SEVERN TRENT SERVICES

CASE NARRATIVE

STL St. Louis

Bechtel Hanford Incorporated
3350 George Washington Way
Richland, Washington 99352

August 22, 2001

Attention: Joan Kessner

Project Number	:	43018
SAF	:	B01-058
SDG	:	W03557
Number of Samples	:	one
Sample Matrix	:	soil
Data Deliverable	:	Summary
Date SDG Closed	:	July 27, 2001

RECEIVED
FEB 0 6 2002
EDMC

II. Introduction

On July 14, 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 metals were done using method 6010B in place of 6010A; BNA used 8270C in place of 8270A; 8260B was used for the VOA analysis instead of 8260A.

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.

SEVERN TRENT SERVICES

STL St. Louis

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 recoveries for several metals were outside control limits. The spike data was flagged with an "N" qualifier. LCS recoveries met criteria.

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 and Method Blank were analyzed with each preparation batch per the protocol for this analysis. There was insufficient sample volume to perform an MS/MSD.

TPH: A Laboratory Control Sample and Method Blank were analyzed with each preparation batch per the protocol for this analysis. There was insufficient sample volume to perform an MS/MSD.

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

Correction to SDGs W03557, W03574, and W03587
March 22, 2018
J. G. Douglas 373-7154
Sample Management and Reporting
Soil and Groundwater Remediation Project
CH2M HILL Plateau Remediation Company

These SDGs report analytical results for the incorrect analyte names "Nitrate," "Nitrite," and "Phosphate as P, Ortho." These SDGs were reported by the Severn-Trent Laboratory – St. Louis (STLSL) in 2001.

The analytical results are correct, but the correct speciation for these analytes in the SDGs is "Nitrogen in Nitrate" (Nitrate as N), "Nitrogen in Nitrite" (Nitrite as N), and "Phosphate."

The Hanford Environmental Information System (HEIS) data associated with these analytical results does have the correct speciation ("Nitrogen in Nitrate," "Nitrogen in Nitrite," and "Phosphate.") associated with the analytical results.

The determination of which species names were correct was made by comparing split sample results for STLSL with the paired split sample results from other laboratories (Lionville and the Waste Sampling and Characterization Facility (WSCF)). The STLSL results matched the Lionville and WSCF results correctly when the STLSL results were reported as "Nitrogen in Nitrate," "Nitrogen in Nitrite," and "Phosphate."

SAMPLE SUMMARY

F1G160140

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
EGERV	001	B12BW3	07/13/01	06:10

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

F1G160140

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
pH Non-Aqueous	SW846 9045A	
Chloride	MCAWW 300.0A	MCAWW 300.0A
Extractable Petroleum Hydrocarbons	SW846 8015 MOD	SW846 3550
Fluoride	MCAWW 300.0A	MCAWW 300.0A
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3050B
Mercury in Solids by Modified 7470A	SW846 Hg Mod 74	
Nitrate as N	MCAWW 300.0A	MCAWW 300.0A
Nitrate-Nitrite	MCAWW 353.1	
Nitrite as N	MCAWW 300.0A	MCAWW 300.0A
Nitrogen, Ammonia	MCAWW 350.1	
Percent Moisture	MCAWW 160.3 MOD	MCAWW 160.3 MOD
Phosphate as P, Ortho	MCAWW 300.0A	MCAWW 300.0A
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3550B
Sulfate	MCAWW 300.0A	MCAWW 300.0A
Total Cyanide	SW846 9010A	SW846 9010A
Total Organic Carbon	SW846 9060	SW846 9060
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.

PSL20300 SEVERN TRENT LABORATORIES, INC Run Date: 7/16/01
Page 1 CLIENT ANALYSIS SUMMARY Time: 11:31:31
STL St. Louis User Id.: CLARKEJ

CLIENT: 127642 BECHTEL HANFORD, INC. QUOTE/SAR #: 43018
PROJECT MANAGER: MARTI WARD LAB ID: F-1G160140-001
PROJECT #: 200-TW-1&2SOIL WORK ORDER: EGEHV
REPORT TO: Joan Kessner RECEIVING DATE: 7/14/01
P.O. NUMBER: MRC-SBB-A-19981 SAMPLING DATE: 7/13/01
SITE: B01-058 ANALYTICAL DUE DATE: 8/13/01N
AMOUNT REC"D: 2X250G,120G,60G REPORT DUE DATE: 8/27/01
STORAGE LOC: R28 PRIORITY: 30
LOT COMMENTS: Metals: CRDL standard required +/-25% SAMPLING TIME: 6:10
MATRIX: SOLID RECEIVING TIME: 9:00
SAMPLE ID: B12BW3
QC PACKAGE: Report SDG# : W03557
SAMPLE COMMENTS:
ANIONS,O-PHOS,TOC,AMMONIA,N02/N03,PH ANDCYANIDE ALL REQUIRE DUPLICATES!!!!
Beginning Depth: .00 **Ending Depth:** .00

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Moisture, Percent (160.3) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (A-88-WM-01) EGEHV-1-AA Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	0/00/00	10/20/01
Inductively Coupled Plasma (6010B) METALS, TOTAL - Soils M6010_S AG,CD,CR,CU,NI,PB (A-46-QO-01) EGEHV Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	0/00/00	1/09/02
Mercury in Solids by Modified 7470A METALS, TOTAL (Method Exclusive) - Solids M7470A_S HG (A-70-0G-01) EGEHV Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	8/10/01	8/10/01
Chloride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CX-01) EGEHV-1-AJ Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	10/20/01	11/17/01
Fluoride (300.0, Ion Chromatography) delete / add Routine Fluoride LEACHATE,Citrate Buffer, CA Title 22 WET -> Analysis (A-5G-C8-01) EGEHV-1-AK Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	7/27/01	8/24/01
Nitrate as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C9-01) EGEHV-1-AL Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	10/20/01	10/22/01
Nitrite as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-GO-01) EGEHV-1-AM Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	10/20/01	10/22/01
Sulfate (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CY-01) EGEHV-1-AN Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	10/20/01	11/17/01

PSL20300 SEVERN TRENT LABORATORIES, INC Run Date: 7/16/01
Page 2 CLIENT ANALYSIS SUMMARY Time: 11:31:31
STL St. Louis User Id.: CLARKEJ

CLIENT: 127642 BECHTEL HANFORD, INC. QUOTE/SAR #: 43018
PROJECT MANAGER: MARTI WARD LAB ID: F-1G160140-001
PROJECT #: 200-TW-1&2SOIL WORK ORDER: EGEHV
REPORT TO: Joan Kessner RECEIVING DATE: 7/14/01
P.O. NUMBER: MRC-SBB-A-19981 SAMPLING DATE: 7/13/01
SITE: B01-058 ANALYTICAL DUE DATE: 8/13/01N
AMOUNT REC"D: 2X250G,120G,60G REPORT DUE DATE: 8/27/01
STORAGE LOC: R28 PRIORITY: 30
LOT COMMENTS: Metals: CRDL standard required +/-25% SAMPLING TIME: 6:10
MATRIX: SOLID RECEIVING TIME: 9:00
SAMPLE ID: B12BW3
QC PACKAGE: Report SDG# : W03557
SAMPLE COMMENTS:
ANIONS,O-PHOS,TOC,AMMONIA,N02/N03,PH ANDCYANIDE ALL REQUIRE DUPLICATES!!!!
Beginning Depth: .00 **Ending Depth:** .00

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Phosphate as P, Ortho (300.0, Ion Chroma LEACHATE, DI (Routine) (A-82-DO-01) EGEHV-1-AP Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	10/20/01	10/22/01
Nitrogen, Ammonia (350.1, Automated) LEACHATE, DI (Routine) (A-82-VM-01) EGEHV-1-AR Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	0/00/00	8/10/01
Nitrate-Nitrite (353.1) LEACHATE, DI (Routine) -> REDUCTION (A-0R-HN-01) EGEHV-1-AT Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	7/20/01	8/29/01
Cyanide, Total (9010) DISTILLATION, MICRO/MIDI - Acid (A-06-RV-01) EGEHV-1-AU Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	0/00/00	7/27/01
pH (9045) - Non-Aqueous LEACHATE, DI (Routine) (A-82-FK-01) EGEHV-1-AV Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	0/00/00	7/15/01
Carbon, Total Organic "TOC" (9060) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (A-88-FM-01) EGEHV-1-AW Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	0/00/00	8/10/01
Volatile Organics, GC/MS (8260B) PURGE AND TRAP - 5 mL purge STL: SW-846 8260B (A-15-QK-01) EGEHV-1-AX Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	0/00/00	7/27/01
Base/Neutrals and Acids (8270C) SONICATION - Low Level (A-13-QL-01) EGEHV-1-A0 Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	7/27/01	9/05/01
Hydrocarbons, Extractable Petroleum (801 SONICATION - Low Level	06	7/16/01	7/27/01	9/05/01

(A-13-HS-01) EGEHV-1-A1 Protocol: A QC Program: STANDARD TEST SET

PSL20300 SEVERN TRENT LABORATORIES, INC Run Date: 7/16/01
Page 1 CLIENT ANALYSIS SUMMARY Time: 11:31:31
STL St. Louis User Id.: CLARKEJ

CLIENT: 127642 BECHTEL HANFORD, INC. QUOTE/SAR #: 43018
PROJECT MANAGER: MARTI WARD LAB ID: F-1G160140-001-D
PROJECT #: 200-TW-1&2SOIL WORK ORDER: EGEHV MSD
REPORT TO: Joan Kessner RECEIVING DATE: 7/14/01
P.O. NUMBER: MRC-SBB-A-19981 SAMPLING DATE: 7/13/01
SITE: B01-058 ANALYTICAL DUE DATE: 8/13/01N
AMOUNT REC"D: 2X250G,120G,60G REPORT DUE DATE: 8/27/01
STORAGE LOC: R28 PRIORITY: 30
LOT COMMENTS: Metals: CRDL standard required +/-25% SAMPLING TIME: 6:10
MATRIX: SOLID RECEIVING TIME: 9:00
SAMPLE ID: B12BW3
QC PACKAGE: Report SDG# : W03557
SAMPLE COMMENTS:
ANIONS,O-PHOS,TOC,AMMONIA,N02/N03,PH ANDCYANIDE ALL REQUIRE DUPLICATES!!!!
Beginning Depth: .00 **Ending Depth:** .00

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Base/Neutrals and Acids (8270C) SONICATION - Low Level (A-13-QL-01) EGEHV-1-A3 Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	7/27/01	9/05/01
Hydrocarbons, Extractable Petroleum (801 SONICATION - Low Level (A-13-HS-01) EGEHV-1-A5 Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	7/27/01	9/05/01
Inductively Coupled Plasma (6010B) METALS, TOTAL - Soils M6010_S AG,CD,CR,CU,NI,PB (A-46-QO-01) EGEHV Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	0/00/00	1/09/02
Mercury in Solids by Modified 7470A METALS, TOTAL (Method Exclusive) - Solids M7470A_S HG (A-70-0G-01) EGEHV Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	8/10/01	8/10/01
Volatile Organics, GC/MS (8260B) PURGE AND TRAP - 5 mL purge STL: SW-846 8260B (A-15-QK-01) EGEHV-1-C1 Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	0/00/00	7/27/01

PSL20300 SEVERN TRENT LABORATORIES, INC Run Date: 7/16/01
Page 1 CLIENT ANALYSIS SUMMARY Time: 11:31:31
STL St. Louis User Id.: CLARKEJ

CLIENT: 127642 BECHTEL HANFORD, INC. QUOTE/SAR #: 43018
PROJECT MANAGER: MARTI WARD LAB ID: F-1G160140-001-S
PROJECT #: 200-TW-1&2SOIL WORK ORDER: EGEHV MS
REPORT TO: Joan Kessner RECEIVING DATE: 7/14/01
P.O. NUMBER: MRC-SBB-A-19981 SAMPLING DATE: 7/13/01
SITE: B01-058 ANALYTICAL DUE DATE: 8/13/01N
AMOUNT REC"D: 2X250G,120G,60G REPORT DUE DATE: 8/27/01
STORAGE LOC: R28 PRIORITY: 30
LOT COMMENTS: Metals: CRDL standard required +/-25% SAMPLING TIME: 6:10
MATRIX: SOLID RECEIVING TIME: 9:00
SAMPLE ID: B12BW3
QC PACKAGE: Report SDG# : W03557
SAMPLE COMMENTS:
ANIONS,O-PHOS,TOC,AMMONIA,N02/N03,PH ANDCYANIDE ALL REQUIRE DUPLICATES!!!!
Beginning Depth: .00 **Ending Depth:** .00

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Base/Neutrals and Acids (8270C) SONICATION - Low Level (A-13-QL-01) EGEHV-1-A2 Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	7/27/01	9/05/01
Hydrocarbons, Extractable Petroleum (801 SONICATION - Low Level (A-13-HS-01) EGEHV-1-A4 Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	7/27/01	9/05/01
Inductively Coupled Plasma (6010B) METALS, TOTAL - Soils M6010_S AG,CD,CR,CU,NI,PB (A-46-QO-01) EGEHV Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	0/00/00	1/09/02
Mercury in Solids by Modified 7470A METALS, TOTAL (Method Exclusive) - Solids M7470A_S HG (A-70-0G-01) EGEHV Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	8/10/01	8/10/01
Chloride (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-CX-01) EGEHV-1-CK Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	10/20/01	11/17/01
Fluoride (300.0, Ion Chromatography) LEACHATE,Citrate Buffer, CA Title 22 WET -> Analysis (A-5G-C8-01) EGEHV-1-CL Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	7/27/01	8/24/01
Nitrate as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-C9-01) EGEHV-1-CM Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	10/20/01	10/22/01
Nitrite as N (300.0, Ion Chromatography) LEACHATE, DI (Routine) (A-82-GO-01) EGEHV-1-CN Protocol: A QC Program: STANDARD TEST SET	06	7/16/01	10/20/01	10/22/01

PSL20300 SEVERN TRENT LABORATORIES, INC Run Date: 7/16/01
Page 2 CLIENT ANALYSIS SUMMARY Time: 11:31:31
STL St. Louis User Id.: CLARKEJ

CLIENT: 127642 BECHTEL HANFORD, INC. QUOTE/SAR #: 43018
PROJECT MANAGER: MARTI WARD LAB ID: F-1G160140-001-S
PROJECT #: 200-TW-1&2SOIL WORK ORDER: EGEHV MS
REPORT TO: Joan Kessner RECEIVING DATE: 7/14/01
P.O. NUMBER: MRC-SBB-A-19981 SAMPLING DATE: 7/13/01
SITE: B01-058 ANALYTICAL DUE DATE: 8/13/01N
AMOUNT REC'D: 2X250G,120G,60G REPORT DUE DATE: 8/27/01
STORAGE LOC: R28 PRIORITY: 30
LOT COMMENTS: Metals: CRDL standard required +/-25% SAMPLING TIME: 6:10
MATRIX: SOLID RECEIVING TIME: 9:00
SAMPLE ID: B12BW3
QC PACKAGE: Report SDG# : W03557
SAMPLE COMMENTS:
ANIONS,O-PHOS,TOC,AMMONIA,N02/N03,PH ANDCYANIDE ALL REQUIRE DUPLICATES!!!!
Beginning Depth: .00 **Ending Depth:** .00

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Sulfate (300.0, Ion Chromatography)	06	7/16/01	10/20/01	11/17/01
LEACHATE, DI (Routine)				
(A-82-CY-01) EGEHV-1-CP Protocol: A QC Program: STANDARD TEST SET				
Phosphate as P, Ortho (300.0, Ion Chroma	06	7/16/01	10/20/01	10/22/01
LEACHATE, DI (Routine)				
(A-82-DO-01) EGEHV-1-CQ Protocol: A QC Program: STANDARD TEST SET				
Nitrogen, Ammonia (350.1, Automated)	06	7/16/01	0/00/00	8/10/01
LEACHATE, DI (Routine)				
(A-82-VM-01) EGEHV-1-CU Protocol: A QC Program: STANDARD TEST SET				
Nitrate-Nitrite (353.1)	06	7/16/01	7/20/01	8/29/01
LEACHATE, DI (Routine) -> REDUCTION				
(A-0R-HN-01) EGEHV-1-CV Protocol: A QC Program: STANDARD TEST SET				
Cyanide, Total (9010)	06	7/16/01	0/00/00	7/27/01
DISTILLATION, MICRO/MIDI - Acid				
(A-06-RV-01) EGEHV-1-CW Protocol: A QC Program: STANDARD TEST SET				
Carbon, Total Organic "TOC" (9060)	06	7/16/01	0/00/00	8/10/01
NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION				
(A-88-FM-01) EGEHV-1-CX Protocol: A QC Program: STANDARD TEST SET				
Volatile Organics, GC/MS (8260B)	06	7/16/01	0/00/00	7/27/01
PURGE AND TRAP - 5 mL purge				
STL: SW-846 8260B				
(A-15-QK-01) EGEHV-1-C0 Protocol: A QC Program: STANDARD TEST SET				

3/22/2018 REV. 1

LOT #F1G160140

STL St. Louis

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B01-058-99 Page 1 of 1

Collector: Thomas G./Watson D.	Company Contact: Todd, M.E.	Telephone No.: (509) 372-9631	Project Coordinator: TRENT, SJ
Project Designation: 200-TW-1 & 2 - Soil Sampling	Sampling Location: T-26/ 200W		SAF No.: B01-058
Ice Chest No.: ~~MA 7130~~ ERC 01 019 ~~MA-001~~	Field Logbook No.: EL-1518	COA: B20TW1674C	Method of Shipment: ~~Fed-Ex~~ ~~HAND DELIVER GOV. VEHICLE~~ 7130 FED EX
Shipped To: Severn Trent Incorporated ~~Pre-Load~~ 7130 ST. LOUIS	Offsite Property No.: ~~N/A~~ A010228		Bill of Lading/Air Bill No.: ~~N/A~~ 42357954

Price Code 8N — Data Turnaround 45 Days — Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive BACKGRAND COUNTS ON SPLIT SPOON
DOSE < 0.5 MR/hr

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	None	None		
Type of Container	aG	aG	aG	aG	aG	aG	aG	aG		
No. of Container(s)	1		1	1	1	1	1	1		
Volume	120mL	60mL	250mL	60mL	250mL	120mL	250mL	60mL		

WO3557

SAMPLE ANALYSIS

Sample No.	Matrix*	Sample Date	Sample Time	See item (1) in Special Instructions.	Chromium Hex - 7196 7/13/01	See item (2) in Special Instructions.	VOA - 8260A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions. 7/13/01	Activity Scan 7/13/01		
B12BW3	SOIL	07/13/01	0610	X	X	X	X	X		X	X	TIETO	B12642 7/13/01
		60g, 120g, 2x250G											

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Greg Thomas/Greg Thomas	07/13/01 0755	Ref IB	07/13/01 0755
REF IB 71301	1000	SJGALE 7/13/01	1000
SJGALE 7/13/01	1000	FED EX	
		SLMIBB SR 07.14.01	0900

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Cadmium, Chromium, Copper, Nickel, Silver}; ICP Metals - 6010A (Add-on) {Beryllium, Lead}; Mercury - 7470 - (CV) 7/13/01
(2) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Ammonia - 350.1; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045
(3) Semi-VOA – 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D 7/13/01
~~(4) ICP Metals – 6010TR (Client List) {Aluminum, Bismuth, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc}~~
(5) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Radium-226, Radium-228}; Isotopic Plutonium; Isotopic Thorium {Thorium-232}; Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 -- Total Sr; Technetium-99; Total Uranium; Tritium - H3; Isotopic Uranium

COLLECTOR UNAVAILABLE TO SIGN COC. 7/13/01

Matrix*: S=Soil, SD=Sediment, SO=Solid, SL=Sludge, W=Water, O=Oil, A=Air, DS=Drum Solids, DL=Drum Liquids, T=Tissue, WI=Wipe, L=Liquid, V=Vegetation, X=Other

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

BHI-EE-011 (10/99)

ERC Radiological Counting Facility Analysis Report

RCF Number RCF9485 **Sample Date & Time** 7/4/01 0520

Project ID: 200-TW-1&2 **SAF Number:** B01-058 **Date Analyzed** 7/10/01 1:42:0

Sample ID: B12641

Gamma Energy Analysis

Nuclide		Activity (pCi/g)		Error (pCi/g)	MDC (pCi/g)
K-40		1.3E+01	+/-	3.9E+00	1.7E+00
Co-60	<	1.4E-01			1.4E-01
Cs-137	<	1.6E-01			1.6E-01
Eu-152	<	4.2E-01			4.2E-01
Eu-154	<	4.6E-01			4.6E-01
Eu-155		4.4E-01	+/-	1.6E-01	4.2E-01
Tl-208		7.9E-01	+/-	2.9E-01	3.4E-01
Pb-212		7.0E-01	+/-	2.3E-01	2.2E-01
Bi-214		1.3E+00	+/-	7.9E-01	1.1E+00
Pb-214		8.7E-01	+/-	2.9E-01	3.4E-01
Ra-226	<	2.7E+00			2.7E+00
Ac-228		7.6E-01	+/-	4.2E-01	5.7E-01
Pa-234	<	3.5E-01			3.5E-01
Th-234	<	1.8E+00			1.8E+00
U-235	<	9.0E-01			9.0E-01
Am-241	<	2.4E-01			2.4E-01

TIE TO:
B12BW3

Total GEA (pCi/g)	1.8E+01	+/-	6.1E+00

	Activity (pCi/g)		Error (pCi/g)	Alpha MDC (pCi/g)	Beta MDC (pCi/g)
Gross Alpha**	2.2E+00	+/-	6.6E-01	9.3E-01	1.3E+01
Gross Beta	2.5E+01	+/-	1.8E+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 G. L. Hastings 7/10/01

Report Printed: Tuesday, July 10, 2001

Report To	Fax
CS Cearlock	372-9292
SJ Trent	372-9292
Joan Kessner	372-9487

SEVERN TRENT SERVICES

Lot No.: F1G160140
W03557

Condition Upon Receipt Form
St. Louis Laboratory

Client: Bechtel Hanford
Date: 07.14.01 Time: 0900
Quote No: 43018
Initiated by: SW
Shipper/No: FedX 423579545752
COC/RFA Numbers: 801-058-99

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	7.	(Y) N	Chain of Custody matches sample IDs on containers.
3.	Y N (N/A)	Sample received with proper pH**.	8.	(N) 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 (Panter, 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: Sue Nelson Date: 7.14.01

Project Management Review: PM Date: 7/14/01

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

SL-ADMIN-0004, Revised 5/24/01
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BECHTEL HANFORD, INC.

Client Sample ID: B12BW3

GC/MS Volatiles

Lot-Sample #...: F1G160140-001 **Work Order #...:** EGEHV1AX **Matrix.....:** SOLID
Date Sampled...: 07/13/01 **Date Received..:** 07/14/01
Prep Date.....: 07/20/01 **Analysis Date..:** 07/20/01
Prep Batch #...: 1204151
Dilution Factor: 1
% Moisture.....: 2.3 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chloromethane	ND	10	ug/kg	0.79
Vinyl chloride	ND	5.1	ug/kg	0.81
Bromomethane	ND	10	ug/kg	0.61
Chloroethane	ND	10	ug/kg	2.2
Acetone	**35 B**	**20**	**ug/kg**	**2.7**
1,1-Dichloroethene	ND	5.1	ug/kg	1.3
Methylene chloride	**27 B**	**5.1**	**ug/kg**	**0.54**
Carbon disulfide	ND	5.1	ug/kg	0.47
1,1-Dichloroethane	ND	5.1	ug/kg	0.39
2-Butanone	ND	20	ug/kg	6.8
1,2-Dichloroethene (total)	ND	5.1	ug/kg	0.85
Chloroform	ND	5.1	ug/kg	0.25
1,1,1-Trichloroethane	ND	5.1	ug/kg	0.45
Carbon tetrachloride	ND	5.1	ug/kg	0.67
1,2-Dichloroethane	ND	5.1	ug/kg	0.44
Benzene	ND	5.1	ug/kg	0.38
Trichloroethene	ND	5.1	ug/kg	0.32
1,2-Dichloropropane	ND	5.1	ug/kg	0.21
Bromodichloromethane	ND	5.1	ug/kg	0.46
4-Methyl-2-pentanone	ND	20	ug/kg	1.3
cis-1,3-Dichloropropene	ND	5.1	ug/kg	0.53
Toluene	**0.64 J**	**5.1**	**ug/kg**	**0.55**
trans-1,3-Dichloropropene	ND	5.1	ug/kg	0.32
1,1,2-Trichloroethane	ND	5.1	ug/kg	0.44
2-Hexanone	ND	20	ug/kg	1.7
Tetrachloroethene	ND	5.1	ug/kg	0.37
Dibromochloromethane	ND	5.1	ug/kg	0.39
Chlorobenzene	ND	5.1	ug/kg	0.35
Ethylbenzene	ND	5.1	ug/kg	0.91
Xylenes (total)	ND	5.1	ug/kg	1.1
Styrene	ND	5.1	ug/kg	0.38
Bromoform	ND	5.1	ug/kg	0.63
1,1,2,2-Tetrachloroethane	ND	5.1	ug/kg	0.45

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	88	(64 - 112)
Toluene-d8	106	(80 - 114)
Dibromofluoromethane	111	(73 - 127)
1,2-Dichloroethane-d4	107	(68 - 135)

(Continued on next page)

BECHTEL HANFORD, INC.

Client Sample ID: B12BW3

GC/MS Volatiles

Lot-Sample #...: F1G160140-001 **Work Order #...:** EGEHV1AX **Matrix.....:** SOLID

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

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

J Estimated result. Result is less than RL.

BECHTEL HANFORD, INC.

B12BW3

GC/MS Volatiles

Lot-Sample #: F1G160140-001 **Work Order #:** EGEHV1AX **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 #...:	F1G160140	**Work Order #...:**	EGEHV1C0-MS EGEHV1C1-MSD	**Matrix.....:**	SOLID
MS Lot-Sample #:	F1G160140-001				
Date Sampled...:	07/13/01	**Date Received..:**	07/14/01		
Prep Date.....:	07/20/01	**Analysis Date..:**	07/20/01		
Prep Batch #...:	1204151				
Dilution Factor:	1	**% Moisture.....:**	2.3		

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
1,1-Dichloroethene	**ND**	51.2	63.8	ug/kg	125		SW846 8260B
	ND	51.2	62.8	ug/kg	123	1.5	SW846 8260B
1,4-Dichlorobenzene	**ND**	51.2	47.4	ug/kg	93		SW846 8260B
	ND	51.2	48.7	ug/kg	95	2.6	SW846 8260B
Benzene	**ND**	51.2	52.9	ug/kg	103		SW846 8260B
	ND	51.2	53.4	ug/kg	104	0.86	SW846 8260B
Trichloroethene	**ND**	51.2	52.2	ug/kg	102		SW846 8260B
	ND	51.2	51.8	ug/kg	101	0.72	SW846 8260B
Toluene	0.64	51.2	52.0	ug/kg	100		SW846 8260B
	0.64	51.2	49.0	ug/kg	95	5.9	SW846 8260B
Chlorobenzene	**ND**	51.2	51.6	ug/kg	101		SW846 8260B
	ND	51.2	52.3	ug/kg	102	1.4	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	88	(64 - 112)
	94	(64 - 112)
Toluene-d8	107	(80 - 114)
	101	(80 - 114)
Dibromofluoromethane	111	(73 - 127)
	117	(73 - 127)
1,2-Dichloroethane-d4	106	(68 - 135)
	109	(68 - 135)

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 #...: F1G160140 **Work Order #...:** EGQ181AA **Matrix.....:** SOLID
MB Lot-Sample #: F1G230000-151

Prep Date.....: 07/20/01
Analysis Date..: 07/20/01 **Prep Batch #...:** 1204151
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
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	**7.7 J**	**20**	**ug/kg**	**SW846 8260B**
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
Methylene chloride	**8.1**	**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	5.0	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	ND	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	5.0	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
4-Bromofluorobenzene	95	(64 - 112)
Toluene-d8	105	(80 - 114)
Dibromofluoromethane	118	(73 - 127)
1,2-Dichloroethane-d4	113	(68 - 135)

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: F1G160140 **Work Order #...:** EGQ181AA **Matrix.....:** SOLID

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 #: F1G230000-151 B **Work Order #:** EGQ181AA **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 #...: F1G160140 **Work Order #...:** EGQ181AC **Matrix.....:** SOLID
LCS Lot-Sample#: F1G230000-151
Prep Date.....: 07/20/01 **Analysis Date..:** 07/20/01
Prep Batch #...: 1204151
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
1,1-Dichloroethene	**50.0**	**58.6**	**ug/kg**	**117**	**SW846 8260B**
1,4-Dichlorobenzene	**50.0**	**45.9**	**ug/kg**	**92**	**SW846 8260B**
Benzene	**50.0**	**51.5**	**ug/kg**	**103**	**SW846 8260B**
Trichloroethene	**50.0**	**49.8**	**ug/kg**	**100**	**SW846 8260B**
Toluene	**50.0**	**49.0**	**ug/kg**	**98**	**SW846 8260B**
Chlorobenzene	**50.0**	**50.0**	**ug/kg**	**100**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
4-Bromofluorobenzene	90	(64 - 112)
Toluene-d8	107	(80 - 114)
Dibromofluoromethane	119	(73 - 127)
1,2-Dichloroethane-d4	116	(68 - 135)

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: B12BW3

GC/MS Semivolatiles

Lot-Sample #...: F1G160140-001	**Work Order #...:** EGEHV1A0	**Matrix.....:** SOLID	
Date Sampled...: 07/13/01	**Date Received..:** 07/14/01		
Prep Date.....: 07/26/01	**Analysis Date..:** 08/21/01		
Prep Batch #...: 1207445			
Dilution Factor: 1			
% Moisture.....: 2.3	**Method.....:** SW846 8270C		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Tributyl phosphate	ND	340	ug/kg	340

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	58	(22 - 119)
Phenol-d5	59	(24 - 127)
Nitrobenzene-d5	56	(39 - 106)
2-Fluorobiphenyl	57	(42 - 106)
2,4,6-Tribromophenol	50	(42 - 120)
Terphenyl-d14	46	(18 - 97)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

BECHTEL HANFORD, INC.

B12BW3

GC/MS Semivolatiles

Lot-Sample #: F1G160140-001 **Work Order #:** EGEHV1A0 **Matrix:** SOLID

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown aldol condensate		8000	M	4.378	ug/kg
Unknown alkane		160	M	16.82	ug/kg
Unknown alkane		190	M	18.321	ug/kg
Unknown alkane		220	M	19.694	ug/kg

NOTE(S):

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

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: F1G160140 **Work Order #...:** EG1JC1AA **Matrix.....:** SOLID
MB Lot-Sample #: F1G260000-445

Prep Date.....: 07/26/01
Analysis Date..: 08/21/01 **Prep Batch #...:** 1207445
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Tributyl phosphate	ND	330	ug/kg	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	67	(22 - 119)
Phenol-d5	66	(24 - 127)
Nitrobenzene-d5	62	(39 - 106)
2-Fluorobiphenyl	61	(42 - 106)
2,4,6-Tribromophenol	46	(42 - 120)
Terphenyl-d14	66	(18 - 97)

NOTE(S):

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

BECHTEL HANFORD, INC.

Method Blank Report

GC/MS Semivolatiles

Lot-Sample #: F1G260000-445 B **Work Order #:** EG1JC1AA **Matrix:** SOLID

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown aldol condensate		8600	M	4.4	ug/kg
Unknown aldol condensate		170	M	4.731	ug/kg
Unknown		400	M	15.869	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 #...: F1G160140 **Work Order #...:** EG1JC1AC-LCS **Matrix.....:** SOLID
LCS Lot-Sample#: F1G260000-445 EG1JC1AD-LCSD
Prep Date.....: 07/26/01 **Analysis Date..:** 08/10/01
Prep Batch #...: 1207445
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Phenol	2500	1410	ug/kg	56		SW846 8270C
	2500	1550	ug/kg	62	9.7	SW846 8270C
2-Chlorophenol	2500	1460	ug/kg	58		SW846 8270C
	2500	1560	ug/kg	62	6.6	SW846 8270C
1,4-Dichlorobenzene	1670	1000	ug/kg	60		SW846 8270C
	1670	998	ug/kg	60	0.15	SW846 8270C
N-Nitrosodi-n-propyl-amine	1670	964	ug/kg	58		SW846 8270C
	1670	1070	ug/kg	64	10	SW846 8270C
1,2,4-Trichloro-benzene	1670	1010	ug/kg	61		SW846 8270C
	1670	980	ug/kg	59	3.1	SW846 8270C
4-Chloro-3-methylphenol	2500	1570	ug/kg	63		SW846 8270C
	2500	1760	ug/kg	71	12	SW846 8270C
Acenaphthene	1670	1090	ug/kg	65		SW846 8270C
	1670	1070	ug/kg	64	1.3	SW846 8270C
4-Nitrophenol	2500	1580	ug/kg	63		SW846 8270C
	2500	1580	ug/kg	63	0.12	SW846 8270C
2,4-Dinitrotoluene	1670	878	ug/kg	53		SW846 8270C
	1670	903	ug/kg	54	2.8	SW846 8270C
Pentachlorophenol	2500	1060	ug/kg	42		SW846 8270C
	2500	1140	ug/kg	46	7.5	SW846 8270C
Pyrene	1670	921	ug/kg	55		SW846 8270C
	1670	966	ug/kg	58	4.8	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	60	(22 - 119)
	62	(22 - 119)
Phenol-d5	56	(24 - 127)
	62	(24 - 127)
Nitrobenzene-d5	54	(39 - 106)
	53	(39 - 106)
2-Fluorobiphenyl	57	(42 - 106)
	56	(42 - 106)
2,4,6-Tribromophenol	66	(42 - 120)
	66	(42 - 120)
Terphenyl-d14	45	(18 - 97)

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: F1G160140 **Work Order #...:** EG1JC1AC-LCS **Matrix.....:** SOLID
LCS Lot-Sample#: F1G260000-445 EG1JC1AD-LCSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
	47	(18 - 97)

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: B12BW3

GC Semivolatiles

Lot-Sample #...:	F1G160140-001	**Work Order #...:**	EGEHV1A1	**Matrix.....:**	SOLID
Date Sampled...:	07/13/01	**Date Received..:**	07/14/01		
Prep Date.....:	07/26/01	**Analysis Date..:**	08/07/01		
Prep Batch #...:	1207441				
Dilution Factor:	1				
% Moisture.....:	2.3	**Method.....:**	SW846 8015 MOD		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
TPH - Diesel Range - WTPH-D	ND	26	mg/kg	3.3

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	74	(10 - 150)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: F1G160140 **Work Order #...:** EG1HD1AA **Matrix.....:** SOLID
MB Lot-Sample #: F1G260000-441

Prep Date.....: 07/26/01
Analysis Date..: 08/06/01 **Prep Batch #...:** 1207441
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	66	(10 - 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 #...: F1G160140 **Work Order #...:** EG1HD1AC-LCS **Matrix.....:** SOLID
LCS Lot-Sample#: F1G260000-441 EG1HD1AD-LCSD
Prep Date.....: 07/26/01 **Analysis Date..:** 08/06/01
Prep Batch #...: 1207441
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
TPH - Diesel Range - WTPH-	83.3	57.8	mg/kg	69		SW846 8015 MOD
	83.3	59.9	mg/kg	72	3.7	SW846 8015 MOD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	76	(10 - 150)
	92	(10 - 150)

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: B12BW3

TOTAL Metals

Lot-Sample #...: F1G160140-001 **Matrix.....:** SOLID
Date Sampled...: 07/13/01 **Date Received..:** 07/14/01
% Moisture.....: 2.3

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1198272						
Cadmium	ND	0.51 Dilution Factor: 1	mg/kg	SW846 6010B MDL.....: 0.17	07/17-07/30/01	EGEHV1AC
Chromium	88.9	1.0 Dilution Factor: 1	mg/kg	SW846 6010B MDL.....: 0.31	07/17-07/30/01	EGEHV1AD
Copper	16.4	2.6 Dilution Factor: 1	mg/kg	SW846 6010B MDL.....: 0.39	07/17-07/30/01	EGEHV1AE
Lead	4.0 B	10.2 Dilution Factor: 1	mg/kg	SW846 6010B MDL.....: 3.3	07/17-07/30/01	EGEHV1AF
Nickel	45.1	4.1 Dilution Factor: 1	mg/kg	SW846 6010B MDL.....: 0.88	07/17-07/30/01	EGEHV1AG
Silver	ND	1.0 Dilution Factor: 1	mg/kg	SW846 6010B MDL.....: 0.94	07/17-07/30/01	EGEHV1AH
Prep Batch #...: 1214414						
Mercury	ND	0.10 Dilution Factor: 1	mg/kg	SW846 Hg Mod 7470 MDL.....: 0.0072	08/02-08/03/01	EGEHV1AQ

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: F1G160140 **Matrix.....:** SOLID
Date Sampled...: 07/13/01 **Date Received..:** 07/14/01

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT		UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F1G160140-001 **Prep Batch #...:** 1198272										
Cadmium										
	ND	5.12	3.66	N	mg/kg	71		SW846 6010B	07/17-07/30/01	EGEHV1A6
	ND	5.12	3.80	N	mg/kg	74	3.9	SW846 6010B	07/17-07/30/01	EGEHV1A7
			Dilution Factor: 1							
Chromium										
	88.9	20.5	67.5	N	mg/kg	0.0		SW846 6010B	07/17-07/30/01	EGEHV1A8
	88.9	20.5	91.2	N,*	mg/kg	11	200	SW846 6010B	07/17-07/30/01	EGEHV1A9
			Dilution Factor: 1							
Copper										
	16.4	25.6	37.7		mg/kg	83		SW846 6010B	07/17-07/30/01	EGEHV1CA
	16.4	25.6	38.3		mg/kg	85	1.4	SW846 6010B	07/17-07/30/01	EGEHV1CC
			Dilution Factor: 1							
Lead										
	4.0	51.2	49.9		mg/kg	90		SW846 6010B	07/17-07/30/01	EGEHV1CD
	4.0	51.2	50.6		mg/kg	91	1.3	SW846 6010B	07/17-07/30/01	EGEHV1CE
			Dilution Factor: 1							
Nickel										
	45.1	51.2	75.1	N	mg/kg	59		SW846 6010B	07/17-07/30/01	EGEHV1CF
	45.1	51.2	84.8		mg/kg	78	12	SW846 6010B	07/17-07/30/01	EGEHV1CG
			Dilution Factor: 1							
Silver										
	ND	5.12	4.27		mg/kg	83		SW846 6010B	07/17-07/30/01	EGEHV1CH
	ND	5.12	4.28		mg/kg	84	0.40	SW846 6010B	07/17-07/30/01	EGEHV1CJ
			Dilution Factor: 1							
MS Lot-Sample #: F1G160140-001 **Prep Batch #...:** 1214414										
Mercury										
	ND	0.512	0.497		mg/kg	97		SW846 Hg Mod	08/02-08/03/01	EGEHV1CR
	ND	0.512	0.483		mg/kg	94	2.9	SW846 Hg Mod	08/02-08/03/01	EGEHV1CT
			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 #...: F1G160140 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F1G170000-272 **Prep Batch #...:** 1198272						
Cadmium	ND	0.50	mg/kg	SW846 6010B	07/17-07/30/01	EGFWV1AA
		Dilution Factor: 1				
Chromium	ND	1.0	mg/kg	SW846 6010B	07/17-07/30/01	EGFWV1AC
		Dilution Factor: 1				
Copper	ND	2.5	mg/kg	SW846 6010B	07/17-07/30/01	EGFWV1AD
		Dilution Factor: 1				
Lead	ND	10.0	mg/kg	SW846 6010B	07/17-07/30/01	EGFWV1AE
		Dilution Factor: 1				
Nickel	ND	4.0	mg/kg	SW846 6010B	07/17-07/30/01	EGFWV1AF
		Dilution Factor: 1				
Silver	ND	1.0	mg/kg	SW846 6010B	07/17-07/30/01	EGFWV1AG
		Dilution Factor: 1				
MB Lot-Sample #: F1H020000-414 **Prep Batch #...:** 1214414						
Mercury	**0.010 B**	**0.10**	**mg/kg**	**SW846 Hg Mod 7470**	**08/02-08/03/01**	**EHD5E1AA**
		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 #...: F1G160140 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F1G170000-272 **Prep Batch #...:** 1198272							
Cadmium	157	158	mg/kg	100	SW846 6010B	07/17-07/30/01	EGFWV1AH
			Dilution Factor: 1				
Chromium	51.4	51.6	mg/kg	100	SW846 6010B	07/17-07/30/01	EGFWV1AJ
			Dilution Factor: 1				
Copper	69.5	67.9	mg/kg	98	SW846 6010B	07/17-07/30/01	EGFWV1AK
			Dilution Factor: 1				
Lead	186	184	mg/kg	99	SW846 6010B	07/17-07/30/01	EGFWV1AL
			Dilution Factor: 1				
Nickel	112	112	mg/kg	100	SW846 6010B	07/17-07/30/01	EGFWV1AM
			Dilution Factor: 1				
Silver	84.3	85.5	mg/kg	101	SW846 6010B	07/17-07/30/01	EGFWV1AN
			Dilution Factor: 1				

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Lot-Sample #...: F1G160140 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Mercury	0.500	0.450	mg/kg	90		SW846 Hg Mod 7470	08/02-08/03/01	1214414
	0.500	0.434	mg/kg	87	3.6	SW846 Hg Mod 7470	08/02-08/03/01	1214414

Dilution Factor: 1

NOTE(S):

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

BECHTEL HANFORD, INC.

Client Sample ID: B12BW3

General Chemistry

Lot-Sample #...: F1G160140-001 **Work Order #...:** EGEHV **Matrix.....:** SOLID
Date Sampled...: 07/13/01 **Date Received..:** 07/14/01
% Moisture.....: 2.3

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Phosphate as P, Ortho	2.6 B	51.2	mg/kg	MCAWW 300.0A	07/20/01	1201335
		Dilution Factor: 1		MDL.....: 0.36		
pH (solid)	9.3		No Units	SW846 9045A	07/17/01	1198331
		Dilution Factor: 1		MDL.....		
Chloride	2.4	2.0	mg/kg	MCAWW 300.0A	07/20/01	1201331
		Dilution Factor: 1		MDL.....: 0.10		
Fluoride	0.17 B	1.0	mg/kg	MCAWW 300.0A	07/25/01	1201336
		Dilution Factor: 1		MDL.....: 0.061		
Nitrate	0.36 B	2.0	mg/kg	MCAWW 300.0A	07/20/01	1201332
		Dilution Factor: 1		MDL.....: 0.020		
Nitrate/Nitrite as N	0.72	0.51	mg/kg	MCAWW 353.1	07/26/01	1201390
		Dilution Factor: 1		MDL.....: 0.037		
Nitrite	ND	20.5	mg/kg	MCAWW 300.0A	07/20/01	1201333
		Dilution Factor: 1		MDL.....: 0.020		
Nitrogen, as Ammonia	1.3	0.51	mg/kg	MCAWW 350.1	07/26/01	1207385
		Dilution Factor: 1		MDL.....: 0.13		
Percent Moisture	2.3	0.10	%	MCAWW 160.3 MOD	07/24/01	1206224
		Dilution Factor: 1		MDL.....		
Sulfate	9.4 B	51.2	mg/kg	MCAWW 300.0A	07/20/01	1201334
		Dilution Factor: 1		MDL.....: 0.30		
Total Cyanide	ND	0.51	mg/kg	SW846 9010A	07/23/01	1205410
		Dilution Factor: 1		MDL.....: 0.13		
Total Organic Carbon	622	25.6	mg/kg	SW846 9060	07/30/01	1214246
		Dilution Factor: 1		MDL.....: 15.9		

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

Results and reporting limits have been adjusted for dry weight.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F1G160140 **Work Order #...:** EGEHV-SMP EGEHV-DUP **Matrix.....:** SOLID

Date Sampled...: 07/13/01 **Date Received..:** 07/14/01

% Moisture.....: 2.3

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride						SD Lot-Sample #: F1G160140-001		
	2.4	2.2	mg/kg	6.8	(0-35)	MCAWW 300.0A	07/20/01	1201331
		Dilution Factor: 1						
Nitrate						SD Lot-Sample #: F1G160140-001		
	0.36 B	0.18	mg/kg	68	(0-35)	MCAWW 300.0A	07/20/01	1201332
		Dilution Factor: 1						
Nitrite						SD Lot-Sample #: F1G160140-001		
	ND	*ND*	mg/kg	0	(0-35)	MCAWW 300.0A	07/20/01	1201333
		Dilution Factor: 1						
Sulfate						SD Lot-Sample #: F1G160140-001		
	9.4 B	9.1	mg/kg	3.5	(0-20)	MCAWW 300.0A	07/20/01	1201334
		Dilution Factor: 1						
Phosphate as P, Ortho						SD Lot-Sample #: F1G160140-001		
	2.6 B	ND	mg/kg	200	(0-35)	MCAWW 300.0A	07/20/01	1201335
		Dilution Factor: 1						
Nitrogen, as Ammonia						SD Lot-Sample #: F1G160140-001		
	1.3	1.4	mg/kg	6.1	(0-35)	MCAWW 350.1	07/26/01	1207385
		Dilution Factor: 1						
Nitrate/Nitrite as N						SD Lot-Sample #: F1G160140-001		
	0.72	0.76	mg/kg	5.0	(0-35)	MCAWW 353.1	07/26/01	1201390
		Dilution Factor: 1						
Total Cyanide						SD Lot-Sample #: F1G160140-001		
	ND	ND	mg/kg	0	(0-35)	SW846 9010A	07/23/01	1205410
		Dilution Factor: 1						
pH (solid)						SD Lot-Sample #: F1G160140-001		
	9.3	9.3	No Units	0.43	(0-20)	SW846 9045A	07/17/01	1198331
		Dilution Factor: 1						
Total Organic Carbon						SD Lot-Sample #: F1G160140-001		
	622	514	mg/kg	19	(0-30)	SW846 9060	07/30/01	1214246
		Dilution Factor: 1						
Fluoride						SD Lot-Sample #: F1G160140-001		
	0.17 B	0.16	mg/kg	2.6	(0-35)	MCAWW 300.0A	07/25/01	1201336
		Dilution Factor: 1						

(Continued on next page)

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Lot-Sample #...: F1G160140-000 **Work Order #...:** EGEHV-SMP EGEHV-DUP **Matrix.....:** SOLID

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.

B Estimated result. Result is less than RL.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: F1G160140 **Matrix.....:** SOLID
Date Sampled...: 07/13/01 **Date Received..:** 07/14/01

Percnt Moisture: 2.3

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
ortho-Phosphate			Work Order #...: EGEHV1CQ			MS Lot-Sample #: F1G160140-001		
	2.6	41.0	36.2	mg/kg	82	MCAWW 300.0A	07/20/01	1201335
			Dilution Factor: 1					
Chloride			Work Order #...: EGEHV1CK			MS Lot-Sample #: F1G160140-001		
	2.4	20.5	21.1	mg/kg	91	MCAWW 300.0A	07/20/01	1201331
			Dilution Factor: 1					
Nitrate			Work Order #...: EGEHV1CM			MS Lot-Sample #: F1G160140-001		
	0.36	4.10	4.22	mg/kg	94	MCAWW 300.0A	07/20/01	1201332
			Dilution Factor: 1					
Nitrate/Nitrite as N			Work Order #...: EGEHV1CV			MS Lot-Sample #: F1G160140-001		
	0.72	5.08	5.79	mg/kg	100	MCAWW 353.1	07/26/01	1201390
			Dilution Factor: 1					
Nitrite			Work Order #...: EGEHV1CN			MS Lot-Sample #: F1G160140-001		
	ND	1.02	0.976	mg/kg	95	MCAWW 300.0A	07/20/01	1201333
			Dilution Factor: 1					
Nitrogen, as Ammonia			Work Order #...: EGEHV1CU			MS Lot-Sample #: F1G160140-001		
	1.3	5.10	5.68	mg/kg	86	MCAWW 350.1	07/26/01	1207385
			Dilution Factor: 1					
Sulfate			Work Order #...: EGEHV1CP			MS Lot-Sample #: F1G160140-001		
	9.4	41.0	46.8	mg/kg	91	MCAWW 300.0A	07/20/01	1201334
			Dilution Factor: 1					
Total Cyanide			Work Order #...: EGEHV1CW			MS Lot-Sample #: F1G160140-001		
	ND	5.12	6.00	mg/kg	117	SW846 9010A	07/23/01	1205410
			Dilution Factor: 1					
Total Organic Carbon			Work Order #...: EGEHV1CX			MS Lot-Sample #: F1G160140-001		
	622	1020	1550	mg/kg	90	SW846 9060	07/30/01	1214246
			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 #...: F1G160140 **Matrix.....:** SOLID
Date Sampled...: 07/13/01 **Date Received..:** 07/14/01

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Fluoride			WO#: EGEHV1C4-MS/EGEHV1C5-MSD		MS Lot-Sample #: F1G160140-001				
	0.17	2.05	2.09	mg/kg	94		MCAWW 300.0A	07/25/01	1201336
	0.17	2.05	2.18	mg/kg	98	4.5	MCAWW 300.0A	07/25/01	1201336

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.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: F1G160140 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		Work Order #: EGPCT1AA		MB Lot-Sample #:	F1G200000-331	
	ND	2.0	mg/kg	MCAWW 300.0A	07/20/01	1201331
		Dilution Factor: 1				
Fluoride		Work Order #: EGPC71AA		MB Lot-Sample #:	F1G200000-336	
	ND	1.0	mg/kg	MCAWW 300.0A	07/25/01	1201336
		Dilution Factor: 1				
Nitrate		Work Order #: EGPCX1AA		MB Lot-Sample #:	F1G200000-332	
	ND	2.0	mg/kg	MCAWW 300.0A	07/20/01	1201332
		Dilution Factor: 1				
Nitrate/Nitrite as N		Work Order #: EGPME1AA		MB Lot-Sample #:	F1G200000-390	
	ND	0.50	mg/kg	MCAWW 353.1	07/26/01	1201390
		Dilution Factor: 1				
Nitrite		Work Order #: EGPC01AA		MB Lot-Sample #:	F1G200000-333	
	ND	20.0	mg/kg	MCAWW 300.0A	07/20/01	1201333
		Dilution Factor: 1				
Nitrogen, as Ammonia		Work Order #: EG1GJ1AA		MB Lot-Sample #:	F1G260000-385	
	ND	0.50	mg/kg	MCAWW 350.1	07/26/01	1207385
		Dilution Factor: 1				
Phosphate as P, Ortho		Work Order #: EGPC51AA		MB Lot-Sample #:	F1G200000-335	
	ND	50.0	mg/kg	MCAWW 300.0A	07/20/01	1201335
		Dilution Factor: 1				
Sulfate		Work Order #: EGPC11AA		MB Lot-Sample #:	F1G200000-334	
	ND	50.0	mg/kg	MCAWW 300.0A	07/20/01	1201334
		Dilution Factor: 1				
Total Cyanide		Work Order #: EGT3D1AA		MB Lot-Sample #:	F1G240000-410	
	ND	0.50	mg/kg	SW846 9010A	07/23/01	1205410
		Dilution Factor: 1				
Total Organic Carbon		Work Order #: EHCXJ1AA		MB Lot-Sample #:	F1H020000-246	
	ND	25.0	mg/kg	SW846 9060	07/30/01	1214246
		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 #...: F1G160140 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride		WO#:EGPCT1AC-LCS/EGPCT1AD-LCSD				LCS Lot-Sample#: F1G200000-331		
	1.00	0.961	mg/kg	96		MCAWW 300.0A	07/20/01	1201331
	1.00	0.967	mg/kg	97	0.58	MCAWW 300.0A	07/20/01	1201331
		Dilution Factor: 1						
Fluoride		WO#:EGPC71AC-LCS/EGPC71AD-LCSD				LCS Lot-Sample#: F1G200000-336		
	1.00	0.896	mg/kg	90		MCAWW 300.0A	07/25/01	1201336
	1.00	0.985	mg/kg	99	9.5	MCAWW 300.0A	07/25/01	1201336
		Dilution Factor: 1						
Nitrate		WO#:EGPCX1AC-LCS/EGPCX1AD-LCSD				LCS Lot-Sample#: F1G200000-332		
	2.00	1.74	mg/kg	87		MCAWW 300.0A	07/20/01	1201332
	2.00	1.84	mg/kg	92	5.7	MCAWW 300.0A	07/20/01	1201332
		Dilution Factor: 1						
Nitrite		WO#:EGPC01AC-LCS/EGPC01AD-LCSD				LCS Lot-Sample#: F1G200000-333		
	0.800	0.798	mg/kg	100		MCAWW 300.0A	07/20/01	1201333
	0.800	0.764	mg/kg	95	4.5	MCAWW 300.0A	07/20/01	1201333
		Dilution Factor: 1						
Phosphate as P, Ortho		WO#:EGPC51AC-LCS/EGPC51AD-LCSD				LCS Lot-Sample#: F1G200000-335		
	40.0	36.8	mg/kg	92		MCAWW 300.0A	07/20/01	1201335
	40.0	37.1	mg/kg	93	0.64	MCAWW 300.0A	07/20/01	1201335
		Dilution Factor: 1						
Sulfate		WO#:EGPC11AC-LCS/EGPC11AD-LCSD				LCS Lot-Sample#: F1G200000-334		
	40.0	38.0	mg/kg	95		MCAWW 300.0A	07/20/01	1201334
	40.0	37.5	mg/kg	94	1.3	MCAWW 300.0A	07/20/01	1201334
		Dilution Factor: 1						
Total Organic Carbon		WO#:EHCXJ1AC-LCS/EHCXJ1AD-LCSD				LCS Lot-Sample#: F1H020000-246		
	600	588	mg/kg	98		SW846 9060	07/30/01	1214246
	600	545	mg/kg	91	7.6	SW846 9060	07/30/01	1214246
		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 #...: F1G160140 **Matrix.....:** SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH (solid)			Work Order #: EGGP31AA LCS Lot-Sample#: F1G170000-331				
	7.00	6.99	No Units	100	SW846 9045A	07/17/01	1198331
			Dilution Factor: 1				
Nitrate/Nitrite as N			Work Order #: EGPME1AC LCS Lot-Sample#: F1G200000-390				
	5.00	5.04	mg/kg	101	MCAWW 353.1	07/26/01	1201390
			Dilution Factor: 1				
Nitrogen, as Ammonia			Work Order #: EG1GJ1AC LCS Lot-Sample#: F1G260000-385				
	5.00	4.90	mg/kg	98	MCAWW 350.1	07/26/01	1207385
			Dilution Factor: 1				
Total Cyanide			Work Order #: EGT3D1AC LCS Lot-Sample#: F1G240000-410				
	100	117	mg/kg	117	SW846 9010A	07/23/01	1205410
			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 105 Pages

Report No.: 14006

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
W03557	B01-058	B12BW3	J1G130331-1	EGCVV1AA	9EGCVV10	1198500
		B12BW3	J1G130331-1	EGCVV1AF	9EGCVV10	1220384
		B12BW3	J1G130331-1	EGCVV1AG	9EGCVV10	1220385
		B12BW3	J1G130331-1	EGCVV1AC	9EGCVV10	1220386
		B12BW3	J1G130331-1	EGCVV1AJ	9EGCVV10	1220393
		B12BW3	J1G130331-1	EGCVV1AQ	9EGCVV10	1220397
		B12BW3	J1G130331-1	EGCVV1AE	9EGCVV10	1220398
		B12BW3	J1G130331-1	EGCVV1AL	9EGCVV10	1220399
		B12BW3	J1G130331-1	EGCVV1AM	9EGCVV10	1220400
		B12BW3	J1G130331-1	EGCVV1AP	9EGCVV10	1220402
		B12BW3	J1G130331-1	EGCVV1AD	9EGCVV10	1220404
		B12BW3	J1G130331-1	EGCVV1CF	9EGCVV10	1235473
		B12BW3	J1G130331-1	EGCVV1CH	9EGCVV10	1250483

SEVERN TRENT SERVICES

STL Richland
2800 George Washington Way
Richland, WA 99352-1613

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CERTIFICATE OF ANALYSIS

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

September 28, 2001

Attention: Joan Kessner

SAF Number	:	B01-058
Date SDG Closed	:	July 27, 2001
Number of Samples	:	One (1)
Sample Type	:	Soil
SDG Number	:	W03557
Data Deliverable	:	45-Day / Summary

I. Introduction

On July 13, 2001, 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
9EGCVV10	B12BW3	SOIL	7/13/01

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 by method RICH-RC-5080
Neptunium-237 by method RICH-RC-5009
Plutonium-238, -239/40 by method RICH-RC-5010
Thorium-228, 230, 232 by method RICH-RC-5084
Uranium-234, -235, -238 by method RICH-RC-5079
Gamma Spectroscopy
Gamma Scan by method RICH-RC-5017

Gas Proportional Counting
Total Strontium by method RICH-RC-5006
Liquid Scintillation Counting
Carbon-14 by method RICH-RC-5022
Nickel-63 by method RICH-RC-5069
Technetium-99 by method RICH-RC-5078
Tritium by method RICH-RC-5007
Total Uranium
Total Uranium by method RICH-RC-5058
Chemical Analyses
Chromium Hex by EPA method 7196

III. Quality Control

The analytical results for each analysis performed under SDG W03557 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 by method RICH-RC-5080:
The LCS, batch blank, sample and sample duplicate (B12BW3) results are within contractual requirements.

Neptunium-237 by method RICH-RC-5009:
The LCS was recounted to verify radiochemical recovery. The recount was acceptable. The LCS, batch blank, sample and sample duplicate (B12BW3) results are within contractual requirements.

Plutonium-238, -239/40 by method RICH-RC-5010:
The LCS, batch blank, sample and sample duplicate (B12BW3) results are within contractual requirements.

Thorium-228, 230, 232 by method RICH-RC-5084:
The LCS, batch blank, sample and sample duplicate (B12BW3) results are within contractual requirements.

Uranium-234, -235, -238 by method RICH-RC-5079:
The LCS, batch blank, sample and sample duplicate (B12BW3) results are within contractual requirements.

Gamma Spectroscopy
Gamma Scan by method RICH-RC-5017:
The LCS, batch blank, sample and sample duplicate (B12BW3) results are within contractual requirements.

Gas Proportional Counting
Total Strontium by method RICH-RC-5006:
The LCS, batch blank, sample and sample duplicate (B12BW3) results are within contractual requirements.

Liquid Scintillation Counting
Carbon-14 by method RICH-RC-5022:
For solid matrices, the laboratory control and batch blank samples are direct count analyses. The LCS, batch blank, sample and sample duplicate (B12BW3) results are within contractual requirements.

Nickel-63 by method RICH-RC-5069:
The LCS, batch blank, sample, sample duplicate (B12BW3) and sample matrix spike (B12BW3) results are within contractual requirements.

Technetium-99 by method RICH-RC-5078:
The LCS, batch blank, sample, sample duplicate (B12BW3) and sample matrix spike (B12BW3) results are within contractual requirements.

Tritium by method RICH-RC-5007:
The LCS, batch blank, sample and sample duplicate (B12BW3) results are within contractual requirements.

Total Uranium
Total Uranium by method RICH-RC-5058:
The LCS, batch blank, sample, sample duplicate (B12BW3) and sample matrix spike (B12BW3) results are within contractual requirements.

Chemical Analyses

Chromium Hex by EPA method 7196:

The LCS, batch blank, sample, sample duplicate (B12BW3) and sample matrix spike (B12BW3) results are within contractual requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the following signature.

Reviewed and approved:

Jackie Waddell
Project Manager

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 D57174	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.

Report No. : 14006 **SDG No:** W03557

Client ID	Work Order Number	Parameter	Result	+-	Uncertainty	Qual	Units	Yield	MDC|MDA	RER
B12BW3	EGCVV1AA	HEXCHROME	2.39E-01	+-	0.0E+00 (2s)		mg/kg	N/A	8.00E-02	
B12BW3	EGCVV1AF	PU-238	0.00E+00	+-	1.2E-02 (2s)	U	pCi/g	64.76%	1.33E-02	
		PU239/40	4.52E-03	+-	9.9E-03 (2s)	U	pCi/g	64.76%	1.98E-02	
B12BW3	EGCVV1AG	AM-241	-3.55E-04	+-	7.1E-04 (2s)	U	pCi/g	93.14%	1.79E-02	
B12BW3	EGCVV1AC	U-234	3.78E-01	+-	1.3E-01 (2s)		pCi/g	77.34%	3.53E-02	
		U-235	0.00E+00	+-	1.9E-02 (2s)	U	pCi/g	77.34%	2.10E-02	
		U-238	3.62E-01	+-	1.3E-01 (2s)		pCi/g	77.34%	3.53E-02	
B12BW3	EGCVV1AJ	TH-228	5.87E-01	+-	1.8E-01 (2s)		pCi/g	96.32%	3.15E-02	
		TH-230	3.01E-01	+-	1.1E-01 (2s)		pCi/g	96.32%	2.75E-02	
		TH-232	5.23E-01	+-	1.7E-01 (2s)		pCi/g	96.32%	1.49E-02	
B12BW3	EGCVV1AQ	C-14	5.22E-02	+-	5.2E-01 (2s)	U	pCi/g	100.00%	8.05E-01	
B12BW3	EGCVV1AE	NI-63	2.85E+00	+-	4.3E+00 (2s)	U	pCi/g	85.58%	6.50E+00	
B12BW3	EGCVV1AL	TC-99	2.65E-01	+-	7.5E-01 (2s)	U	pCi/g	100.00%	8.10E-01	
B12BW3	EGCVV1AM	H-3	6.13E-01	+-	3.5E+00 (2s)	U	pCi/g	100.00%	5.83E+00	
B12BW3	EGCVV1AP	CO-60	6.36E-03	+-	3.0E-02 (2s)	U	pCi/g		5.11E-02	
		CS-137	1.06E-02	+-	2.4E-02 (2s)	U	pCi/g		4.04E-02	
		EU-152	-2.81E-02	+-	7.5E-02 (2s)	U	pCi/g		9.64E-02	
		EU-154	-8.36E-02	+-	8.5E-02 (2s)	U	pCi/g		1.39E-01	
		EU-155	-1.62E-02	+-	4.7E-02 (2s)	U	pCi/g		7.97E-02	
		RA-226	3.99E-01	+-	9.4E-02 (2s)	U	pCi/g		1.10E-01	
		RA-228	8.06E-01	+-	1.9E-01 (2s)		pCi/g		2.04E-01	
B12BW3	EGCVV1AD	STRONTIUM	4.38E-02	+-	6.6E-02 (2s)	U	pCi/g	82.70%	1.42E-01	
B12BW3	EGCVV1CF	NP-237	5.85E-03	+-	1.2E-02 (2s)	U	pCi/g	68.52%	1.59E-02	
B12BW3	EGCVV1CH	TOTAL-URANIUM	1.15E+00	+-	1.9E-01 (2s)		ug/g		7.29E-05	
B12BW3 DUP	EGCVV1AT	HEXCHROME	8.00E-02	+-	0.0E+00 (2s)	U	mg/kg	N/A	8.00E-02	
B12BW3 DUP	EGCVV1AW	PU-238	0.00E+00	+-	1.3E-02 (2s)	U	pCi/g	54.94%	1.42E-02	
		PU239/40	1.53E-02	+-	1.8E-02 (2s)	U	pCi/g	54.94%	2.11E-02	
B12BW3 DUP	EGCVV1AX	AM-241	9.06E-03	+-	1.3E-02 (2s)	U	pCi/g	87.64%	1.90E-02	
B12BW3 DUP	EGCVV1A0	U-234	3.41E-01	+-	1.2E-01 (2s)		pCi/g	80.34%	3.12E-02	
		U-235	2.33E-02	+-	2.7E-02 (2s)	U	pCi/g	80.34%	2.10E-02	
		U-238	3.88E-01	+-	1.3E-01 (2s)		pCi/g	80.34%	2.10E-02	
B12BW3 DUP	EGCVV1A3	TH-228	6.31E-01	+-	2.0E-01 (2s)		pCi/g	90.88%	4.73E-02	
		TH-230	3.46E-01	+-	1.2E-01 (2s)		pCi/g	90.88%	1.65E-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.

REV.1
Date: 28-Sep-01

Sample Results Summary

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Report No. : 14006 **SDG No:** W03557

Client ID	Work Order Number	Parameter	Result +- Uncertainty	Qual	Units	Yield	MDC|MDA	RER
B12BW3 DUP	EGCVV1A3	TH-232	6.62E-01 +- 2.0E-01 (2s)		pCi/g	90.88%	2.45E-02	
B12BW3 DUP	EGCVV1A4	C-14	3.31E-02 +- 5.2E-01 (2s)	U	pCi/g	100.00%	8.06E-01	
B12BW3 DUP	EGCVV1A6	NI-63	2.92E+01 +- 7.1E+00 (2s)		pCi/g	66.04%	8.55E+00	
B12BW3 DUP	EGCVV1A8	TC-99	2.80E-01 +- 7.5E-01 (2s)	U	pCi/g	100.00%	8.04E-01	
B12BW3 DUP	EGCVV1A9	H-3	8.87E-01 +- 3.6E+00 (2s)	U	pCi/g	100.00%	5.80E+00	
B12BW3 DUP	EGCVV1CA	CO-60	1.00E-02 +- 2.1E-02 (2s)	U	pCi/g		3.80E-02	
		CS-137	7.33E-03 +- 1.8E-02 (2s)	U	pCi/g		3.07E-02	
		EU-152	2.59E-03 +- 5.0E-02 (2s)	U	pCi/g		7.98E-02	
		EU-154	9.69E-03 +- 6.3E-02 (2s)	U	pCi/g		1.08E-01	
		EU-155	1.29E-02 +- 3.5E-02 (2s)	U	pCi/g		5.98E-02	
		RA-226	3.21E-01 +- 7.0E-02 (2s)		pCi/g		5.90E-02	
		RA-228	6.71E-01 +- 1.5E-01 (2s)		pCi/g		1.14E-01	
B12BW3 DUP	EGCVV1CC	STRONTIUM	4.24E-02 +- 6.3E-02 (2s)	U	pCi/g	80.40%	1.35E-01	
B12BW3 DUP	EGCVV1CG	NP-237	0.00E+00 +- 1.3E-02 (2s)	U	pCi/g	76.19%	1.47E-02	
B12BW3 DUP	EGCVV1CK	TOTAL-URANIUM	1.14E+00 +- 1.8E-01 (2s)		ug/g		7.29E-05	

Number of Results: 48

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.

Report No. : 14006

SDG No.: W03557

QC Type	Work Order Number	Parameter	Result +- Uncertainty	Qual	Units	Yield	Recovery	Bias	MDC|MDA
MATRIX SPIK	EGCVV1A5	NI-63	4.87E+02 +- 3.6E+01 (2s)		pCi/g	89.64%	96.83%	0.0	6.13E+00
MATRIX SPIK	EGCVV1A7	TC-99	2.01E+02 +- 1.5E+01 (2s)		pCi/g	100.00%	88.71%	-0.1	7.99E-01
MATRIX SPIK	EGCVV1CJ	TOTAL-URANIUM	1.00E+01 +- 2.7E+00 (2s)		ug/g		98.95%	0.0	7.29E-05
MATRIX SPIK	EGCVV1AR	HEXCHROME	3.31E+01 +- 0.0E+00 (2s)		mg/kg	N/A	83.10%	-0.2	8.00E-02
MATRIX SPIK	EGCVV1AU	HEXCHROME	6.73E+02 +- 0.0E+00 (2s)		mg/kg	N/A	95.46%	0.0	8.00E-02
BLANK QC	EGG9W1AA	HEXCHROME	2.00E-03 +- 0.0E+00 (2s)	U	mg/L	N/A			2.00E-03
LCS	EGG9W1AC	HEXCHROME	9.28E-01 +- 0.0E+00 (2s)		mg/L	N/A	92.80%	-0.1	2.00E-03
BLANK QC	EHM381AA	PU-238	0.00E+00 +- 1.5E-02 (2s)	U	pCi/g	52.75%			1.63E-02
		PU239/40	5.54E-03 +- 1.2E-02 (2s)	U	pCi/g	52.75%			2.42E-02
BLANK QC	EHM381AD	PU-238	0.00E+00 +- 1.6E-02 (2s)	U	pCi/g	48.16%			1.79E-02
		PU239/40	6.60E-03 +- 1.3E-02 (2s)	U	pCi/g	48.16%			1.79E-02
BLANK QC	EHM4G1AD	AM-241	1.47E-02 +- 1.8E-02 (2s)	U	pCi/g	83.65%			2.02E-02
BLANK QC	EHM4K1AA	U-234	-1.35E-03 +- 1.9E-03 (2s)	U	pCi/g	78.40%			3.84E-02
		U-235	0.00E+00 +- 2.1E-02 (2s)	U	pCi/g	78.40%			2.28E-02
		U-238	0.00E+00 +- 2.1E-02 (2s)	U	pCi/g	78.40%			2.28E-02
BLANK QC	EHM4V1AA	TH-228	1.17E-02 +- 2.2E-02 (2s)	U	pCi/g	72.00%			4.55E-02
		TH-230	6.59E-03 +- 1.4E-02 (2s)	U	pCi/g	72.00%			2.88E-02
		TH-232	-5.73E-04 +- 1.2E-03 (2s)	U	pCi/g	72.00%			2.88E-02
BLANK QC	EHM421AE	C-14	-2.58E-01 +- 5.1E-01 (2s)	U	pCi/g	100.00%			8.07E-01
BLANK QC	EHM5F1AA	NI-63	5.24E+00 +- 5.0E+00 (2s)	U	pCi/g	75.47%			7.27E+00
BLANK QC	EHM5R1AA	TC-99	-5.72E-02 +- 7.3E-01 (2s)	U	pCi/g	100.00%			7.99E-01
BLANK QC	EHM5W1AE	H-3	-1.80E-03 +- 1.7E-01 (2s)	U	pCi/g	100.00%			2.87E-01
BLANK QC	EHM521AA	CO-60	-9.52E-03 +- 2.2E-02 (2s)	U	pCi/g				3.70E-02
		CS-137	6.62E-03 +- 1.9E-02 (2s)	U	pCi/g				3.22E-02
		EU-152	-3.99E-02 +- 5.0E-02 (2s)	U	pCi/g				7.97E-02
		EU-154	6.27E-03 +- 6.1E-02 (2s)	U	pCi/g				1.08E-01
		EU-155	3.20E-03 +- 4.2E-02 (2s)	U	pCi/g				7.27E-02
		RA-226	1.24E-01 +- 6.4E-02 (2s)	U	pCi/g				8.24E-02
		RA-228	1.24E-01 +- 7.9E-02 (2s)	U	pCi/g				1.45E-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-Sep-01

Report No. : 14006

SDG No.: W03557

QC Type	Work Order Number	Parameter	Result +- Uncertainty	Qual	Units	Yield	Recovery	Bias	MDC|MDA
BLANK QC	EHM531AA	STRONTIUM	1.20E-02 +- 5.2E-02 (2s)	U	pCi/g	89.20%			1.21E-01
BLANK QC	EJGE61AA	NP-237	-3.89E-04 +- 7.8E-04 (2s)	U	pCi/g	81.60%			1.95E-02
BLANK QC	EJ79T1AA	TOTAL-URANIUM	1.23E-03 +- 3.6E-04 (2s)		ug/g				7.29E-05
LCS	EHM381AC	PU239/40	3.08E+00 +- 6.7E-01 (2s)		pCi/g	31.56%	89.91%	-0.1	3.89E-02
LCS	EHM381AE	PU239/40	2.93E+00 +- 5.8E-01 (2s)		pCi/g	47.40%	85.61%	-0.1	2.70E-02
LCS	EHM4G1AE	AM-241	3.87E+00 +- 7.5E-01 (2s)		pCi/g	100.28%	82.20%	-0.2	1.64E-02
LCS	EHM4K1AC	U-234	3.18E+00 +- 6.7E-01 (2s)		pCi/g	82.52%	98.25%	0.0	3.16E-02
		U-235	1.02E-01 +- 6.0E-02 (2s)		pCi/g	82.52%	68.97%	-0.3	2.13E-02
		U-238	3.33E+00 +- 7.0E-01 (2s)		pCi/g	82.52%	97.99%	0.0	2.13E-02
LCS	EHM4V1AC	TH-230	1.09E+00 +- 3.2E-01 (2s)		pCi/g	77.37%	95.13%	0.0	2.83E-02
LCS	EHM421AC	C-14	1.66E+01 +- 1.3E+00 (2s)		pCi/g	100.00%	91.75%	-0.1	8.05E-01
LCS	EHM5F1AC	NI-63	4.97E+02 +- 3.6E+01 (2s)		pCi/g	82.88%	97.68%	0.0	6.65E+00
LCS	EHM5R1AC	TC-99	6.07E+01 +- 5.0E+00 (2s)		pCi/g	100.00%	89.61%	-0.1	8.06E-01
LCS	EHM5W1AC	H-3	1.39E+00 +- 2.9E-01 (2s)		pCi/g	100.00%	101.67%	0.0	2.94E-01
LCS	EHM521AC	CS-137	9.18E-01 +- 1.4E-01 (2s)		pCi/g		96.66%	0.0	6.96E-02
		RA-226	1.52E+00 +- 2.6E-01 (2s)		pCi/g		70.86%	-0.3	1.20E-01
LCS	EHM531AC	STRONTIUM	1.05E+00 +- 3.3E-01 (2s)		pCi/g	81.60%	94.08%	-0.1	1.32E-01
LCS	EJGE62AC	NP-237	6.76E-01 +- 1.5E-01 (2s)		pCi/g	88.90%	74.89%	-0.3	1.25E-02
LCS	EJ79T1AC	TOTAL-URANIUM	9.92E+00 +- 2.4E+00 (2s)		ug/g		98.57%	0.0	7.29E-05

Number of Results: 48

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.

FORM I

SAMPLE RESULTS

Date: 28-Sep-01

Lab Name: STL Richland **SDG:** W03557 **Collection Date:** 7/13/01 6:10:00 AM

Lot-Sample No.: J1G130331-1 **Report No. :** 14006 **Received Date:** 7/13/01 1:32:00 PM

Client Sample ID: B12BW3 **COC No. :** B01-058-99 **Matrix:** SOIL SOLID

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: 1198500	Work Order: EGCVV1AA			Report DB ID: 9EGCVV10								
HEXCHROME	2.39E-01			0.0E+00	8.00E-02	mg/kg	N/A	*(3.)*	7/23/01		2.5826	EPA7196
							3.00E-02	*N/A*			G	
Batch: 1220384	Work Order: EGCVV1AF			Report DB ID: 9EGCVV10								
PU-238	*0.00E+00*	U	*0.0E+00*	1.2E-02	1.33E-02	*pCi/g*	*64.76%*	*0.*	9/14/01 07:17 a		2.0	PUPLATE
							1.00E+00	*0.*			G	ALP37
PU239/40	4.52E-03	U	9.8E-03	9.9E-03	1.98E-02	pCi/g	64.76%	*0.23*	9/14/01 07:17 a		2.0	PUPLATE
						3.23E-03	1.00E+00	*0.91*			G	ALP37
Batch: 1220385	Work Order: EGCVV1AG			Report DB ID: 9EGCVV10								
AM-241	-3.55E-04	U	7.1E-04	7.1E-04	1.79E-02	pCi/g	93.14%	*-0.02*	9/14/01 07:12 a		2.0	AM/CMPRECIP
						2.92E-03	1.00E+00	*-1.*			G	ALP121
Batch: 1220386	Work Order: EGCVV1AC			Report DB ID: 9EGCVV10								
U-234	3.78E-01		1.1E-01	1.3E-01	3.53E-02	pCi/g	77.34%	*(10.7)*	9/13/01 08:37 a		1.0	UPLATE
						7.19E-03	1.00E+00	*(5.8)*			G	ALP9
U-235	0.00E+00	U	0.0E+00	1.9E-02	2.10E-02	pCi/g	77.34%	*0.*	9/13/01 08:37 a		1.0	UPLATE
							1.00E+00	*0.*			G	ALP9
U-238	3.62E-01		1.1E-01	1.3E-01	3.53E-02	pCi/g	77.34%	*(10.2)*	9/13/01 08:37 a		1.0	UPLATE
						7.19E-03	1.00E+00	*(5.7)*			G	ALP9
								Ratio U-234/238 = 1.0				
Batch: 1220393	Work Order: EGCVV1AJ			Report DB ID: 9EGCVV10								
TH-228	5.87E-01		1.2E-01	1.8E-01	3.15E-02	pCi/g	96.32%	*(18.7)*	9/13/01 06:45 p		2.0	THPRECIP
						7.76E-03	1.00E+00	*(6.4)*			G	ALP117

0001212

STL Richland

rptSTLRchSample V3.77 A97

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-Sep-01

Lab Name: STL Richland
Lot-Sample No.: J1G130331-1
Client Sample ID: B12BW3

SDG: W03557
Report No. : 14006
COC No. : B01-058-99

Collection Date: 7/13/01 6:10:00 AM
Received Date: 7/13/01 1:32:00 PM
Matrix: SOIL SOLID

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
TH-230	3.01E-01		8.2E-02	1.1E-01	2.75E-02	pCi/g	96.32%	*(11.)*	9/13/01 06:45 p		2.0	THPRECIP
						6.27E-03	1.00E+00	*(5.5)*			G	ALP117
TH-232	5.23E-01		1.1E-01	1.7E-01	1.49E-02	pCi/g	96.32%	*(35.1)*	9/13/01 06:45 p		2.0	THPRECIP
							1.00E+00	*(6.3)*			G	ALP117
Batch: 1220397	**Work Order:** EGCVV1AQ			**Report DB ID:** 9EGCVV10								
C-14	5.22E-02	U	3.3E-01	5.2E-01	8.05E-01	pCi/g	100.00%	*0.06*	8/24/01 06:02 p		2.007	C14CHEMLSC
						3.86E-01	5.00E+01	*0.2*			G	LSC6
Batch: 1220398	**Work Order:** EGCVV1AE			**Report DB ID:** 9EGCVV10								
NI-63	2.85E+00	U	2.7E+00	4.3E+00	6.50E+00	pCi/g	85.58%	*0.44*	9/20/01 09:52 p		0.25	NI63LSC
						3.15E+00	3.00E+01	*(1.3)*			G	LSC6
Batch: 1220399	**Work Order:** EGCVV1AL			**Report DB ID:** 9EGCVV10								
TC-99	2.65E-01	U	3.4E-01	7.5E-01	8.10E-01	pCi/g	100.00%	*0.33*	9/8/01 07:01 p		2.0	TC99CHEMLSC
						3.94E-01	1.50E+01	*0.71*			G	LSC6
Batch: 1220400	**Work Order:** EGCVV1AM			**Report DB ID:** 9EGCVV10								
H-3	6.13E-01	U	2.3E+00	3.5E+00	5.83E+00	pCi/g	100.00%	*0.11*	8/24/01 01:50 p		5.001	H3HIGH
						2.67E+00	4.00E+02	*0.35*			G	LSC6
Batch: 1220402	**Work Order:** EGCVV1AP			**Report DB ID:** 9EGCVV10								
CO-60	6.36E-03	U	3.0E-02	3.0E-02	5.11E-02	pCi/g		*0.12*	9/4/01 01:23 p		52.6	GAMMAHI
							5.00E-02	*0.43*			g	GER1$1
CS-137	1.06E-02	U	2.4E-02	2.4E-02	4.04E-02	pCi/g		*0.26*	9/4/01 01:23 p		52.6	GAMMAHI
							1.00E-01	*0.89*			g	GER1$1

0000013

STL Richland
rptSTLRchSample V3.77 A97

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-Sep-01

Lab Name: STL Richland **SDG:** W03557 **Collection Date:** 7/13/01 6:10:00 AM

Lot-Sample No.: J1G130331-1 **Report No. :** 14006 **Received Date:** 7/13/01 1:32:00 PM

Client Sample ID: B12BW3 **COC No. :** B01-058-99 **Matrix:** SOIL SOLID

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
EU-152	-2.81E-02	U	7.5E-02	7.5E-02	9.64E-02	pCi/g		*-0.29*	9/4/01 01:23 p		52.6	GAMMAHI
							1.00E-01	*-0.75*			g	GER1$1
EU-154	-8.36E-02	U	8.5E-02	8.5E-02	1.39E-01	pCi/g		*-0.6*	9/4/01 01:23 p		52.6	GAMMAHI
							1.00E-01	*-(2.)*			g	GER1$1
EU-155	-1.62E-02	U	4.7E-02	4.7E-02	7.97E-02	pCi/g		*-0.2*	9/4/01 01:23 p		52.6	GAMMAHI
							1.00E-01	*-0.68*			g	GER1$1
RA-226	3.99E-01	U	9.4E-02	9.4E-02	1.10E-01	pCi/g		*(3.6)*	9/4/01 01:23 p		52.6	GAMMAHI
								(8.4)			g	GER1$1
RA-228	8.06E-01		1.9E-01	1.9E-01	2.04E-01	pCi/g		*(3.9)*	9/4/01 01:23 p		52.6	GAMMAHI
								(8.3)			g	GER1$1
Batch: 1220404	**Work Order:** EGCVV1AD			**Report DB ID:** 9EGCVV10								
STRONTIUM	4.38E-02	U	6.5E-02	6.6E-02	1.42E-01	pCi/g	82.70%	*0.31*	9/11/01 04:38 p		6.0	SR8990
						6.61E-02	1.00E+00	*(1.3)*			G	GPC27A
Batch: 1235473	**Work Order:** EGCVV1CF			**Report DB ID:** 9EGCVV10								
NP-237	5.85E-03	U		1.2E-02	1.59E-02	pCi/g	68.52%	*0.37*	9/12/01 03:15 p		2.0	D3XW
							1.00E+00	*1.*			G	ALP163
Batch: 1250483	**Work Order:** EGCVV1CH			**Report DB ID:** 9EGCVV10								
TOTAL-URANIUM	1.15E+00		0.0E+00	1.9E-01	7.29E-05	ug/g		*(15770.2)*	9/10/01 10:52 a	1.0	1.0	RICHRC5015
						2.58E-05	1.00E+00	*(12.3)*		ML	ML	LIP3

000014

Number of Results: 24

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

Date: 28-Sep-01

DUPLICATE RESULTS

Lab Name: STL Richland **SDG:** W03557 **Collection Date:** 7/13/01 6:10:00 AM

Lot-Sample No.: J1G130331- **Report No. :** 14006 **Received Date:** 7/13/01 1:32:00 PM

Client Sample ID: B12BW3 DUP **COC No. :** B01-058-99 **Matrix:** WATER LIQUID

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: 1198500	Work Order: EGCVV1AT			Report DB ID: EGCVV1TR		Orig Sa DB ID: 9EGCVV10						
HEXCHROME	8.00E-02	U		0.0E+00	8.00E-02	mg/kg	N/A	(1.)	7/23/01		2.5827	EPA7196
	2.39E-01	RPD	1.0					N/A			G	
Batch: 1220384	Work Order: EGCVV1AW			Report DB ID: EGCVV1WR		Orig Sa DB ID: 9EGCVV10						
PU-238	0.00E+00	U	0.0E+00	1.3E-02	1.42E-02	pCi/g	54.94%	0.	9/14/01 07:17 a		2.0	PUPLATE
	0.00E+00	RER	0.0			1.00E+00		0.			G	ALP38
PU239/40	1.53E-02	U	1.8E-02	1.8E-02	2.11E-02	pCi/g	54.94%	0.73	9/14/01 07:17 a		2.0	PUPLATE
	4.52E-03	RER	1.0			1.00E+00		(1.7)			G	ALP38
										Alpha Spec Result Sum = 1.5E-02		
Batch: 1220385	Work Order: EGCVV1AX			Report DB ID: EGCVV1XR		Orig Sa DB ID: 9EGCVV10						
AM-241	9.06E-03	U	1.3E-02	1.3E-02	1.90E-02	pCi/g	87.64%	0.48	9/14/01 07:12 a		2.0	AM/CMPRECIP
	-3.55E-04	RER	1.4			1.00E+00		(1.3)			G	ALP123
										Alpha Spec Result Sum = 2.4E-02		
Batch: 1220386	Work Order: EGCVV1A0			Report DB ID: EGCVV10R		Orig Sa DB ID: 9EGCVV10						
U-234	3.41E-01		1.0E-01	1.2E-01	3.12E-02	pCi/g	80.34%	(10.9)	9/13/01 08:37 a		1.0	UPLATE
	3.78E-01	RER	0.4			1.00E+00		(5.6)			G	ALP10
U-235	2.33E-02	U	2.7E-02	2.7E-02	2.10E-02	pCi/g	80.34%	(1.1)	9/13/01 08:37 a		1.0	UPLATE
	0.00E+00	RER	1.4			1.00E+00		(1.7)			G	ALP10
U-238	3.88E-01		1.1E-01	1.3E-01	2.10E-02	pCi/g	80.34%	(18.5)	9/13/01 08:37 a		1.0	UPLATE
	3.62E-01	RER	0.3			1.00E+00		(5.8)			G	ALP10
								Ratio U-234/238 = 0.9		*Alpha Spec Result Sum = 7.8E-01*		
Batch: 1220393	Work Order: EGCVV1A3			Report DB ID: EGCVV13R		Orig Sa DB ID: 9EGCVV10						
TH-228	6.31E-01		1.3E-01	2.0E-01	4.73E-02	pCi/g	90.88%	(13.4)	9/13/01 06:45 p		2.0	THPRECIP
	5.87E-01	RER	0.3			1.00E+00		(6.3)			G	ALP118

000015

STL Richland

rptSTLRchDupV3.77 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-Sep-01

DUPLICATE RESULTS

Lab Name: STL Richland **SDG:** W03557 **Collection Date:** 7/13/01 6:10:00 AM

Lot-Sample No.: J1G130331-1 **Report No. :** 14006 **Received Date:** 7/13/01 1:32:00 PM

Client Sample ID: B12BW3 DUP **COC No. :** B01-058-99 **Matrix:** SOIL SOLID

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
TH-230	3.46E-01		9.2E-02	1.2E-01	1.65E-02	pCi/g	90.88%	(21.)	9/13/01 06:45 p		2.0	THPRECIP
	3.01E-01	RER	0.5			1.00E+00		(5.6)			G	ALP118
TH-232	6.62E-01		1.3E-01	2.0E-01	2.45E-02	pCi/g	90.88%	(27.1)	9/13/01 06:45 p		2.0	THPRECIP
	5.23E-01	RER	1.1			1.00E+00		(6.5)			G	ALP118
											Alpha Spec Result Sum = 1.0E+00	
Batch: 1220397	**Work Order:** EGCVV1A4			**Report DB ID:** EGCVV14R			**Orig Sa DB ID:** 9EGCVV10					
C-14	3.31E-02	U	3.3E-01	5.2E-01	8.06E-01	pCi/g	100.00%	0.04	8/24/01 06:44 p		2.005	C14CHEMLSC
	5.22E-02	RER	0.1			5.00E+01		0.13			G	LSC6
											Alpha Spec Result Sum = 1.0E+00	
Batch: 1220398	**Work Order:** EGCVV1A6			**Report DB ID:** EGCVV16R			**Orig Sa DB ID:** 9EGCVV10					
NI-63	2.92E+01		4.2E+00	7.1E+00	8.55E+00	pCi/g	66.04%	(3.4)	9/21/01 01:16 a		0.25	NI63LSC
	2.85E+00	RER	6.4			3.00E+01		(8.3)			G	LSC6
											Alpha Spec Result Sum = 1.0E+00	
Batch: 1220399	**Work Order:** EGCVV1A8			**Report DB ID:** EGCVV18R			**Orig Sa DB ID:** 9EGCVV10					
TC-99	2.80E-01	U	3.4E-01	7.5E-01	8.04E-01	pCi/g	100.00%	0.35	9/8/01 09:05 p		2.0	TC99CHEMLSC
	2.65E-01	RER	0.0			1.50E+01		0.75			G	LSC6
											Alpha Spec Result Sum = 1.0E+00	
Batch: 1220400	**Work Order:** EGCVV1A9			**Report DB ID:** EGCVV19R			**Orig Sa DB ID:** 9EGCVV10					
H-3	8.87E-01	U	2.4E+00	3.6E+00	5.80E+00	pCi/g	100.00%	0.15	8/24/01 02:32 p		5.0	H3HIGH
	6.13E-01	RER	0.1			4.00E+02		0.5			G	LSC6
											Alpha Spec Result Sum = 1.0E+00	
Batch: 1220402	**Work Order:** EGCVV1CA			**Report DB ID:** EGCVV1AR			**Orig Sa DB ID:** 9EGCVV10					
CO-60	1.00E-02	U	2.1E-02	2.1E-02	3.80E-02	pCi/g		0.26	9/5/01 11:15 a		52.6	GAMMAHI
	6.36E-03	RER	0.2			5.00E-02		0.94			g	GER8$1

000016

STL Richland

rptSTLRchDupV3.77 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-Sep-01

DUPLICATE RESULTS

Lab Name: STL Richland **SDG:** W03557 **Collection Date:** 7/13/01 6:10:00 AM

Lot-Sample No.: J1G130331-1 **Report No. :** 14006 **Received Date:** 7/13/01 1:32:00 PM

Client Sample ID: B12BW3 DUP **COC No. :** B01-058-99 **Matrix:** SOIL SOLID

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
CS-137	7.33E-03	U	1.8E-02	1.8E-02	3.07E-02	pCi/g		0.24	9/5/01 11:15 a		52.6	GAMMAHI
	1.06E-02	RER	0.2			1.00E-01		0.83			g	GER8$1
EU-152	2.59E-03	U	5.0E-02	5.0E-02	7.98E-02	pCi/g		0.03	9/5/01 11:15 a		52.6	GAMMAHI
	-2.81E-02	RER	0.7			1.00E-01		0.1			g	GER8$1
EU-154	9.69E-03	U	6.3E-02	6.3E-02	1.08E-01	pCi/g		0.09	9/5/01 11:15 a		52.6	GAMMAHI
	-8.36E-02	RER	1.8			1.00E-01		0.31			g	GER8$1
EU-155	1.29E-02	U	3.5E-02	3.5E-02	5.98E-02	pCi/g		0.22	9/5/01 11:15 a		52.6	GAMMAHI
	-1.62E-02	RER	1.0			1.00E-01		0.74			g	GER8$1
RA-226	3.21E-01		7.0E-02	7.0E-02	5.90E-02	pCi/g		(5.4)	9/5/01 11:15 a		52.6	GAMMAHI
	3.99E-01	RER	1.3					(9.2)			g	GER8$1
RA-228	6.71E-01		1.5E-01	1.5E-01	1.14E-01	pCi/g		(5.9)	9/5/01 11:15 a		52.6	GAMMAHI
	8.06E-01	RER	1.1					(9.)			g	GER8$1
Batch: 1220404	Work Order: EGCVV1CC			Report DB ID: EGCVV1CR		Orig Sa DB ID: 9EGCVV10						
STRONTIUM	4.24E-02	U	6.2E-02	6.3E-02	1.35E-01	pCi/g	80.40%	0.31	9/11/01 04:38 p		6.0	SR8990
	4.38E-02	RER	0.0			1.00E+00		(1.3)			G	GPC27B
Batch: 1235473	Work Order: EGCVV1CG			Report DB ID: EGCVV1GR		Orig Sa DB ID: 9EGCVV10						
NP-237	0.00E+00	U		1.3E-02	1.47E-02	pCi/g	76.19%	0.	9/12/01 03:16 p		2.0	D3XW
	5.85E-03	RER	0.7			1.00E+00		0.			G	ALP164
Batch: 1250483	Work Order: EGCVV1CK			Report DB ID: EGCVV1KR		Orig Sa DB ID: 9EGCVV10						
TOTAL-URANIUM	1.14E+00		0.0E+00	1.8E-01	7.29E-05	ug/g		(15584.)	9/10/01 11:05 a	1.0	1.0	RICHRC5015
	1.15E+00	RER	0.1			1.00E+00		(12.3)		ML	ML	LIP3

00017

STL Richland

rptSTLRchDupV3.77 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-Sep-01

DUPLICATE RESULTS

Lab Name:	STL Richland	**SDG:**	W03557	**Collection Date:**	7/13/01 6:10:00 AM
Lot-Sample No.:	J1G130331-1	**Report No. :**	14006	**Received Date:**	7/13/01 1:32:00 PM
Client Sample ID:	B12BW3 DUP	**COC No. :**	B01-058-99	**Matrix:**	SOIL SOLID

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

Number of Results: 24

Comments:

000018

STL Richland

rptSTLRchDupV3.77 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.

FORM II

Date: 28-Sep-01

BLANK RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1G170000- **Report No. :** 14006 **Matrix:** WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1198500	Work Order: EGG9W1AA			Report DB ID: EGG9W1AB								
HEXCHROME	2.00E-03	U		0.0E+00	2.00E-03	mg/L	N/A	1. N/A	7/23/01		100.0 ML	EPA7196

Number of Results: 1

Comments:

000019

STL Richland

rptSTLRchBlank V3.77 A97

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-Sep-01

Lab Name: STL Richland SDG: W03557

Lot-Sample No.: J1H080000-384 Report No. : 14006 Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1220384	Work Order: EHM381AA			Report DB ID: EHM381AX								
PU-238	0.00E+00	U	0.0E+00	1.5E-02	1.63E-02	pCi/g	52.75%	0.	9/14/01 07:17 a		2.0	PUPLATE
						1.00E+00		0.			G	ALP39
PU239/40	5.54E-03	U	1.2E-02	1.2E-02	2.42E-02	pCi/g	52.75%	0.23	9/14/01 07:17 a		2.0	PUPLATE
					3.96E-03	1.00E+00		0.91			G	ALP39
Batch: 1220384	Work Order: EHM381AD			Report DB ID: EHM381DB								
PU-238	0.00E+00	U	0.0E+00	1.6E-02	1.79E-02	pCi/g	48.16%	0.	9/14/01 07:19 a		2.0	PUPLATE
						1.00E+00		0.			G	ALP44
PU239/40	6.60E-03	U	1.3E-02	1.3E-02	1.79E-02	pCi/g	48.16%	0.37	9/14/01 07:19 a		2.0	PUPLATE
						1.00E+00		1.			G	ALP44

Number of Results: 4

Comments:

020000

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-Sep-01

BLANK RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1H080000-385 **Report No. :** 14006 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1220385	Work Order: EHM4G1AD			Report DB ID: EHM4G1DB								
AM-241	1.47E-02	U	1.7E-02	1.8E-02	2.02E-02	pCi/g	83.65%	0.73	9/14/01 07:12 a		2.0	AM/CMPRECIP
					3.31E-03	1.00E+00		(1.7)			G	ALP127

Number of Results: 1

Comments:

1220000

STL Richland

rptSTLRchBlank V3.77 A97

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-Sep-01

BLANK RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1H080000-386 **Report No. :** 14006 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1220386	Work Order: EHM4K1AA			Report DB ID: EHM4K1AB								
U-234	-1.35E-03	U	1.9E-03	1.9E-03	3.84E-02	pCi/g	78.40%	-0.04	9/13/01 08:38 a		1.0	UPLATE
					7.83E-03	1.00E+00		-(1.4)			G	ALP11
U-235	0.00E+00	U	0.0E+00	2.1E-02	2.28E-02	pCi/g	78.40%	0.	9/13/01 08:38 a		1.0	UPLATE
						1.00E+00		0.			G	ALP11
U-238	0.00E+00	U	0.0E+00	2.1E-02	2.28E-02	pCi/g	78.40%	0.	9/13/01 08:38 a		1.0	UPLATE
						1.00E+00		0.			G	ALP11

Number of Results: 3

Comments:

220022

STL Richland

rptSTLRchBlank V3.77 A97

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-Sep-01

Lab Name: STL Richland SDG: W03557

Lot-Sample No.: J1H080000-393 Report No. : 14006 Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1220393	Work Order: EHM4V1AA			Report DB ID: EHM4V1AB								
TH-228	1.17E-02	U	2.2E-02	2.2E-02	4.55E-02	pCi/g	72.00%	0.26	9/13/01 06:46 p		2.0	THPRECIP
					1.24E-02	1.00E+00		(1.1)			G	ALP119
TH-230	6.59E-03	U	1.4E-02	1.4E-02	2.88E-02	pCi/g	72.00%	0.23	9/13/01 06:46 p		2.0	THPRECIP
					4.72E-03	1.00E+00		0.91			G	ALP119
TH-232	-5.73E-04	U	1.1E-03	1.2E-03	2.88E-02	pCi/g	72.00%	-0.02	9/13/01 06:46 p		2.0	THPRECIP
					4.72E-03	1.00E+00		-0.99			G	ALP119

Number of Results: 3

Comments:

000023

STL Richland

rptSTLRchBlank V3.77 A97

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-Sep-01

BLANK RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1H080000-397 **Report No. :** 14006 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1220397	Work Order: EHM421AE			Report DB ID: EHM421EB								
C-14	-2.58E-01	U	3.2E-01	5.1E-01	8.07E-01	pCi/g	100.00%	-0.32	8/24/01 04:38 p		2.0	C14CHEMLSC
					3.87E-01	5.00E+01		-(1.)			G	LSC6

Number of Results: 1

Comments:

000024

STL Richland

rptSTLRchBlank V3.77 A97

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-Sep-01

BLANK RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1H080000-398 **Report No. :** 14006 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1220398	Work Order: EHM5F1AA			Report DB ID: EHM5F1AB								
NI-63	5.24E+00	U	3.1E+00	5.0E+00	7.27E+00	pCi/g	75.47%	0.72	9/21/01 02:58 a		0.25	NI63LSC
					3.52E+00	3.00E+01		(2.1)			G	LSC6

Number of Results: 1

Comments:

S20000 000025

STL Richland

rptSTLRchBlank V3.77 A97

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-Sep-01

BLANK RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1H080000-399 **Report No. :** 14006 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1220399	Work Order: EHM5R1AA			Report DB ID: EHM5R1AB								
TC-99	-5.72E-02	U	3.3E-01	7.3E-01	7.99E-01	pCi/g	100.00%	-0.07	9/8/01 10:07 p		2.0	TC99CHEMLSC
					3.88E-01	1.50E+01		-0.16			G	LSC6

Number of Results: 1

Comments:

000026

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-Sep-01

BLANK RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1H080000-400 **Report No. :** 14006 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1220400	Work Order: EHM5W1AE			Report DB ID: EHM5W1EB								
H-3	-1.80E-03	U	1.1E-01	1.7E-01	2.87E-01	pCi/g	100.00%	-0.01	8/24/01 12:26 p		10.0	H3HIGH
					1.32E-01	4.00E+02		-0.02			G	LSC6

Number of Results: 1

Comments:

120000

STL Richland

rptSTLRchBlank V3.77 A97

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-Sep-01

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1H080000-402 **Report No. :** 14006 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1220402	Work Order: EHM521AA			Report DB ID: EHM521AX								
CO-60	-9.52E-03	U	2.2E-02	2.2E-02	3.70E-02	pCi/g		-0.26	9/4/01 01:25 p		52.0	GAMMAHI
						5.00E-02		-0.87			g	GER3$1
CS-137	6.62E-03	U	1.9E-02	1.9E-02	3.22E-02	pCi/g		0.21	9/4/01 01:25 p		52.0	GAMMAHI
						1.00E-01		0.71			g	GER3$1
EU-152	-3.99E-02	U	5.0E-02	5.0E-02	7.97E-02	pCi/g		-0.5	9/4/01 01:25 p		52.0	GAMMAHI
						1.00E-01		-(1.6)			g	GER3$1
EU-154	6.27E-03	U	6.1E-02	6.1E-02	1.08E-01	pCi/g		0.06	9/4/01 01:25 p		52.0	GAMMAHI
						1.00E-01		0.2			g	GER3$1
EU-155	3.20E-03	U	4.2E-02	4.2E-02	7.27E-02	pCi/g		0.04	9/4/01 01:25 p		52.0	GAMMAHI
						1.00E-01		0.15			g	GER3$1
RA-226	1.24E-01	U	6.4E-02	6.4E-02	8.24E-02	pCi/g		(1.5)	9/4/01 01:25 p		52.0	GAMMAHI
								(3.8)			g	GER3$1
RA-228	1.24E-01	U	7.9E-02	7.9E-02	1.45E-01	pCi/g		0.86	9/4/01 01:25 p		52.0	GAMMAHI
								(3.2)			g	GER3$1

Number of Results: 7

Comments:

820000

STL Richland

rptSTLRchBlank V3.77 A97

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-Sep-01

BLANK RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1H080000-404 **Report No. :** 14006 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1220404	Work Order: EHM531AA			Report DB ID: EHM531AB								
STRONTIUM	1.20E-02	U	5.2E-02	5.2E-02	1.21E-01	pCi/g	89.20%	0.1	9/11/01 04:38 p		6.0	SR8990
					5.61E-02	1.00E+00		0.46			G	GPC27C

Number of Results: 1

Comments:

000029

STL Richland

rptSTLRchBlank V3.77 A97

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-Sep-01

BLANK RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1H230000-473 **Report No. :** 14006 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1235473	Work Order: EJGE61AA			Report DB ID: EJGE61AB								
NP-237	-3.89E-04	U		7.8E-04	1.95E-02	pCi/g	81.60%	-0.02	9/12/01 03:17 p		2.0	D3XW
					3.19E-03	1.00E+00		-1.			G	ALP165

Number of Results: 1

Comments:

000030

STL Richland

rptSTLRchBlank V3.77 A97

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-Sep-01

BLANK RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1I070000-483 **Report No. :** 14006 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1250483	Work Order: EJ79T1AA			Report DB ID: EJ79T1AB								
TOTAL-URANIUM	1.23E-03		0.0E+00	3.6E-04	7.29E-05	ug/g		(16.9)	9/10/01 10:13 a	1.0	1.0	RICHRC5015
					2.58E-05	1.00E+00		(6.8)		ML	ML	LIP3

Number of Results: 1

Comments:

I60031

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

FORM II

Date: 28-Sep-01

LCS RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1G170000- **Report No. :** 14006 **Matrix:** WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1198500	Work Order: EGG9W1AC			Report DB ID: EGG9W1CS									
HEXCHROME	9.28E-01			0.0E+00	2.00E-03	mg/L	N/A	1.00E+00		92.80%	7/23/01	100.0	EPA7196
							Rec Limits:	.	.	-0.1		ML	

Number of Results: 1

Comments:

000032

STL Richland

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

rptSTLRchLcs V3.77 A97

FORM II

Date: 28-Sep-01

LCS RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1H080000-384 **Report No. :** 14006 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1220384	Work Order: EHM381AC			Report DB ID: EHM381CM									
PU239/40	3.08E+00		3.5E-01	6.7E-01	3.89E-02	pCi/g	31.56%	3.42E+00	1.2E-01	89.91%	9/14/01 07:18 a	2.0	PUPLATE
							Rec Limits:	70.	130.	-0.1		G	ALP41
Batch: 1220384	Work Order: EHM381AE			Report DB ID: EHM381ES									
PU239/40	2.93E+00		2.8E-01	5.8E-01	2.70E-02	pCi/g	47.40%	3.42E+00	1.2E-01	85.61%	9/15/01 06:57 a	2.0	PUPLATE
							Rec Limits:	70.	130.	-0.1		G	ALP37

Number of Results: 2

Comments:

000033

STL Richland

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

rptSTLRchLcs V3.77 A97

FORM II

Date: 28-Sep-01

LCS RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1H080000-385 **Report No. :** 14006 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1220385	Work Order: EHM4G1AE			Report DB ID: EHM4G1ES									
AM-241	3.87E+00		2.5E-01	7.5E-01	1.64E-02	pCi/g	100.28%	4.71E+00	3.9E-02	82.20%	9/14/01 07:13 a	2.0	AM/CMPRECIP
							Rec Limits:	70.	130.	-0.2		G	ALP128

Number of Results: 1

Comments:

000034

STL Richland

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

rptSTLRchLcs V3.77 A97

FORM II

Date: 28-Sep-01

LCS RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1H080000-386 **Report No. :** 14006 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1220386	Work Order: EHM4K1AC			Report DB ID: EHM4K1CS									
U-234	3.18E+00		3.2E-01	6.7E-01	3.16E-02	pCi/g	82.52%	3.24E+00	2.0E-02	98.25%	9/13/01 08:39 a	1.0	UPLATE
							Rec Limits:	70.	130.	0.0		G	ALP12
U-235	1.02E-01		5.7E-02	6.0E-02	2.13E-02	pCi/g	82.52%	1.48E-01	9.2E-04	68.97%	9/13/01 08:39 a	1.0	UPLATE
							Rec Limits:	70.	130.	-0.3		G	ALP12
U-238	3.33E+00		3.2E-01	7.0E-01	2.13E-02	pCi/g	82.52%	3.39E+00	2.1E-02	97.99%	9/13/01 08:39 a	1.0	UPLATE
							Rec Limits:	70.	130.	0.0		G	ALP12

Number of Results: 3

Comments:

000035

FORM II

Date: 28-Sep-01

LCS RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1H080000-393 **Report No. :** 14006 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1220393	Work Order: EHM4V1AC		Report DB ID: EHM4V1CS										
TH-230	1.09E+00		1.8E-01	3.2E-01	2.83E-02	pCi/g	77.37%	1.14E+00	3.4E-02	95.13%	9/13/01 06:46 p	2.0	THPRECIP
							Rec Limits:	70.	130.	0.0		G	ALP120

Number of Results: 1

Comments:

000036

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

FORM II

Date: 28-Sep-01

LCS RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1H080000-397 **Report No. :** 14006 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1220397	Work Order: EHM421AC			Report DB ID: EHM421CS									
C-14	1.66E+01		7.2E-01	1.3E+00	8.05E-01	pCi/g	100.00%	1.81E+01	6.2E-01	91.75%	8/24/01 05:20 p	2.0	C14CHEMLSC
							Rec Limits:	70.	130.	-0.1		G	LSC6

Number of Results: 1

Comments:

000037

FORM II

Date: 28-Sep-01

LCS RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1H080000-398 **Report No. :** 14006 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1220398	Work Order: EHM5F1AC		Report DB ID: EHM5F1CS										
Ni-63	4.97E+02		9.1E+00	3.6E+01	6.65E+00	pCi/g	82.88%	5.09E+02	1.7E+01	97.68%	9/21/01 04:40 a	0.25	NI63LSC
							Rec Limits:	70.	130.	0.0		G	LSC6

Number of Results: 1

Comments:

000038

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

FORM II

Date: 28-Sep-01

LCS RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1H080000-399 **Report No. :** 14006 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1220399	Work Order: EHM5R1AC			Report DB ID: EHM5R1CS									
TC-99	6.07E+01		1.1E+00	5.0E+00	8.06E-01	pCi/g	100.00%	6.77E+01	1.1E+00	89.61%	9/8/01 11:09 p	2.0	TC99CHEMLSC
							Rec Limits:	70.	130.	-0.1		G	LSC6

Number of Results: 1

Comments:

000039

FORM II

Date: 28-Sep-01

LCS RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1H080000-400 **Report No. :** 14006 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1220400	Work Order: EHM5W1AC		Report DB ID: EHM5W1CS										
H-3	1.39E+00		2.0E-01	2.9E-01	2.94E-01	pCi/g	100.00%	1.36E+00	4.7E-02	101.67%	8/24/01 01:08 p	10.0	H3HIGH
							Rec Limits:	70.	130.	0.0		G	LSC6

Number of Results: 1

Comments:

000040

STL Richland

rptSTLRchLcs V3.77 A97

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

FORM II

Date: 28-Sep-01

LCS RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1H080000-402 **Report No. :** 14006 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1220402	Work Order: EHM521AC		Report DB ID: EHM521CM										
CS-137	9.18E-01		1.4E-01	1.4E-01	6.96E-02	pCi/g		9.50E-01	1.0E+00	96.66%	9/4/01 01:36 p	26.61	GAMMAHI
							Rec Limits:	70.	130.	0.0		g	GER6$1
RA-226	1.52E+00		2.6E-01	2.6E-01	1.20E-01	pCi/g		2.14E+00	2.5E+00	70.86%	9/4/01 01:36 p	26.61	GAMMAHI
							Rec Limits:	70.	130.	-0.3		g	GER6$1

Number of Results: 2

Comments:

000041

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

FORM II

Date: 28-Sep-01

LCS RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1H080000-404 **Report No. :** 14006 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1220404	Work Order: EHM531AC			Report DB ID: EHM531CS									
STRONTIUM	1.05E+00		1.3E-01	3.3E-01	1.32E-01	pCi/g	81.60%	1.12E+00	2.2E-02	94.08%	9/11/01 04:38 p	6.0	SR8990
							Rec Limits:	70.	130.	-0.1		G	GPC27D

Number of Results: 1

Comments:

000042

FORM II

Date: 28-Sep-01

LCS RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1H230000-473 **Report No. :** 14006 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1235473	Work Order: EJGE62AC			Report DB ID: EJGE62CS									
NP-237	6.76E-01			1.5E-01	1.25E-02	pCi/g	88.90%	9.03E-01	2.7E-02	74.89%	9/22/01 11:17 a	2.0	D3XW
							Rec Limits:	70.	130.	-0.3		G	ALP167

Number of Results: 1

Comments:

000043

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

FORM II

Date: 28-Sep-01

LCS RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1I070000-483 **Report No. :** 14006 **Matrix:** SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1250483	Work Order: EJ79T1AC			Report DB ID: EJ79T1CS									
TOTAL-URANIUM	9.92E+00		0.0E+00	2.4E+00	7.29E-05	ug/g		1.01E+01	5.9E-02	98.57%	9/10/01 10:16 a	1.0	RICHRC5015
							Rec Limits:	70.	130.	0.0		ML	LIP3

Number of Results: 1

Comments:

000044

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

FORM II

Date: 28-Sep-01

MATRIX SPIKE RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1G130331- **Report No. :** 14006 **Matrix:** WATER LIQUID

Parameter	SpikeResult, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Rpt Unit, CRDL	Yield	Rec-overy	Exp-ected	Exp Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1198500	Work Order: EGCVV1AR			Report DB ID: EGCVV1RW			Orig Sa DB ID: 9EGCVV10						
HEXCHROME	3.31E+01			0.0E+00	8.00E-02	mg/kg	N/A	83.10%	3.98E+01		7/23/01	2.5836	EPA7196
	2.39E-01	RPD	2.0									G	
Batch: 1198500	Work Order: EGCVV1AU			Report DB ID: EGCVV1UW			Orig Sa DB ID: 9EGCVV10						
HEXCHROME	6.73E+02			0.0E+00	8.00E-02	mg/kg	N/A	95.46%	7.05E+02		7/23/01	2.5817	EPA7196
	2.39E-01	RPD	2.0									G	

Number of Results: 2

Comments:

000045

STL Richland
rptSTLRchMs V3.77 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
Bias - (Result/Expected)-1 as defined by ANSI N13.30.

FORM II

Date: 28-Sep-01

MATRIX SPIKE RESULTS

Lab Name: STL Richland **SDG:** W03557

Lot-Sample No.: J1G130331-1 **Report No. :** 14006 **Matrix:** SOIL SOLID

Parameter	SpikeResult, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Rpt Unit, CRDL	Yield	Rec-overy	Exp-ected	Exp Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1220398	Work Order: EGCVV1A5			Report DB ID: EGCVV15W			Orig Sa DB ID: 9EGCVV10						
NI-63	4.87E+02		8.6E+00	3.6E+01	6.13E+00	pCi/g	89.64%	96.83%	5.03E+02	.7E+01	9/20/01 11:34 p	0.25	NI63LSC
	2.85E+00	RER	26.9									G	LSC6
Batch: 1220399	Work Order: EGCVV1A7			Report DB ID: EGCVV17W			Orig Sa DB ID: 9EGCVV10						
TC-99	2.01E+02		1.9E+00	1.5E+01	7.99E-01	pCi/g	100.00%	88.71%	2.27E+02	.8E+00	9/8/01 08:03 p	2.0	TC99CHEMLSC
	2.65E-01	RER	26.9									G	LSC6
Batch: 1250483	Work Order: EGCVV1CJ			Report DB ID: EGCVV1JW			Orig Sa DB ID: 9EGCVV10						
TOTAL-URANIUM	1.00E+01		0.0E+00	2.7E+00	7.29E-05	ug/g		98.95%	1.01E+01	6.0E-02	9/10/01 11:01 a	1.0	RICHRC5015
	1.15E+00	RER	6.6									ML	LIP3

Number of Results: 3

Comments:

000046

STL Richland
rptSTLRchMs V3.77 A97

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
Bias - (Result/Expected)-1 as defined by ANSI N13.30.

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Lot Number: J1G130331
Client ID: BHI
Due Date: 7/27/01
QC Batch Number: 1220385
Method Test Parameter: Am
Matrix: Soil
SDG Number: 3557

Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?			✓
9. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: _____

Second Level Review: Jackie Waddell Date: 9/17/01

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: JJG130331
Client ID: BHI
Due Date: 7-27-01
QC Batch Number: 1220385
Method Test Parameter: Am241
Matrix: Soil
SDG Number: W0385 7
7/17/01

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 Kintzer Date: 9-16-01

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Recount

Lot Number: J1G130331
Client ID: BHT
Due Date: 8-27-01
QC Batch Number: 1235493
Method Test Parameter: Up-237
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?			✓
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: LCS recount w/in limits
JWS/28/01

First Level Review: Jill R. K... Date: 9-26-01

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 1235473

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: Jodie Waddell Date: 9/28/01

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

000050

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: JIG130331
Client ID: BHI
Due Date: 8-2-01
QC Batch Number: 1235473
Method Test Parameter: Np-237
Matrix: Soil 6
SDG Number: W03857, 9911910

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: Jodi R. Kuhn Date: 9-18-01

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: JIG130331
Client ID: BHI
Due Date: 7-27-01
QC Batch Number: 1220384
Method Test Parameter: PU750
Matrix: Soil
SDG Number: 3557

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: [signature] Date: 9/17/01

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 1220384

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: Jackie Waddell Date: 9/18/01

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

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: JIG130331
Client ID: BHI
Due Date: 8-2-01
QC Batch Number: 1220393
Method Test Parameter: Thorium
Matrix: Soil 5
SDG Number: W03357
JVG 8/18/01

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: Jill R. Kan Date: 9-17-01

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 1220393

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: Jackie Waddell Date: 9/18/01

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Lot Number: J1G130331
Client ID: BHI
Due Date: 7/27/01
QC Batch Number: 1220386
Method Test Parameter: 1450
Matrix: SOIL
SDG Number: 3557

Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?			✓
9. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: _____

Second Level Review: Jackie Weddell Date: 9/17/01

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: JIG 130331
Client ID: BHI
Due Date: 7-27-01
QC Batch Number: 1220386
Method Test Parameter: U750
Matrix: Soil 6
SDG Number: WO 3857
9/17/01

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 Kenney Date: 9-14-01

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J1G130331
Client ID: BHI
Due Date: 8/2/01
QC Batch Number: 122042
Method Test Parameter: gamma
Matrix: Soil
SDG Number: W0337

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? N/A	✓		✓
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? J4065	✓		
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: Cindy Black Date: 9/7/01

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

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Lot Number: J1G130331
Client ID: BHT
Due Date: 8/2/01
QC Batch Number: 1220402
Method Test Parameter: Gamma
Matrix: Soil
SDG Number: 3354 3557

9/12/01

Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?			✓
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓	✓	
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		~~✓~~ 9/12/01
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?			✓
9. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Nonconformances included and noted?	✓		
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: _____

Second Level Review: Jackie Waddell Date: 9/12/01

Clouseau
Nonconformance Memo

SEVERN TRENT SERVICES

NCM #:	J04065	Classification:	**Anomaly**
NCM Initiated By:	Cindy Black	Status:	**GLREVIEW**
Date Opened:	09/07/01	Production Area:	Environmental - Prep
Date Closed:	N/A	Tests:	Gamma by GER
		Lot #'s (Sample #'s):	J1G130331 (1); J1H080000 (402)
		QC Batch:	1220402
Nonconformance:	QC Result Out of Limits		
Subcategory:	MDA exceeds RDL		

Problem Description / Root Cause

Name	Date	Description
Cindy Black	09/07/01	MDA greater than CRDL for Eu-154 due to insufficient sample.

Corrective Action

Name	Date	Corrective Action
Cindy Black	09/07/01	Maximized count times. Report results.

Approval History

Name	Date Approved:	Position
Cindy Black	09/07/01	

Date Printed: 09/07/01

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Lot Number: J1G130331
Client ID: BHI
Due Date: 7/27/01
QC Batch Number: 1220404
Method Test Parameter: TSR
Matrix: SOIL
SDG Number: 3557

Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?			✓
9. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response:

Second Level Review: Jackie Waddell Date: 9/12/01

000061

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J1G13C331
Client ID: BH7
Due Date: 7-27-01
QC Batch Number: 122C404
Method Test Parameter: TOTAL SR
Matrix: SOIL
SDG Number: 3557

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: _____ Date: 9-12-01

000062

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY

Lot Number: JIG130331
Client ID: BHI
Due Date: 8-2-01
QC Batch Number: 1220397 SDG Number: WQ3357
Method Test Parameter: C-14
Matrix: Soil

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

Comments on any "No" response: _____

First Level Review: Allie Dawkins Date: 8/27/2001

Second Level Review: Jackie Waddell Date: 9/3/01

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SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: JIG130331
Client ID: BHI
Due Date: 7-27-01
QC Batch Number: 1220398
Method Test Parameter: Ni-63
Matrix: Soil
SDG Number: WQ3357

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?	✓		

Comment: on any "No" response: _____

First Level Review: _____ Date: 9-25-01

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SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 1220398

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: Jackie Waddell Date: 9/26/01

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

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Lot Number: J1G130331
Client ID: BHI
Due Date: 8/2/01
QC Batch Number: 1220399
Method Test Parameter: TCG9
Matrix: SOIL
SDG Number: ~~3357~~ 3557
JLG 8/2/01

Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?			✓
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?	✓		
9. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response:

Second Level Review: Jackie Waddell Date: 9/12/01

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: JIG13C331
Client ID: BHI
Due Date: 8-2-01
QC Batch Number: 122C399
Method Test Parameter: TC-99
Matrix: SOIL
SDG Number: LW0 3357

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: _____ Date: 9-11-01

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY

Lot Number: JIG130331				
Client ID: BHZ				
Due Date: 8-2-01				
QC Batch Number: 1220400 SDG Number: WQ3357				
Method Test Parameter: Tritium				
Matrix: Soil				
Review Item	Yes (√)	No (√)	N/A (√)	2nd Level Review (√)
A. Calibration 1. Is the calibration documentation included where applicable?			✓	✓
B. Sample Analysis 1. Are the sample yields within acceptance criteria?			✓	
2. Were all sample holding times met?			✓	
3. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓			
C. QC Samples 1. Is the blank yield within acceptance criteria?			✓	
2. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓			
3. Does the blank result meet the Contract criteria?	✓			
4. Is the blank result < the Contract Detection Limit?	✓			
5. Is the blank result > the Contract Detection Limit but the sample result ≥ the Contract Detection Limit?			✓	
6. Is the LCS result within acceptance criteria?	✓			
7. Is the LCS yield within acceptance criteria?	✓			
8. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓			
9. Do the MS MSD results and yields meet acceptance criteria?			✓	
10. Do the duplicate sample results and yields meet acceptance criteria?	✓		8/27/2001 ✓	
D. Other 1. Are all Nonconformances included and noted?			✓	
2. Are all required forms filled out?	✓			
3. Was the correct methodology used?	✓			
4. Was transcription checked?	✓			
5. Were all calculations checked at a minimum frequency?	✓			
6. Were units checked?	✓			✓

Comments on any "No" response: _____

First Level Review: Ann Dawkins Date: 8/27/2001

Second Level Review: Jackie Waddell Date: 9/3/01

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LS-038. Rev. 7, 8/00

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Lot Number: J1G130331
Client ID: BHI
Due Date: 8/2/01
QC Batch Number: 1250483
Method Test Parameter: Uranium
Matrix: Soil
SDG Number: 35557

Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?			✓
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?	✓		
9. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?	✓		
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response: _____

Second Level Review: Julie Waddell Date: 9/13/01

SEVERN TRENT SERVICES

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: JIG130331
Client ID: BHI
Due Date: 8-3-01
QC Batch Number: 1250483
Method Test Parameter: uranium
Matrix: soil
SDG Number: 3557

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 Konitzer Date: 9-11-01

000070

Quanterra

Richland Laboratory
Data Review Check List
METALS

Work Order Number(s): FGCVV BATCH # 1198500

Lab Sample Numbers or SDG: WO3557 LOT # JIG130331

Method/Test/Parameter: CR+6 IN SOIL RICHWC 5005 R.4

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
A. Initial Calibration				
1. Performed at required frequency wih required number of levels?	✓			✓
2. Correlation coefficient within QC limits?	✓			✓
3. Initial calibration verification (ICV) analyzed immediately after calibration and results within QC limits?	✓			✓
4. Initial calibration blank(ICB) analyzed immediately after ICV and concentrations of all parameters ≤ reporting limit?	✓			✓
B. Continuing Calibration				
1. CCV analyzed at required frequency and all parameters within QC limits?	✓			✓
2. CCB analyzed at required frequency and all results ≤ reporting limit?	✓			✓
C. Sample Analysis				
1. Were any samples with concentrations above the linear range for any parameter diluted and reanalyzed?	✓			✓
2. Were all sample holding times met?	✓			✓
D. QC Samples				
1. All results for the preparation blank below limits?	✓			✓
2. MS or MS/MSD recoveries within QC limits and %RPD (for MSD) acceptable?	✓			✓
3. LCS percent recovery within QC limits and %RPD (for LCSD) acceptable?	✓			✓
4. Analytical spikes within QC limits where applicable?			✓	✓
5. ICP only: One serial dilution performed per SDG?			✓	✓
6. ICP only: CRDL standard (CRI or CRA) analyzed at required frequency?			✓	✓
7. ICP only: Interference check samples (ICSA, ICSAB) and HICAL analyzed at the required frequencies and within QC limits?			✓	✓

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
E. Other 1. Are all nonconformances included and noted?			✓	✓
2. Is the correct date and time of analysis shown?	✓			✓
3. Did the analyst sign and date the front page of the analytical run?	✓			✓
4. Correct methodology used?	✓			✓
5. Transcriptions checked?	✓			✓
6. Calculations checked at minimum frequency?	✓			✓
7. Units checked?	✓			✓

Comments on any "No" response:

C1) PbCrO4 SPIKE OF EG-CVVIAA REQUIRED X 20 DILUTION

Analyst: Martha Falvi Date: 7/25/01

Second-Level Review: Roxie Ross Date: 8/1/01

Form No. CG-191, Rev. 0, 7/95

CHAIN OF CUSTODY

Q27038 3/22/2018 REV 1

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-058-99	Page 1 of 1

Collector Thomas G./Watson D.	**Company Contact** Todd, M.E. **Telephone No.** (509) 372-9631	**Project Coordinator** TRENT, SJ	**Price Code** 8N **Data Turnaround** 45 Days
Project Designation 200-TW-1 & 2 - Soil Sampling	**Sampling Location** T-26/ 200W	**SAF No.** B01-058	**Air Quality** ☐
Ice Chest No. WM-001	**Field Logbook No.** EL-1518 **COA** B20TW1674C	**Method of Shipment** ~~Fed Ex~~ HAND DELIVER GOV. VEHICLE	
Shipped To Severn Trent Incorporated Richland	**Offsite Property No.** N/A	**Bill of Lading/Air Bill No.** N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS
Radioactive BACKGRAUND COUNTS ON SPLIT SPOON
DOSE < 0.5 MR/HR

Special Handling and/or Storage

DH 7-16-01

WO#35527 JIG130331
SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Preservation	Type of Container	No. of Container(s)	Volume	See item (1) in Special Instructions.	Chromium VI Hex - 7196	See item (2) in Special Instructions.	VOA - 8260A (TCL)	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions.	Activity Scan		
				Cool 4C	aG	1	120mL										
				Cool 4C	aG	1	60mL										
				Cool 4C	aG	1	250mL										
				Cool 4C	aG	1	60mL										
				Cool 4C	aG	1	250mL										
				None	aG	1	120mL										
				None	aG	1	250mL										
				None	aG	1	60mL										
B12BW3	SOIL	07/13/01	0610						X					X	X	TIETO	B12642 1
EGC VV																	DH 7/30/01

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: Greg Thomas / Greg Thomas — Date/Time: 07/13/01 0755	Received By/Stored In: Ref IB — Date/Time: 07/13/01 0755		
Relinquished By/Removed From: REF IB 71301 1000	Received By/Stored In: SJ GALE 71301 1000		
Relinquished By/Removed From: SJ GALE 71301 1332	Received By/Stored In: Adam W Affis — Date/Time: 7/13/01 1332		
Relinquished By/Removed From — Date/Time	Received By/Stored In — Date/Time		
Relinquished By/Removed From — Date/Time	Received By/Stored In — Date/Time		
Relinquished By/Removed From — Date/Time	Received By/Stored In — Date/Time		

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (TAL) {Cadmium, Chromium, Copper, Nickel, Silver}; ICP Metals - 6010A (Add-on) {~~Beryllium, Lead~~}; Mercury - 7470 - (CV)
(2) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Ammonia - 350.1; NO2/NO3 - 353.1; Total Cyanide - 9010; TOC - 9060; pH (Soil) - 9045
(3) Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}; TPH-Diesel Range - WTPH-D
~~(4) ICP Metals - 6010TR (Client List) {Aluminum, Bismuth, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Silver, Sodium, Vanadium, Zinc}~~ HT 7/13/01
(5) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Radium-226, Radium-228}; Isotopic Plutonium, Isotopic Thorium {Thorium-232}; Americium-241; Carbon-14; Neptunium-237; Nickel-63; Strontium-89,90 -- Total Sr; Technetium-99; Total Uranium; Tritium - H3; Isotopic Uranium

COLLECTOR UNAVAILABLE TO SIGN COC. DH 7/30/1

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

RPL-EE-011 (10/99)

3/22/2018 REV.1

ERC Radiological Counting Facility Analysis Report

RCF Number RCF9485 **Sample Date & Time** 7/4/01 0520

Project ID: 200-TW-1&2 **SAF Number:** B01-058 **Date Analyzed** 7/10/01 1:42:0

Sample ID: B12641

Gamma Energy Analysis

Nuclide		Activity (pCi/g)		Error (pCi/g)	MDC (pCi/g)
K-40		1.3E+01	+/-	3.9E+00	1.7E+00
Co-60	<	1.4E-01			1.4E-01
Cs-137	<	1.6E-01			1.6E-01
Eu-152	<	4.2E-01			4.2E-01
Eu-154	<	4.6E-01			4.6E-01
Eu-155		4.4E-01	+/-	1.6E-01	4.2E-01
Tl-208		7.9E-01	+/-	2.9E-01	3.4E-01
Pb-212		7.0E-01	+/-	2.3E-01	2.2E-01
Bi-214		1.3E+00	+/-	7.9E-01	1.1E+00
Pb-214		8.7E-01	+/-	2.9E-01	3.4E-01
Ra-226	<	2.7E+00			2.7E+00
Ac-228		7.6E-01	+/-	4.2E-01	5.7E-01
Pa-234	<	3.5E-01			3.5E-01
Th-234	<	1.8E+00			1.8E+00
U-235	<	9.0E-01			9.0E-01
Am-241	<	2.4E-01			2.4E-01

TIE TO: B12BW3

Total GEA (pCi/g)	1.8E+01	+/-	6.1E+00

	Activity (pCi/g)		Error (pCi/g)	Alpha MDC (pCi/g)	Beta MDC (pCi/g)
Gross Alpha**	2.2E+00	+/-	6.6E-01	9.3E-01	
Gross Beta	2.5E+01	+/-	1.8E+00		1.3E+01

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 D. L. Hastings 7/10/01

Report To	Fax
CS Cearlock	372-9292
SJ Trent	372-9292
Joan Kessner	372-9487

Report Printed: Tuesday, July 10, 2001

000075

SEVERN TRENT SERVICES

STL Richland
Sample Check-in List

Date/Time Received: 7/13/01 13:32

Client: R&E / BHI SDG #: W03552 [NA]

Work Order Number: 7-13-01 J1G130331 SAF #: B01-058 NA [ ]

Shipping Container ID: WM-001 Chain Of Custody #: B01-058-99

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: 4°C NA [ ]
5. Vermiculite/packing materials is NA [ ] Wet [X] Dry [ ]
6. Number of samples in shipping container: 3
7. Sample holding times exceeded? NA [X] Yes [ ] No [ ]
8. Samples have:
   - [ ] 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. Were any anomalies identified in sample receipt? Yes [ ] No [X]
12. Description of anomalies (include sample numbers): _____

Sample Custodian: Adam W Griffin Date: 7/13/01

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, 6/01, Rev. 3

Client Sample Screening Results

16-Jul-01

(B) 7/16/01

CLIENT CODE	ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B
BHI	B12BW3EGCVV		7/16/01 10:00:00 AM	QUAD21B	7/16/01 12:21:32 PM	B12BW3EGCVV	30	13	0.366666667	78	1.675
	EGCVV	SOIL		Bkg:	7/14/01 1:52:45 AM		600	40	0.066666667	555	0.925

Anl Date: 7/16/01 Tot Sa, Alq: 3.50E+02 , 7.57E+01 Alp; (Dpm/ 2.16E+00 (uCi/ 4.49E-03 (pCi/ 1.28E+01 ± 6.5E+00 CAT I 3.9E+00 Lab Alq L/g

Ppt mg: 75.7 Units: g , mg Bet; Alq): 3.45E+00 Sa): 7.19E-03 L/g): 2.05E+01 ± 3.8E+00 4.9E+00

000077

RQC053

Parent Batch:
Associated Batches:

Severn Trent Laboratories, Inc.
Information Sheet Rad Prep

Run Date: 8/08/01
Time: 14:49:32

Page: 1

QC BATCH: 1220385

W03357

SX: Americium-241 by Alpha Spec
6I: PuAm PrpRC5013/RC5019, SepRC5080(5003)/R
5I: CLIENT: HANFORD

Analytical Due Date: 7/27/01
Project Manager: JW2

Lot# / Work Order	Client	Matrix	Analyt Due / Aliquot	Client Name / Geometry	Count Time	Mid/Ave Date/Time		Tracer ID / Spike ID	CRDL	Units	Screen Info - (Ci) Alpha	Beta	PM Bin
J1G130331-001	EGCVV-1-AG	SOIL	7/27/01	Bechtel Hanford, .0000	.000	7/13/01	6:10		1	pCi/g	1.28E-11 J1G130331	2.05E-11	JW2
Comments:		SOIL											
J1G130331-001 X	EGCVV-1-AX	SOIL	7/27/01	Bechtel Hanford, .0000	.000	7/13/01	6:10		1	pCi/g	1.28E-11 J1G130331	2.05E-11	JW2
Comments:		SOIL											
J1H080000-385 B	EHM4G-1-AA	SOLID	7/27/01	Bechtel Hanford,		7/13/01	6:10		1	pCi/g	**NA	**NA	JW2
Comments:													
J1H080000-385 C	EHM4G-1-AC	SOLID	7/27/01	Bechtel Hanford,		7/13/01	6:10		1	pCi/g	**NA	**NA	JW2
Comments:													
J1H080000-385 B	EHM4G-1-AD	SOLID	7/27/01	Bechtel Hanford,		7/13/01	6:10		1	pCi/g	**NA	**NA	JW2
Comments:													
J1H080000-385 C	EHM4G-1-AE	SOLID	7/27/01	Bechtel Hanford,		7/13/01	6:10		1	pCi/g	**NA	**NA	JW2
Comments:													

Total Number of Samples In Batch: 00006

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

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

BLANK CRDL		Tracer Yield		Type	QC Control Limits
Americium 241	1	Americium 243	(020-105)	RPD	

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

820000

Seq. Analysis PU

QC Batch # 1220385

ICOC Fraction Transfer/Status Report

3/22/2018

REV.1

ByDate: 8/18/01, 9/18/01, Batch: '1220385', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
1220385						
		InCnt1	**WAGNERJ**	8/31/01 4:47:12 PM		
			SAUCEDAV	InPrep	8/14/01 1:24:22 PM	RICH-RC-5013 REVISION 4
			WAGNERJ	InPrep2	8/31/01 4:47:12 PM	RICH-RC-5019 REVISION 2
			HAMMERL	InSep1	9/8/01 3:33:29 PM	RICH-RC-5080 REVISION 0
			DOWNEYS	InSep2	9/12/01 8:23:56 AM	RICH-RC-5003 REVISION 4
			RossR	InCnt1	9/12/01 9:24:28 AM	RICH-RD-0008 REVISION 2
			HAMMERL	9/8/01 3:33:29 PM		
			DOWNEYS	9/12/01 8:23:56 AM		
			RossR	9/12/01 9:24:28 AM		

000070
123 of 149

RQC053

Parent Batch:
Associated Batches:
:
:
:
:

Severn Trent Laboratories, Inc.
Information Sheet Rad Prep

****
* *
* QC BATCH: 1235473 *
* *
****

Run Date: 9/21/01
Time: 12:01:38

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

Analytical Due Date: 8/02/01
Project Manager: JW2

Lot# / Work Order	Client	Analyt Due / Matrix	Client Name / Aliquot / Geometry	Count Time	Mid/Ave Date/Time		Tracer ID / Spike ID	CRDL	Units	Screen Info - (Ci) Alpha	Beta	PM Bin
J1G130331-001	EGCVV-1-CF	8/27/01	Bechtel Hanford,	.000	7/13/01	6:10			pCi/g	1.28E-11	2.05E-11	JW2
Comments: SOIL	SOIL		.0000							J1G130331		
J1G130331-001 X	EGCVV-1-CG	8/27/01	Bechtel Hanford,	.000	7/13/01	6:10		1	pCi/g	1.28E-11	2.05E-11	JW2
Comments: SOIL	SOIL		.0000							J1G130331		
J1H230000-473 B	EJGE6-1-AA	8/02/01	Bechtel Hanford,		7/13/01	6:10		1	pCi/g	**NA	**NA	JW2
Comments:	SOLID											
J1H230000-473 C	EJGE6-1-AC	8/02/01	Bechtel Hanford,		7/13/01	6:10		1	pCi/g	**NA	**NA	JW2
Comments:	SOLID											
J1H230000-473 C	EJGE6-2-AC	8/02/01	Bechtel Hanford,		7/13/01	6:10		1	pCi/g	**NA	**NA	JW2
Comments:	SOLID											

Total Number of Samples In Batch: 00005

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

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

BLANK CRDL		Tracer Yield		Type	QC Control Limits
Neptunium 237	1	Neptunium 239	(020-115)	RPD	

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

U80000

ICOC Fraction Transfer/Status Report

REV.1

ByDate: 8/27/01, 9/27/01, Batch: '1235473', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
1235473						
		InCnt1	**WAGNERJ**	8/31/01 4:46:27 PM		
			WAGNERJ	InPrep2	8/31/01 4:46:27 PM	RICH-RC-5077 REVISION 1
			PARNELLL	InSep1	9/7/01 10:17:41 AM	RICH-RC-5009 REVISION 1
			BROADYJ	InSep2	9/10/01 1:20:41 PM	RICH-RC-5003 REVISION 4
			DOWNEYS	InSep2	9/11/01 5:41:16 AM	RICH-RC-5003 REVISION 4
			RossR	InCnt1	9/11/01 8:35:08 AM	RICH-RD-0008 REVISION 2
			BlackCL	InCnt1	9/21/01 1:46:10 PM	RICH-RD-0008 REVISION 2
			PARNELLL	9/7/01 10:17:41 AM		
			BROADYJ	9/10/01 1:20:41 PM		
			DOWNEYS	9/11/01 5:41:16 AM		
			RossR	9/11/01 8:35:08 AM		
			BlackCL	9/21/01 1:46:10 PM		

SEVERN TRENT SERVICES

*** RE-COUNT REQUEST ***

DUE DATE 8-2-01

CUSTOMER BHI

ANALYSIS Np 237

MATRIX Soil

LOT NUMBER J1G13033I

SAMPLE DELIVERY GROUP W03557

OLD BATCH NUMBER 1235473

	LAB SAMPLE ID	REASON FOR REQUEST & ANALYSIS COMMENTS
1)	E3GE61AC	Recount - radiochem tgl yield low @ 64.9 %
2)		ORK 9-20-01
3)		
4)		200 min
5)		
6)		
7)		
8)		
9)		
10)		
11)		
12)		
13)		
14)		
15)		
16)		
17)		
18)		
19)		
20)		

RQC053

Parent Batch:
Associated Batches:
:
:
:
:

Severn Trent Laboratories, Inc.
Information Sheet Rad Prep

****
* *
* QC BATCH: 1235473 *
* *
****

W03357

Run Date: 8/23/01
Time: 15:50:26

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

Analytical Due Date: 8/02/01
Project Manager: JW2

Lot# / Work Order	Client	Analyt Matrix	Due	Client Aliquot	Name / Geometry	Count Time	Mid/Ave Date/Time		Tracer ID / Spike ID	CRDL	Units	Screen Info - (Ci) Alpha	Beta	PM Bin
J1G130331-001	EGCVV-1-CF	SOIL	8/02/01		Bechtel Hanford, .0000	.000	7/13/01	6:10			pCi/g	1.28E-11 J1G130331	2.05E-11	JW2
Comments: SOIL														
J1G130331-001 X	EGCVV-1-CG	SOIL	8/02/01		Bechtel Hanford, .0000	.000	7/13/01	6:10		1	pCi/g	1.28E-11 J1G130331	2.05E-11	JW2
Comments: SOIL														
J1H230000-473 B	EJGE6-1-AA	SOLID	8/02/01		Bechtel Hanford,		7/13/01	6:10		1	pCi/g	**NA	**NA	JW2
Comments:														
J1H230000-473 C	EJGE6-1-AC	SOLID	8/02/01		Bechtel Hanford,		7/13/01	6:10		1	pCi/g	**NA	**NA	JW2
Comments:														

Total Number of Samples In Batch: 00004

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

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

BLANK CRDL		Tracer Yield		Type	QC Control Limits
Neptunium 237	1	Neptunium 239	(020-115)	RPD	

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

000083

ICOC Fraction Transfer/Status Report

3/22/2018

REV.1

ByDate: 8/19/2001, 9/19/2001, Batch: '1235473', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
1235473						
		InCnt1	**WAGNERJ**	8/31/2001 4:46:27 PM		
			WAGNERJ	InPrep2	8/31/2001 4:46:27 PM	RICH-RC-5077 REVISION 1
			PARNELLL	InSep1	9/7/2001 10:17:41 AM	RICH-RC-5009 REVISION 1
			BROADYJ	InSep2	9/10/2001 1:20:41 PM	RICH-RC-5003 REVISION 4
			DOWNEYS	InSep2	9/11/2001 5:41:16 AM	RICH-RC-5003 REVISION 4
			RossR	InCnt1	9/11/2001 8:35:08 AM	RICH-RD-0008 REVISION 2
			PARNELLL	9/7/2001 10:17:41		
			BROADYJ	9/10/2001 1:20:41 PM		
			DOWNEYS	9/11/2001 5:41:16		
			RossR	9/11/2001 8:35:08		

RQC053

Severn Trent Laboratories, Inc.
Information Sheet Rad Prep

Run Date: 8/08/01
Time: 14:48:21

Page: 1

Parent Batch:
Associated Batches:

Th U-nat H3
-nP TSR
U-iso Tc-99
Pu/Am C-14
γ ni-63

QC BATCH: 1220384

WO 3357

SO: Plutonium-238,239/40 by Alpha Spec
6I: PuAm PrpRC5013/RC5019, SepRC5080(5003)/R
5I: CLIENT: HANFORD

Analytical Due Date: 7/27/01
Project Manager: JW2

Lot# / Work Order	Client	Analyt Due / Matrix	Client Name / Aliquot	Geometry	Count Time	Mid/Ave Date/Time	Tracer ID / Spike ID	CRDL	Units	Screen Info - (Ci) Alpha	Beta	PM Bin
J1G130331-001	EGCVV-1-AF	7/27/01 SOIL	Bechtel Hanford, .0000		.000	7/13/01 6:10			pCi/g	1.28E-11 J1G130331	2.05E-11	JW2
Comments: SOIL												
J1G130331-001 X	EGCVV-1-AW	7/27/01 SOIL	Bechtel Hanford, .0000		.000	7/13/01 6:10		1	pCi/g	1.28E-11 J1G130331	2.05E-11	JW2
Comments: SOIL												
J1H080000-384 B	EHM38-1-AA	7/27/01 SOLID	Bechtel Hanford,			7/13/01 6:10			pCi/g	**NA	**NA	JW2
Comments:												
J1H080000-384 C	EHM38-1-AC	7/27/01 SOLID	Bechtel Hanford,			7/13/01 6:10			pCi/g	**NA	**NA	JW2
Comments:												
J1H080000-384 B	EHM38-1-AD	7/27/01 SOLID	Bechtel Hanford,			7/13/01 6:10			pCi/g	**NA	**NA	JW2
Comments:												
J1H080000-384 C	EHM38-1-AE	7/27/01 SOLID	Bechtel Hanford,			7/13/01 6:10		1	pCi/g	**NA	**NA	JW2
Comments:												

Total Number of Samples In Batch: 00006

Batch Information: Dry Wt: Y Decay Correct: Y Blank Sub: None Call In:
Uncert: Both Sigma: 1.960 ODR: Target List + Other Detected

BLANK CRDL		Tracer Yield		Type	QC Control Limits
Plutonium 238	1	Plutonium 242	(020-105)	RPD	
Plutonium 239/4	1			RPD	

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

580000

Seq. Analysis Am

QC Batch # 1220385

3/22/2018

ICOC Fraction Transfer/Status Report

REV.1

ByDate: 8/18/01, 9/18/01, Batch: '1220384', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
1220384						
		InCnt1	**WAGNERJ**	8/31/01 4:47:09 PM		
			SAUCEDAV	InPrep	8/14/01 1:24:15 PM	RICH-RC-5013 REVISION 4
			WAGNERJ	InPrep2	8/31/01 4:47:09 PM	RICH-RC-5019 REVISION 2
			HAMMERL	InSep1	9/8/01 3:33:22 PM	RICH-RC-5080 REVISION 0
			BROADYJ	InSep2	9/10/01 3:35:39 PM	RICH-RC-5039 REVISION 3
			RossR	InCnt1	9/11/01 12:17:03 PM	RICH-RD-0008 REVISION 2
			HAMMERL	9/8/01 3:33:22 PM		
			BROADYJ	9/10/01 3:35:39 PM		
			RossR	9/11/01 12:17:03 PM		

RQC053

Severn Trent Laboratories, Inc.
Information Sheet Rad Prep

Run Date: 8/08/01
Time: 13:52:43

Page: 1

Parent Batch:
Associated Batches:

:Th UnaT H3
:NP TSR
U ISO Tc-99
Pu/Am C-14
γ Ni-63

****
* *
* QC BATCH: 1220393 *
* *
****

wo 3357

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

Analytical Due Date: 8/02/01
Project Manager: JW2

Lot# / Work Order	Client	Matrix	Analyt Due / Aliquot	Client Name / Geometry	Count Time	Mid/Ave Date/Time		Tracer ID / Spike ID	CRDL	Units	Screen Info - (Ci) Alpha	Beta	PM Bin
J1G130331-001	EGCVV-1-AJ	SOIL	8/02/01	Bechtel Hanford, .0000	.000	7/13/01	6:10		1	pCi/g	1.28E-11 J1G130331	2.05E-11	JW2
Comments: SOIL													
J1G130331-001 X	EGCVV-1-A3	SOIL	8/02/01	Bechtel Hanford, .0000	.000	7/13/01	6:10		1	pCi/g	1.28E-11 J1G130331	2.05E-11	JW2
Comments: SOIL													
J1H080000-393 B	EHM4V-1-AA	SOLID	8/02/01	Bechtel Hanford,		7/13/01	6:10		1	pCi/g	**NA	**NA	JW2
Comments:													
J1H080000-393 C	EHM4V-1-AC	SOLID	8/02/01	Bechtel Hanford,		7/13/01	6:10		1	pCi/g	**NA	**NA	JW2
Comments:													

Total Number of Samples In Batch: 00004

Batch Information:

Dry Wt: ?
Uncert: Both
Decay Correct: Y
Sigma: 1.960
Blank Sub: None
ODR: Target List + Other Detected
Call In:

BLANK CRDL		Tracer Yield		Type	QC Control Limits
Thorium 228	1	Thorium 234	(020-105)	RPD	
Thorium 230	1			RPD	
Thorium 232	1			RPD	

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

180000

ICOC Fraction Transfer/Status Report

3/22/2018

REV.1

ByDate: 8/18/2001, 9/18/2001, Batch: '1220393', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
1220393						
		InCnt1	**WAGNERJ**	8/31/2001 4:47:01 PM		
			SAUCEDAV	InPrep	8/14/2001 1:23:53 PM	RICH-RC-5013 REVISION 4
			WAGNERJ	InPrep2	8/31/2001 4:47:01 PM	RICH-RC-5019 REVISION 2
			HAMMERL	InSep1	9/8/2001 3:32:44 PM	RICH-RC-5084 REVISION 0
			DOWNEYS	InSep2	9/13/2001 6:44:13 AM	RICH-RC-5003 REVISION 4
			BlackCL	InCnt1	9/13/2001 7:04:42 AM	RICH-RD-0008 REVISION 2
			HAMMERL	9/8/2001 3:32:44 PM		
			DOWNEYS	9/13/2001 6:44:13		
			BlackCL	9/13/2001 7:04:42		

000088

RQC053

Severn Trent Laboratories, Inc.
Information Sheet Rad Prep

Run Date: 8/08/01
Time: 13:49:15

Page: 1

Parent Batch:
Associated Batches:

Th UnaT H3
NP TSR
UISO TC-99
Pu/Am C-14
X

QC BATCH: 1220386

wo3357

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

Analytical Due Date: 7/27/01

Project Manager: JW2

Lot# Work Order	Client	Analyt Matrix	Due	Aliquot	Client Name Geometry	Count Time	Mid/Ave Date/Time		Tracer ID Spike ID	CRDL	Units	Screen Info - (Ci) Alpha	Beta	PM Bin
J1G130331-001	EGCVV-1-AC	SOIL	7/27/01		Bechtel Hanford, .0000	.000	7/13/01	6:10		1	pCi/g	1.28E-11 J1G130331	2.05E-11	JW2
Comments:		SOIL												
J1G130331-001 X	EGCVV-1-A0	SOIL	7/27/01		Bechtel Hanford, .0000	.000	7/13/01	6:10		1	pCi/g	1.28E-11 J1G130331	2.05E-11	JW2
Comments:		SOIL												
J1H080000-386 B	EHM4K-1-AA	SOLID	7/27/01		Bechtel Hanford,		7/13/01	6:10		1	pCi/g	**NA	**NA	JW2
Comments:														
J1H080000-386 C	EHM4K-1-AC	SOLID	7/27/01		Bechtel Hanford,		7/13/01	6:10			pCi/g	**NA	**NA	JW2
Comments:														

Total Number of Samples In Batch: 00004

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

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

	BLANK CRDL	Tracer Yield		Type	QC Control Limits
Uranium 234	1	*Uranium-232*	(020-105)	RPD	
Uranium 235	1			RPD	
Uranium 238	1			RPD	

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

680000

3/22/2018

ICOC Fraction Transfer/Status Report

REV.1

ByDate: 8/15/01, 9/15/01, Batch: '1220386', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
1220386						
		InCnt1	**WAGNERJ**	8/31/01 4:46:51 PM		
			SAUCEDAV	InPrep	8/14/01 1:23:21 PM	RICH-RC-5013 REVISION 4
			WAGNERJ	InPrep2	8/31/01 4:46:51 PM	RICH-RC-5019 REVISION 2
			HAMMERL	InSep1	9/8/01 3:32:30 PM	RICH-RC-5079 REVISION 1
			BROADYJ	InSep2	9/12/01 8:47:20 AM	RICH-RC-5039 REVISION 3
			RossR	InCnt1	9/12/01 10:09:38 AM	RICH-RD-0008 REVISION 2
			HAMMERL	9/8/01 3:32:30 PM		
			BROADYJ	9/12/01 8:47:20 AM		
			RossR	9/12/01 10:09:38 AM		

000090

NEEDS 30 day ingrowth 3/22/2018 REV.1

RQC053

Severn Trent Laboratories, Inc.
Information Sheet Rad Prep

Run Date: 8/08/01
Time: 14:01:44

Page: 1

Parent Batch:
Associated Batches:

Th UnaT N3
NP TSR
U ISO TC-99
Pu/Am C-14
Y

QC BATCH: 1220402

W03857

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

Analytical Due Date: 8/02/01
Project Manager: JW2

Lot# / Work Order	Client	Matrix	Analyt Due / Aliquot	Client Name / Geometry	Count Time	Mid/Ave Date/Time		Tracer ID / Spike ID	CRDL	Units	Screen Info - (Ci) Alpha	Beta	PM Bin
J1G130331-001			8/02/01	Bechtel Hanford,									JW2
EGCVV-1-AP	SOIL			.0000	.000	7/13/01	6:10		1.00E-01	pCi/g	1.28E-11 J1G130331	2.05E-11	
Comments:	SOIL												
J1G130331-001 X			8/02/01	Bechtel Hanford,									JW2
EGCVV-1-CA	SOIL			.0000	.000	7/13/01	6:10		5.00E-02	pCi/g	1.28E-11 J1G130331	2.05E-11	
Comments:	SOIL												
J1H080000-402 B			8/02/01	Bechtel Hanford,									JW2
EHM52-1-AA	SOLID					7/13/01	6:10		5.00E-02	pCi/g	**NA	**NA	
Comments:													
J1H080000-402 C			8/02/01	Bechtel Hanford,									JW2
EHM52-1-AC	SOLID					7/13/01	6:10		--	pCi/g	**NA	**NA	
Comments:													

Total Number of Samples In Batch: 00004

Batch Information:

Dry Wt: ?
Uncert: Both
Decay Correct: Y
Sigma: 1.960
Blank Sub: None
ODR: Target List + Other Detected
Call In:

BLANK CRDL		Tracer Yield	Type	QC Control Limits
Cobalt 60	5.00E-02		RPD	
Cesium 137	1.00E-01		RPD	
Europium 152	1.00E-01		RPD	
Europium 154	1.00E-01		RPD	
Europium 155	1.00E-01		RPD	

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

160091

ICOC Fraction Transfer/Status Report

8/22/2018

REV.1

ByDate: 8/8/2001, 9/8/2001, Batch: '1220402', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
1220402						
		InCnt1	SAUCEDAV	8/14/2001 1:24:35 PM		
			SAUCEDAV	InPrep	8/14/2001 1:24:35 PM	RICH-RC-5013 REVISION 4
			SAUCEDAV	InPrep	8/14/2001 1:24:39 PM	RICH-RC-5017 REVISION 3
			BlackCL	InCnt1	8/23/2001 1:46:55 PM	RICH-RD-0007 REVISION 2
			SAUCEDAV	8/14/2001 1:24:39 PM		
			BlackCL	8/23/2001 1:46:55 PM		

000092

RQC053

Severn Trent Laboratories, Inc.
Information Sheet Rad Prep

Run Date: 8/08/01
Time: 14:02:33

Page: 1

Parent Batch:
Associated Batches:

Th UraT H3
NP TSR
Uiso Tc-99
Pu/Am C-14
δ Ni-63

****
* *
* QC BATCH: 1220404 *
* *
****

W03357

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

Analytical Due Date: 7/27/01

Project Manager: JW2

Lot# / Work Order	Client	Analyt	Matrix	Due	Client Name / Aliquot	Geometry	Count Time	Mid/Ave Date/Time		Tracer ID / Spike ID	CRDL	Units	Screen Info - (Ci) Alpha	Beta	PM Bin
J1G130331-001	EGCVV-1-AD		SOIL	7/27/01	Bechtel Hanford, .0000		.000	7/13/01	6:10		1	pCi/g	1.28E-11	2.05E-11 J1G130331	JW2
Comments: SOIL															
J1G130331-001 X	EGCVV-1-CC		SOIL	7/27/01	Bechtel Hanford, .0000		.000	7/13/01	6:10		1	pCi/g	1.28E-11	2.05E-11 J1G130331	JW2
Comments: SOIL															
J1H080000-404 B	EHM53-1-AA		SOLID	7/27/01	Bechtel Hanford,			7/13/01	6:10		1	pCi/g	**NA	**NA	JW2
Comments:															
J1H080000-404 C	EHM53-1-AC		SOLID	7/27/01	Bechtel Hanford,			7/13/01	6:10		1	pCi/g	**NA	**NA	JW2
Comments:															

Total Number of Samples In Batch: 00004

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

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

	BLANK CRDL	Tracer Yield		Type	QC Control Limits
Strontium 90	1	Strontium Trace	(020-105)	RPD	

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

000093

ICOC Fraction Transfer/Status Report

9/22/2018

REV.1

ByDate: 8/13/01, 9/13/01, Batch: '1220404', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
1220404						
		InCnt1	SAUCEDAV	8/14/01 1:23:29 PM		
			SAUCEDAV	InPrep	8/14/01 1:23:29 PM	RICH-RC-5013 REVISION 4
			WAGNERJ	InPrep2	8/31/01 4:46:12 PM	RICH-RC-5013 REVISION 4
			ManisD	InSep1	9/9/01 3:37:52 PM	RICH-RC-5006 REVISION 4
			BOYDR	InSep1	9/11/01 2:40:16 PM	RICH-RC-5006 REVISION 4
			DAWKINSO	InCnt1	9/11/01 4:00:28 PM	RICH-RD-0003 REVISION 2
			WAGNERJ	8/31/01 4:46:12 PM		
			BOYDR	9/11/01 2:40:16 PM		
			DAWKINSO	9/11/01 4:00:28 PM		

000094

STL Richland
Richland Wa.

Grp Rec Cnt: 4
ICOCFractions v4.3.1

RQC053

Severn Trent Laboratories, Inc.
Information Sheet Rad Prep

Run Date: 8/08/01
Time: 13:55:19

Page: 1

Parent Batch:
Associated Batches:

Th UNCT H3
NP TSR
U ISO TC-99
Pu/Am C-14
β Ni-63

****
* *
* QC BATCH: 1220397 *
* *
****

W03357

S3: Carbon-14 by Liquid Scint
5S: C-14 Prp/SepRC5022
5I: CLIENT: HANFORD

Analytical Due Date: 8/02/01

Project Manager: JW2

Lot# / Work Order	Client Matrix	Analyt Due / Aliquot	Client Name / Geometry	Count Time	Mid/Ave Date/Time	Tracer ID / Spike ID	CRDL	Units	Screen Info - (Ci) Alpha	Beta	PM Bin
J1G130331-001 EGCVV-1-AQ	SOIL SOIL	8/02/01	Bechtel Hanford, .0000	.000	7/13/01 6:10		50	pCi/g	1.28E-11 J1G130331	2.05E-11	JW2
Comments:											
J1G130331-001 X EGCVV-1-A4	SOIL SOIL	8/02/01	Bechtel Hanford, .0000	.000	7/13/01 6:10		50	pCi/g	1.28E-11 J1G130331	2.05E-11	JW2
Comments:											
J1H080000-397 B EHM42-1-AA	SOLID	8/02/01	Bechtel Hanford,		7/13/01 6:10		50	pCi/g	**NA	**NA	JW2
Comments:											
J1H080000-397 C EHM42-1-AC	SOLID	8/02/01	Bechtel Hanford,		7/13/01 6:10		50	pCi/g	**NA	**NA	JW2
Comments:											
J1H080000-397 B EHM42-1-AD	SOLID	8/02/01	Bechtel Hanford,		7/13/01 6:10		50	pCi/g	**NA	**NA	JW2
Comments:											
J1H080000-397 B EHM42-1-AE	SOLID	8/02/01	Bechtel Hanford,		7/13/01 6:10		50	pCi/g	**NA	**NA	JW2
Comments:											

Total Number of Samples In Batch: 00006

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

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

	BLANK CRDL	Tracer Yield	Type	QC Control Limits
Carbon 14	50		RPD	

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

0000095

3/22/2019

ICOC Fraction Transfer/Status Report

REV.1

ByDate: 7/28/01, 8/28/01, Batch: '1220400', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
1220400						
		InCnt1	SAUCEDAV	8/14/01 1:26:02 PM		
			SAUCEDAV	InPrep	8/14/01 1:26:02 PM	RICH-RC-5013 REVISION 4
			McDowellD	InSep1	8/23/01 8:55:29 AM	RICH-RC-5037 REVISION 3
			DAWKINSO	InCnt1	8/23/01 3:41:01 PM	RICH-RD-0001 REVISION 1
			McDowellD	8/23/01 8:55:29 AM		
			DAWKINSO	8/23/01 3:41:01 PM		

000096

RQC053

Parent Batch:
Associated Batches:

Th U nat
NP TSR
Uiso Tc.99
Pu/Am C.14
γ Ni-64

H3

Severn Trent Laboratories, Inc.
Information Sheet Rad Prep

Run Date: 8/08/01
Time: 13:56:59

****
* *
* QC BATCH: 1220398 *
* *
****

WO 3357

S4: Nickel by ICP and Nickel-63 by Liquid Sc Analytical Due Date: 7/27/01
AP: Ni-63 PrpRC5013/5019, SepRC5069
5I: CLIENT: HANFORD Project Manager: JW2

Lot# / Work Order	Client	Analyt / Matrix	Due	Aliquot	Client Name / Geometry	Count Time	Mid/Ave Date/Time		Tracer ID / Spike ID	CRDL	Units	Screen Info - (Ci) Alpha	Beta	PM Bin
J1G130331-001	EGCVV-1-AE	SOIL	7/27/01	.0000	Bechtel Hanford,	.000	7/13/01	6:10			pCi/g	1.28E-11 J1G130331	2.05E-11	JW2
Comments:		SOIL												
J1G130331-001 S	EGCVV-1-A5	SOIL	7/27/01	.0000	Bechtel Hanford,	.000	7/13/01	6:10		30	pCi/g	1.28E-11 J1G130331	2.05E-11	JW2
Comments:		SOIL												
J1G130331-001 X	EGCVV-1-A6	SOIL	7/27/01	.0000	Bechtel Hanford,	.000	7/13/01	6:10			pCi/g	1.28E-11 J1G130331	2.05E-11	JW2
Comments:		SOIL												
J1H080000-398 B	EHM5F-1-AA	SOLID	7/27/01		Bechtel Hanford,		7/13/01	6:10		30	pCi/g	**NA	**NA	JW2
Comments:														
J1H080000-398 C	EHM5F-1-AC	SOLID	7/27/01		Bechtel Hanford,		7/13/01	6:10			pCi/g	**NA	**NA	JW2
Comments:														
J1H080000-398 B	EHM5F-1-AD	SOLID	7/27/01		Bechtel Hanford,		7/13/01	6:10			pCi/g	**NA	**NA	JW2
Comments:														

Total Number of Samples In Batch: 00006

Batch Information: Dry Wt: Y Decay Correct: Y Blank Sub: None Call In:
Uncert: Both Sigma: 1.960 ODR: Target List + Other Detected

BLANK CRDL		Tracer Yield		Type	QC Control Limits
Nickel 63	30	Nickel	(020-105)	RPD	

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

460097

ICOC Fraction Transfer/Status Report

3/22/2018

REV.1

ByDate: 8/26/01, 9/26/01, Batch: '1220398', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
1220398						
		InCnt1	**WAGNERJ**	8/31/01 4:47:05 PM		
			SAUCEDAV	InPrep	8/14/01 1:24:08 PM	RICH-RC-5013 REVISION 4
			WAGNERJ	InPrep2	8/31/01 4:47:05 PM	RICH-RC-5019 REVISION 2
			SMITHP	InPrep	9/12/01 9:33:18 AM	RICH-RC-5069 REVISION 3
			BlackCL	InCnt1	9/20/01 1:49:24 PM	RICH-RD-0001 REVISION 1
			SMITHP	9/12/01 9:33:18 AM		
			BlackCL	9/20/01 1:49:24 PM		

000098

RQC053

Severn Trent Laboratories, Inc.
Information Sheet Rad Prep

Run Date: 8/08/01
Time: 13:59:11

Page: 1

Parent Batch:
Associated Batches:

Th UNAT H3
NP TSR
UISO Tc-99
PU/AM C-14
Sr Ni-63

QC BATCH: 1220399

W03357

S5: Technetium-99 by Liquid Scint
AN: Tc-99 Prp/SepRC5013/5078
5I: CLIENT: HANFORD

Analytical Due Date: 8/02/01

Project Manager: JW2

Lot# Work Order	Client	Matrix	Analyt Due	Aliquot	Client Name Geometry	Count Time	Mid/Ave Date/Time		Tracer ID Spike ID	CRDL	Units	Screen Info - (Ci) Alpha	Beta	PM Bin
J1G130331-001	EGCVV-1-AL	SOIL	8/02/01	.0000	Bechtel Hanford,	.000	7/13/01	6:10		15	pCi/g	1.28E-11 J1G130331	2.05E-11	JW2
Comments: SOIL														
J1G130331-001 S	EGCVV-1-A7	SOIL	8/02/01	.0000	Bechtel Hanford,	.000	7/13/01	6:10			pCi/g	1.28E-11 J1G130331	2.05E-11	JW2
Comments: SOIL														
J1G130331-001 X	EGCVV-1-A8	SOIL	8/02/01	.0000	Bechtel Hanford,	.000	7/13/01	6:10		15	pCi/g	1.28E-11 J1G130331	2.05E-11	JW2
Comments: SOIL														
J1H080000-399 B	EHM5R-1-AA	SOLID	8/02/01		Bechtel Hanford,		7/13/01	6:10		15	pCi/g	**NA	**NA	JW2
Comments:														
J1H080000-399 C	EHM5R-1-AC	SOLID	8/02/01		Bechtel Hanford,		7/13/01	6:10		15	pCi/g	**NA	**NA	JW2
Comments:														
J1H080000-399 B	EHM5R-1-AD	SOLID	8/02/01		Bechtel Hanford,		7/13/01	6:10		15	pCi/g	**NA	**NA	JW2
Comments:														

Total Number of Samples In Batch: 00006

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

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

	BLANK CRDL	Tracer Yield	Type	QC Control Limits RPD
Technetium 99	15			

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

660099

ICOC Fraction Transfer/Status Report

3/22/2018

REV.1

ByDate: 8/12/01, 9/12/01, Batch: '1220399', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
1220399						
		InCnt1	SAUCEDAV	8/14/01 1:24:30 PM		
			SAUCEDAV	InPrep	8/14/01 1:24:30 PM	RICH-RC-5013 REVISION 4
			BOYDR	InPrep	8/27/01 1:21:54 PM	RICH-RC-5078 REVISION 1
			BOYDR	InSep1	8/27/01 1:22:36 PM	RICH-RC-5078 REVISION 1
			BOYDR	InSep1	9/6/01 10:01:29 AM	RICH-RC-5078 REVISION 1
			BlackCL	InCnt1	9/7/01 10:05:11 AM	RICH-RD-0001 REVISION 1
			BOYDR	8/27/01 1:21:54 PM		
			BOYDR	8/27/01 1:22:36 PM		
			BOYDR	9/6/01 10:00:59 AM		
			BOYDR	9/6/01 10:01:29 AM		
			BlackCL	9/7/01 10:05:11 AM		

RQC053

Parent Batch:
Associated Batches:

:Th U-nat H_3
:Np Tc-99
Liso C-14
Pu/Am Ni-63
Sr

Severn Trent Laboratories, Inc.
Information Sheet Rad Prep

QC BATCH: 1220400

W03357

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

Run Date: 8/08/01
Time: 14:00:52

Page: 1

Analytical Due Date: 8/02/01

Project Manager: JW2

Lot# / Work Order	Client Matrix	Analyt Due / Aliquot	Client Name / Geometry	Count Time	Mid/Ave Date/Time		Tracer ID / Spike ID	CRDL	Units	Screen Info - (Ci) Alpha	Beta	PM Bin
J1G130331-001	SOIL	8/02/01	Bechtel Hanford,	.000	7/13/01	6:10		400	pCi/g	1.28E-11	2.05E-11	JW2
EGCVV-1-AM	SOIL		.0000							J1G130331		
Comments: SOIL												
J1G130331-001 X	SOIL	8/02/01	Bechtel Hanford,	.000	7/13/01	6:10		400	pCi/g	1.28E-11	2.05E-11	JW2
EGCVV-1-A9	SOIL		.0000							J1G130331		
Comments: SOIL												
J1H080000-400 B	SOLID	8/02/01	Bechtel Hanford,		7/13/01	6:10		400	pCi/g	**NA	**NA	JW2
EHM5W-1-AA												
Comments:												
J1H080000-400 C	SOLID	8/02/01	Bechtel Hanford,		7/13/01	6:10		400	pCi/g	**NA	**NA	JW2
EHM5W-1-AC												
Comments:												
J1H080000-400 B	SOLID	8/02/01	Bechtel Hanford,		7/13/01	6:10		400	pCi/g	**NA	**NA	JW2
EHM5W-1-AD												
Comments:												
J1H080000-400 B	SOLID	8/02/01	Bechtel Hanford,		7/13/01	6:10		400	pCi/g	**NA	**NA	JW2
EHM5W-1-AE												
Comments:												

Total Number of Samples In Batch: 00006

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

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

BLANK CRDL		Tracer Yield	Type	QC Control Limits
Tritium	400		RPD	

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

001001

ICOC Fraction Transfer/Status Report

3/22/2018

REV.1

ByDate: 7/28/01, 8/28/01, Batch: '1220397', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
1220397						
		InCnt1	SAUCEDAV	8/14/01 1:25:58 PM		
			SAUCEDAV	InPrep	8/14/01 1:25:58 PM	RICH-RC-5013 REVISION 4
			McDowellD	InSep1	8/23/01 8:56:34 AM	RICH-RC-5022 REVISION 3
			DAWKINSO	InCnt1	8/23/01 3:41:10 PM	RICH-RD-0001 REVISION 1
			McDowellD	8/23/01 8:56:34 AM		
			DAWKINSO	8/23/01 3:41:10 PM		

RQC053

Parent Batch:
Associated Batches:
:
:
:
:

Severn Trent Laboratories, Inc.
Information Sheet Rad Prep

****
* *
* QC BATCH: 1250483 *
* *
****

Run Date: 9/07/01
Time: 17:10:37

Page: 1

SS: Total Uranium by KPA
7Z: Unat Laser PrpRC5013/RC5019, SepRC5015
5I: CLIENT: HANFORD

Analytical Due Date: 8/02/01
Project Manager: JW2

Lot# / Work Order	Client	Analyt Matrix	Due / Aliquot	Client Name / Geometry	Count Time	Mid/Ave Date/Time		Tracer ID / Spike ID	CRDL	Units	Screen Info - (Ci) Alpha	Beta	PM Bin
J1G130331-001			8/02/01	Bechtel Hanford,									JW2
EGCVV-1-CH	SOIL	SOIL		.0000	.000	7/13/01	6:10		1	ug/g	1.28E-11 J1G130331	2.05E-11	
Comments:													
J1G130331-001 S			8/02/01	Bechtel Hanford,									JW2
EGCVV-1-CJ	SOIL	SOIL		.0000	.000	7/13/01	6:10			ug/g	1.28E-11 J1G130331	2.05E-11	
Comments:													
J1G130331-001 X			8/02/01	Bechtel Hanford,									JW2
EGCVV-1-CK	SOIL	SOIL		.0000	.000	7/13/01	6:10		1	ug/g	1.28E-11 J1G130331	2.05E-11	
Comments:													
J1I070000-483 B			8/02/01	Bechtel Hanford,									JW2
EJ79T-1-AA	SOLID					7/13/01	6:10		1	ug/g	**NA	**NA	
Comments:													
J1I070000-483 C			8/02/01	Bechtel Hanford,									JW2
EJ79T-1-AC	SOLID					7/13/01	6:10		1	ug/g	**NA	**NA	
Comments:													

Total Number of Samples In Batch: 00005

Batch Information:

Dry Wt: Y
Uncert: Both

Decay Correct: Y
Sigma: 1.960

Blank Sub: None
ODR: Target List + Other Detected

Call In:

BLANK CRDL		Tracer Yield	Type	QC Control Limits
Uranium	1		RPD	

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

000103

ICOC Fraction Transfer/Status Report

3/22/2018

ByDate: 8/13/01, 9/13/01, Batch: '1250483', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
1250483						
		InCnt1	**SAUCEDAV**	9/7/01 4:51:52 PM		
			SAUCEDAV	InPrep2	9/7/01 4:51:52 PM	RICH-RC-5013 REVISION 4
			WAGNERJ	InPrep2	9/7/01 4:52:07 PM	RICH-RC-5019 REVISION 2
			WAGNERJ	InPrep2	9/7/01 4:52:27 PM	RICH-RC-5015 REVISION 2
			MONROEJ	InCnt1	9/10/01 7:57:42 AM	RICH-RC-5058 REVISION 4
			WAGNERJ	9/7/01 4:52:07 PM		
			WAGNERJ	9/7/01 4:52:27 PM		
			MONROEJ	9/10/01 7:57:42 AM		

RQC050 Severn Trent Laboratories, Inc. Run Date: 7/17/01
WET CHEM BATCHSHEET Time: 17:08:54

STL Richland

PRODUCTION FIGURES - WET CHEM

TOTAL NUMBER	SAMPLE NUMBER	QC	RE-RUN MATRIX	RE-RUN OTHER	MISC NUMBER	TOTAL HOURS	EXPANDED DELIVERABLE

METHOD: EA Chromium, Hexavalent (7196A)
QC BATCH #: 1198500
PREP DATE: 7/17/01
COMP DATE: 7/17/01
USER: ROSSR

INITIALS:
PREP _____
ANAL _____

DATA ENTRY:
INITIALS _____
DATE _____

Work Order	Lab Number	Structured Analysis	Exp. Del.	Analysis Date	Sample ID:
EGCVV-1-AA	J-1G130331-001	XX A DW EA 5I	E	_____	B12BW3
EGCVV-1-AR	J-1G130331-001-S	XX A DW EA 5I	E	_____	B12BW3
EGCVV-1-AU	J-1G130331-001-S	XX A DW EA 5I	E	_____	B12BW3
EGCVV-1-AT	J-1G130331-001-X	XX A DW EA 5I	E	_____	B12BW3 DUP
EGG9W-1-AA	J-1G170000-500-B	XX A DW EA 5I		_____	INTRA-LAB BLANK
EGG9W-1-AC	J-1G170000-500-C	XX A DW EA 5I		_____	INTRA-LAB CHECK

Control Limits
(75-125)
(75-125)
(80-120)

000105