0.02*	6/13/02 11:12 a		0.0505	UISO_IE_PLATE_AE
						1.08E-01	1.00E+00	*-1.*			G	ALP1
U-238	1.30E+00		9.3E-01	9.6E-01	6.62E-01	pCi/g	73.52%	*(2.)*	6/13/02 11:12 a		0.0505	UISO_IE_PLATE_AE
						1.08E-01	1.00E+00	*(2.7)*			G	ALP1

Ratio U-234/238 = 0.7

Number of Results: 23

Comments:

3

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

Date: 28-Jun-02

DUPLICATE RESULTS

Lab Name:	STL Richland	**SDG:**	W03765	**Collection Date:**	4/24/2002 1:45:00 PM
Lot-Sample No.:	J2E020288-1	**Report No. :**	19889	**Received Date:**	5/2/2002 11:27:00 AM
Client Sample ID:	B14DK7	**COC No. :**		**Matrix:**	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2142452	**Work Order:**	E0TNN1AN		**Report DB ID:**	E0TNN1NR	**Orig Sa DB ID:**	9E0TNN10					
STRONTIUM	2.53E+00	U	3.1E+00	3.1E+00	6.56E+00	pCi/g	100.00%	0.39	6/20/02 06:49 p		0.1011	SRTOT_SEP_PRECIP
	3.94E+00	RER	0.6					(1.6)			G	GPC28B
Batch: 2142454	**Work Order:**	E0TNN1AQ		**Report DB ID:**	E0TNN1QR	**Orig Sa DB ID:**	9E0TNN10					
TH-228	1.46E+00		1.1E+00	1.1E+00	9.38E-01	pCi/g	93.03%	(1.6)	6/14/02 12:34 p		0.0506	THISO_IE_PRECIP_
	3.17E+00	RER	1.6			1.00E+00		(2.7)			G	ALP117
TH-230	6.96E-01	U	7.1E-01	7.2E-01	7.15E-01	pCi/g	93.03%	0.97	6/14/02 12:34 p		0.0506	THISO_IE_PRECIP_
	8.78E-01	RER	0.3			1.00E+00		(1.9)			G	ALP117
TH-232	7.10E-01	U	7.1E-01	7.2E-01	4.81E-01	pCi/g	93.03%	(1.5)	6/14/02 12:34 p		0.0506	THISO_IE_PRECIP_
	2.69E+00	RER	2.3			1.00E+00		(2.)			G	ALP117
										Alpha Spec Result Sum = 2.9E+00		
Batch: 2142455	**Work Order:**	E0TNN1AR		**Report DB ID:**	E0TNN1RR	**Orig Sa DB ID:**	9E0TNN10					
PU-238	3.92E+01		7.1E+00	1.0E+01	1.46E+00	pCi/g	36.32%	(26.9)	6/19/02 01:31 p		0.0507	PUISO_IE_PLATE_A
	4.42E+01	RER	0.7			1.00E+00		(7.9)			G	ALP38
PU239/40	2.23E+03		5.3E+01	4.0E+02	1.59E+00	pCi/g	36.32%	(1401.1)	6/19/02 01:31 p		0.0507	PUISO_IE_PLATE_A
	2.75E+03	RER	1.7			1.00E+00		(11.1)			G	ALP38
										Alpha Spec Result Sum = 2.3E+03		

Number of Results: 6

Comments:

14

STL Richland
rptSTLRchDupV3.88 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

Date: 28-Jun-02

DUPLICATE RESULTS

Lab Name:	**STL Richland**	**SDG:**	W03765	**Collection Date:**	4/24/2002 1:45:00 PM
Lot-Sample No.:	**J2E020288-1**	**Report No. :**	19889	**Received Date:**	5/2/2002 11:27:00 AM
Client Sample ID:	**B14DK7 DUP**	**COC No. :**		**Matrix:**	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2142450	**Work Order:** E0TNN2AL			**Report DB ID:** E0TNN2LR		**Orig Sa DB ID:** 9E0TNN20						
AM-241	1.85E+02		2.0E+01	2.0E+01	3.04E-01	pCi/g		(609.6)	6/11/02 06:09 p		371.3	GAMMA_GS
	1.76E+02	RER	0.6					(18.7)			g	GER8$1
CO-60	-8.63E-04	U	1.1E-02	1.1E-02	1.82E-02	pCi/g		-0.05	6/11/02 06:09 p		371.3	GAMMA_GS
	-2.69E-03	RER	0.2			5.00E-02		-0.16			g	GER8$1
CS-137	5.05E-02		1.7E-02	1.7E-02	1.93E-02	pCi/g		(2.6)	6/11/02 06:09 p		371.3	GAMMA_GS
	3.97E-02	RER	0.9			1.00E-01		(5.8)			g	GER8$1
EU-152	-1.73E-02	U	3.0E-02	3.0E-02	5.04E-02	pCi/g		-0.34	6/11/02 06:09 p		371.3	GAMMA_GS
	1.94E-03	RER	0.9			1.00E-01		-(1.1)			g	GER8$1
EU-154	-4.86E-03	U	3.5E-02	3.5E-02	5.89E-02	pCi/g		-0.08	6/11/02 06:09 p		371.3	GAMMA_GS
	-2.23E-02	RER	0.7			1.00E-01		-0.28			g	GER8$1
EU-155	1.17E-01	U	4.0E-02	4.0E-02	5.83E-02	pCi/g		(2.)	6/11/02 06:09 p		371.3	GAMMA_GS
	8.89E-02	RER	1.0			1.00E-01		(5.8)			g	GER8$1
NB-94	-5.80E-04	U	1.0E-02	1.0E-02	1.72E-02	pCi/g		-0.03	6/11/02 06:09 p		371.3	GAMMA_GS
	-6.23E-03	RER	0.7					-0.11			g	GER8$1
RA-226	7.01E-01		9.3E-02	9.3E-02	3.26E-02	pCi/g		(21.5)	6/11/02 06:09 p		371.3	GAMMA_GS
	6.69E-01	RER	0.5					(15.1)			g	GER8$1
RA-228	9.23E-01		1.4E-01	1.4E-01	6.40E-02	pCi/g		(14.4)	6/11/02 06:09 p		371.3	GAMMA_GS
	8.15E-01	RER	1.1					(12.9)			g	GER8$1
Batch: 2142451	**Work Order:** E0TNN1AM			**Report DB ID:** E0TNN1MR		**Orig Sa DB ID:** 9E0TNN10						
NP-237	0.00E+00	U	0.0E+00	4.9E-01	5.43E-01	pCi/g	81.08%	0.	6/6/02 05:58 p		0.0503	NP237_LLE_PLATE_
	3.88E-01	RER	1.1			1.00E+00		0.			G	ALP128
Batch: 2142453	**Work Order:** E0TNN1AP			**Report DB ID:** E0TNN1PR		**Orig Sa DB ID:** 9E0TNN10						

STL Richland

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RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

Date: 28-Jun-02

DUPLICATE RESULTS

Lab Name:	STL Richland	**SDG:**	W03765	**Collection Date:**	4/24/2002 1:45:00 PM
Lot-Sample No.:	J2E020288-1	**Report No. :**	19889	**Received Date:**	5/2/2002 11:27:00 AM
Client Sample ID:	B14DK7 DUP	**COC No. :**		**Matrix:**	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
H-3	-7.44E-03	U	2.4E-02	3.6E-02	6.14E-02	pCi/g	100.00%	-0.12	6/8/02 12:09 a		49.9	906.0_H3_LSC
	-1.36E-02	RER	0.2			4.00E+02		-0.41			G	LSC4
Batch: 2142456	**Work Order:** E0TNN1AT			**Report DB ID:** E0TNN1TR		**Orig Sa DB ID:** 9E0TNN10						
AM-241	2.70E+02		1.3E+01	4.7E+01	5.99E-01	pCi/g	108.35%	(451.1)	6/20/02 06:38 p		0.0507	AMCMISO_IE_PLATE
	3.10E+02	RER	1.1			1.00E+00		(11.4)			G	ALP128
CM-242	0.00E+00	U	0.0E+00	4.7E-01	5.15E-01	pCi/g	108.35%	0.	6/20/02 06:38 p		0.0507	AMCMISO_IE_PLATE
	0.00E+00	RER	0.0			1.00E+00		0.			G	ALP128
CM-244	0.00E+00	U	0.0E+00	3.7E-01	4.06E-01	pCi/g	108.35%	0.	6/20/02 06:38 p		0.0507	AMCMISO_IE_PLATE
	0.00E+00	RER	0.0			1.00E+00		0.			G	ALP128
										Alpha Spec Result Sum = 2.7E+02		
Batch: 2142457	**Work Order:** E0TNN1AU			**Report DB ID:** E0TNN1UR		**Orig Sa DB ID:** 9E0TNN10						
U-234	6.67E-01	U	7.1E-01	7.2E-01	8.85E-01	pCi/g	67.92%	0.75	6/13/02 03:01 p		0.0506	UISO_IE_PLATE_AE
	9.34E-01	RER	0.5			1.00E+00		(1.8)			G	ALP1
U-235	-1.42E-02	U	2.8E-02	2.9E-02	7.14E-01	pCi/g	67.92%	-0.02	6/13/02 03:01 p		0.0506	UISO_IE_PLATE_AE
	-1.32E-02	RER	0.1			1.00E+00		-1.			G	ALP1
U-238	8.73E-01		7.9E-01	8.1E-01	7.14E-01	pCi/g	67.92%	(1.2)	6/13/02 03:01 p		0.0506	UISO_IE_PLATE_AE
	1.30E+00	RER	0.7			1.00E+00		(2.1)			G	ALP1
								Ratio U-234/238 = 0.8		*Alpha Spec Result Sum = 2.7E+02*		

Number of Results: 17

Comments:

STL Richland

rptSTLRchDupV3.88 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 28-Jun-02

Lab Name: STL Richland **SDG:** W03765

Lot-Sample No.: J2E220000-450 **Report No. :** 19889 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2142450	**Work Order:** E1V2J2AA			**Report DB ID:** E1V2J2AX								
CO-60	-3.49E-03	U	8.1E-03	8.1E-03	1.36E-02	pCi/g		-0.26	6/10/02 06:47 p		348.0	GAMMA_GS
						5.00E-02		-0.87			g	GER3$1
CS-137	1.98E-03	U	7.8E-03	7.8E-03	1.36E-02	pCi/g		0.15	6/10/02 06:47 p		348.0	GAMMA_GS
						1.00E-01		0.5			g	GER3$1
EU-152	-1.02E-02	U	2.4E-02	2.4E-02	3.59E-02	pCi/g		-0.28	6/10/02 06:47 p		348.0	GAMMA_GS
						1.00E-01		-0.85			g	GER3$1
EU-154	2.21E-02	U	2.2E-02	2.2E-02	4.18E-02	pCi/g		0.53	6/10/02 06:47 p		348.0	GAMMA_GS
						1.00E-01		(2.)			g	GER3$1
EU-155	5.68E-03	U	2.3E-02	2.3E-02	4.04E-02	pCi/g		0.14	6/10/02 06:47 p		348.0	GAMMA_GS
						1.00E-01		0.49			g	GER3$1
NB-94	-4.42E-03	U	8.0E-03	8.0E-03	1.33E-02	pCi/g		-0.33	6/10/02 06:47 p		348.0	GAMMA_GS
								-(1.1)			g	GER3$1
RA-226	1.01E-01	U	2.6E-02	2.6E-02	3.90E-02	pCi/g		(2.6)	6/10/02 06:47 p		348.0	GAMMA_GS
								(7.8)			g	GER3$1
RA-228	3.66E-02	U	3.6E-02	3.6E-02	6.06E-02	pCi/g		0.6	6/10/02 06:47 p		348.0	GAMMA_GS
								(2.)			g	GER3$1

Number of Results: 8

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 28-Jun-02

Lab Name: STL Richland **SDG:** W03765

Lot-Sample No.: J2E220000-451 **Report No. :** 19889 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2142451	Work Order:	E1V2P1AA		Report DB ID:	E1V2P1AB							
NP-237	0.00E+00	U	0.0E+00	1.4E-02	1.52E-02	pCi/g	73.32%	0.	6/6/02 05:59 p		2.0	NP237_LLE_PLATE_
						1.00E+00		0.			G	ALP129

Number of Results: 1

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 28-Jun-02

Lab Name: STL Richland **SDG:** W03765

Lot-Sample No.: J2E220000-452 **Report No. :** 19889 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2142452	**Work Order:** E1V2Q1AA			**Report DB ID:** E1V2Q1AB								
STRONTIUM	1.06E-02	U	5.2E-02	5.2E-02	1.21E-01	pCi/g	97.70%	0.09	6/20/02 06:49 p		6.0	SRTOT_SEP_PRECIP
					5.61E-02			0.41			G	GPC28C

Number of Results: 1

Comments:

19

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 28-Jun-02

Lab Name: STL Richland **SDG:** W03765

Lot-Sample No.: J2E220000-453 **Report No. :** 19889 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2142453	**Work Order:** E1V2V1AA			**Report DB ID:** E1V2V1AB								
H-3	7.10E-03	U	1.2E-01	1.8E-01	2.97E-01	pCi/g	100.00%	0.02	6/7/02 10:03 p		10.0	906.0_H3_LSC
					1.38E-01	4.00E+02		0.08			G	LSC4

Number of Results: 1

Comments:

20

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 28-Jun-02

Lab Name: STL Richland **SDG:** W03765

Lot-Sample No.: J2E220000-454 **Report No. :** 19889 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2142454	**Work Order:** E1V221AA			**Report DB ID:** E1V221AB								
TH-228	2.77E-03	U	1.6E-02	1.6E-02	4.97E-02	pCi/g	70.39%	0.06	6/14/02 12:35 p		2.0	THISO_IE_PRECIP_
					1.44E-02	1.00E+00		0.35			G	ALP119
TH-230	-5.85E-04	U	1.2E-03	1.2E-03	2.94E-02	pCi/g	70.39%	-0.02	6/14/02 12:35 p		2.0	THISO_IE_PRECIP_
					4.81E-03	1.00E+00		-1.			G	ALP119
TH-232	-5.85E-04	U	1.2E-03	1.2E-03	2.94E-02	pCi/g	70.39%	-0.02	6/14/02 12:35 p		2.0	THISO_IE_PRECIP_
					4.81E-03	1.00E+00		-1.			G	ALP119

Number of Results: 3

Comments:

21

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 28-Jun-02

Lab Name: STL Richland

SDG: W03765

Lot-Sample No.: J2E220000-455

Report No. : 19889

Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2142455	**Work Order:** E1V261AA			**Report DB ID:** E1V261AB								
PU-238	0.00E+00	U	0.0E+00	2.0E-02	2.20E-02	pCi/g	38.21%	0.	6/19/02 01:32 p		2.0	PUISO_IE_PLATE_A
						1.00E+00		0.			G	ALP39
PU239/40	1.70E-01		7.4E-02	8.0E-02	2.20E-02	pCi/g	38.21%	(7.7)	6/19/02 01:32 p		2.0	PUISO_IE_PLATE_A
						1.00E+00		(4.2)			G	ALP39

Number of Results: 2

Comments:

22

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 28-Jun-02

Lab Name: STL Richland **SDG:** W03765

Lot-Sample No.: J2E220000-456 **Report No. :** 19889 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2142456	**Work Order:** E1V291AA			**Report DB ID:** E1V291AB								
AM-241	6.66E-03	U	1.3E-02	1.3E-02	1.80E-02	pCi/g	61.73%	0.37	6/20/02 06:38 p		2.0	AMCMISO_IE_PLATE
						1.00E+00		1.			G	ALP129
CM-242	-6.80E-04	U	1.4E-03	1.4E-03	3.42E-02	pCi/g	61.73%	-0.02	6/20/02 06:38 p		2.0	AMCMISO_IE_PLATE
					5.59E-03	1.00E+00		-1.			G	ALP129
CM-244	-5.36E-04	U	1.1E-03	1.1E-03	2.70E-02	pCi/g	61.73%	-0.02	6/20/02 06:38 p		2.0	AMCMISO_IE_PLATE
					4.41E-03	1.00E+00		-1.			G	ALP129

Number of Results: 3

Comments:

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

BLANK RESULTS

Date: 28-Jun-02

Lab Name: STL Richland **SDG:** W03765

Lot-Sample No.: J2E220000-457 **Report No. :** 19889 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 2142457	**Work Order:** E1V3F1AA			**Report DB ID:** E1V3F1AB								
U-234	-3.17E-03	U	2.6E-03	2.7E-03	3.92E-02	pCi/g	46.19%	-0.08	6/14/02 10:47 a		2.0	UISO_IE_PLATE_AE
					1.06E-02	1.00E+00		-(2.4)			G	ALP1
U-235	-5.29E-04	U	1.1E-03	1.1E-03	2.66E-02	pCi/g	46.19%	-0.02	6/14/02 10:47 a		2.0	UISO_IE_PLATE_AE
					4.35E-03	1.00E+00		-0.99			G	ALP1
U-238	-5.29E-04	U	1.1E-03	1.1E-03	2.66E-02	pCi/g	46.19%	-0.02	6/14/02 10:47 a		2.0	UISO_IE_PLATE_AE
					4.35E-03	1.00E+00		-0.99			G	ALP1

Ratio U-234/238 = 6.0

Number of Results: 3

Comments:

24

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for, but the result is less than the Mdc/Mda|Total Uncert or gamma scan software did not identify the nuclide.

FORM II

LCS RESULTS

Date: 28-Jun-02

Lab Name: STL Richland **SDG:** W03765

Lot-Sample No.: J2E220000-450 **Report No. :** 19889 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2142450	**Work Order:** E1V2J2AC			**Report DB ID:** E1V2J2CM									
CS-137	3.18E-01		5.3E-02	5.3E-02	3.67E-02	pCi/g		1.95E+01	1.9E+00	1.63%	6/10/02 06:49 p	200.01	GAMMA_GS
							Rec Limits:	70.	130.	-1.0		g	GER8$1
K-40	2.06E+01		2.6E+00	2.6E+00	2.59E-01	pCi/g		2.92E-01	1.3E-02	7053.38%	6/10/02 06:49 p	200.01	GAMMA_GS
							Rec Limits:	70.	130.	69.5		g	GER8$1
RA-226	9.69E-01		1.4E-01	1.4E-01	5.97E-02	pCi/g		1.15E+00	5.2E-02	84.19%	6/10/02 06:49 p	200.01	GAMMA_GS
							Rec Limits:	70.	130.	-0.2		g	GER8$1
RA-228	2.25E+00		3.2E-01	3.2E-01	1.19E-01	pCi/g		1.87E+00	9.6E-02	119.91%	6/10/02 06:49 p	200.01	GAMMA_GS
							Rec Limits:	70.	130.	0.2		g	GER8$1
U-238DHP	1.40E+00		5.8E-01	5.8E-01	6.46E-01	pCi/g		1.05E+00	5.4E-02	133.39%	6/10/02 06:49 p	200.01	GAMMA_GS
							Rec Limits:	.	.	0.3		g	GER8$1

Number of Results: 5

Comments:

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

FORM II

Date: 28-Jun-02

LCS RESULTS

Lab Name: STL Richland **SDG:** W03765

Lot-Sample No.: J2E220000-451 **Report No. :** 19889 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2 s)	MDC|MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2142451	**Work Order:** E1V2P1AC			**Report DB ID:** E1V2P1CS									
NP-237	7.65E-01		1.3E-01	1.8E-01	2.39E-02	pCi/g	70.99%	9.11E-01	2.7E-02	83.96%	6/6/02 06:00 p	2.0	NP237_LLE_PLATE_
							Rec Limits:	70.	130.	-0.2		G	ALP130

Number of Results: 1

Comments:

26

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

FORM II

LCS RESULTS

Date: 28-Jun-02

Lab Name: STL Richland **SDG:** W03765

Lot-Sample No.: J2E220000-452 **Report No. :** 19889 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2142452	**Work Order:** E1V2Q1AC			**Report DB ID:** E1V2Q1CS									
STRONTIUM	1.08E+00		1.2E-01	3.3E-01	1.10E-01	pCi/g	99.10%	1.14E+00	1.4E-02	94.37%	6/20/02 06:49 p	6.0	SRTOT_SEP_PRECIP
							Rec Limits:	70.	130.	-0.1		G	GPC28D

Number of Results: 1

Comments:

27

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

FORM II

Date: 28-Jun-02

LCS RESULTS

Lab Name: STL Richland **SDG:** W03765

Lot-Sample No.: J2E220000-453 **Report No. :** 19889 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2 s)	MDC|MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2142453	**Work Order:** E1V2V1AC			**Report DB ID:** E1V2V1CS									
H-3	6.83E+00		3.5E-01	5.7E-01	3.04E-01	pCi/g	100.00%	6.83E+00	2.3E-01	100.01%	6/7/02 10:45 p	10.0	906.0_H3_LSC
							Rec Limits:	70.	130.	0.0		G	LSC4

Number of Results: 1

Comments:

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

FORM II

Date: 28-Jun-02

LCS RESULTS

Lab Name: STL Richland **SDG:** W03765

Lot-Sample No.: J2E220000-454 **Report No. :** 19889 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2 s)	MDC|MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2142454	**Work Order:** E1V221AC			**Report DB ID:** E1V221CS									
TH-230	1.01E+00		2.0E-01	2.5E-01	2.75E-02	pCi/g	53.77%	1.14E+00	3.4E-02	88.49%	6/14/02 12:35 p	2.0	THISO_IE_PRECIP_
							Rec Limits:	70.	130.	-0.1		G	ALP120

Number of Results: 1

Comments:

29

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

FORM II

LCS RESULTS

Date: 28-Jun-02

Lab Name: STL Richland **SDG:** W03765

Lot-Sample No.: J2E220000-455 **Report No. :** 19889 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2142455	**Work Order:** E1V261AC			**Report DB ID:** E1V261CS									
PU239/40	3.31E+00		3.6E-01	7.2E-01	4.54E-02	pCi/g	30.85%	3.47E+00	1.1E-01	95.29%	6/19/02 01:32 p	2.0	PUISO_IE_PLATE_A
							Rec Limits:	70.	130.	0.0		G	ALP41

Number of Results: 1

Comments:

30

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

FORM II

Date: 28-Jun-02

LCS RESULTS

Lab Name: STL Richland **SDG:** W03765

Lot-Sample No.: J2E220000-456 **Report No. :** 19889 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2142456	**Work Order:** E1V291AC			**Report DB ID:** E1V291CS									
AM-241	3.09E+00		2.6E-01	6.0E-01	1.44E-02	pCi/g	79.43%	4.51E+00	1.3E-01	68.59%	6/20/02 06:39 p	2.0	AMCMISO_IE_PLATE
							Rec Limits:	70.	130.	-0.3		G	ALP130

Number of Results: 1

Comments:

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

FORM II

Date: 28-Jun-02

LCS RESULTS

Lab Name: STL Richland **SDG:** W03765

Lot-Sample No.: J2E220000-457 **Report No. :** 19889 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 2142457	**Work Order:** E1V3F1AC			**Report DB ID:** E1V3F1CS									
U-234	1.77E+00		2.1E-01	4.1E-01	2.97E-02	pCi/g	51.20%	1.64E+00	9.8E-03	107.62%	6/13/02 06:37 p	2.0	UISO_IE_PLATE_AE
							Rec Limits:	70.	130.	0.1		G	ALP1
U-235	5.31E-02		3.6E-02	3.7E-02	2.40E-02	pCi/g	51.20%	7.49E-02	4.5E-04	70.89%	6/13/02 06:37 p	2.0	UISO_IE_PLATE_AE
							Rec Limits:	70.	130.	-0.3		G	ALP1
U-238	1.56E+00		1.9E-01	3.7E-01	2.40E-02	pCi/g	51.20%	1.72E+00	1.0E-02	90.69%	6/13/02 06:37 p	2.0	UISO_IE_PLATE_AE
							Rec Limits:	70.	130.	-0.1		G	ALP1

Number of Results: 3

Comments:

32

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J2E 020 288
Client ID: BH1
Due Date: 7/1/02
QC Batch Number: 2142456
Method Test Parameter: SN AM/CM 180
Matrix: SOIL
SDG Number: NA WQ37 L5

Review Item	Yes (√)	No (√)	N/A (√)
A. COC 1. Is the ICOC page complete (includes all applicable analysts, dates, SOP numbers and revisions)?	✓		
B. QC Batch 1. Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2. Are the QC appropriate for the analysis included in the batch?	✓		
3. Is the Analytical Batch Worksheets complete (includes, as appropriate, volumes, count times, etc.)?	✓		
4. Does the Worksheets include a Tracer Vial label for each sample?	✓		
C. QC & Samples 1. Is the blank result, yield and MDA within contract limits?	✓		
2. Is the LCS result, yield and MDA within contract limits?	✓		
3. Are the MS/MSD results, yields and MDAs within contract limits?			✓
4. Are the duplicate results, yields and MDAs within contract limits?	✓		
5. Are the sample yields and MDAs within contract limits?	✓		
D. Raw Data 1. Were results calculated in the correct units?	✓		
2. Were analysis volumes entered correctly?	✓		
3. Were yields entered correctly?			✓
4. Were spectra reviewed/meet contractual requirements?	✓		
5. Were raw counts reviewed for anomalies?	✓		
E. 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?	✓		

Comments on any "No" response:

First Level Review: Pam Anderson Date: 4-22-02

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 2142456

Review Item	Yes (√)	No (√)	N/A (√)
A. Calibration 1. Is the calibration documentation included?			✓
B. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. 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. Were units checked?	✓		

Comments on any "No" response: _____

Second Level Review: [signature] Date: 4/25/02

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J2E080288
Client ID: BHI
Due Date: 7/1/02
QC Batch Number: 2142451
Method Test Parameter: XW-NP
Matrix: SOIL
SDG Number: N/A WO 37765

Review Item	Yes (√)	No (√)	N/A (√)
A. COC 1. Is the ICOC page complete (includes all applicable analysts, dates, SOP numbers and revisions)?	✓		
B. QC Batch 1. Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2. Are the QC appropriate for the analysis included in the batch?	✓		
3. Is the Analytical Batch Worksheets complete (includes, as appropriate, volumes, count times, etc.)?	✓		
4. Does the Worksheets include a Tracer Vial label for each sample?	✓		
C. QC & Samples 1. Is the blank result, yield and MDA within contract limits?	✓		
2. Is the LCS result, yield and MDA within contract limits?	✓		
3. Are the MS/MSD results, yields and MDAs within contract limits?			✓
4. Are the duplicate results, yields and MDAs within contract limits?	✓		
5. Are the sample yields and MDAs within contract limits?	✓		
D. Raw Data 1. Were results calculated in the correct units?	✓		
2. Were analysis volumes entered correctly?	✓		
3. Were yields entered correctly?			✓
4. Were spectra reviewed/meet contractual requirements?	✓		
5. Were raw counts reviewed for anomalies?	✓		
E. 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?	✓		

Comments on any "No" response:

First Level Review: Pam Anderson Date: 6-7-02

LS-038A, Rev. 8, 8/01

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 2142451

Review Item	Yes (√)	No (√)	N/A (√)
A. Calibration 1. Is the calibration documentation included?			✓
B. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. 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. Were units checked?	✓		

Comments on any "No" response: _____

Second Level Review: [signature] Date: 4/17/02

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J2E020288
Client ID: ~~PGW~~ BHL
Due Date: 7/1/02
QC Batch Number: 2142455
Method Test Parameter: SO Pu ISO
Matrix: soil
SDG Number:

Review Item	Yes (√)	No (√)	N/A (√)
A. COC 1. Is the ICOC page complete (includes all applicable analysts, dates, SOP numbers and revisions)?	✓		
B. QC Batch 1. Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2. Are the QC appropriate for the analysis included in the batch?	✓		
3. Is the Analytical Batch Worksheets complete (includes, as appropriate, volumes, count times, etc.)?	✓		
4. Does the Worksheets include a Tracer Vial label for each sample?	✓		
C. QC & Samples 1. Is the blank result, yield and MDA within contract limits?	✓		
2. Is the LCS result, yield and MDA within contract limits?	✓		
3. Are the MS/MSD results, yields and MDAs within contract limits?			✓
4. Are the duplicate results, yields and MDAs within contract limits?	✓		
5. Are the sample yields and MDAs within contract limits?		✓	
D. Raw Data 1. Were results calculated in the correct units?	✓		
2. Were analysis volumes entered correctly?	✓		
3. Were yields entered correctly?	✓		
4. Were spectra reviewed/meet contractual requirements?	✓		
5. Were raw counts reviewed for anomalies?	✓		
E. Other 1. Are all Nonconformances included and noted?	✓ PA		✓
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?			✓

Comments on any "No" response: EOTNN-1-AR IDC > RDL of 2 both 238+239
~~Ref~~ results > MDA > CRDL deep OK
PA 6.22.02 MDA OK

Pam Anderson 6.22.02

First Level Review: Preston Smith Date: 6/21/02

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 2142455

Review Item	Yes (√)	No (√)	N/A (√)
A. Calibration 1. Is the calibration documentation included?			√
B. Sample Analysis 1. Are the sample yields within acceptance criteria?	√		
2. 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. Were units checked?	√		

Comments on any "No" response: Blank high but below CRDL

Second Level Review: [signature] Date: 6/24/02

LS-038B, Rev.9, 09/01

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J2E020287
Client ID: BHE
Due Date: 7/1/02
QC Batch Number: 2142484
Method Test Parameter: SI-TH
Matrix: Soil
SDG Number: N/A

Review Item	Yes (√)	No (√)	N/A (√)
A. COC 1. Is the ICOC page complete (includes all applicable analysts, dates, SOP numbers and revisions)?	✓		
B. QC Batch 1. Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2. Are the QC appropriate for the analysis included in the batch?	✓		
3. Is the Analytical Batch Worksheets complete (includes, as appropriate, volumes, count times, etc.)?	✓		
4. Does the Worksheets include a Tracer Vial label for each sample?	✓		
C. QC & Samples 1. Is the blank result, yield and MDA within contract limits?	✓		
2. Is the LCS result, yield and MDA within contract limits?	✓		
3. Are the MS/MSD results, yields and MDAs within contract limits?			✓
4. Are the duplicate results, yields and MDAs within contract limits?		✓	
5. Are the sample yields and MDAs within contract limits?	✓		
D. Raw Data 1. Were results calculated in the correct units?	✓		
2. Were analysis volumes entered correctly?	✓		
3. Were yields entered correctly?			✓
4. Were spectra reviewed/meet contractual requirements?	✓		
5. Were raw counts reviewed for anomalies?	✓		
E. 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?	✓		

Comments on any "No" response: dup out - matrix soil - very small aliquot because of screening. inconsistancy in small soil SA J05594

First Level Review: Pam Anderson Date: 6-17-02

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 2142454

Review Item	Yes (√)	No (√)	N/A (√)
A. Calibration 1. Is the calibration documentation included?			✓
B. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. 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. Were units checked?	✓		

Comments on any "No" response: _____

Second Level Review: [signature] Date: 6/18/02

Clouseau
Nonconformance Memo

SEVERN TRENT SERVICES

NCM #:	J05594	Classification:	Anomaly
NCM Initiated By:	Pam Anderson	Status:	QAREVIEW
Date Opened:	06/18/02	Production Area:	Environmental - Sep
Date Closed:	N/A	Tests:	Thlso by ALP
		Lot #'s (Sample #'s):	J2E020288 (1)
		QC Batch:	2142454
Nonconformance:	Dups not within acceptance limits		
Subcategory:	Inhomogenity of the Sample		

Problem Description / Root Cause

Name	Date	Description
Pam Anderson	06/18/02	Sample and dup are soils. A very small aliquot was taken because of screening activity increasing the probability of matrix inconsistency.

Corrective Action

Name	Date	Corrective Action
Pam Anderson	06/18/02	Note in case narrative.

Approval History

Name	Date Approved:	Position
Pam Anderson	06/18/02	

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J2E020288
Client ID: BH1
Due Date: 7/1/02
QC Batch Number: 2142457
Method Test Parameter: SR U/Sr
Matrix: SOIL
SDG Number: WO 3745

Review Item	Yes (√)	No (√)	N/A (√)
A. COC 1. Is the ICOC page complete (includes all applicable analysts, dates, SOP numbers and revisions)?	✓		
B. QC Batch 1. Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2. Are the QC appropriate for the analysis included in the batch?	✓		
3. Is the Analytical Batch Worksheets complete (includes, as appropriate, volumes, count times, etc.)?	✓		
4. Does the Worksheets include a Tracer Vial label for each sample?	✓		
C. QC & Samples 1. Is the blank result, yield and MDA within contract limits?	✓		
2. Is the LCS result, yield and MDA within contract limits?	✓		
3. Are the MS/MSD results, yields and MDAs within contract limits?			✓
4. Are the duplicate results, yields and MDAs within contract limits?	✓		
5. Are the sample yields and MDAs within contract limits?	✓		
D. Raw Data 1. Were results calculated in the correct units?	✓		
2. Were analysis volumes entered correctly?	✓		
3. Were yields entered correctly?	✓		
4. Were spectra reviewed/meet contractual requirements?	✓		
5. Were raw counts reviewed for anomalies?	✓		
E. 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?			

Comments on any "No" response: both sample + duplicate show A Plutonium peak on energy graph - doesn't interfere with Uiso ROI - Pu-238

First Level Review: Preston Smith Pam Anderson 6-18-02 Date: 6/18/02

LS-038A, Rev. 8, 8/01

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 2242457

Review Item	Yes (√)	No (√)	N/A (√)
A. Calibration			
1. Is the calibration documentation included?			✓
B. Sample Analysis			
1. Are the sample yields within acceptance criteria?	✓		
2. 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. Were units checked?	✓		

Comments on any "No" response: _____

Second Level Review: Bob M Billyn Date: 6/20/02

LS-038B, Rev.9, 09/01

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J2E-020288
Client ID: BHI
Due Date: 7-1-02
QC Batch Number: 2142450
Method Test Parameter: Gamma
Matrix: Soil
SDG Number: W03765

Review Item	Yes (√)	No (√)	N/A (√)
A. COC 1. Is the ICOC page complete (includes all applicable analysts, dates, SOP numbers and revisions)?	✓		
B. QC Batch 1. Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2. Are the QC appropriate for the analysis included in the batch?	✓		
3. Is the Analytical Batch Worksheets complete (includes, as appropriate, volumes, count times, etc.)?	✓		
4. Does the Worksheets include a Tracer Vial label for each sample?			✓
C. QC & Samples 1. Is the blank result, yield and MDA within contract limits?	✓		
2. Is the LCS result, yield and MDA within contract limits?	✓	✓	
3. Are the MS/MSD results, yields and MDAs within contract limits?			✓
4. Are the duplicate results, yields and MDAs within contract limits?	✓		
5. Are the sample yields and MDAs within contract limits?	✓		
D. Raw Data 1. Were results calculated in the correct units?	✓		
2. Were analysis volumes entered correctly?	✓		
3. Were yields entered correctly?			✓
4. Were spectra reviewed/meet contractual requirements?	✓		
5. Were raw counts reviewed for anomalies?			✓
E. Other 1. Are all Nonconformances included and noted? J05604	✓		
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?	✓		

Comments on any "No" response:

First Level Review: [signature] Date: 6-18-02

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 2142450

Review Item	Yes (√)	No (√)	N/A (√)
A. Calibration 1. Is the calibration documentation included?			✓
B. Sample Analysis 1. Are the sample yields within acceptance criteria?			✓
2. 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. Were units checked?	✓		

Comments on any "No" response: _____

Second Level Review: [signature] Date: 4/19/02

LS-038B, Rev.9; 09/01

Clouseau
Nonconformance Memo

SEVERN TRENT SERVICES

NCM #:	J05604	Classification:	Anomaly
NCM Initiated By:	Dale OConnell	Status:	QAREVIEW
Date Opened:	06/18/02	Production Area:	Project Management
Date Closed:	N/A	Tests:	Gamma by GER
		Lot #'s (Sample #'s):	J2E020288 (1); J2E220000 (450)
		QC Batch:	2142450

Nonconformance: Insufficient sample volume for QC
Subcategory: Insufficient sample volume to prepare MS/MSD or duplicate

Problem Description / Root Cause

Name	Date	Description
Dale OConnell	06/18/02	Samples were counted before10-day ingrowth completed for client requested Ra-226. There was insufficient sample volume provided to prepare a duplicate. Client requested U-238DHP at lower abundance, therefor erratic recoveries and higher MDA.

Corrective Action

Name	Date	Corrective Action
Dale OConnell	06/18/02	Samples were recounted after 10-day ingrowth completed for client requested Ra-226. Precision determination achieved by recounting sample on a different detector. Report results with recoveries achieved.

Approval History

Name	Date Approved:	Position
Dale OConnell	06/18/02	

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J2E020288
Client ID: BH4
Due Date: 7/1/02
QC Batch Number: 2142452
Method Test Parameter: TH-232
Matrix: Soil
SDG Number: NA

Review Item	Yes (√)	No (√)	N/A (√)
A. COC 1. Is the ICOC page complete (includes all applicable analysts, dates, SOP numbers and revisions)?	✓		
B. QC Batch 1. Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2. Are the QC appropriate for the analysis included in the batch?	✓		
3. Is the Analytical Batch Worksheets complete (includes, as appropriate, volumes, count times, etc.)?	✓		
4. Does the Worksheets include a Tracer Vial label for each sample?	✓		
C. QC & Samples 1. Is the blank result, yield and MDA within contract limits?	✓		
2. Is the LCS result, yield and MDA within contract limits?	✓		
3. Are the MS/MSD results, yields and MDAs within contract limits?			✓
4. Are the duplicate results, yields and MDAs within contract limits?		✓	
5. Are the sample yields and MDAs within contract limits?		✓	
D. Raw Data 1. Were results calculated in the correct units?	✓		
2. Were analysis volumes entered correctly?	✓		
3. Were yields entered correctly?			✓
4. Were spectra reviewed/meet contractual requirements?	✓		
5. Were raw counts reviewed for anomalies?	✓		
E. 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?	✓		

Comments on any "No" response: CRDLs not met - aliquoted by screens
J05618

First Level Review: Pam Anderson Date: 6·22·02

LS-038A, Rev. 8, 8/01

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 2142452

Review Item	Yes (√)	No (√)	N/A (√)
A. Calibration			
1. Is the calibration documentation included?			✓
B. Sample Analysis			
1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	~~✓~~ DNO	✓	
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. Were units checked?	✓		

Comments on any "No" response: MDA > CRDL – Reduce ~~volume~~ aliquot due to serum matrix DNO

Second Level Review: [signature] Date: 4/23/02

LS-038B, Rev.9, 09/01

Clouseau
Nonconformance Memo

SEVERN TRENT SERVICES

NCM #:	J05618	Classification:	Anomaly
NCM Initiated By:	Pam Anderson	Status:	QAREVIEW
Date Opened:	06/24/02	Production Area:	Environmental - Sep
Date Closed:	N/A	Tests:	SrTot by GPC
		Lot #'s (Sample #'s):	J2E020288 (1)
		QC Batch:	2142452
Nonconformance:	MDA not met		
Subcategory:	Data accepted		

Problem Description / Root Cause

Name	Date	Description
Pam Anderson	06/24/02	Sample aliquot was reduced due to high screening activity.

Corrective Action

Name	Date	Corrective Action
Pam Anderson	06/24/02	None required.

Approval History

Name	Date Approved:	Position
Pam Anderson	06/24/02	

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J2E020288
Client ID: BHI
Due Date: 7/1/02
QC Batch Number: 214253
Method Test Parameter: Sr-1/3
Matrix: Soil
SDG Number: WU3765

Review Item	Yes (√)	No (√)	N/A (√)
A. COC 1. Is the ICOC page complete (includes all applicable analysts, dates, SOP numbers and revisions)?	✓		
B. QC Batch 1. Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2. Are the QC appropriate for the analysis included in the batch?	✓		
3. Is the Analytical Batch Worksheets complete (includes, as appropriate, volumes, count times, etc.)?	✓		
4. Does the Worksheets include a Tracer Vial label for each sample?			✓
C. QC & Samples 1. Is the blank result, yield and MDA within contract limits?	✓		
2. Is the LCS result, yield and MDA within contract limits?	✓		
3. Are the MS/MSD results, yields and MDAs within contract limits?			✓
4. Are the duplicate results, yields and MDAs within contract limits?	✓		
5. Are the sample yields and MDAs within contract limits?	✓		
D. Raw Data 1. Were results calculated in the correct units?	✓		
2. Were analysis volumes entered correctly?	✓		
3. Were yields entered correctly?			✓
4. Were spectra reviewed/meet contractual requirements?			✓
5. Were raw counts reviewed for anomalies?	✓		
E. 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?	✓		

Comments on any "No" response:

First Level Review: Pam Anderson Date: 6-10-02

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 2142453

Review Item	Yes (√)	No (√)	N/A (√)
A. Calibration 1. Is the calibration documentation included?			✓
B. Sample Analysis 1. Are the sample yields within acceptance criteria?			✓
2. 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. Were units checked?	✓		

Comments on any "No" response: _____

Second Level Review: [signature] Date: 6/17/02

LS-038B, Rev.9, 09/01

CHAIN OF CUSTODY

QX-210000

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B02-050-15	Page 1 of 1

Collector R. Fahlberg/R. Nielson	**Company Contact** Duane Jacques	**Telephone No.** 372-9651	**Project Coordinator** TRENT, SJ
Project Designation 216-Z-11 Ditch Borehole Samples	**Sampling Location** 200 West		**SAF No.** B02-050
Ice Chest No. BH1-94	**Field Logbook No.** EL-1517-	**COA** B20CW5674C	**Method of Shipment** Hand deliver - Govt vehicle
Shipped To Severn Trent Incorporated, Richland	**Offsite Property No.** RSR# 107151		**Bill of Lading/Air Bill No.** NA

Price Code 8N **Data Turnaround** 45 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive Tie TO B14DL9 & B14DL8 for Shipping

Special Handling and/or Storage

None

SDG W03765

SAMPLE ANALYSIS J2E020288

			Preservation	None	None	None								
			Type of Container	aG	aG	P								
			No. of Container(s)	1	1	1								
			Volume	500mL	60mL	20ml								
				See item (1) in Special Instructions.	See item (2) in Special Instructions.	Activity Scan								
Sample No.	**Matrix ***	**Sample Date**	**Sample Time**											
B14DK7 EOTNN	SOIL	4/24/02	1345	X	X	X								

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Nielson/R. Nielson	4/24/02 1700	Ref # 1A	4/24/02 700
Ref # 1A	5.2.02 0730	R. Thoren	5.2.02 0730
R. Thoren	5.2.02 0730	R. Thoren	5.2.02 1010
R. Thoren	5.2.02 1010	R. Nielson	5-2-02 1010
R. Nielson/R. Nielson	5-2-03 1127	A. Phinehearl	5-2-02 11:27

SPECIAL INSTRUCTIONS

See COC comments on SAF

(1) Gamma Spec - Complete {~~Antimony-125, Cesium-134~~, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Niobium-94, Radium-226, Radium-228}; Isotopic Thorium {Thorium-232}; ~~Carbon-14~~; Neptunium-237; ~~Nickel-63~~; Strontium-89,90 -- Total Sr; ~~Technetium-99~~; Tritium - H3; Isotopic Uranium RJN 4-15-02 RJN 4-15-02 RJN 4-15-02 RJN 4-15-02

(2) Isotopic Plutonium; Americium-241/Curium-244 {Americium-241}; Americium-241/Curium-244 (Add-on) {Curium-243}

Personnel not available to relinquish samples from the 3728 Ref # 1A on 5/2/02 RT

Matrix *

S=Soil
SE=Sediment
SO=Solid
SI=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 (03/01/2002)

SEVERN TRENT SERVICES

Sample Check-in List

Date/Time Received: 05/02/02 @ 1127

Client: BHI SDG #: W037165 NA [ ] SAF #: B02-050 NA [ ]

Work Order Number: J2E020288 Chain of Custody # B02-050-15

Shipping Container ID: N/A Air Bill # N/A

1. Custody Seals on shipping container intact? NA [ ] Yes [X] No [ ]
2. Custody Seals dated and signed? NA [ ] Yes [X] No [ ]
3. Chain of Custody record present? Yes [X] No [ ]
4. Cooler temperature: _____ NA [X] 5. Vermiculite/packing materials is NA [ ] Wet [ ] Dry [X]
6. Number of samples in shipping container: 3
7. Sample holding times exceeded? NA [X] Yes [ ] No [ ]
8. Samples have:
   - X tape
   - X custody seals
   - X hazard labels
   - X appropriate samples labels
9. Samples are:
   - X in good condition
   - ____ broken
   - ____ leaking
   - ____ have air bubbles (Only for samples requiring head space)
10. Sample pH taken? NA [X] pH<2 [ ] pH>2 [ ]
11. Sample Location, Sample Collector Listed? * Yes [X] No [ ]
    *For documentation only. No corrective action needed.
12. Were any anomalies identified in sample receipt? Yes [ ] No [X]
13. Description of anomalies (include sample numbers): _____

Sample Custodian: [illegible] / Richard Date: 05/02/02

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on _____ by _____ Person contacted _____

[ ] No action necessary; process as is.

Project Manager _____ Date _____

LS-023, 9/01, Rev. 4

RADIOACTIVE SHIPMENT RECORD

107151 3.

Page 1 of 2

1. SHIP FROM U.S. DEPT. OF ENERGY C/O

Company: ~~BHI-HANFORD~~
Address: ~~3728 BUILDING / 300 AREA~~
City, State, Zip: ~~RICHLAND, WA 99352~~
Contact: RIKKI THOREN
Phone: (509)521-8003

Ship: [✓] Prepaid [ ] Collect — 4.

Via: [✓] Motor [ ] Air Psgr [ ] UPS [ ] Rail [ ] Air Cargo [ ] Site Carrier

SHIPMENT AUTHORIZATION NUMBER

2. SHIP TO

Company: SEVERN TRENT INC.
Address: 2800 GEORGE WASHINGTON WAY
City, State, Zip: RICHLAND, WA. 99352
Attention: ~~KAREN ACHTENBERG~~
Phone: ~~509-373-3131~~

5. HM Proper Shipping Name: _____ Radioactive Material,

	excepted package - empty packaging	7	UN2910
	excepted package - instruments or articles	7	UN2910
✓	excepted package - limited quantity of material	7	UN2910
	excepted package - articles manufactured from natural or depleted uranium or natural thorium	7	UN2910
	Special Form, n.o.s.	7	UN2974
	Low Specific Activity, n.o.s.	7	UN2912
	n.o.s.	7	UN2982
	Fissile, n.o.s.	7	UN2918
	Surface Contaminated Object	7	UN2913

Markings Applied 6.
- [ ] Radioactive - LSA
- [ ] Radioactive - SCO
- [ ] Type A
- [ ] Type B with trefoil

LSA Description 8.
- [ ] LSA-I
- [ ] LSA-II
- [ ] LSA-III
- [ ] SCO-I
- [ ] SCO-II

N/A

Labels Applied 10.
- [ ] Empty
- [ ] Radioactive White - I
- [ ] Radioactive Yellow - II
- [ ] Radioactive Yellow - III
- [ ] Subsidiary Hazard

For Normal Form only — 7.
Identify
Physical Form: [ ] Liquid [ ] Gas [✓] Solid
Chemical Form: [ ] Elemental [ ] Metal [ ] Nitrate [ ] Oxide [ ] Mixture [ ] Other

EMERGENCY RESPONSE 9.
Telephone: 1-888-7660741
Emergency Response Guide(s): 161

- Highway Route Controlled Quantity [ ]
- Exclusive Use Shipment with instructions [ ]
- Placards Applied [ ]
- If Rail Specify:
- Fissile Excepted, Grams <15g [✓]
- Excepted Package Statement [✓]

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

11.

No. Pkg.	Model Package	COC/Spec	Serial No.	Seal No.	Isotopes	T.I.	TBq Per Package	Gr. Wt. Kg.
1	PolyCooler (Plastic Box)	Strong Excepted Pkg	BH-94	TAPE	Pu-238, Am241	NA	8.39E-08	9 Kg
	Glass Sand, bubble wrapped in Poly Bag & dry sorb							
(Shipper may describe package in detail on one of the unused lines above)					SAFB02-050 TOTALS		8.39E-08	9 Kg

12. This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Certifier's Signature: [signature] On behalf of DOE-RL | Date: 5-1-02 | Organization: ERC AFS | Complete Cost Code (Inc. End Function): B20WS674C

13.

Surface Dose Rate of Package: [X] <0.005 or _____ mSv/hr; <0.5 or _____ mrem/hr (N+ß γ)

Dose Rate @ 1 Meter from Surface of Package: [X] <0.005 or _____ mSv/hr; <0.5 or _____ mrem/hr (N+ß γ)

Smears of Outer Container:
- [ ] <0.41 Bq (22 dpm) ß γ /cm²
- [ ] <0.04 Bq (2.2 dpm) α /cm²
- [X] <Tbl. 2-2 HSRCM Onsite Limits

TRUCK LOAD OR EXCLUSIVE USE
Surface @ 2 meters @ Cab or sleeper:
- [X] <2 mSv/hr (200 mrem/hr)
- [X] <0.1 mSv/hr (10 mrem/hr)
- [X] <0.02 mSv/hr (2 mrem/hr) (Using N+ß γ)

Additional Data and Instructions (inc. Readings on Internal Packaging)

Signature - Radiation Monitoring: CNLandes | Bldg. 3725 | Survey No. RSR-RCF-02-0137 | Date 5-2-02

14. TRANSPORTER

Vehicle Number: G6207130 | DRIVER SIGNATURE: [signature]

RECEIVER

RECEIVER SIGNATURE: [signature] | Date 05/02/02

15. OFFSITE AUTHORIZATION

Shipment has been inspected and verified to be in compliance with DOT regulations

Authorized Signature: [signature] | Printed Name: Keith R Smith | Date 5-2-02

16. AUTHORIZATION FOR SHIPMENT

AIR TRANSPORT CERTIFICATION: [ ] N/A

CARGO AIRCRAFT: [ ] Cargo Aircraft Only [ ] Labels Applied

PASSENGER AIRCRAFT: [✓] Ltd Qty [ ] <3 T.I. [ ] Research/Medical Diagnosis [ ] Human Medical Research

Pkg. Dimensions (cm)

17. OFFSITE AUTHORIZATION

Tracking No.	Date Shipped	Routing	ETA
RMB4 491			
Surveyed By	Date	Approved for Shipment Offsite	Date

55

54-6000-088 (06/97)

~~Priority Overnight — Thursday Delivery~~
Same Day Delivery (on demand)

ERC Radiological Counting Facility Analysis Report

RCF Number RCF10217 **Sample Date & Time** 4/24/2002 1345

Project ID: 200 WEST **SAF Number:** B02-050 **Date Analyzed** 4/25/2002 1:22

Sample ID: B14DL9

Gamma Energy Analysis

Nuclide		Activity (pCi/g)		Error (pCi/g)	MDC (pCi/g)
K-40	<	8.5E+00			8.5E+00
Co-60	<	7.9E-01			7.9E-01
Cs-137	<	5.9E-01			5.9E-01
Eu-152	<	1.8E+00			1.8E+00
Eu-154	<	2.7E+00			2.7E+00
Eu-155	<	1.6E+00			1.6E+00
Am-241		4.5E+02	+/-	3.5E+01	4.1E+00

Pu 239 1500 pCi/gm

Tie TO B14DK7

* applied absorption factor to alpha

Total GEA (pCi/g)	4.5E+02	+/-	3.5E+01				
	Activity (pCi/g)		Error (pCi/g)		Alpha MDC (pCi/g)	Beta MDC (pCi/g)
* Gross Alpha**	590 ~~2.0E+02~~ 4/29/02	+/-	~~6.2E+00~~	20 49pCi/gm	~~6.8E+01~~	2.4E+01
Gross Beta	4.5E+01	+/-	2.5E+00			

Definitions:

All errors reported at 2 standard deviations.
N/R = no result or analysis not requested. <MDC = Less than detection limit.
All GEA results reported as "<" list the Minimum Detectable Concentration (MDC) value for that radionuclide.
Rounding error may result in the reported total GEA activity differing from the sum of the > MDC GEA values in the second significant digit.

For soils and natural samples, the following applies:

The analysis of U-238 is based on the activity of Pa-234m.
The analysis of Np-237 is based on the activity of Pa-233.
U-238dau is the activity of Pb-214 and Bi-214, short lived daughter products of U-238. Equilibrium between parent and daughter products probably does not exist in disturbed materials.
Th-232dau is the activity of Ac-228, Pb-212, and Tl-208, short lived daughter products of Th-232. Equilibrium between parent and daughter products may not exist in disturbed materials.
Other samples, not containing natural materials, may have inapplicable results for the Th, U, transuranics and daughter products. The results must then be balanced for the gross alpha analysis.
**The gross alpha results are not corrected for mass absorbtion
No peaks for this radionuclide were visible above background in the spectrum. The result was reported as less than MDC.

Analyst T.J.Snider 4/29/2002

Report To	Fax
ID Jacques	373-7711
SJ Trent	372-9292

Report Printed: Monday, April 29, 2002

RSR:
SAF#: B02-050
MEDIA: SOLID

STL Rich

SAMPLE ACTIVITY (HAVE)

SAMPLE#: B14DL8
PACKAGE MASS: 552 grams

HAVE	Pci/gram	Ci/gram	Ci/pkg	TBq/pkg	MBq/pkg
K-40	9.20E+00	9.20E-12	5.08E-09	1.88E-10	1.88E-04
Am-241	1.10E+03	1.10E-09	6.07E-07	2.25E-08	2.25E-02
Pu-239	3.00E+03	3.00E-09	1.66E-06	6.13E-08	6.13E-02
TOTALS:	4.11E+03	4.11E-09	2.27E-06	8.39E-08	0.08

on RSR

LIMITED QUANTITY SHIPMENT (TBq/PKG)

HAVE	TBq/pkg	A2 VALUES	LTD.QTY A2(10-3) Solid	Derived Value Have/A2 Values	
K-40	1.88E-10	0.6	6.00E-04	3.13E-07	0.00
Am-241	2.25E-08	2.00E-04	2.00E-07	1.12E-01	0.11
Pu-239	6.13E-08	2.00E-04	2.00E-07	3.06E-01	0.31
			UNITY TOTAL:	4.19E-01	0.42

UN2910 Radioactive material, excepted package-limited quantity of material

RSR# 107151
PKG BH194

Radcalc for Windows 2.11 Date: 05-01-02 11:43

Performed By: RIKKI THOREN

Checked By: RIKKI THOREN

File: DL8STLS.RAD

========== Input Information ==========

Source from input:

Radionuclide:	Curies:	Becquerels:	Grams:
K-40	5.08E-009	1.88E+002	7.26E-004
Pu-239	1.66E-006	6.14E+004	2.68E-005
Am-241	6.07E-007	2.25E+004	1.77E-007
Total Activity:	2.27E-006	8.41E+004	
Total Minus Daughters:	2.27E-006	8.41E+004	

Waste Form: Normal
Physical Form: Solid
Container Type: 30 Gallon Drum

Package Void Volume: 0.000 cc
Waste Volume: 0.000 cc
Waste Mass: 552. g
Waste Void Volume: 0.000 cc

Date to begin source decay: 11:00 Apr. 1, 2002
Date container sealed: 11:00 May. 1, 2002
Date container received: 11:00 May. 1, 2002
Days to decay source before seal time: 30.00 days
Days container is sealed: 0.00 days

RSR 107151
PKG BH1-94

Entered G Values:

G Alpha	G Beta	G Gamma
0	0	0

Comments:
SAMPLES FROM CW5-200 WEST AREA. SOIL SAMPLES

TOTAL VOLUME IS 552 GRAMS.

STL Richland

========== Calculated Results ==========

DECAY HEAT:
Heat Generated at seal time: 7.19E-008 Watts

TRANSPORTATION:
Note: Transportation classifications assume three significant figures.
Calculations are made at user-specified decay time.

Radioactive: Yes (4.12E+000 nCi/g)
Effective A2 for Mixture: 0.00542 Ci
Type Determination:
Limited Quantity: Yes

EXCEPTED PKG

LSA-I Determination: *Yes (from LSA-I unity fraction 0.75910)
LSA-II Determination: *Yes (from LSA-II unity fraction 0.0075910)
LSA-III Determination: *Yes (from LSA-III unity fraction 0.00037955)
LSA-III also requires a leach test.
*Per 49CFR173.403. The user must check to be sure that all other conditions for LSA are met as found in 49CFR173.403 and 49CFR173.427.

HRC Quantity Determination: No

Fissile Quantity: 2.68E-005 g
Fissile Excepted: Yes
15g fissile radionuclides or less per 49CFR173.453(a)

LSA Container Category: III (Container Category per Reg Guide 7.11)

TRU Waste: No (Transuranic Waste per DOE Order 5820.2a)

Reportable Quantity: No (from RQ unity fraction 0.000227)

Source at start of seal time:

Radionuclide:	Curies:	Becquerels:	Grams:
K-40	5.08E-009	1.88E+002	7.26E-004
Pu-239	1.66E-006	6.14E+004	2.68E-005
U-235	1.34E-016	4.97E-006	6.10E-011
Am-241	6.07E-007	2.25E+004	1.77E-007
Np-237	1.61E-014	5.97E-004	2.29E-011
Total Activity:	2.27E-006	8.41E+004	
Total Minus Daughters:	2.27E-006	8.41E+004	

Shipping Papers and Labels:

ISOTOPE	Number of A2s	Fraction of Total A2s	Cumulative Total A2s
* Pu-239	3.07E-004	7.32E-001	0.732270
* Am-241	1.12E-004	2.68E-001	0.999999
K-40	3.14E-010	7.48E-007	1.00000
Np-237	2.98E-012	7.12E-009	1.00000
U-235	0.00E+000	0.00E+000	1.00000

* Contains 95% of the total A2s and must be included per 49 CFR 173.433.

ENGINEERING DATA TRANSMITTAL

1. EDT 6U

2. To: (Receiving Organization) Packaging Engineering	3. From: (Originating Organization) Packaging Engineering	4. Related EDT No.: NA
5. Proj./Prog./Dept./Div.: 84100	6. Cog. Engr.: P. M. Nguyen	7. Purchase Order No.: NA
8. Originator Remarks: This document is transmitted for approval.		9. Equip./Component No.: NA
		10. System/Bldg./Facility: NA
11. Receiver Remarks:		12. Major Assm. Dwg. No.: NA
		13. Permit/Permit Application No.: NA
		14. Required Response Date: 01/30/95

15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Approval Designator	(G) Reason for Transmittal	(H) Originator Disposition	(I)
1	WHC-SD-TP-DAP-006		0	Documentation and Analysis for Packaging Limited Quantity Ice Chests	SQ	1	1	

16. KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)

(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	
4,1	4,1	Cog.Eng.: PM Nguyen			G2-02	LM Key		1/25/95	G2-02	4,1	
4,1	4,1	Cog. Mgr.: JG Field			G2-02						
4,1		QA: SB Dutta			L6-35						
4,1		Safety: DW McNally			G2-03						
4,1		EF Votaw			G2-02						
4,1	4,1	DL Edwards			S3-90						
4,1	4,1	SS Shirago		1/25/95	G2-02						

18.	19.	20.	21. DOE APPROVAL (if required)
P. M. Nguyen 1/25/95 Signature of EDT Originator Date	Authorized Representative for Receiving Organization Date	Cognizant Manager Date	Ctrl. No. ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments

80-7400-172-2 (04/94) GEF097

RELEASE AUTHORIZATION

Document Number:	WHC-SD-TP-DAP-006, Rev. 0
Document Title:	Documentation and Analysis for Packaging Limited Quantity Ice Chests
Release Date:	2/01/95

This document was reviewed following the procedures described in WHC-CM-3-4 and is:

APPROVED FOR PUBLIC RELEASE

WHC Information Release Administration Specialist:

V.L. Birkland 2/1/95

V.L. Birkland

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2. Title	3. Number	4. Rev No
Documentation and Analysis for Packaging Limited Quantity Ice Chests	WHC-SD-TP-DAP-006	0

5. Key Words	6. Author
Limited Quantity, Ice Chests, International Air Transport Association (IATA), U.S. Department of Transportation (DOT)	Name: P. M. Nguyen PMNguyen Signature Organization/Charge Code 84100/E2297

7. Abstract

The purpose of this Documentation and Analysis for Packaging (DAP) is to document that ice chests meet the intent of the International Air Transport Association (IATA) and the U.S. Department of Transportation (DOT) *Code of Federal Regulations* as strong, tight containers for the packaging of limited quantities for transport.

8. RELEASE STAMP

OFFICIAL RELEASE BY WHC
DATE FEB 02 1995
Sta. 21

A-6400-073 (08/94) WEF124

TERMS

CFR	*Code of Federal Regulations*
DAP	Documentation and Analysis for Packaging
DOT	U.S. Department of Transportation
IATA	International Air Transport Association
LTD QTY	limited quantities

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DOCUMENTATION AND ANALYSIS FOR PACKAGING LIMITED QUANTITY ICE CHESTS

1.0 INTRODUCTION

This Documentation and Analysis for Packaging (DAP) substantiates that the ice chests meet the intent of the International Air Transport Association (IATA) and the U.S. Department of Transportation (DOT) *Code of Federal Regulations* (CFR) as strong, tight containers for packaging limited quantities (LTD QTY) for transport. This DAP also outlines the packaging method used to protect the sample bottles from breakage. Because the ice chests meet the DOT requirements, they can be used to ship LTD QTY on the Hanford Site in accordance with the *Hazardous Material Packaging and Shipping* manual, WHC-CM-2-14, or off the Hanford Site in accordance with DOT and IATA regulations.

2.0 PACKAGE DESCRIPTION

2.1 PACKAGING

The ice chests are commercial, off-the-shelf items. The ice chests have gross weight capacities of 25 kg (55 lb) and 29 kg (65 lb). The primary openings are covered by hinged lids and secured by latches.

Once the sample bottles are loaded and the lids closed, the entire perimeter of the lid-to-container interface is taped securely with duct tape to provide additional sealing of the ice chests.

2.2 CONTENTS

The contents of the ice chests must meet the definition of LTD QTY as provided by the regulations. Contents inside the ice chests are liquid samples contained in glass bottles. The sample bottle sizes range in size from 40 mL (1.35 oz) to 2,360 mL (79.80 oz).

Before shipping, each sample bottle shall be double wrapped in air bubble plastic wrap, the individually wrapped bottles placed in a plastic bag, and the plastic bag arranged in the ice chest. The ice chests will be kept cool with ice or an ice substitute.

3.0 DESIGN REQUIREMENT

The ice chests shall fulfill the design requirements specified in 49 CFR (see Section 4.2 of this DAP) and the requirements of the *IATA Dangerous Goods Regulations* (IATA 1993).

The performance standards applied in the *IATA Dangerous Goods Regulations* take into account conditions of transport characterized by the following severity levels:

- Conditions likely to be encountered in routine transport (incident-free conditions)
- Normal conditions of transport (minor mishaps)
- Accident conditions of transport

The performance standards include design requirements and tests (IATA 1993).

For the free drop test, the ice chests must be dropped in the orientation as to cause the maximum damage with respect to the safety features being tested. The height of the fall is measured from the lowest point of the ice chest to the ground and must not be less than the distance specified for the package mass as shown in Table 1:

Table 1. Drop Test Parameters.

Package Mass kg (lb)	Free Drop Distance m (ft)
5,000 (11,023)	1.2 (4)
≥ 5,000 to 10,000 (≥ 11,023 to 22,046)	0.9 (3)
≥ 10,000 to 15,000 (≥ 22,046 to 33,069)	0.6 (2)
≥ 15,000 (≥ 33,069)	0.3 (1)

Extracted from IATA Dangerous Goods Regulations (IATA 1993) except for English conversion.

For the stacking test, the ice chests must be subjected to a compressive load for 24 hours. The load must equal the following:

- For the 25-kg (55-lb) package, 124.74 kg (275 lb)
- For the 29-kg (65-lb) package, 147.42 kg (325 lb).

4.0 TRANSPORTATION

4.1 MODE OF TRANSPORT, POINT OF ORIGIN, AND DESTINATION

The ice chests with contents may be shipped by air or surface transportation. The authorized shipment is from the Hanford Site to a designated laboratory within the continental United States for analysis.

4.2 REQUIREMENTS

Transportation regulations and requirements applying to the general design and shipment of all packages containing hazardous materials are not provided here. It is the shipper's responsibility to ensure that shipments comply with all applicable regulations.

5.0 EVALUATION

This section evaluates the package after the demonstrational testing (see Section 3.0). The testing to be performed is specified in the *IATA Dangerous Goods Regulations* and 49 CFR. Also see Section 3.0 of this DAP. Documentation and pictures for the drop tests and stacking tests are on file with Packaging Engineering.

5.1 TESTING

5.1.1 Drop Test

Two ice chests, one weighing 25 kg (55 lb) and the other 29 kg (65 lb), were dropped from a height of 1.2 m (4 ft). They were dropped onto a unyielding horizontal surface in the orientation most likely to cause the greatest damage.

During the first drop, each ice chest contained:

- 4 1-L (0.26-gal) glass bottles
- 2 500-mL (16.90-oz) glass bottles
- 4 250-mL (8.45-oz) glass bottles

Each bottle, filled with ordinary tap water, was single wrapped in air bubble plastic. The bottles were then single bagged inside the ice chests. The bottom of each ice chest contained 2.54 cm (1 in.) of absorbent sand and the remaining space was filled with vermiculite.

However, when dropped, one bottle from each ice chest broke. Therefore, a second drop test was performed. The test procedure was the same except that the bottles were double wrapped in air bubble plastic. During this test, the ice chests and contents were not damaged.

5.1.2 Stacking Test

The 25-kg (55-lb) and 29-kg (65-lb) ice chests were subjected to a 24-hour stacking test. The equivalent of five times the mass of the actual package was stacked on top of the ice chest. The weights used in this test are shown in Table 2.

Table 2. Stacking Test Parameters.

Ice Chest Weight	Weight for Stacking Per IATA	Actual Weight Placed on Ice Chest
25 kg (55 lb)	124.74 kg (275 lb)	129.18 kg (284.80 lb)
29 kg (65 lb)	147.42 kg (325 lb)	153.29 kg (337.95 lb)

Extracted from IATA Dangerous Goods Regulations (IATA 1993) except for English conversion.

For the stacking test, the ice chests remained filled as for the second drop tests. Next, two ice chests containing lead "bricks," one 124.74 kg (275 lb) and the other 147.42 kg (325 lb), were stacked on top of the 25-kg (55-lb) and 29-kg (65-lb) ice chests, respectively. After the test, each ice chest was inspected. Neither sustained any damage.

6.0 RECOMMENDATIONS

It is recommended that the sample bottles be packaged in separate compartments using a method similar to that used by the soft drink industry for glass bottles, and foam or equivalent material line the insides of the ice chests. This would prevent the bottles from contacting each other and provide additional shock absorbency for the package.

7.0 REFERENCES

49 CFR 173, 1991, "Transportation," *Code of Federal Regulations*, as amended.

IATA, 1993, *International Air Transport Association Dangerous Goods Regulations*, 34th Edition, Effective January 1, 1993 through December 31, 1993.

IATA, 1994, *International Air Transport Association Dangerous Goods Regulations*, 35th Edition, Effective January 1, 1994 through December 31, 1994.

WHC-CM-2-14, *Hazardous Materials Packaging and Shipping*, Westinghouse Hanford Company, Richland, Washington.

6/5/02 9:48:20 AM

Sample Preparation/Analysis

Balance Id:1120373922 #13

127642, BECHTEL HANFORD, INC.
Bechtel Hanford, Inc.

7I PuAmCm PrpRC5013/RC5019, SepRC5080(5003)/RC5010(5039)
SN Americium-241 and Curium-242,243,244 by Alpha Spec
5I CLIENT: HANFORD

Pipet #:

Report Due: 07/01/2002 W03765

Sep1 DT/Tm Tech:

Batch: 2142456 SOIL pCi/g **PM, Quote: BG1, 27038**

Sep2 DT/Tm Tech:

SEQ Batch, Test: 2142455, 7ISO 2142455, 7ISO

Prep Tech: ,WAGNERJ

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 E0TNN-1-AJ J2E020288-1-SAMP		0.0503g,in	PATB2275 05/03/02 02/15/02 r		200			
04/24/2002 13:45	(0.05g)	AmtRec: 500P,60G,20ML	#Containers: 3				Scr Rst: Alpha: 2.37E+03 pCi/g	Beta: -4.67E+01 pCi/g
2 E0TNN-1-AT-X J2E020288-1-DUP		0.0507g,in	PATB2276 05/03/02 02/15/02 r					
04/24/2002 13:45	(0.05g)	AmtRec: 500P,60G,20ML	#Containers: 3				Scr Rst: Alpha: 2.37E+03 pCi/g	Beta: -4.67E+01 pCi/g
3 E1V29-1-AA-B J2E220000-456-BLK		2.0g,in	PATB2277 05/03/02 03/28/02 r					
04/24/2002 13:45		AmtRec:	#Containers: 1				Scr Rst: Alpha:	Beta:
4 E1V29-1-AC-C J2E220000-456-LCS		2.0g,in	AMSJ0130 01/15/02 09/24/01 r					
04/24/2002 13:45		AmtRec:	#Containers: 1				Scr Rst: Alpha:	Beta:
5 E1V29-1-AD-BX J2E220000-456-MBLK		2.01g,in	PATB2278 05/03/02 03/28/02 r					
04/24/2002 13:45		AmtRec:	#Containers: 1				Scr Rst: Alpha:	Beta:
6 E1V29-1-AE-CM J2E220000-456-MLCS		2.03g,in	AMSJ0131 01/15/02 09/24/01 r					
04/24/2002 13:45		AmtRec:	#Containers: 1				Scr Rst: Alpha:	Beta:

Reduced aliquots ~~for~~ forgotten in parentheses - JL 6-3-02
Samples aliquoted on balance #13 in lab 142 JL 6-3-02
Samples were muffled on 6-3-02, the oddball Sand BX + CM has not muffled. JL 6-4-02

Sample Preparation/Analysis

7I PuAmCm PrpRC5013/RC5019, SepRC5080(5003)/RC5010(5039)
SN Americium-241 and Curium-242,243,244 by Alpha Spec
5I CLIENT: HANFORD

Balance Id:1120373922

Pipet #: _____

Report Due: 07/01/2002

Sep1 DT/Tm Tech:

Batch: 2142456 pCi/g

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,WAGNERJ

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date

Comments:

All Clients for Batch:
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , BG1, 27038

E0TNN1AJ-SAMP Constituent List:

Am-241	RDL:1.00E+00	pCi/g	LCL:70	UCL:130	RPD:35	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35
Cm-242	RDL:1.00E+00	pCi/g	LCL:	UCL:	RPD:	Cm-244	RDL:1.00E+00	pCi/g	LCL:	UCL:	RPD:

E1V291AA-BLK:

Am-241	RDL:1.00E+00	pCi/g	LCL:	UCL:	RPD:	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35
Cm-242	RDL:1.00E+00	pCi/g	LCL:	UCL:	RPD:	Cm-244	RDL:1.00E+00	pCi/g	LCL:	UCL:	RPD:

E1V291AC-LCS:

Am-241	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

E1V291AD-MBLK:

Am-241	RDL:1.00E+00	pCi/g	LCL:	UCL:	RPD:	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35
Cm-242	RDL:1.00E+00	pCi/g	LCL:	UCL:	RPD:	Cm-244	RDL:1.00E+00	pCi/g	LCL:	UCL:	RPD:

E1V291AE-MLCS:

Am-241	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	AM-243	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

E0TNN1AJ-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
E1V291AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
E1V291AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
E1V291AD-MBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
E1V291AE-MLCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

6/24/02 11:45:41 AM

ICOC Fraction Transfer/Status Report

ByDate: 5/25/02, 6/25/02, Batch: '2142456', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
2142456						
AC		**CalcC**	**KenitzerP**	5/28/02 11:45:21 AM		
SC			WagarR	IsBatched	5/22/02 3:40:26 PM	ICOC_RADCALC v4.5.3.2
SC			BELSITOB	InPrep	5/24/02 2:13:57 PM	RICH-RC-5013 REVISION 4
SC			KenitzerP	Rev1C	5/28/02 11:45:21 AM	RICH-RC-0002 REVISION 5
SC			BELSITOB	Prep1C	5/28/02 2:16:29 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep2	6/3/02 9:32:50 AM	RICH-RC-5019 REVISION 2
SC			ManisD	InPrep2	6/3/02 11:40:28 AM	RICH-RC-5019 REVISION 2
SC			WAGNERJ	Prep2C	6/11/02 11:41:24 AM	RICH-RC-5019 REVISION 2
SC			HAMMERL	Sep1C	6/19/02 2:57:04 PM	RICH-RC-5080 REVISION 0
SC			DOWNEYS	InSep2	6/20/02 6:36:11 AM	RICH-RC-5003 REVISION 4
SC			DOWNEYS	Sep2C	6/20/02 8:38:33 AM	RICH-RC-5003 REVISION 4
SC			IOVINC	InCnt1	6/20/02 11:31:51 AM	RICH-RD-0008 REVISION 2
SC			IOVINC	CalcC	6/21/02 10:16:16 AM	RICH-RD-0008 REVISION 2
AC			**BELSITOB**	5/28/02 2:16:29 PM		
AC			**WAGNERJ**	6/3/02 9:32:50 AM		
AC			**ManisD**	6/3/02 11:40:28 AM		
AC			**WAGNERJ**	6/11/02 11:41:24 AM		
AC			**HAMMERL**	6/19/02 2:57:04 PM		
AC			**DOWNEYS**	6/20/02 6:36:11 AM		
AC			**DOWNEYS**	6/20/02 8:38:33 AM		
AC			**IOVINC**	6/20/02 11:31:51 AM		
AC			**IOVINC**	6/21/02 10:16:16 AM		

72

AC: Accepting Entry; SC: Status Change

6/5/02 9:40:48 AM

Sample Preparation/Analysis

127642, BECHTEL HANFORD, INC.
Bechtel Hanford, Inc.

D3 Np PrpRC5013/5077, SepRC5009(5003)
XW Neptunium-237 with tracer by alpha spec
5I CLIENT: HANFORD

Balance Id:1120373922 ✓ #13

Pipet #:

Report Due: 07/01/2002

Sep1 DT/Tm Tech: 06Jun02 09:05 PM

Batch: 2142451 SOIL pCi/g PM, Quote: BG1, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,WAGNERJ

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 E0TNN-1-AH J2E020288-1-SAMP		0.0507g,in	NPTA4589 12/15/01 08/09/01,r				200			
04/24/2002 13:45	(0.05g)	AmtRec: 500P,60G,20ML		#Containers: 3				Scr Rst:	Alpha: 2.37E+03 pCi/g	Beta: -4.67E+01 pCi/g
2 E0TNN-1-AM-X J2E020288-1-DUP		0.0503g,in	NPTA4590 12/15/01 08/09/01,r							
04/24/2002 13:45	(0.05g)	AmtRec: 500P,60G,20ML		#Containers: 3				Scr Rst:	Alpha: 2.37E+03 pCi/g	Beta: -4.67E+01 pCi/g
3 E1V2P-1-AA-B J2E220000-451-BLK		2.0g,in	NPTA4591 12/15/01 08/09/01,r							
04/24/2002 13:45		AmtRec:		#Containers: 1				Scr Rst:	Alpha:	Beta:
4 E1V2P-1-AC-C J2E220000-451-LCS		2.0g,in	NPSE0003 12/15/01 08/09/01,r							
04/24/2002 13:45		AmtRec:		#Containers: 1				Scr Rst:	Alpha:	Beta:

Comments: Reduced aliquots forgotted in permission. [illegible] 6-3-02
Samples aliquoted on balance #13 in lab 142. [illegible] 6-3-02

All Clients for Batch:
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , BG1, 27038

E0TNN1AH-SAMP Constituent List:

Np-237	RDL:1	pCi/g	LCL:	UCL:	RPD:	Np-239	RDL:	pCi/g	LCL:20	UCL:115	RPD:35

E1V2P1AA-BLK:

Np-237	RDL:1	pCi/g	LCL:	UCL:	RPD:	Np-239	RDL:	pCi/g	LCL:20	UCL:115	RPD:35

Sample Preparation/Analysis

D3 Np PrpRC5013/5077, SepRC5009(5003)
XW Neptunium-237 with tracer by alpha spec
5I CLIENT: HANFORD

Balance Id:1120373922

Pipet #: _____

Report Due: 07/01/2002

Sep1 DT/Tm Tech:

Batch: 2142451 pCi/g

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,WAGNERJ

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date

```
E1V2P1AC-LCS:
  Np-237      RDL:1          pCi/g     LCL:70     UCL:130    RPD:35     Np-239     RDL:          pCi/g     LCL:20     UCL:115    RPD:35

E0TNN1AH-SAMP Calc Info:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
E1V2P1AA-BLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
E1V2P1AC-LCS:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

ICOC Fraction Transfer/Status Report

ByDate: 5/8/02, 6/8/02, Batch: '2142451', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
2142451						
AC		**CalcC**	**BELSITOB**	5/24/02 2:13:04 PM		
SC			WagarR	IsBatched	5/22/02 3:40:26 PM	ICOC_RADCALC v4.5.3.2
SC			BELSITOB	InPrep	5/24/02 2:13:04 PM	RICH-RC-5013 REVISION 4
SC			BELSITOB	Prep1C	5/28/02 2:15:47 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep2	6/3/02 9:34:30 AM	RICH-RC-5077 REVISION 1
SC			WAGNERJ	Prep2C	6/5/02 10:43:12 AM	RICH-RC-5077 REVISION 1
SC			DAWKINSO	Cnt1C	6/6/02 5:05:31 PM	RICH-RD-0008 REVISION 2
SC			BlackCL	CalcC	6/7/02 7:33:13 AM	RICH-RD-0008 REVISION 2
AC			**BELSITOB**	5/28/02 2:15:47 PM		
AC			**WAGNERJ**	6/3/02 9:34:30 AM		
AC			**WAGNERJ**	6/5/02 10:43:12 AM		
AC			**DAWKINSO**	6/6/02 5:05:31 PM		
AC			**BlackCL**	6/7/02 7:33:13 AM		

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AC: Accepting Entry; SC: Status Change

6/5/02 9:46:10 AM

Sample Preparation/Analysis

127642, BECHTEL HANFORD, INC.
Bechtel Hanford, Inc.

7I PuAmCm PrpRC5013/RC5019, SepRC5080(5003)/RC5010(5039)
SO Plutonium-238,239/40 by Alpha Spec
5I CLIENT: HANFORD

Balance Id:1120373922 & #13

Pipet #:

Report Due: 07/01/2002

Sep1 DT/Tm Tech:

Batch: 2142455 SOIL pCi/g PM, Quote: BG1, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: 2142456, 7ISN 2142456, 7ISN

Prep Tech: ,WAGNERJ

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 E0TNN-1-AK J2E020288-1-SAMP		0.0503g,in	PATB2275 05/03/02 02/15/02 r		200			
04/24/2002 13:45	(0.05g)	AmtRec: 500P,60G,20ML	#Containers: 3			Scr Rst:	Alpha: 2.37E+03 pCi/g	Beta: -4.67E+01 pCi/g
2 E0TNN-1-AR-X J2E020288-1-DUP		0.0507g,in	PATB2276 05/03/02 02/15/02 r					
04/24/2002 13:45	(0.05g)	AmtRec: 500P,60G,20ML	#Containers: 3			Scr Rst:	Alpha: 2.37E+03 pCi/g	Beta: -4.67E+01 pCi/g
3 E1V26-1-AA-B J2E220000-455-BLK		2.0g,in	PATB2277 05/03/02 03/28/02 r					
04/24/2002 13:45		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:
4 E1V26-1-AC-C J2E220000-455-LCS		2.0g,in	PUSK0446 06/04/02 04/30/02 r					
04/24/2002 13:45		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:
5 E1V26-1-AD-BX J2E220000-455-MBLK		2.01g,in	PATB2278 05/03/02 03/28/02 r					
04/24/2002 13:45		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:
6 E1V26-1-AE-CM J2E220000-455-MLCS		2.03g,in	PUSK0447 06/04/02 04/30/02 r					
04/24/2002 13:45		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:

Reduced aliquots targeted in parentheses. Jw 6-3-02
Samples aliquoted on balance #13 in lab 141. Jw 6-3-02.
Samples muffled on 6-3-02, the odd ones and BX & CM were ~~muffled separately on 6-4-02. Jw 6-4-02~~ Jw 6-4-02 not muffled. Jw 6-4-02.

Sample Preparation/Analysis

7I PuAmCm PrpRC5013/RC5019, SepRC5080(5003)/RC5010(5039)
SO Plutonium-238,239/40 by Alpha Spec
5I CLIENT: HANFORD

Balance Id:1120373922

Pipet #: _____

Report Due: 07/01/2002

Sep1 DT/Tm Tech:

Batch: 2142455 pCi/g

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,WAGNERJ

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date

Comments:

All Clients for Batch:
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , BG1, 27038

E0TNN1AK-SAMP Constituent List:

PU-238	RDL:1	pCi/g	LCL:	UCL:	RPD:	PU-239	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35
Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35						

E1V261AA-BLK:

PU-238	RDL:1	pCi/g	LCL:	UCL:	RPD:	PU-239	RDL:1	pCi/g	LCL:	UCL:	RPD:
Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35						

E1V261AC-LCS:

PU-239	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

E1V261AD-MBLK:

PU-238	RDL:1	pCi/g	LCL:	UCL:	RPD:	PU-239	RDL:1	pCi/g	LCL:	UCL:	RPD:
Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35						

E1V261AE-MLCS:

PU-239	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

E0TNN1AK-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

E1V261AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

E1V261AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

E1V261AD-MBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

E1V261AE-MLCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

ICOC Fraction Transfer/Status Report

ByDate: 5/25/02, 6/25/02, Batch: '2142455', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
2142455						
AC		**CalcC**	**KenitzerP**	5/28/02 11:45:10 AM		
SC			WagarR	IsBatched	5/22/02 3:40:26 PM	ICOC_RADCALC v4.5.3.2
SC			BELSITOB	InPrep	5/24/02 2:14:22 PM	RICH-RC-5013 REVISION 4
SC			KenitzerP	Rev1C	5/28/02 11:45:10 AM	RICH-RC-0002 REVISION 5
SC			BELSITOB	Prep1C	5/28/02 2:16:48 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep2	6/3/02 9:33:39 AM	RICH-RC-5019 REVISION 2
SC			ManisD	InPrep2	6/3/02 11:40:47 AM	RICH-RC-5019 REVISION 2
SC			WAGNERJ	Prep2C	6/11/02 11:41:46 AM	RICH-RC-5019 REVISION 2
SC			HAMMERL	Sep1C	6/18/02 2:40:45 PM	RICH-RC-5080 REVISION 0
SC			McPHERONC	InSep2	6/19/02 7:06:59 AM	RICH-RC-5039 REVISION 3
SC			McPHERONC	Sep2C	6/19/02 9:59:51 AM	RICH-RC-5039 REVISION 3
SC			IOVINC	InCnt1	6/19/02 11:09:12 AM	RICH-RD-0008 REVISION 2
SC			IOVINC	CalcC	6/20/02 10:20:43 AM	RICH-RD-0008 REVISION 2
AC			**BELSITOB**	5/28/02 2:16:48 PM		
AC			**WAGNERJ**	6/3/02 9:33:39 AM		
AC			**ManisD**	6/3/02 11:40:47 AM		
AC			**WAGNERJ**	6/11/02 11:41:46 AM		
AC			**HAMMERL**	6/18/02 2:40:45 PM		
AC			**McPHERONC**	6/19/02 7:06:59 AM		
AC			**McPHERONC**	6/19/02 9:59:51 AM		
AC			**IOVINC**	6/19/02 11:09:12 AM		
AC			**IOVINC**	6/20/02 10:20:43 AM		

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AC: Accepting Entry; SC: Status Change

6/5/02 9:42:28 AM

Sample Preparation/Analysis

Balance Id:1120373922 ↓ #13

127642, BECHTEL HANFORD, INC. ,
Bechtel Hanford, Inc.

9R Thlso PrpRC5013/RC5019, SepRC5084(5003)
S1 Thorium-228,230,232 by Alpha Spec
5I CLIENT: HANFORD

Pipet #: _____

Report Due: 07/01/2002

Sep1 DT/Tm Tech:

Batch: 2142454 SOIL pCi/g PM, Quote: BG1, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,WAGNERJ

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 E0TNN-1-AE J2E020288-1-SAMP		0.0497g,in	THTC4294 05/24/02 05/06/02 r		200			
04/24/2002 13:45 (0.05g)		AmtRec: 500P,60G,20ML	#Containers: 3				Scr Rst: Alpha: 2.37E+03 pCi/g	Beta: -4.67E+01 pCi/g
2 E0TNN-1-AQ-X J2E020288-1-DUP		0.0506g,in	THTC4295 05/24/02 05/06/02 r					
04/24/2002 13:45 (0.05g)		AmtRec: 500P,60G,20ML	#Containers: 3				Scr Rst: Alpha: 2.37E+03 pCi/g	Beta: -4.67E+01 pCi/g
3 E1V22-1-AA-B J2E220000-454-BLK		2.0g,in	THTC4296 05/24/02 05/06/02 r					
04/24/2002 13:45		AmtRec:	#Containers: 1				Scr Rst: Alpha:	Beta:
4 E1V22-1-AC-C J2E220000-454-LCS		2.0g,in	THSI0472 05/24/02 05/06/02 r					
04/24/2002 13:45		AmtRec:	#Containers: 1				Scr Rst: Alpha:	Beta:

Comments: Reduced aliquots targeted in parenthesis. JW 6-3-02
Samples aliquoted on balance #13 in lab 142. JW 6-3-02
Samples muffled on 6-3-02. JW 6-3-02
Samples converted with conc HCl 3X. JW 6-10-02

All Clients for Batch:
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , BG1, 27038

E0TNN1AE-SAMP Constituent List:

Th-228	RDL:1	pCi/g	LCL:	UCL:	RPD:	Th-230	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35
Th-232	RDL:1	pCi/g	LCL:	UCL:	RPD:	Th-234	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

E1V221AA-BLK:

Th-228	RDL:1	pCi/g	LCL:	UCL:	RPD:	Th-230	RDL:1	pCi/g	LCL:	UCL:	RPD:
Th-232	RDL:1	pCi/g	LCL:	UCL:	RPD:	Th-234	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

Sample Preparation/Analysis

9R ThIso PrpRC5013/RC5019, SepRC5084(5003)
S1 Thorium-228,230,232 by Alpha Spec
5I CLIENT: HANFORD

Balance Id:1120373922

Pipet #: _____

Report Due: 07/01/2002

Sep1 DT/Tm Tech:

Batch: 2142454 pCi/g

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,WAGNERJ

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date

```
E1V221AC-LCS:
  Th-230      RDL:1          pCi/g     LCL:70     UCL:130     RPD:35      Th-234      RDL:          pCi/g     LCL:20     UCL:105     RPD:35

E0TNN1AE-SAMP Calc Info:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
E1V221AA-BLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
E1V221AC-LCS:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

ICOC Fraction Transfer/Status Report

ByDate: 5/19/02, 6/19/02, Batch: '2142454', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
2142454						
AC		CalcC	BELSITOB	5/24/02 2:13:20 PM		
SC			WagarR	IsBatched	5/22/02 3:40:26 PM	ICOC_RADCALC v4.5.3.2
SC			BELSITOB	InPrep	5/24/02 2:13:20 PM	RICH-RC-5013 REVISION 4
SC			BELSITOB	Prep1C	5/28/02 2:15:58 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep2	6/3/02 9:34:13 AM	RICH-RC-5019 REVISION 2
SC			ManisD	InPrep2	6/3/02 3:38:45 PM	RICH-RC-5019 REVISION 2
SC			WAGNERJ	Prep2C	6/10/02 3:37:43 PM	RICH-RC-5019 REVISION 2
SC			HAMMERL	InSep1	6/12/02 2:47:34 PM	RICH-RC-5084 REVISION 0
SC			HAMMERL	Sep1C	6/13/02 2:45:55 PM	RICH-RC-5084 REVISION 0
SC			DOWNEYS	InSep2	6/14/02 4:30:19 AM	RICH-RC-5003 REVISION 4
SC			McPHERONC	InSep2	6/14/02 7:05:17 AM	RICH-RC-5003 REVISION 4
SC			McPHERONC	Sep2C	6/14/02 7:58:41 AM	RICH-RC-5003 REVISION 4
SC			IOVINC	InCnt1	6/14/02 9:17:35 AM	RICH-RD-0008 REVISION 2
SC			BlackCL	CalcC	6/17/02 8:48:20 AM	RICH-RD-0008 REVISION 2
AC			**BELSITOB**	5/28/02 2:15:58 PM		
AC			**WAGNERJ**	6/3/02 9:34:13 AM		
AC			**ManisD**	6/3/02 3:38:45 PM		
AC			**WAGNERJ**	6/10/02 3:37:43 PM		
AC			**HAMMERL**	6/12/02 2:47:34 PM		
AC			**HAMMERL**	6/13/02 2:45:55 PM		
AC			**DOWNEYS**	6/14/02 4:30:19 AM		
AC			**McPHERONC**	6/14/02 7:05:17 AM		
AC			**McPHERONC**	6/14/02 7:58:41 AM		
AC			**IOVINC**	6/14/02 9:17:35 AM		
AC			**BlackCL**	6/17/02 8:48:20 AM		

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AC: Accepting Entry; SC: Status Change

6/5/02 9:43:52 AM

Sample Preparation/Analysis

Balance Id:1120373922 ↓ #13

127642, BECHTEL HANFORD, INC. , 7S Uiso PrpRC5013/RC5019, SepRC5079(5039)
Bechtel Hanford, Inc. SR Uranium-234,235,238 by Alpha Spec

Pipet #: _____

Report Due: 07/01/2002 5I CLIENT: HANFORD

Sep1 DT/Tm Tech:

Batch: 2142457 SOIL pCi/g PM, Quote: BG1, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,WAGNERJ

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 E0TNN-1-AA J2E020288-1-SAMP		0.0505g,in	UITC7425 05/21/02 01/18/02,r		200			
04/24/2002 13:45	(0.05g)	AmtRec: 500P,60G,20ML	#Containers: 3				Scr Rst: Alpha: 2.37E+03 pCi/g	Beta: -4.67E+01 pCi/g
2 E0TNN-1-AU-X J2E020288-1-DUP		0.0506g,in	UITC7426 05/21/02 01/18/02,r					
04/24/2002 13:45	(0.05g)	AmtRec: 500P,60G,20ML	#Containers: 3				Scr Rst: Alpha: 2.37E+03 pCi/g	Beta: -4.67E+01 pCi/g
3 E1V3F-1-AA-B J2E220000-457-BLK		2.0g,in	UITC7427 05/21/02 01/18/02,r					
04/24/2002 13:45		AmtRec:	#Containers: 1				Scr Rst: Alpha:	Beta:
4 E1V3F-1-AC-C J2E220000-457-LCS		2.0g,in	UISH0131 01/17/02 09/24/01,r					
04/24/2002 13:45		AmtRec:	#Containers: 1				Scr Rst: Alpha:	Beta:

Comments: Reduced aliquots ~~for~~ Jr 6-3-02 Together in parenthesis. Jr 6-3-02
Sample aliquoted on balance #13 in Lab 142. Jr 6-3-02
Samples muffled on 6-3-02. Jr 6-3-02
Samples converted 3X ~~with~~ with cartel. Jr 6-10-02 Jr 6-10-02

All Clients for Batch:
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , BG1, 27038

E0TNN1AA-SAMP Constituent List:

U-232	RDL:	pCi/g	LCL:20	UCL:105	RPD:35	U-234	RDL:1	pCi/g	LCL:	UCL:	RPD:
U-235	RDL:1	pCi/g	LCL:	UCL:	RPD:	U-238	RDL:1	pCi/g	LCL:	UCL:	RPD:

E1V3F1AA-BLK:

U-232	RDL:	pCi/g	LCL:20	UCL:105	RPD:35	U-234	RDL:1	pCi/g	LCL:	UCL:	RPD:
U-235	RDL:1	pCi/g	LCL:	UCL:	RPD:	U-238	RDL:1	pCi/g	LCL:	UCL:	RPD:

Sample Preparation/Analysis

7S Ulso PrpRC5013/RC5019, SepRC5079(5039)
SR Uranium-234,235,238 by Alpha Spec
5I CLIENT: HANFORD

Balance Id:1120373922

Pipet #: _____

Report Due: 07/01/2002

Sep1 DT/Tm Tech:

Batch: 2142457 pCi/g

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,WAGNERJ

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date

```
E1V3F1AC-LCS:
  U-232      RDL:          pCi/g     LCL:20     UCL:105     RPD:35     Uranium     RDL:          pCi/g     LCL:70     UCL:130     RPD:35

E0TNN1AA-SAMP Calc Info:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
E1V3F1AA-BLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
E1V3F1AC-LCS:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

ICOC Fraction Transfer/Status Report

ByDate: 5/20/02, 6/20/02, Batch: '2142457', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
2142457						
AC		**CalcC**	**BELSITOB**	5/24/02 2:13:38 PM		
SC			WagarR	IsBatched	5/22/02 3:40:26 PM	ICOC_RADCALC v4.5.3.2
SC			BELSITOB	InPrep	5/24/02 2:13:38 PM	RICH-RC-5013 REVISION 4
SC			BELSITOB	Prep1C	5/28/02 2:16:08 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep2	6/3/02 9:33:57 AM	RICH-RC-5019 REVISION 2
SC			ManisD	InPrep2	6/3/02 3:38:18 PM	RICH-RC-5019 REVISION 2
SC			WAGNERJ	Prep2C	6/10/02 3:37:37 PM	RICH-RC-5019 REVISION 2
SC			HAMMERL	InSep1	6/11/02 10:41:47 AM	RICH-RC-5079 REVISION 1
SC			HAMMERL	Sep1C	6/11/02 3:45:13 PM	RICH-RC-5079 REVISION 1
SC			DOWNEYS	InSep2	6/12/02 4:04:05 AM	RICH-RC-5039 REVISION 3
SC			McPHERONC	InSep2	6/12/02 9:05:47 AM	RICH-RC-5039 REVISION 3
SC			McPHERONC	Sep2C	6/13/02 8:14:58 AM	RICH-RC-5039 REVISION 3
SC			IOVINC	InCnt1	6/13/02 9:01:17 AM	RICH-RD-0008 REVISION 2
SC			IOVINC	CalcC	6/14/02 12:50:50 PM	RICH-RD-0008 REVISION 2
AC			**BELSITOB**	5/28/02 2:16:08 PM		
AC			**WAGNERJ**	6/3/02 9:33:57 AM		
AC			**ManisD**	6/3/02 3:38:18 PM		
AC			**WAGNERJ**	6/10/02 3:37:37 PM		
AC			**HAMMERL**	6/11/02 10:41:47 AM		
AC			**HAMMERL**	6/11/02 3:45:13 PM		
AC			**DOWNEYS**	6/12/02 4:04:05 AM		
AC			**McPHERONC**	6/12/02 9:05:47 AM		
AC			**McPHERONC**	6/13/02 8:14:58 AM		
AC			**IOVINC**	6/13/02 9:01:17 AM		
AC			**IOVINC**	6/14/02 12:50:50 PM		

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AC: Accepting Entry; SC: Status Change

SEVERN TRENT SERVICES

*** RE-COUNT REQUEST ***

DUE DATE 7-1-02

CUSTOMER BHI

ANALYSIS γ

MATRIX Soil

LOT NUMBER J2E020288

SAMPLE DELIVERY GROUP WO 3765

OLD BATCH NUMBER 2142450

LAB SAMPLE ID	REASON FOR REQUEST & ANALYSIS COMMENTS
1) EOTNN-1-AG	NEEDS 10 DAY INGROWTH, COUNT ON OR AFTER
2) EOTNN-1-AL-X	6-7-02 or 6-6-02
3) EIV2J-1-AA-BX	
4) EIV2J-1-AC-CM	
5)	
6)	
7)	
8)	
9)	
10)	
11)	
12)	
13)	
14)	
15)	
16)	
17)	
18)	
19)	
20)	

RC-126 05/01 REV 3

6/7/02 9:04:51 AM

Sample Preparation/Analysis

127642, BECHTEL HANFORD, INC.
Bechtel Hanford, Inc.

AX Gamma PrpRC5013/5017
TA Gamma by HPGE
5I CLIENT: HANFORD

Balance Id:

Pipet #:

Report Due: 07/01/2002

Sep1 DT/Tm Tech:

Batch: 2142450 SOIL pCi/g PM, Quote: BG1, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech:

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 E0TNN-1-AG J2E020288-1-SAMP 04/24/2002 13:45		AmtRec: 500P,60G,20ML		#Containers: 3		Scr Rst:	Alpha: 2.37E+03 pCi/g		Beta: -4.67E+01 pCi/g	
2 E0TNN-1-AL-X J2E020288-1-DUP 04/24/2002 13:45		AmtRec: 500P,60G,20ML		#Containers: 3		Scr Rst:	Alpha: 2.37E+03 pCi/g		Beta: -4.67E+01 pCi/g	
3 E0TNN-2-AG J2E020288-1-SAMP 04/24/2002 13:45	371.3	AmtRec: 500P,60G,20ML		#Containers: 3		500 Scr Rst:	600 Alpha: 2.37E+03 pCi/g	G6	6/11/2002 0446 Beta: -4.67E+01 pCi/g	6/10/2002
4 E0TNN-2-AL-X J2E020288-1-DUP 04/24/2002 13:45	371.3	AmtRec: 500P,60G,20ML		#Containers: 3		Scr Rst:	600 Alpha: 2.37E+03 pCi/g	G8	6/12/2002 0409 Beta: -4.67E+01 pCi/g	6/11/2002
5 E1V2J-1-AA-BX J2E220000-450-MBLK 04/24/2002 13:45		AmtRec:		#Containers: 1		Scr Rst:	Alpha:		Beta:	
6 E1V2J-1-AC-CM J2E220000-450-MLCS 04/24/2002 13:45		AmtRec:		#Containers: 1		Scr Rst:	Alpha:		Beta:	
7 E1V2J-2-AA-BX J2E220000-450-MBLK 04/24/2002 13:45	348.0	OSBK AmtRec:		#Containers: 1		500 Scr Rst:	600 Alpha:	G7	6/11/2002 0447 Beta:	6/10/2002

STL Richland
Richland Wa.

Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt,
r - Reference date, ec-Enrichment Cell, ct-Cocktailed Added

WO Cnt: 7
ICOC v4.5.3.2

6/6/2002 4:00:57 PM

Sample Preparation/Analysis

AX Gamma PrpRC5013/5017
TA Gamma by HPGE
5I CLIENT: HANFORD

Balance Id:

Pipet #:

Report Due: 07/01/2002

Sep1 DT/Tm Tech:

Batch: 2142450 pCi/g

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech:

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
8 E1V2J-2-AC-CM J2E220000-450-MLCS	200.01		Cal491			S200	600	G8	6/11/2002 0449	6/10/2002 OR

04/24/2002 13:45 AmtRec: #Containers: 1 Scr Rst: Alpha: Beta:

Comments:

All Clients for Batch:
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , BG1, 27038

E0TNN1AG-SAMP Constituent List:

Co-60	RDL:5.00E-02	pCi/g	LCL:	UCL:	RPD:	Cs-137	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:
Eu-152	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:	Eu-154	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:
Eu-155	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:						

E1V2J1AA-MBLK:

Co-60	RDL:5.00E-02	pCi/g	LCL:	UCL:	RPD:	Cs-137	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:
Eu-152	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:	Eu-154	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:
Eu-155	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:						

E1V2J1AC-MLCS:

Cs-137	RDL:0.1	pCi/g	LCL:70	UCL:130	RPD:35	K-40	RDL:--	pCi/g	LCL:70	UCL:130	RPD:35
Ra-226	RDL:0.1	pCi/g	LCL:70	UCL:130	RPD:35	RA-228	RDL:0.2	pCi/g	LCL:70	UCL:130	RPD:35
RA-228DA	RDL:0.2	pCi/g	LCL:70	UCL:130	RPD:35	U-238	RDL:	pCi/g	LCL:70	UCL:130	RPD:35

E1V2J2AA-MBLK:

Co-60	RDL:0.05	pCi/g	LCL:	UCL:	RPD:	Cs-137	RDL:0.1	pCi/g	LCL:	UCL:	RPD:
Eu-152	RDL:0.1	pCi/g	LCL:	UCL:	RPD:	Eu-154	RDL:0.1	pCi/g	LCL:	UCL:	RPD:
Eu-155	RDL:0.1	pCi/g	LCL:	UCL:	RPD:						

E1V2J2AC-MLCS:

Cs-137	RDL:0.1	pCi/g	LCL:70	UCL:130	RPD:35	K-40	RDL:--	pCi/g	LCL:70	UCL:130	RPD:35
Ra-226	RDL:0.1	pCi/g	LCL:70	UCL:130	RPD:35	RA-228	RDL:0.2	pCi/g	LCL:70	UCL:130	RPD:35
RA-228DA	RDL:0.2	pCi/g	LCL:70	UCL:130	RPD:35	U-238	RDL:	pCi/g	LCL:70	UCL:130	RPD:35

E0TNN1AG-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

E1V2J1AA-MBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

E1V2J1AC-MLCS:

Sample Preparation/Analysis

AX Gamma PrpRC5013/5017
TA Gamma by HPGE
5I CLIENT: HANFORD

Report Due: 07/01/2002

Batch: 2142450 pCi/g

SEQ Batch, Test: None

Balance Id:

Pipet #:

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech:

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date

```
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
E1V2J2AA-MBLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
E1V2J2AC-MLCS:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

ICOC Fraction Transfer/Status Report

ByDate: 3/31/02, 6/19/02, Batch: '2142450', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
2142450						
AC		**CalcC**	**BELSITOB**	5/24/02 2:11:55 PM		
SC			WagarR	IsBatched	5/22/02 3:40:26 PM	ICOC_RADCALC v4.5.3.2
SC			BELSITOB	InPrep	5/24/02 2:11:55 PM	RICH-RC-5013 REVISION 4
SC			BELSITOB	InPrep	5/24/02 2:12:13 PM	RICH-RC-5017 REVISION 3
SC			BELSITOB	Prep1C	5/28/02 2:15:11 PM	RICH-RC-5013 REVISION 4
SC			BELSITOB	Prep1C	5/28/02 2:15:23 PM	RICH-RC-5017 REVISION 3
SC			DAWKINSO	Cnt1C	5/28/02 2:50:27 PM	RICH-RD-0007 REVISION 2
SC			BlackCL	CalcC	5/31/02 8:00:35 AM	RICH-RD-0007 REVISION 2
SC			BlackCL	InCnt1	6/7/02 9:21:13 AM	RICH-RD-0007 REVISION 2
SC			BlackCL	CalcC	6/12/02 6:55:35 AM	RICH-RD-0007 REVISION 2
AC			**BELSITOB**	5/24/02 2:12:13 PM		
AC			**BELSITOB**	5/28/02 2:15:11 PM		
AC			**BELSITOB**	5/28/02 2:15:23 PM		
AC			**DAWKINSO**	5/28/02 2:50:27 PM		
AC			**BlackCL**	5/31/02 8:00:35 AM		
AC			**BlackCL**	6/7/02 9:21:13 AM		
AC			**BlackCL**	6/12/02 6:55:00 AM		
AC			**BlackCL**	6/12/02 6:55:35 AM		

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AC: Accepting Entry; SC: Status Change

6/5/02 9:37:39 AM

Sample Preparation/Analysis

127642, BECHTEL HANFORD, INC. , Bechtel Hanford, Inc.

CH Sr-Total PrpRC5013, SepRC5006
TH Total Strontium by GPC
5I CLIENT: HANFORD

Balance Id:1120373922 + #13

Pipet #:

Sep1 DT/Tm Tech: 6-20-02 @ 1205 am

Report Due: 07/01/2002

Batch: 2142452 SOIL pCi/g PM, Quote: BG1, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: None All Tests: 88OV, 2142450 AXTA, 2142451 D3XW, 2142452 CHTH, 2142453 ATS6, 2142454 9RS1, 2142455 7ISO, 2142456 7ISN, 2142457 7SSR,

Prep Tech: ,WAGNERJ

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 E0TNN-1-AC J2E020288-1-SAMP		0.1005g,in	SRTA7487 05/23/02 02/21/02 r		1.5	0.1011g	50	28A	1913	6/20/2002 20D
04/24/2002 13:45	(0.1g)	AmtRec: 500P,60G,20ML	#Containers: 3				Scr Rst:	Alpha: 2.37E+03 pCi/g		Beta: -4.67E+01 pCi/g
2 E0TNN-1-AN-X J2E020288-1-DUP		0.1011g,in	SRTA7488 05/23/02 02/21/02 r			0.1025g		28B	1913	6/20/2002 20D
04/24/2002 13:45	(0.1g)	AmtRec: 500P,60G,20ML	#Containers: 3				Scr Rst:	Alpha: 2.37E+03 pCi/g		Beta: -4.67E+01 pCi/g
3 E1V2Q-1-AA-B J2E220000-452-BLK		6.0g,in	SRTA7489 05/23/02 02/21/02 r			0.0977g		28C	1913	6/20/2002 20D
04/24/2002 13:45		AmtRec:	#Containers: 1				Scr Rst:	Alpha:		Beta:
4 E1V2Q-1-AC-C J2E220000-452-LCS		6.0g,in	STSB0611 06/01/02 02/21/02 r			0.0991g		28D	1913	6/20/2002 20D
04/24/2002 13:45		AmtRec:	#Containers: 1				Scr Rst:	Alpha:		Beta:

Comments: Reduced aliquots Targeted in parenthesis. 6-3-02
Samples aliquoted on balance #13 in lab 142. 6-3-02

All Clients for Batch:
127642, BECHTEL HANFORD, INC. Bechtel Hanford, Inc. , BG1, 27038

E0TNN1AC-SAMP Constituent List:

Sr-90	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35
E1V2Q1AA-BLK:					
Sr-90	RDL:1	pCi/g	LCL:	UCL:	RPD:
E1V2Q1AC-LCS:					
Sr-90	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35

E0TNN1AC-SAMP Calc Info:

Sample Preparation/Analysis

CH Sr-Total PrpRC5013, SepRC5006
TH Total Strontium by GPC
5I CLIENT: HANFORD

Balance Id:1120373922

Pipet #:

Sep1 DT/Tm Tech: 6-20-02 1205 DW

Sep2 DT/Tm Tech:

Prep Tech: ,WAGNERJ

Report Due: 07/01/2002

Batch: 2142452 pCi/g

SEQ Batch, Test: None

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date

```
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
E1V2Q1AA-BLK:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
E1V2Q1AC-LCS:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

ICOC Fraction Transfer/Status Report

ByDate: 5/25/02, 6/25/02, Batch: '2142452', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
2142452						
AC		**CalcC**	**BELSITOB**	5/28/02 2:15:36 PM		
SC			WagarR	IsBatched	5/22/02 3:40:26 PM	ICOC_RADCALC v4.5.3.2
SC			BELSITOB	InPrep	5/24/02 2:12:39 PM	RICH-RC-5013 REVISION 4
SC			BELSITOB	Prep1C	5/28/02 2:15:36 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep2	6/3/02 9:34:47 AM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	Prep2C	6/5/02 10:43:21 AM	RICH-RC-5013 REVISION 4
SC			McDowellD	Sep1C	6/20/02 12:55:47 PM	RICH-RC-5006 REVISION 4
SC			DAWKINSO	Cnt1C	6/20/02 2:57:20 PM	RICH-RD-0003 REVISION 2
SC			BlackCL	CalcC	6/21/02 7:49:06 AM	RICH-RD-0003 REVISION 2
AC			**WAGNERJ**	6/3/02 9:34:47 AM		
AC			**WAGNERJ**	6/5/02 10:43:21 AM		
AC			**McDowellD**	6/20/02 12:55:47 PM		
AC			**DAWKINSO**	6/20/02 2:57:20 PM		
AC			**BlackCL**	6/21/02 7:49:06 AM		

92

AC: Accepting Entry; SC: Status Change

5/22/2002 3:40:37 PM

Sample Preparation/Analysis

127642, BECHTEL HANFORD, INC.
Bechtel Hanford, Inc.

AT H-3 Prp/SepRC5037
S6 Tritium by Liquid Scint
5I CLIENT: HANFORD

Balance Id: 028
Pipet #:

Report Due: 07/01/2002 W037405

Batch: 2142453 **SOIL** **pCi/g** **PM, Quote: BG1, 27038**

SEQ Batch, Test: None

Sep1 DT/Tm Tech: 6-6-02 am
Sep2 DT/Tm Tech:
Prep Tech:

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 E0TNN-1-AF J2E020288-1-SAMP								
04/24/2002 13:45		AmtRec: 500P,60G,20ML	#Containers: 3			Scr Rst:	Alpha: 2.37E+03 pCi/g	Beta: -4.67E+01 pCi/g
2 E0TNN-1-AP-X J2E020288-1-DUP								
04/24/2002 13:45		AmtRec: 500P,60G,20ML	#Containers: 3			Scr Rst:	Alpha: 2.37E+03 pCi/g	Beta: -4.67E+01 pCi/g
3 E1V2V-1-AA-B J2E220000-453-BLK								
04/24/2002 13:45		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:
4 E1V2V-1-AC-C J2E220000-453-LCS								
04/24/2002 13:45		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:
5 E1V2V-1-AD-BN J2E220000-453-IBLK								
04/24/2002 13:45		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:
6 E1V2V-1-AE-BN J2E220000-453-IBLK								
04/24/2002 13:45		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:

Sample Preparation/Analysis

AT H-3 Prp/SepRC5037
S6 Tritium by Liquid Scint
5I CLIENT: HANFORD

Balance Id: 028
Pipet #:
Sep1 DT/Tm Tech: 6-6-02 DM
Sep2 DT/Tm Tech:
Prep Tech:

Report Due: 07/01/2002

Batch: 2142453 pCi/g

SEQ Batch, Test: None

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date

Comments:

```
All Clients for Batch:
   127642, BECHTEL HANFORD, INC.                    Bechtel Hanford, Inc.        ,  BG1, 27038

E0TNN1AF-SAMP Constituent List:
  H-3          RDL:400          pCi/g      LCL:70       UCL:130      RPD:35
E1V2V1AA-BLK:
  H-3          RDL:400          pCi/g      LCL:         UCL:         RPD:
E1V2V1AC-LCS:
  H-3          RDL:400          pCi/g      LCL:70       UCL:130      RPD:35
E1V2V1AD-IBLK:
  H-3          RDL:400          pCi/g      LCL:         UCL:         RPD:
E1V2V1AE-IBLK:
  H-3          RDL:400          pCi/g      LCL:         UCL:         RPD:

E0TNN1AF-SAMP Calc Info:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
E1V2V1AA-BLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
E1V2V1AC-LCS:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
E1V2V1AD-IBLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
E1V2V1AE-IBLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

6/10/02 5:31:21 PM

ICOC Fraction Transfer/Status Report

ByDate: 5/11/02, 6/11/02, Batch: '2142453', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
2142453						
AC		**CalcC**	**McDowellD**	6/6/02 10:57:32 AM		
SC			WagarR	IsBatched	5/22/02 3:40:26 PM	ICOC_RADCALC v4.5.3.2
SC			McDowellD	InSep1	6/6/02 10:57:32 AM	RICH-RC-5037 REVISION 3
SC			McDowellD	Sep1C	6/7/02 2:13:15 PM	RICH-RC-5037 REVISION 3
SC			DAWKINSO	Cnt1C	6/7/02 2:24:56 PM	RICH-RD-0001 REVISION 1
SC			BlackCL	CalcC	6/10/02 8:37:34 AM	RICH-RD-0001 REVISION 1
AC			**McDowellD**	6/7/02 2:13:15 PM		
AC			**DAWKINSO**	6/7/02 2:24:56 PM		
AC			**BlackCL**	6/10/02 8:37:34 AM		

95

AC: Accepting Entry; SC: Status Change