0059880

SAF-B03-024
118-C-4 Horizontal Rod Cave Soil Sampling - Verification
FINAL DATA PACKAGE

E:MAIL RESULTS TO:

Rikki Thoren _____N/A_____
INITIAL/DATE

COMPLETE COPY OF DATA PACKAGE TO:

Rikki Thoren X9-05 KS 6.11.03
INITIAL/DATE

COMMENTS: (PLEASE INCLUDE THE FOLLOWING ON THE FAX COVER SHEET)

SDG (W04047) SAF-B03-024

Rad only Chem only X Rad & Chem

X Complete Partial

RECEIVED
JUL 28 2003
EDMC

SEVERN TRENT STL

ANALYTICAL REPORT

PROJECT NO. 118-C-4

B03-024

Lot #: F3E190111
SDG #: W04047

Joan Kessner

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

SEVERN TRENT LABORATORIES, INC.

RECEIVED
JUN 2003

MARTI WARD
Project Manager

May 30, 2003

Severn Trent Laboratories, Inc.
STL St. Louis • 13715 Rider Trail North, Earth City, MO 63045
Tel 314 298 8566 Fax 314 298 8757 • www.stl-inc.com

A part of Severn Trent plc

SEVERN TRENT STL

May 30, 2003

SDG: **W04047**

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

Dear Joan Kessner,

This report contains the analytical results for the sample received under chain of custody by Severn Trent Laboratories (STL) on May 17, 2003. This sample is associated with your B03-024 SAF.

All applicable quality control procedures met method-specified acceptance criteria except as noted on the following page.

This report shall not be reproduced except in full, without the written approval of the laboratory. This report is incomplete without the Case Narrative. Results are reported "as received" (i.e. wet weight) unless otherwise noted.

If you have any questions, please feel free to call me at (314) 298-8566.

Sincerely,

Marti Ward

Marti Ward
Project Manager

cc: Project File

SEVERN TRENT STL

SDG: W04047

Nonconformance 06-19541

Affected Samples:
F3E190111 (1): J00NV0

Affected Methods:
8260B Volatiles

Case Narrative:
The LCS recoveries are outside QC limits for less than 10% of the compounds spiked. Styrene and 1,1,2,2-Tetrachloroethane recovered above the limits. Neither compound was found in the sample, indicating that the high bias of the LCS did not affect the sample results. Laboratory QC practices, based on federal guidance documents, allow for up to 10% of the spike compounds to be outside QC criteria without necessitating re-preparation/re-analysis. Sample purge efficiency and compliance is demonstrated by the remaining acceptable LCS recoveries.

Corrective Action:
Report data with comment.

SAMPLE SUMMARY

F3E190111

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
FN0TJ	001	J00NV0	05/15/03	08:15

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

F3E190111

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Mercury in Solid Waste (Manual Cold-Vapor)	SW846 7471A	SW846 7471A
Percent Moisture	MCAWW 160.3 MOD	MCAWW 160.3 MOD
PCBs by SW-846 8082	SW846 8082	SW846 3550B/366
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3550B
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3050B
Volatile Organics by GC/MS	SW846 8260B	SW846 5030

References:

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

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

OT# F3E190111

SDG# W04047

3TL ST. LOUIS

CUR 67704

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B03-024-02	Page 1 of 1
Collector: Renee Nielson	Company Contact: Rikki Thoren	Telephone No.: 521-8003	Project Coordinator: KESSNER, JH	Price Code: 8J; Data Turnaround: 7 Days
Project Designation: 118-C-4 Horizontal Rod Cave Soil Sampling - Verification	Sampling Location: 118-C-4 Rod Cave		SAF No.: B03-024	Air Quality ☐
Ice Chest No.: ERC 01 017	Field Logbook No.: EL-1516-2	COA: R118CD200C	Method of Shipment: ~~Hand deliver - Govt vehicle~~ OLD STEO3 FED EX	
Shipped To: Severn Trent Incorporated, Richland St. Louis	Offsite Property No.: A030262		Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

Special Handling and/or Storage

W04047

SAMPLE ANALYSIS

Preservation	None PH<2	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C							
Type of Container	~~aG~~ P	aG	aG	aG	aG	aG							
No. of Container(s)	1	1	1	1	1	1							
Volume	1000mL	60mL	60mL	250mL	60mL	120mL							
	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082	VOA - 8260A (TCL)	Semi-VOA - 8270A (TCL)							
Sample No.	Matrix *	Sample Date	Sample Time										
J00NV0	SOIL	5-15-03	0815			X	X	X	X				

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: RENEE NIELSON JR Nielson	5-15-03 1200	Received By/Stored In: REF # 3C 3728	5/15/03 1200
Relinquished By/Removed From: REF 3C 3728	51603 1000	Received By/Stored In: SCALE Mark	51603 1000
Relinquished By/Removed From: SCALE Mark	51603 1000	Received By/Stored In: FED EX	
Relinquished By/Removed From: FED EX		Received By/Stored In: K Ulero	5.17.03 0930
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Americium-241; Isotopic Plutonium; Strontium-89,90 -- Total Sr; Isotopic Uranium
(2) ICP Metals - 6010A (Add-on) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV)

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/16/03

Matrix *
S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wi=Wipe
L=Liquid
Va=Vegetation
X=Other

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

BHI-EE-011 (03/01/2002)

SEVERN TRENT STL

Lot No.: F3E190111

Condition Upon Receipt Form
St. Louis Laboratory

Client: Hanford

Date: 5-17-03 Time: 0930

Quote No:

Initiated by: KA

Shipper/No: See below

COC/RFA Numbers: See below

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: 2 2 2 2	7.	Y N	Chain of Custody matches sample IDs on containers.
3	Y N N/A	Sample received with proper pH**.	8.	Y N	Custody seal received intact and tamper evident on cooler.
4.	Y N	Sample received in proper containers.	9.	Y N	Custody seal received intact and tamper evident on bottles.

* Temperature Variance Does Not Affect the Following Analyses:

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

Notes: Chain #'s BC2-036-07, BC3-024-02, X03-035-5
X03-034-1,5,6, SD3-004-119,39,40, WD3-005-95,167,285
297,289
Shipper #'s 791383863483, 792249874066, 790784606
792249997092

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: Kris Ahers Date: 5-17-03

Project Management Review: Mulard Date: 5-19-03

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

VOLATILE ORGANICS

BECHTEL HANFORD, INC.

Client Sample ID: J00NV0

GC/MS Volatiles

Lot-Sample #...: F3E190111-001 **Work Order #...:** FN0TJ1AL **Matrix.....:** SOLID
Date Sampled...: 05/15/03 08:15 **Date Received..:** 05/17/03
Prep Date.....: 05/21/03 **Analysis Date..:** 05/21/03
Prep Batch #...: 3142148 **Analysis Time..:** 20:38
Dilution Factor: 1
% Moisture.....: 1.6 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Chloromethane	ND	10	ug/kg
Bromomethane	ND	10	ug/kg
Chloroethane	ND	10	ug/kg
Acetone	**6.3 J,B**	**20**	**ug/kg**
1,1-Dichloroethene	ND	5.1	ug/kg
Methylene chloride	**2.1 J,B**	**5.1**	**ug/kg**
Carbon disulfide	ND	5.1	ug/kg
1,1-Dichloroethane	ND	5.1	ug/kg
2-Butanone	ND	20	ug/kg
1,2-Dichloroethene (total)	ND	10	ug/kg
Chloroform	ND	5.1	ug/kg
1,1,1-Trichloroethane	ND	5.1	ug/kg
Carbon tetrachloride	ND	5.1	ug/kg
1,2-Dichloroethane	ND	5.1	ug/kg
Benzene	ND	5.1	ug/kg
Trichloroethene	ND	5.1	ug/kg
1,2-Dichloropropane	ND	5.1	ug/kg
Bromodichloromethane	ND	5.1	ug/kg
4-Methyl-2-pentanone	ND	20	ug/kg
cis-1,3-Dichloropropene	ND	5.1	ug/kg
Toluene	**5.0 J**	**5.1**	**ug/kg**
trans-1,3-Dichloropropene	ND	5.1	ug/kg
1,1,2-Trichloroethane	ND	5.1	ug/kg
2-Hexanone	ND	20	ug/kg
Tetrachloroethene	ND	5.1	ug/kg
Dibromochloromethane	ND	5.1	ug/kg
Chlorobenzene	ND	5.1	ug/kg
Ethylbenzene	ND	5.1	ug/kg
Vinyl chloride	ND	5.1	ug/kg
Xylenes (total)	ND	10	ug/kg
Styrene	ND	5.1	ug/kg
Bromoform	ND	5.1	ug/kg
1,1,2,2-Tetrachloroethane	ND	5.1	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	93	(76 - 129)
Dibromofluoromethane	94	(81 - 128)
1,2-Dichloroethane-d4	100	(77 - 130)
4-Bromofluorobenzene	96	(58 - 144)

(Continued on next page)

BECHTEL HANFORD, INC.

Client Sample ID: J00NV0

GC/MS Volatiles

Lot-Sample #...: F3E190111-001 Work Order #...: FN0TJ1AL Matrix.....: SOLID

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: F3E190111 **Work Order #...:** FN0TJ1A8-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3E190111-001 FN0TJ1A9-MSD
Date Sampled...: 05/15/03 08:15 **Date Received..:** 05/17/03
Prep Date.....: 05/21/03 **Analysis Date..:** 05/21/03
Prep Batch #...: 3142148 **Analysis Time..:** 21:14
Dilution Factor: 1 **% Moisture.....:** 1.6

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Chloromethane	102	(10 - 150)			SW846 8260B
	98	(10 - 150)	3.3	(0-30)	SW846 8260B
Bromomethane	87	(10 - 150)			SW846 8260B
	85	(10 - 150)	2.5	(0-30)	SW846 8260B
Chloroethane	102	(47 - 189)			SW846 8260B
	102	(47 - 189)	0.15	(0-30)	SW846 8260B
Acetone	99	(10 - 150)			SW846 8260B
	103	(10 - 150)	3.4	(0-30)	SW846 8260B
1,1-Dichloroethene	100	(69 - 147)			SW846 8260B
	97	(69 - 147)	3.6	(0-30)	SW846 8260B
Methylene chloride	87	(32 - 124)			SW846 8260B
	87	(32 - 124)	0.02	(0-30)	SW846 8260B
Carbon disulfide	106	(44 - 150)			SW846 8260B
	107	(44 - 150)	0.73	(0-30)	SW846 8260B
1,1-Dichloroethane	98	(74 - 125)			SW846 8260B
	98	(74 - 125)	0.26	(0-30)	SW846 8260B
2-Butanone	101	(40 - 150)			SW846 8260B
	105	(40 - 150)	3.4	(0-30)	SW846 8260B
1,2-Dichloroethene (total)	100	(80 - 130)			SW846 8260B
	100	(80 - 130)	0.47	(0-30)	SW846 8260B
Chloroform	95	(85 - 125)			SW846 8260B
	96	(85 - 125)	1.5	(0-30)	SW846 8260B
1,1,1-Trichloroethane	96	(82 - 129)			SW846 8260B
	99	(82 - 129)	3.6	(0-30)	SW846 8260B
m-Xylene & p-Xylene	102	(79 - 121)			SW846 8260B
	103	(79 - 121)	0.97	(0-30)	SW846 8260B
o-Xylene	110	(77 - 123)			SW846 8260B
	111	(77 - 123)	1.6	(0-30)	SW846 8260B
1,3-Dichlorobenzene	95	(82 - 119)			SW846 8260B
	100	(82 - 119)	5.0	(0-30)	SW846 8260B
Carbon tetrachloride	96	(72 - 130)			SW846 8260B
	98	(72 - 130)	1.7	(0-30)	SW846 8260B
1,2-Dichloroethane	101	(71 - 122)			SW846 8260B
	102	(71 - 122)	1.0	(0-30)	SW846 8260B
1,4-Dichlorobenzene	93	(81 - 117)			SW846 8260B
	97	(81 - 117)	3.8	(0-30)	SW846 8260B
Benzene	91	(80 - 118)			SW846 8260B
	94	(80 - 118)	3.0	(0-30)	SW846 8260B

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: F3E190111 Work Order #...: FN0TJ1A8-MS Matrix.....: SOLID
MS Lot-Sample #: F3E190111-001 FN0TJ1A9-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,2-Dichlorobenzene	98	(69 - 147)			SW846 8260B
	103	(69 - 147)	4.7	(0-30)	SW846 8260B
Trichloroethene	97	(65 - 129)			SW846 8260B
	99	(65 - 129)	2.6	(0-30)	SW846 8260B
1,2-Dichloropropane	94	(76 - 121)			SW846 8260B
	99	(76 - 121)	5.5	(0-30)	SW846 8260B
Bromodichloromethane	98	(76 - 126)			SW846 8260B
	99	(76 - 126)	1.3	(0-30)	SW846 8260B
4-Methyl-2-pentanone	68	(19 - 127)			SW846 8260B
	66	(19 - 127)	3.5	(0-30)	SW846 8260B
cis-1,3-Dichloropropene	99	(54 - 126)			SW846 8260B
	101	(54 - 126)	2.5	(0-30)	SW846 8260B
Toluene	90	(63 - 141)			SW846 8260B
	92	(63 - 141)	1.5	(0-30)	SW846 8260B
trans-1,3-Dichloropropene	111	(64 - 139)			SW846 8260B
	112	(64 - 139)	1.0	(0-30)	SW846 8260B
1,1,2-Trichloroethane	98	(71 - 130)			SW846 8260B
	100	(71 - 130)	2.0	(0-30)	SW846 8260B
2-Hexanone	104	(12 - 150)			SW846 8260B
	102	(12 - 150)	1.6	(0-30)	SW846 8260B
Tetrachloroethene	80	(62 - 127)			SW846 8260B
	79	(62 - 127)	1.0	(0-30)	SW846 8260B
Dibromochloromethane	105	(76 - 131)			SW846 8260B
	109	(76 - 131)	4.1	(0-30)	SW846 8260B
Chlorobenzene	98	(85 - 117)			SW846 8260B
	101	(85 - 117)	3.3	(0-30)	SW846 8260B
Ethylbenzene	103	(77 - 125)			SW846 8260B
	102	(77 - 125)	1.1	(0-30)	SW846 8260B
Vinyl chloride	103	(12 - 150)			SW846 8260B
	98	(12 - 150)	4.3	(0-30)	SW846 8260B
Styrene	116	(59 - 128)			SW846 8260B
	117	(59 - 128)	0.92	(0-30)	SW846 8260B
Bromoform	131	(62 - 138)			SW846 8260B
	134	(62 - 138)	2.1	(0-30)	SW846 8260B
1,1,2,2-Tetrachloroethane	124	(47 - 137)			SW846 8260B
	120	(47 - 137)	3.0	(0-30)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	96	(76 - 129)
	97	(76 - 129)

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: F3E190111 **Work Order #...:** FN0TJ1A8-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3E190111-001 FN0TJ1A9-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	97	(81 - 128)
	100	(81 - 128)
1,2-Dichloroethane-d4	103	(77 - 130)
	103	(77 - 130)
4-Bromofluorobenzene	101	(58 - 144)
	104	(58 - 144)

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 #...: F3E190111 **Work Order #...:** FN68G1AA **Matrix.....:** SOLID
MB Lot-Sample #: F3E220000-148
Prep Date.....: 05/21/03 **Analysis Time..:** 17:00
Analysis Date..: 05/21/03 **Prep Batch #...:** 3142148
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Chloromethane	ND	10	ug/kg	SW846 8260B
Bromomethane	ND	10	ug/kg	SW846 8260B
Chloroethane	ND	10	ug/kg	SW846 8260B
Acetone	**5.0 J**	**20**	**ug/kg**	**SW846 8260B**
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
Methylene chloride	**3.5 J**	**5.0**	**ug/kg**	**SW846 8260B**
Carbon disulfide	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
2-Butanone	ND	20	ug/kg	SW846 8260B
1,2-Dichloroethene (total)	ND	10	ug/kg	SW846 8260B
Chloroform	ND	5.0	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
Benzene	ND	5.0	ug/kg	SW846 8260B
Trichloroethene	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260B
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260B
4-Methyl-2-pentanone	ND	20	ug/kg	SW846 8260B
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
Toluene	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
Vinyl chloride	ND	5.0	ug/kg	SW846 8260B
Xylenes (total)	ND	10	ug/kg	SW846 8260B
Styrene	ND	5.0	ug/kg	SW846 8260B
Bromoform	ND	5.0	ug/kg	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	97	(76 - 129)
Dibromofluoromethane	100	(81 - 128)
1,2-Dichloroethane-d4	108	(77 - 130)
4-Bromofluorobenzene	103	(58 - 144)

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: F3E190111 Work Order #...: FN68G1AA 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.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: F3E190111 Work Order #...: FN68G1AC Matrix.....: SOLID
LCS Lot-Sample#: F3E220000-148
Prep Date.....: 05/21/03 Analysis Date..: 05/21/03
Prep Batch #...: 3142148 Analysis Time..: 17:36
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Chloromethane	114	(10 - 150)	SW846 8260B
Bromomethane	91	(19 - 150)	SW846 8260B
Chloroethane	108	(50 - 150)	SW846 8260B
Acetone	99	(31 - 150)	SW846 8260B
1,1-Dichloroethene	104	(73 - 136)	SW846 8260B
Methylene chloride	95	(39 - 128)	SW846 8260B
Carbon disulfide	115	(56 - 150)	SW846 8260B
1,1-Dichloroethane	101	(76 - 118)	SW846 8260B
2-Butanone	89	(73 - 145)	SW846 8260B
1,2-Dichloroethene (total)	103	(83 - 123)	SW846 8260B
Chloroform	98	(85 - 120)	SW846 8260B
1,1,1-Trichloroethane	100	(84 - 124)	SW846 8260B
m-Xylene & p-Xylene	106	(83 - 115)	SW846 8260B
Carbon tetrachloride	100	(81 - 122)	SW846 8260B
1,2-Dichloroethane	102	(78 - 116)	SW846 8260B
o-Xylene	111	(85 - 117)	SW846 8260B
Benzene	96	(81 - 115)	SW846 8260B
1,3-Dichlorobenzene	98	(84 - 116)	SW846 8260B
Trichloroethene	94	(76 - 115)	SW846 8260B
1,4-Dichlorobenzene	96	(83 - 115)	SW846 8260B
1,2-Dichloropropane	98	(78 - 119)	SW846 8260B
Bromodichloromethane	99	(85 - 120)	SW846 8260B
4-Methyl-2-pentanone	59	(34 - 124)	SW846 8260B
cis-1,3-Dichloropropene	102	(78 - 116)	SW846 8260B
Toluene	99	(79 - 116)	SW846 8260B
trans-1,3-Dichloropropene	115	(79 - 131)	SW846 8260B
1,1,2-Trichloroethane	101	(78 - 116)	SW846 8260B
2-Hexanone	104	(60 - 143)	SW846 8260B
Tetrachloroethene	79	(71 - 115)	SW846 8260B
Dibromochloromethane	112	(84 - 122)	SW846 8260B
1,2-Dichlorobenzene	102	(84 - 119)	SW846 8260B
Chlorobenzene	101	(85 - 115)	SW846 8260B
Ethylbenzene	104	(84 - 115)	SW846 8260B

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: F3E190111 **Work Order #...:** FN68G1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F3E220000-148

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Vinyl chloride	**112**	**(10 - 150)**	**SW846 8260B**
Styrene	**119 a**	**(84 - 115)**	**SW846 8260B**
Bromoform	**131**	**(77 - 134)**	**SW846 8260B**
1,1,2,2-Tetrachloroethane	**126 a**	**(72 - 122)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	101	(85 - 115)
Dibromofluoromethane	102	(85 - 118)
1,2-Dichloroethane-d4	105	(82 - 120)
4-Bromofluorobenzene	103	(79 - 120)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

SEMI-VOLATILE ORGANICS

BECHTEL HANFORD, INC.

Client Sample ID: J00NV0

GC/MS Semivolatiles

Lot-Sample #...: F3E190111-001 **Work Order #...:** FN0TJ1AM **Matrix.....:** SOLID
Date Sampled...: 05/15/03 08:15 **Date Received..:** 05/17/03
Prep Date.....: 05/19/03 **Analysis Date..:** 05/20/03
Prep Batch #...: 3139531 **Analysis Time..:** 19:35
Dilution Factor: 1
% Moisture.....: 1.6 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Phenol	ND	340	ug/kg
bis(2-Chloroethyl)-ether	ND	340	ug/kg
2-Chlorophenol	ND	340	ug/kg
1,3-Dichlorobenzene	ND	340	ug/kg
1,4-Dichlorobenzene	ND	340	ug/kg
1,2-Dichlorobenzene	ND	340	ug/kg
2-Methylphenol	ND	340	ug/kg
2,2'-oxybis(1-Chloropropane)	ND	340	ug/kg
4-Methylphenol	ND	670	ug/kg
N-Nitrosodi-n-propyl-amine	ND	340	ug/kg
Hexachloroethane	ND	340	ug/kg
Nitrobenzene	ND	340	ug/kg
Isophorone	ND	340	ug/kg
2-Nitrophenol	ND	340	ug/kg
2,4-Dimethylphenol	ND	340	ug/kg
bis(2-Chloroethoxy) methane	ND	340	ug/kg
2,4-Dichlorophenol	ND	340	ug/kg
1,2,4-Trichloro-benzene	ND	340	ug/kg
Naphthalene	ND	340	ug/kg
4-Chloroaniline	ND	340	ug/kg
Hexachlorobutadiene	ND	340	ug/kg
4-Chloro-3-methylphenol	ND	340	ug/kg
2-Methylnaphthalene	ND	340	ug/kg
Hexachlorocyclopenta-diene	ND	1600	ug/kg
2,4,6-Trichloro-phenol	ND	340	ug/kg
2,4,5-Trichloro-phenol	ND	340	ug/kg
2-Chloronaphthalene	ND	340	ug/kg
2-Nitroaniline	ND	1600	ug/kg
Dimethyl phthalate	ND	340	ug/kg
Acenaphthylene	ND	340	ug/kg
2,6-Dinitrotoluene	ND	340	ug/kg

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BECHTEL HANFORD, INC.

Client Sample ID: J00NV0

GC/MS Semivolatiles

Lot-Sample #...: F3E190111-001 Work Order #...: FN0TJ1AM Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS
3-Nitroaniline	ND	1600	ug/kg
Acenaphthene	ND	340	ug/kg
2,4-Dinitrophenol	ND	1600	ug/kg
4-Nitrophenol	ND	1600	ug/kg
Dibenzofuran	ND	340	ug/kg
Dibenzo(a,h)anthracene	ND	340	ug/kg
2,4-Dinitrotoluene	ND	340	ug/kg
Diethyl phthalate	ND	340	ug/kg
Fluorene	ND	340	ug/kg
4-Chlorophenyl phenyl ether	ND	340	ug/kg
4-Nitroaniline	ND	1600	ug/kg
4,6-Dinitro-2-methylphenol	ND	1600	ug/kg
N-Nitrosodiphenylamine	ND	340	ug/kg
Pyrene	ND	340	ug/kg
4-Bromophenyl phenyl ether	ND	340	ug/kg
Hexachlorobenzene	ND	340	ug/kg
Pentachlorophenol	ND	1600	ug/kg
Phenanthrene	ND	340	ug/kg
Anthracene	ND	340	ug/kg
Carbazole	ND	340	ug/kg
Di-n-butyl phthalate	ND	340	ug/kg
Fluoranthene	ND	340	ug/kg
Butyl benzyl phthalate	ND	340	ug/kg
Benzo(a)anthracene	ND	340	ug/kg
3,3'-Dichlorobenzidine	ND	1600	ug/kg
Chrysene	ND	340	ug/kg
bis(2-Ethylhexyl) phthalate	ND	340	ug/kg
Di-n-octyl phthalate	ND	340	ug/kg
Benzo(b)fluoranthene	ND	340	ug/kg
Benzo(k)fluoranthene	ND	340	ug/kg
Benzo(a)pyrene	ND	340	ug/kg
Indeno(1,2,3-cd)pyrene	ND	340	ug/kg
Benzo(ghi)perylene	ND	340	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	69	(19 - 115)
Phenol-d5	70	(27 - 115)
Nitrobenzene-d5	74	(10 - 115)
2-Fluorobiphenyl	75	(10 - 115)
2,4,6-Tribromophenol	65	(19 - 115)
Terphenyl-d14	74	(10 - 115)

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BECHTEL HANFORD, INC.

Client Sample ID: J00NV0

GC/MS Semivolatiles

Lot-Sample #...: F3E190111-001 Work Order #...: FN0TJ1AM Matrix.....: SOLID

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3E190111 Work Order #...: FN0TJ1CA-MS Matrix.....: SOLID
MS Lot-Sample #: F3E190111-001 FN0TJ1CC-MSD
Date Sampled...: 05/15/03 08:15 Date Received..: 05/17/03
Prep Date.....: 05/19/03 Analysis Date..: 05/20/03
Prep Batch #...: 3139531 Analysis Time..: 20:13
Dilution Factor: 1 % Moisture.....: 1.6

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Phenol	73	(27 - 115)			SW846 8270C
	67	(27 - 115)	7.5	(0-30)	SW846 8270C
bis(2-Chloroethyl)-ether	71	(17 - 115)			SW846 8270C
	69	(17 - 115)	2.4	(0-30)	SW846 8270C
2-Chlorophenol	74	(23 - 115)			SW846 8270C
	68	(23 - 115)	7.9	(0-30)	SW846 8270C
2-Methylphenol	73	(33 - 115)			SW846 8270C
	66	(33 - 115)	10	(0-30)	SW846 8270C
2,2'-oxybis(1-Chloropropa	73	(25 - 115)			SW846 8270C
	70	(25 - 115)	4.3	(0-30)	SW846 8270C
4-Methylphenol	68	(32 - 115)			SW846 8270C
	62	(32 - 115)	9.1	(0-30)	SW846 8270C
N-Nitrosodi-n-propyl-amine	86	(31 - 115)			SW846 8270C
	80	(31 - 115)	7.4	(0-30)	SW846 8270C
Hexachloroethane	72	(10 - 115)			SW846 8270C
	72	(10 - 115)	0.0	(0-30)	SW846 8270C
Nitrobenzene	77	(28 - 115)			SW846 8270C
	76	(28 - 115)	0.51	(0-30)	SW846 8270C
Isophorone	84	(24 - 115)			SW846 8270C
	81	(24 - 115)	3.2	(0-30)	SW846 8270C
2-Nitrophenol	76	(26 - 115)			SW846 8270C
	75	(26 - 115)	1.4	(0-30)	SW846 8270C
2,4-Dimethylphenol	74	(30 - 115)			SW846 8270C
	68	(30 - 115)	7.7	(0-30)	SW846 8270C
bis(2-Chloroethoxy) methane	78	(34 - 115)			SW846 8270C
	75	(34 - 115)	3.4	(0-30)	SW846 8270C
2,4-Dichlorophenol	75	(30 - 115)			SW846 8270C
	72	(30 - 115)	4.7	(0-30)	SW846 8270C
1,2,4-Trichloro-benzene	78	(19 - 115)			SW846 8270C
	79	(19 - 115)	1.2	(0-30)	SW846 8270C
Naphthalene	79	(22 - 115)			SW846 8270C
	78	(22 - 115)	0.65	(0-30)	SW846 8270C

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3E190111 **Work Order #...:** FN0TJ1CA-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3E190111-001 FN0TJ1CC-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
4-Chloroaniline	69	(16 - 115)			SW846 8270C
	57	(16 - 115)	18	(0-30)	SW846 8270C
Hexachlorobutadiene	77	(11 - 115)			SW846 8270C
	77	(11 - 115)	0.77	(0-30)	SW846 8270C
4-Chloro-3-methylphenol	75	(35 - 115)			SW846 8270C
	71	(35 - 115)	5.9	(0-30)	SW846 8270C
2-Methylnaphthalene	102	(25 - 115)			SW846 8270C
	98	(25 - 115)	3.6	(0-30)	SW846 8270C
Hexachlorocyclopenta-diene	77	(10 - 115)			SW846 8270C
	72	(10 - 115)	6.3	(0-30)	SW846 8270C
2,4,6-Trichloro-phenol	78	(33 - 115)			SW846 8270C
	73	(33 - 115)	5.2	(0-30)	SW846 8270C
2,4,5-Trichloro-phenol	79	(35 - 115)			SW846 8270C
	74	(35 - 115)	6.9	(0-30)	SW846 8270C
2-Nitroaniline	80	(34 - 115)			SW846 8270C
	75	(34 - 115)	5.8	(0-30)	SW846 8270C
Dimethyl phthalate	79	(39 - 115)			SW846 8270C
	75	(39 - 115)	5.8	(0-30)	SW846 8270C
Acenaphthylene	82	(38 - 115)			SW846 8270C
	78	(38 - 115)	4.9	(0-30)	SW846 8270C
2,6-Dinitrotoluene	80	(35 - 118)			SW846 8270C
	75	(35 - 118)	6.0	(0-30)	SW846 8270C
3-Nitroaniline	69	(22 - 115)			SW846 8270C
	61	(22 - 115)	12	(0-30)	SW846 8270C
Acenaphthene	84	(35 - 115)			SW846 8270C
	80	(35 - 115)	4.5	(0-30)	SW846 8270C
2,4-Dinitrophenol	24	(10 - 115)			SW846 8270C
	19	(10 - 115)	21	(0-30)	SW846 8270C
4-Nitrophenol	69	(26 - 116)			SW846 8270C
	65	(26 - 116)	6.3	(0-30)	SW846 8270C
Dibenzofuran	82	(36 - 115)			SW846 8270C
	77	(36 - 115)	5.6	(0-30)	SW846 8270C
Dibenzo(a,h)anthracene	87	(10 - 150)			SW846 8270C
	83	(10 - 150)	5.0	(0-30)	SW846 8270C
2,4-Dinitrotoluene	84	(35 - 122)			SW846 8270C
	80	(35 - 122)	5.1	(0-30)	SW846 8270C

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3E190111 **Work Order #...:** FN0TJ1CA-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3E190111-001 FN0TJ1CC-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Diethyl phthalate	81	(42 - 115)			SW846 8270C
	76	(42 - 115)	5.7	(0-30)	SW846 8270C
Fluorene	83	(34 - 115)			SW846 8270C
	78	(34 - 115)	5.4	(0-30)	SW846 8270C
4-Chlorophenyl phenyl ether	82	(41 - 115)			SW846 8270C
	77	(41 - 115)	7.1	(0-30)	SW846 8270C
4-Nitroaniline	75	(27 - 115)			SW846 8270C
	70	(27 - 115)	6.2	(0-30)	SW846 8270C
4,6-Dinitro-2-methylphenol	48	(13 - 115)			SW846 8270C
	43	(13 - 115)	11	(0-30)	SW846 8270C
N-Nitrosodiphenylamine	84	(37 - 118)			SW846 8270C
	79	(37 - 118)	5.5	(0-30)	SW846 8270C
Pyrene	86	(20 - 121)			SW846 8270C
	80	(20 - 121)	6.8	(0-30)	SW846 8270C
4-Bromophenyl phenyl ether	82	(39 - 115)			SW846 8270C
	77	(39 - 115)	5.6	(0-30)	SW846 8270C
Hexachlorobenzene	86	(35 - 115)			SW846 8270C
	81	(35 - 115)	6.2	(0-30)	SW846 8270C
Pentachlorophenol	67	(10 - 115)			SW846 8270C
	61	(10 - 115)	9.4	(0-30)	SW846 8270C
Phenanthrene	85	(25 - 127)			SW846 8270C
	79	(25 - 127)	7.2	(0-30)	SW846 8270C
Anthracene	82	(30 - 115)			SW846 8270C
	77	(30 - 115)	5.8	(0-30)	SW846 8270C
Carbazole	79	(32 - 115)			SW846 8270C
	74	(32 - 115)	7.0	(0-30)	SW846 8270C
Di-n-butyl phthalate	80	(39 - 115)			SW846 8270C
	75	(39 - 115)	6.4	(0-30)	SW846 8270C
Fluoranthene	81	(18 - 130)			SW846 8270C
	76	(18 - 130)	5.9	(0-30)	SW846 8270C
Butyl benzyl phthalate	82	(36 - 115)			SW846 8270C
	79	(36 - 115)	4.4	(0-30)	SW846 8270C
Benzo(a)anthracene	86	(35 - 117)			SW846 8270C
	81	(35 - 117)	5.9	(0-30)	SW846 8270C
3,3'-Dichlorobenzidine	69	(10 - 115)			SW846 8270C
	62	(10 - 115)	10	(0-30)	SW846 8270C

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3E190111 **Work Order #...:** FN0TJ1CA-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3E190111-001 FN0TJ1CC-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Chrysene	**83**	**(20 - 150)**			**SW846 8270C**
	78	**(20 - 150)**	**6.1**	**(0-30)**	**SW846 8270C**
bis(2-Ethylhexyl) phthalate	**83**	**(10 - 142)**			**SW846 8270C**
	78	**(10 - 142)**	**6.9**	**(0-30)**	**SW846 8270C**
Di-n-octyl phthalate	**84**	**(10 - 150)**			**SW846 8270C**
	79	**(10 - 150)**	**5.7**	**(0-30)**	**SW846 8270C**
Benzo(b)fluoranthene	**87**	**(22 - 134)**			**SW846 8270C**
	82	**(22 - 134)**	**6.5**	**(0-30)**	**SW846 8270C**
Benzo(k)fluoranthene	**107**	**(27 - 131)**			**SW846 8270C**
	98	**(27 - 131)**	**8.2**	**(0-30)**	**SW846 8270C**
Benzo(a)pyrene	**87**	**(35 - 115)**			**SW846 8270C**
	81	**(35 - 115)**	**7.6**	**(0-30)**	**SW846 8270C**
Indeno(1,2,3-cd)pyrene	**84**	**(10 - 147)**			**SW846 8270C**
	80	**(10 - 147)**	**4.7**	**(0-30)**	**SW846 8270C**
Benzo(ghi)perylene	**87**	**(10 - 150)**			**SW846 8270C**
	82	**(10 - 150)**	**5.8**	**(0-30)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	74	(19 - 115)
	70	(19 - 115)
Phenol-d5	78	(27 - 115)
	72	(27 - 115)
Nitrobenzene-d5	79	(10 - 115)
	80	(10 - 115)
2-Fluorobiphenyl	85	(10 - 115)
	82	(10 - 115)
2,4,6-Tribromophenol	78	(19 - 115)
	72	(19 - 115)
Terphenyl-d14	74	(10 - 115)
	69	(10 - 115)

NOTE(S):

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

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: F3E190111 **Work Order #...:** FN1QA1AA **Matrix.....:** SOLID
MB Lot-Sample #: F3E190000-531
Prep Date.....: 05/19/03 **Analysis Time..:** 15:13
Analysis Date..: 05/20/03 **Prep Batch #...:** 3139531
Dilution Factor: 1

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

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METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: F3E190111 **Work Order #...:** FN1QA1AA **Matrix.....:** SOLID

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

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	71	(19 - 115)
Phenol-d5	70	(27 - 115)
Nitrobenzene-d5	75	(10 - 115)
2-Fluorobiphenyl	75	(10 - 115)
2,4,6-Tribromophenol	57	(19 - 115)
Terphenyl-d14	65	(10 - 115)

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3E190111 Work Order #...: FN1QA1AC Matrix.....: SOLID
LCS Lot-Sample#: F3E190000-531
Prep Date.....: 05/19/03 Analysis Date..: 05/20/03
Prep Batch #...: 3139531 Analysis Time..: 15:50
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Phenol	70	(39 - 115)	SW846 8270C
bis(2-Chloroethyl)-ether	66	(28 - 115)	SW846 8270C
2-Chlorophenol	70	(37 - 115)	SW846 8270C
2-Methylphenol	70	(41 - 115)	SW846 8270C
2,2'-oxybis(1-Chloropropa	68	(30 - 115)	SW846 8270C
4-Methylphenol	64	(41 - 115)	SW846 8270C
N-Nitrosodi-n-propyl-amine	81	(39 - 115)	SW846 8270C
Hexachloroethane	65	(27 - 115)	SW846 8270C
Nitrobenzene	72	(35 - 115)	SW846 8270C
Isophorone	78	(29 - 115)	SW846 8270C
2-Nitrophenol	72	(36 - 115)	SW846 8270C
2,4-Dimethylphenol	69	(41 - 115)	SW846 8270C
bis(2-Chloroethoxy) methane	72	(40 - 115)	SW846 8270C
2,4-Dichlorophenol	70	(43 - 115)	SW846 8270C
1,2,4-Trichloro-benzene	72	(32 - 115)	SW846 8270C
Naphthalene	73	(35 - 115)	SW846 8270C
4-Chloroaniline	53	(22 - 115)	SW846 8270C
Hexachlorobutadiene	71	(30 - 115)	SW846 8270C
4-Chloro-3-methylphenol	69	(42 - 115)	SW846 8270C
2-Methylnaphthalene	94	(34 - 115)	SW846 8270C
Hexachlorocyclopenta-diene	76	(39 - 115)	SW846 8270C
2,4,6-Trichloro-phenol	70	(41 - 115)	SW846 8270C
2,4,5-Trichloro-phenol	71	(44 - 115)	SW846 8270C
2-Nitroaniline	71	(47 - 115)	SW846 8270C
Dimethyl phthalate	72	(41 - 118)	SW846 8270C
Acenaphthylene	74	(45 - 115)	SW846 8270C
2,6-Dinitrotoluene	70	(49 - 119)	SW846 8270C

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3E190111 Work Order #...: FN1QA1AC Matrix.....: SOLID
LCS Lot-Sample#: F3E190000-531

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
3-Nitroaniline	52	(33 - 115)	SW846 8270C
Acenaphthene	75	(42 - 115)	SW846 8270C
2,4-Dinitrophenol	42	(10 - 131)	SW846 8270C
4-Nitrophenol	66	(34 - 125)	SW846 8270C
Dibenzofuran	72	(46 - 115)	SW846 8270C
Dibenzo(a,h)anthracene	72	(31 - 150)	SW846 8270C
2,4-Dinitrotoluene	75	(47 - 129)	SW846 8270C
Diethyl phthalate	73	(50 - 121)	SW846 8270C
Fluorene	73	(47 - 115)	SW846 8270C
4-Chlorophenyl phenyl ether	73	(48 - 115)	SW846 8270C
4-Nitroaniline	66	(45 - 115)	SW846 8270C
4,6-Dinitro-2-methylphenol	56	(22 - 123)	SW846 8270C
N-Nitrosodiphenylamine	75	(52 - 118)	SW846 8270C
Pyrene	76	(42 - 120)	SW846 8270C
4-Bromophenyl phenyl ether	71	(47 - 115)	SW846 8270C
Hexachlorobenzene	75	(46 - 119)	SW846 8270C
Pentachlorophenol	63	(22 - 115)	SW846 8270C
Phenanthrene	73	(49 - 115)	SW846 8270C
Anthracene	71	(46 - 115)	SW846 8270C
Carbazole	68	(50 - 115)	SW846 8270C
Di-n-butyl phthalate	71	(48 - 117)	SW846 8270C
Fluoranthene	71	(49 - 115)	SW846 8270C
Butyl benzyl phthalate	77	(46 - 121)	SW846 8270C
Benzo(a)anthracene	75	(46 - 119)	SW846 8270C
3,3'-Dichlorobenzidine	50	(25 - 115)	SW846 8270C
Chrysene	72	(35 - 150)	SW846 8270C
bis(2-Ethylhexyl) phthalate	72	(47 - 119)	SW846 8270C
Di-n-octyl phthalate	73	(39 - 119)	SW846 8270C
Benzo(b)fluoranthene	74	(42 - 117)	SW846 8270C
Benzo(k)fluoranthene	89	(46 - 126)	SW846 8270C
Benzo(a)pyrene	73	(45 - 115)	SW846 8270C
Indeno(1,2,3-cd)pyrene	69	(32 - 148)	SW846 8270C
Benzo(ghi)perylene	72	(28 - 150)	SW846 8270C

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3E190111 **Work Order #...:** FN1QA1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F3E190000-531

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	70	(30 - 115)
Phenol-d5	75	(41 - 115)
Nitrobenzene-d5	75	(20 - 115)
2-Fluorobiphenyl	77	(23 - 123)
2,4,6-Tribromophenol	68	(41 - 119)
Terphenyl-d14	65	(17 - 120)

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: J00NV0

GC Semivolatiles

Lot-Sample #...: F3E190111-001 **Work Order #...:** FN0TJ2AN **Matrix.....:** SOLID
Date Sampled...: 05/15/03 08:15 **Date Received..:** 05/17/03
Prep Date.....: 05/22/03 **Analysis Date..:** 05/27/03
Prep Batch #...: 3142529 **Analysis Time..:** 22:02
Dilution Factor: 1
% Moisture.....: 1.6 **Method.....:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	34	ug/kg
Aroclor 1221	ND	34	ug/kg
Aroclor 1232	ND	34	ug/kg
Aroclor 1242	ND	34	ug/kg
Aroclor 1248	ND	34	ug/kg
Aroclor 1254	ND	34	ug/kg
Aroclor 1260	ND	34	ug/kg
Aroclor 1262	ND	34	ug/kg
Aroclor 1268	ND	34	ug/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	131	(14 - 150)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F3E190111 **Work Order #...:** FN0TJ1CG-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3E190111-001 FN0TJ1CH-MSD
Date Sampled...: 05/15/03 08:15 **Date Received..:** 05/17/03
Prep Date.....: 05/22/03 **Analysis Date..:** 05/27/03
Prep Batch #...: 3142529 **Analysis Time..:** 22:16
Dilution Factor: 1 **% Moisture.....:** 1.6

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Aroclor 1016	**89**	**(10 - 150)**			**SW846 8082**
	97	**(10 - 150)**	**9.2**	**(0-30)**	**SW846 8082**
Aroclor 1260	**97**	**(10 - 150)**			**SW846 8082**
	105	**(10 - 150)**	**7.8**	**(0-30)**	**SW846 8082**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	100	(14 - 150)
	106	(14 - 150)

NOTE(S):

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

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: F3E190111 **Work Order #...:** FN88G1AA **Matrix.....:** SOLID
MB Lot-Sample #: F3E220000-529
Prep Date.....: 05/22/03 **Analysis Time..:** 21:19
Analysis Date..: 05/27/03 **Prep Batch #...:** 3142529
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Aroclor 1016	ND	33	ug/kg	SW846 8082
Aroclor 1221	ND	33	ug/kg	SW846 8082
Aroclor 1232	ND	33	ug/kg	SW846 8082
Aroclor 1242	ND	33	ug/kg	SW846 8082
Aroclor 1248	ND	33	ug/kg	SW846 8082
Aroclor 1254	ND	33	ug/kg	SW846 8082
Aroclor 1260	ND	33	ug/kg	SW846 8082
Aroclor 1262	ND	33	ug/kg	SW846 8082
Aroclor 1268	ND	33	ug/kg	SW846 8082

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	125	(14 - 150)

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F3E190111 **Work Order #...:** FN88G1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F3E220000-529
Prep Date.....: 05/22/03 **Analysis Date..:** 05/27/03
Prep Batch #...: 3142529 **Analysis Time..:** 21:33
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Aroclor 1016	**93**	**(74 - 139)**	**SW846 8082**
Aroclor 1260	**100**	**(74 - 150)**	**SW846 8082**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	104	(63 - 150)

NOTE(S):

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

Bold print denotes control parameters

METALS

BECHTEL HANFORD, INC.

Client Sample ID: J00NV0

TOTAL Metals

Lot-Sample #...: F3E190111-001 Matrix.....: SOLID
Date Sampled...: 05/15/03 08:15 Date Received..: 05/17/03
% Moisture.....: 1.6

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3139250						
Mercury	ND	0.034	mg/kg	SW846 7471A	05/19/03	FN0TJ1AK
		Dilution Factor: 1		Analysis Time..: 11:57		
Prep Batch #...: 3139281						
Silver	0.084 B	1.0	mg/kg	SW846 6010B	05/19-05/21/03	FN0TJ1AH
		Dilution Factor: 1		Analysis Time..: 11:39		
Arsenic	1.2	1.0	mg/kg	SW846 6010B	05/19-05/21/03	FN0TJ1AC
		Dilution Factor: 1		Analysis Time..: 11:39		
Barium	40.5	20.3	mg/kg	SW846 6010B	05/19-05/21/03	FN0TJ1AD
		Dilution Factor: 1		Analysis Time..: 11:39		
Cadmium	ND	0.51	mg/kg	SW846 6010B	05/19-05/21/03	FN0TJ1AE
		Dilution Factor: 1		Analysis Time..: 11:39		
Chromium	4.9	1.0	mg/kg	SW846 6010B	05/19-05/21/03	FN0TJ1AJ
		Dilution Factor: 1		Analysis Time..: 11:39		
Lead	1.2	0.30	mg/kg	SW846 6010B	05/19-05/21/03	FN0TJ1AF
		Dilution Factor: 1		Analysis Time..: 11:39		
Selenium	ND	0.51	mg/kg	SW846 6010B	05/19-05/21/03	FN0TJ1AG
		Dilution Factor: 1		Analysis Time..: 11:39		

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F3E190111 **Matrix.....:** SOLID
Date Sampled...: 05/15/03 08:15 **Date Received..:** 05/17/03

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F3E190111-001 **Prep Batch #...:** 3139250						**% Moisture.....:** 1.6	
Mercury	110	(75 - 125)			SW846 7471A	05/19/03	FN0TJ1A6
	109	(75 - 125)	0.91	(0-20)	SW846 7471A	05/19/03	FN0TJ1A7
		Dilution Factor: 1					
		Analysis Time..: 11:58					
MS Lot-Sample #: F3E190111-001 **Prep Batch #...:** 3139281						**% Moisture.....:** 1.6	
Arsenic	96	(75 - 125)			SW846 6010B	05/19-05/21/03	FN0TJ1AP
	97	(75 - 125)	0.65	(0-20)	SW846 6010B	05/19-05/21/03	FN0TJ1AQ
		Dilution Factor: 1					
		Analysis Time..: 11:43					
Barium	91	(75 - 125)			SW846 6010B	05/19-05/21/03	FN0TJ1AR
	91	(75 - 125)	0.19	(0-20)	SW846 6010B	05/19-05/21/03	FN0TJ1AT
		Dilution Factor: 1					
		Analysis Time..: 11:43					
Cadmium	88	(75 - 125)			SW846 6010B	05/19-05/21/03	FN0TJ1AU
	89	(75 - 125)	0.83	(0-20)	SW846 6010B	05/19-05/21/03	FN0TJ1AV
		Dilution Factor: 1					
		Analysis Time..: 11:43					
Chromium	99	(75 - 125)			SW846 6010B	05/19-05/21/03	FN0TJ1A4
	96	(75 - 125)	2.9	(0-20)	SW846 6010B	05/19-05/21/03	FN0TJ1A5
		Dilution Factor: 1					
		Analysis Time..: 11:43					
Lead	94	(75 - 125)			SW846 6010B	05/19-05/21/03	FN0TJ1AW
	94	(75 - 125)	0.26	(0-20)	SW846 6010B	05/19-05/21/03	FN0TJ1AX
		Dilution Factor: 1					
		Analysis Time..: 11:43					
Selenium	94	(75 - 125)			SW846 6010B	05/19-05/21/03	FN0TJ1A0
	94	(75 - 125)	0.36	(0-20)	SW846 6010B	05/19-05/21/03	FN0TJ1A1
		Dilution Factor: 1					
		Analysis Time..: 11:43					

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F3E190111 **Matrix.....:** SOLID
Date Sampled...: 05/15/03 08:15 **Date Received..:** 05/17/03

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Silver	98	(75 - 125)			SW846 6010B	05/19-05/21/03	FN0TJ1A2
	98	(75 - 125)	0.49	(0-20)	SW846 6010B	05/19-05/21/03	FN0TJ1A3

Dilution Factor: 1
Analysis Time..: 11:43

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

TOTAL Metals

Client Lot #...: F3E190111 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F3E190000-250 **Prep Batch #...:** 3139250						
Mercury	ND	0.033	mg/kg	SW846 7471A	05/19/03	FN0V21AA
		Dilution Factor: 1				
		Analysis Time..: 11:49				
MB Lot-Sample #: F3E190000-281 **Prep Batch #...:** 3139281						
Arsenic	ND	1.0	mg/kg	SW846 6010B	05/19-05/21/03	FN00A1AA
		Dilution Factor: 1				
		Analysis Time..: 11:30				
Barium	ND	20.0	mg/kg	SW846 6010B	05/19-05/21/03	FN00A1AC
		Dilution Factor: 1				
		Analysis Time..: 11:30				
Cadmium	ND	0.50	mg/kg	SW846 6010B	05/19-05/21/03	FN00A1AD
		Dilution Factor: 1				
		Analysis Time..: 11:30				
Chromium	ND	1.0	mg/kg	SW846 6010B	05/19-05/21/03	FN00A1AH
		Dilution Factor: 1				
		Analysis Time..: 11:30				
Lead	ND	0.30	mg/kg	SW846 6010B	05/19-05/21/03	FN00A1AE
		Dilution Factor: 1				
		Analysis Time..: 11:30				
Selenium	ND	0.50	mg/kg	SW846 6010B	05/19-05/21/03	FN00A1AF
		Dilution Factor: 1				
		Analysis Time..: 11:30				
Silver	ND	1.0	mg/kg	SW846 6010B	05/19-05/21/03	FN00A1AG
		Dilution Factor: 1				
		Analysis Time..: 11:30				

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F3E190111 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F3E190000-250 **Prep Batch #...:** 3139250					
Mercury	90	(66 - 134)	SW846 7471A	05/19/03	FN0V21AC
		Dilution Factor: 10	Analysis Time..: 11:51		
LCS Lot-Sample#: F3E190000-281 **Prep Batch #...:** 3139281					
Arsenic	101	(77 - 123)	SW846 6010B	05/19-05/21/03	FN00A1AJ
		Dilution Factor: 1	Analysis Time..: 11:34		
Barium	100	(79 - 121)	SW846 6010B	05/19-05/21/03	FN00A1AK
		Dilution Factor: 1	Analysis Time..: 11:34		
Cadmium	98	(79 - 121)	SW846 6010B	05/19-05/21/03	FN00A1AL
		Dilution Factor: 1	Analysis Time..: 11:34		
Lead	103	(79 - 120)	SW846 6010B	05/19-05/21/03	FN00A1AM
		Dilution Factor: 1	Analysis Time..: 11:34		
Selenium	106	(75 - 126)	SW846 6010B	05/19-05/21/03	FN00A1AN
		Dilution Factor: 1	Analysis Time..: 11:34		
Silver	103	(61 - 139)	SW846 6010B	05/19-05/21/03	FN00A1AP
		Dilution Factor: 1	Analysis Time..: 11:34		
Chromium	101	(78 - 122)	SW846 6010B	05/19-05/21/03	FN00A1AQ
		Dilution Factor: 1	Analysis Time..: 11:34		

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 53 *Pages*

Report No.: 22732

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
W04047	B03-024	J00NV0	J3E160341-1	FNW3E1AE	9FNW3E10	3139253
		J00NV0	J3E160341-1	FNW3E1AF	9FNW3E10	3139255
		J00NV0	J3E160341-1	FNW3E1AA	9FNW3E10	3139256
		J00NV0	J3E160341-1	FNW3E1AC	9FNW3E10	3139256
		J00NV0	J3E160341-1	FNW3E1AH	9FNW3E10	3139257
		J00NV0	J3E160341-1	FNW3E1AD	9FNW3E10	3139258

RECEIVED MAY 2003

SEVERN TRENT STL

CERTIFICATE OF ANALYSIS

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

May 30, 2003

Attention: Joan Kessner

SAF Number	:	B03-024
Date SDG Closed	:	May 16, 2003
Number of Samples	:	One (1)
Sample Type	:	Soil
SDG Number	:	W04047
Data Deliverable	:	14-Day/Summary

I. Introduction

On May 16, 2003, one soil sample was received at STL Richland (STLR) for radiochemical analysis. Upon receipt, the sample was assigned the following laboratory ID numbers to correspond with the Bechtel Hanford, Inc. (BHI) specific ID:

STLR ID#	BHI ID#	MATRIX	DATE OF RECEIPT
FNW3E	J00NV0	SOIL	5/16/03

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-5010
Plutonium-238 and 239/240 by method RICH-RC-5080
Uranium-234, 235, 238 by method RICH-RC-5079
Gas Proportional Counting
Total Strontium by method RICH-RC-5006

Gamma Spectroscopy
Gamma Spec by method RICH-RC-5017
Chemical Analyses
Chromium Hex by EPA method 7196A

III. Quality Control

The analytical results for each analysis performed under SDG W04047 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-5010:
The LCS, batch blank, sample duplicate (J00NV0), and sample results are within contractual requirements.

Plutonium-238 and 239/240 by method RICH-RC-5080:
The tracer yield was low at 17% but it's duplicate was good at 32%. The client was contacted and the direction was to report the data. Except as noted, the LCS, batch blank, sample duplicate (J00NV0), and sample results are within contractual requirements.

Uranium-234, 235, 238 by method RICH-RC-5079:
The LCS, batch blank, sample duplicate (J00NV0), and sample results are within contractual requirements.

Gas Proportional Counting
Total Strontium by method RICH-RC-5006:
The LCS, batch blank, sample duplicate (J00NV0), and sample results are within contractual requirements.

Gamma Spectroscopy

Gamma Spec by method RICH-RC-5017:

The LCS for Ra-228 is outside acceptance limits. The radionuclides with recoveries at key-line energies less than and above that of Ra-228 are within limits. Except as noted, the LCS, batch blank, sample duplicate (J00NV0), and sample results are within contractual requirements.

Chemical Analyses

Chromium Hex by EPA method 7196A:

The LCS, batch blank, sample duplicate (J00NV0), matrix spike (J00NV0), color (J00NV0 PbCrO4) spike, and sample results are within contractual requirements.

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

Reviewed and approved:

Barbara M. Gillespie
Project Manager

Drinking Water Method Cross References

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

Uncertainty Estimation

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

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

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

Report Definitions

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

Sample Results Summary

STL Richland STLRL

Ordered by Method, Batch No., Client Sample ID.

Date: 30-May-03

Report No. : 22732

SDG No: W04047

Batch	Client Id / Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC or MDA	CRDL	RPD
3139253 PUISO_PLATE_AEA									
	J00NV0								
	FNW3E1AE	PU-238	0.00E+00 +- 4.4E-02	U	pCi/g	17%	4.92E-02	1.00E+00	
		PU239/40	7.26E-02 +- 7.4E-02	U	pCi/g	17%	4.92E-02	1.00E+00	
	J00NV0 DUP								
	FNW3E1AJ	PU-238	0.00E+00 +- 2.2E-02	U	pCi/g	32%	2.46E-02	1.00E+00	
		PU239/40	1.81E-02 +- 2.6E-02	U	pCi/g	32%	2.46E-02	1.00E+00	120.0
3139255 AMCMISO_EIE_PLT_AEA									
	J00NV0								
	FNW3E1AF	AM-241	1.69E-01 +- 7.4E-02		pCi/g	65%	3.14E-02	1.00E+00	
	J00NV0 DUP								
	FNW3E1AK	AM-241	1.86E-01 +- 7.7E-02		pCi/g	67%	3.09E-02	1.00E+00	9.2
3139256 UISO_IE_PLATE_AEA									
	J00NV0								
	FNW3E1AC	U-234	8.35E-01 +- 2.0E-01		pCi/g	53%	3.94E-02	1.00E+00	
		U-235	2.14E-02 +- 2.5E-02	U	pCi/g	53%	3.94E-02	1.00E+00	
		U-238	9.36E-01 +- 2.2E-01		pCi/g	53%	4.18E-02	1.00E+00	
	J00NV0 DUP								
	FNW3E1AL	U-234	6.52E-01 +- 1.6E-01		pCi/g	66%	2.89E-02	1.00E+00	24.7
		U-235	3.39E-02 +- 2.7E-02		pCi/g	66%	2.89E-02	1.00E+00	45.1
		U-238	6.48E-01 +- 1.6E-01		pCi/g	66%	2.59E-02	1.00E+00	36.3
3139257 GAMMA_GS									
	J00NV0								
	FNW3E1AH	CO-60	-2.26E-03 +- 1.1E-02	U	pCi/g		1.83E-02	5.00E-02	
		CS-137	-2.05E-03 +- 1.1E-02	U	pCi/g		1.87E-02	1.00E-01	
		EU-152	-1.35E-02 +- 2.7E-02	U	pCi/g		4.56E-02	1.00E-01	
		EU-154	2.57E-02 +- 3.4E-02	U	pCi/g		6.04E-02	1.00E-01	
		EU-155	2.37E-02 +- 2.5E-02	U	pCi/g		4.24E-02	1.00E-01	
	J00NV0 DUP								
	FNW3E1AM	CO-60	5.40E-03 +- 1.1E-02	U	pCi/g		1.99E-02	5.00E-02	
		CS-137	-4.27E-03 +- 1.1E-02	U	pCi/g		1.82E-02	1.00E-01	
		EU-152	-1.28E-02 +- 2.7E-02	U	pCi/g		4.52E-02	1.00E-01	
		EU-154	-1.86E-02 +- 3.4E-02	U	pCi/g		5.77E-02	1.00E-01	
		EU-155	3.16E-02 +- 2.9E-02	U	pCi/g		4.94E-02	1.00E-01	
3139258 SRTOT_SEP_PRECIP_GPC									
	J00NV0								
	FNW3E1AD	STRONTIUM	-1.34E-02 +- 7.3E-02	U	pCi/g	72%	1.77E-01		
	J00NV0 DUP								
	FNW3E1AN	STRONTIUM	2.61E-02 +- 8.0E-02	U	pCi/g	68%	1.83E-01		619.2
3139256 7196_CR6									

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RPD - Relative Percent Difference.

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

Sample Results Summary

STL Richland STLRL

Ordered by Method, Batch No., Client Sample ID.

Date: 30-May-03

Report No. : 22732

SDG No: W04047

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC or MDA	CRDL	RPD
3139256	7196_CR6								
	J00NV0								
	FNW3E1AA	HEXCHROME	3.50E-01 +- 0.0E+00	U	mg/kg	N/A	3.50E-01	3.50E-01	
	J00NV0 DUP								
	FNW3E1AA	HEXCHROME	3.50E-01 +- 0.0E+00	U	mg/kg	N/A	3.50E-01	3.50E-01	

No. of Results: 26

RPD - Relative Percent Difference.

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 Method, Batch No, QC Type,.

Date: 30-May-03

Report No. : 22732

SDG No.: W04047

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	Recovery	Bias	MDC|MDA
PUISO_PLATE_AEA								
3139253 BLANK QC								
FN0V61AA	PU-238	-1.33E-03 +- 2.7E-03	U	pCi/g	47%			3.19E-02
	PU239/40	0.00E+00 +- 1.6E-02	U	pCi/g	47%			1.81E-02
FN0V61AD	PU-238	0.00E+00 +- 2.0E-02	U	pCi/g	39%			2.23E-02
	PU239/40	1.57E-01 +- 7.7E-02		pCi/g	39%			2.23E-02
3139253 LCS								
FN0V61AE	PU239/40	3.49E+00 +- 6.5E-01		pCi/g	56%	101%	0.0	2.85E-02
FN0V61AC	PU239/40	3.53E+00 +- 7.1E-01		pCi/g	40%	102%	0.0	2.10E-02
AMCMISO_EIE_PLT_AEA								
3139255 BLANK QC								
FN0V71AA	AM-241	4.65E-03 +- 1.2E-02	U	pCi/g	77%			2.78E-02
FN0V71AD	AM-241	-9.77E-04 +- 2.0E-03	U	pCi/g	85%			2.34E-02
3139255 LCS								
FN0V71AE	AM-241	4.07E+00 +- 7.9E-01		pCi/g	74%	89%	-0.1	1.57E-02
FN0V71AC	AM-241	3.64E+00 +- 6.6E-01		pCi/g	104%	80%	-0.2	2.27E-02
UISO_IE_PLATE_AEA								
3139256 BLANK QC								
FN0V81AA	U-234	-2.69E-03 +- 1.1E-02	U	pCi/g	86%			3.53E-02
	U-235	4.04E-03 +- 9.9E-03	U	pCi/g	86%			2.31E-02
	U-238	2.02E-02 +- 1.8E-02	U	pCi/g	86%			2.48E-02
3139256 LCS								
FN0V81AC	U-234	1.64E+00 +- 3.1E-01		pCi/g	94%	99%	0.0	3.13E-02
	U-238	1.59E+00 +- 3.0E-01		pCi/g	94%	92%	-0.1	2.82E-02
GAMMA_GS								
3139257 BLANK QC								
FN0WA1AA	CO-60	-2.47E-03 +- 7.4E-03	U	pCi/g				1.27E-02
	CS-137	-2.45E-03 +- 8.4E-03	U	pCi/g				1.43E-02
	EU-152	-8.94E-03 +- 2.2E-02	U	pCi/g				3.75E-02
	EU-154	-3.72E-03 +- 2.2E-02	U	pCi/g				3.80E-02
	EU-155	1.49E-02 +- 1.7E-02	U	pCi/g				2.97E-02
3139257 LCS								
FN0WA1AC	CS-137	2.99E-01 +- 5.3E-02		pCi/g		105%	0.1	3.82E-02
	K-40	2.11E+01 +- 2.7E+00		pCi/g		108%	0.1	3.05E-01
	RA-226	1.06E+00 +- 1.7E-01		pCi/g		92%	-0.1	6.30E-02
	RA-228	2.10E+00 +- 3.2E-01		pCi/g		133%	0.3	1.27E-01
	U-238DHP	1.22E+00 +- 1.1E+00	U	pCi/g		116%	0.2	1.71E+00
SRTOT_SEP_PRECIP_GPC								
3139258 BLANK QC								
FN0WC1AA	STRONTIUM	1.82E-02 +- 6.5E-02	U	pCi/g	77%			1.51E-01
3139258 LCS								

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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 Method, Batch No, QC Type,.

Date: 30-May-03

Report No. : 22732

SDG No.: W04047

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	Recovery	Bias	MDC|MDA
FN0WC1AC	STRONTIUM	1.04E+00 +- 3.1E-01		pCi/g	80%	91%	-0.1	1.42E-01
7196_CR6								
3139256 MATRIX SPIKE								
FNW3E1AA	HEXCHROME	3.17E+01 +- 0.0E+00		mg/kg	N/A	79%	-0.2	3.50E-01
3139256 LCS								
FN0WF1AC	HEXCHROME	3.97E+01 +- 0.0E+00		mg/kg	N/A	99%	0.0	3.50E-01
3139256 BLANK QC								
FN0WF1AA	HEXCHROME	3.50E-01 +- 0.0E+00	U	mg/kg	N/A			3.50E-01

No. of Results: 30

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: 30-May-03

Lab Name:	STL Richland	**SDG:**	W04047	**Collection Date:**	5/15/2003 8:15:00 AM
Lot-Sample No.:	J3E160341-1	**Report No. :**	22732	**Received Date:**	5/16/2003 2:15:00 PM
Client Sample ID:	J00NV0	**COC No. :**	B03-024-02	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2s)	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	Primary Detector
Batch: 3139253	PUISO_PLATE_AEA			**Work Order:**	FNW3E1AE		**Report DB ID:**	9FNW3E10				
PU-238	0.00E+00	U	0.0E+00	4.4E-02	4.92E-02	pCi/g	17%	*0.*	5/24/03 07:55 a		2.01	ALP37
							1.00E+00	*0.*			G	
PU239/40	7.26E-02	U	7.3E-02	7.4E-02	4.92E-02	pCi/g	17%	*(1.5)*	5/24/03 07:55 a		2.01	ALP37
							1.00E+00	*(2.)*			G	
Batch: 3139255	AMCMISO_EIE_PLT_AEA			**Work Order:**	FNW3E1AF		**Report DB ID:**	9FNW3E10				
AM-241	1.69E-01		6.7E-02	7.4E-02	3.14E-02	pCi/g	65%	*(5.4)*	5/26/03 10:19 a		2.01	ALP124
						6.83E-03	1.00E+00	*(4.6)*			G	
Batch: 3139256	7196_CR6			**Work Order:**	FNW3E1AA		**Report DB ID:**	9FNW3E10				
HEXCHROME	3.50E-01	U		0.0E+00	3.50E-01	mg/kg	N/A	*(1.)*	5/20/03		2.5	
							3.50E-01	*N/A*			G	
Batch: 3139256	UISO_IE_PLATE_AEA			**Work Order:**	FNW3E1AC		**Report DB ID:**	9FNW3E10				
U-234	8.35E-01		1.3E-01	2.0E-01	3.94E-02	pCi/g	53%	*(21.2)*	5/23/03 06:16 p		2.06	ALP1
						1.25E-02	1.00E+00	*(8.3)*			G	
U-235	2.14E-02	U	2.4E-02	2.5E-02	3.94E-02	pCi/g	53%	*0.54*	5/23/03 06:16 p		2.06	ALP1
						1.25E-02	1.00E+00	*(1.7)*			G	
U-238	9.36E-01		1.4E-01	2.2E-01	4.18E-02	pCi/g	53%	*(22.4)*	5/23/03 06:16 p		2.06	ALP1
						1.36E-02	1.00E+00	*(8.5)*			G	
							Ratio U-234/238 = 0.9					
Batch: 3139257	GAMMA_GS			**Work Order:**	FNW3E1AH		**Report DB ID:**	9FNW3E10				
CO-60	-2.26E-03	U	1.1E-02	1.1E-02	1.83E-02	pCi/g		*-0.12*	5/21/03 06:54 a		348.2	GER5$1
							5.00E-02	*-0.43*			g	

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V4.03 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: 30-May-03

Lab Name:	STL Richland	**SDG:**	W04047	**Collection Date:**	5/15/2003 8:15:00 AM
Lot-Sample No.:	J3E160341-1	**Report No. :**	22732	**Received Date:**	5/16/2003 2:15:00 PM
Client Sample ID:	J00NV0	**COC No. :**	B03-024-02	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
CS-137	-2.05E-03	U	1.1E-02	1.1E-02	1.87E-02	pCi/g		*-0.11*	5/21/03 06:54 a		348.2	GER5$1
							1.00E-01	*-0.37*			g	
EU-152	-1.35E-02	U	2.7E-02	2.7E-02	4.56E-02	pCi/g		*-0.3*	5/21/03 06:54 a		348.2	GER5$1
							1.00E-01	*-0.99*			g	
EU-154	2.57E-02	U	3.4E-02	3.4E-02	6.04E-02	pCi/g		*0.43*	5/21/03 06:54 a		348.2	GER5$1
							1.00E-01	*(1.5)*			g	
EU-155	2.37E-02	U	2.5E-02	2.5E-02	4.24E-02	pCi/g		*0.56*	5/21/03 06:54 a		348.2	GER5$1
							1.00E-01	*(1.9)*			g	
Batch: 3139258	SRTOT_SEP_PRECIP_GPC			**Work Order:**	FNW3E1AD		**Report DB ID:**	9FNW3E10				
STRONTIUM	-1.34E-02	U	7.3E-02	7.3E-02	1.77E-01	pCi/g	72%	*-0.08*	5/21/03 06:51 p		6.01	GPC26A
						8.23E-02		*-0.37*			G	

No. of Results: 13 **Comments:**

12

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: 30-May-03

DUPLICATE RESULTS

Lab Name:	STL Richland	**SDG:**	W04047	**Collection Date:**	5/15/2003 8:15:00 AM
Lot-Sample No.:	J3E160341-1	**Report No. :**	22732	**Received Date:**	5/16/2003 2:15:00 PM
Client Sample ID:	J00NV0 DUP	**COC No. :**	B03-024-02	**Matrix:**	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3139253	PUISO_PLATE_AEA			**Work Order:** FNW3E1AJ		**Report DB ID:** FNW3E1JR			**Orig Sa DB ID:** 9FNW3E10			
PU-238	0.00E+00	U	0.0E+00	2.2E-02	2.46E-02	pCi/g	32%	0.	5/24/03 07:55 a		2.02	ALP38
	0.00E+00	U	**RPD**			1.00E+00		0.			G	
PU239/40	1.81E-02	U	2.6E-02	2.6E-02	2.46E-02	pCi/g	32%	0.74	5/24/03 07:55 a		2.02	ALP38
	7.26E-02	U	**RPD**	**120.0**		1.00E+00		(1.4)			G	
									Alpha Spec Result Sum = 1.8E-02			
Batch: 3139255	AMCMISO_EIE_PLT_AEA			**Work Order:** FNW3E1AK		**Report DB ID:** FNW3E1KR			**Orig Sa DB ID:** 9FNW3E10			
AM-241	1.86E-01		6.9E-02	7.7E-02	3.09E-02	pCi/g	67%	(6.)	5/26/03 10:19 a		2.02	ALP127
	1.69E-01		**RPD**	**9.2**		1.00E+00		(4.8)			G	
									Alpha Spec Result Sum = 2.0E-01			
Batch: 3139256	7196_CR6			**Work Order:** FNW3E1AA		**Report DB ID:** FNW3E1QR			**Orig Sa DB ID:**			
HEXCHROME	3.50E-01	U		0.0E+00	3.50E-01	mg/kg	N/A	(1.)	5/20/03		2.5	
			RPD			3.50E-01		N/A			G	
									Alpha Spec Result Sum = 2.0E-01			
Batch: 3139256	UISO_IE_PLATE_AEA			**Work Order:** FNW3E1AL		**Report DB ID:** FNW3E1LR			**Orig Sa DB ID:** 9FNW3E10			
U-234	6.52E-01		1.1E-01	1.6E-01	2.89E-02	pCi/g	66%	(22.6)	5/23/03 06:16 p		2.0	ALP2
	8.35E-01		**RPD**	**24.7**		1.00E+00		(8.2)			G	
U-235	3.39E-02		2.6E-02	2.7E-02	2.89E-02	pCi/g	66%	(1.2)	5/23/03 06:16 p		2.0	ALP2
	2.14E-02	U	**RPD**	**45.1**		1.00E+00		(2.5)			G	
U-238	6.48E-01		1.1E-01	1.6E-01	2.59E-02	pCi/g	66%	(25.)	5/23/03 06:16 p		2.0	ALP2
	9.36E-01		**RPD**	**36.3**		1.00E+00		(8.2)			G	

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RPD - Relative Percent Difference.
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: 30-May-03

DUPLICATE RESULTS

Lab Name:	STL Richland	**SDG:**	W04047	**Collection Date:**	5/15/2003 8:15:00 AM
Lot-Sample No.:	J3E160341-1	**Report No. :**	22732	**Received Date:**	5/16/2003 2:15:00 PM
Client Sample ID:	J00NV0 DUP	**COC No. :**	B03-024-02	**Matrix:**	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3139257	GAMMA_GS			**Work Order:** FNW3E1AM		**Report DB ID:** FNW3E1MR			**Orig Sa DB ID:** 9FNW3E10			
CO-60	5.40E-03	U	1.1E-02	1.1E-02	1.99E-02	pCi/g		0.27	5/21/03 06:56 a		353.3	GER4$1
	-2.26E-03	U	**RPD**	**487.3**		5.00E-02		0.97			g	
CS-137	-4.27E-03	U	1.1E-02	1.1E-02	1.82E-02	pCi/g		-0.23	5/21/03 06:56 a		353.3	GER4$1
	-2.05E-03	U	**RPD**	**-70.2**		1.00E-01		-0.78			g	
EU-152	-1.28E-02	U	2.7E-02	2.7E-02	4.52E-02	pCi/g		-0.28	5/21/03 06:56 a		353.3	GER4$1
	-1.35E-02	U	**RPD**	**-5.2**		1.00E-01		-0.95			g	
EU-154	-1.86E-02	U	3.4E-02	3.4E-02	5.77E-02	pCi/g		-0.32	5/21/03 06:56 a		353.3	GER4$1
	2.57E-02	U	**RPD**	**1251.1**		1.00E-01		-(1.1)			g	
EU-155	3.16E-02	U	2.9E-02	2.9E-02	4.94E-02	pCi/g		0.64	5/21/03 06:56 a		353.3	GER4$1
	2.37E-02	U	**RPD**	**28.8**		1.00E-01		(2.2)			g	
Batch: 3139258	SRTOT_SEP_PRECIP_GPC			**Work Order:** FNW3E1AN		**Report DB ID:** FNW3E1NR			**Orig Sa DB ID:** 9FNW3E10			
STRONTIUM	2.61E-02	U	8.0E-02	8.0E-02	1.83E-01	pCi/g	68%	0.14	5/21/03 06:51 p		6.0	GPC26B
	-1.34E-02	U	**RPD**	**619.2**				0.65			G	

No. of Results: 13 **Comments:**

RPD - Relative Percent Difference.
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: 30-May-03

Lab Name: STL Richland

Matrix: SOIL

SDG: W04047

Report No. : 22732

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3139256	7196_CR6			**Work Order:**	FN0WF1AA		**Report DB ID:**	FN0WF1AB				
HEXCHROME	3.50E-01	U		0.0E+00	3.50E-01	mg/kg	N/A	(1.)	5/20/03		2.5	
						3.50E-01		N/A			G	
Batch: 3139253	PUISO_PLATE_AEA			**Work Order:**	FN0V61AA		**Report DB ID:**	FN0V61AB				
PU-238	-1.33E-03	U	2.7E-03	2.7E-03	3.19E-02	pCi/g	47%	-0.04	5/24/03 07:55 a		2.0	ALP39
					6.94E-03	1.00E+00		-1.			G	
PU239/40	0.00E+00	U	0.0E+00	1.6E-02	1.81E-02	pCi/g	47%	0.	5/24/03 07:55 a		2.0	ALP39
						1.00E+00		0.			G	
Batch: 3139253	PUISO_PLATE_AEA			**Work Order:**	FN0V61AD		**Report DB ID:**	FN0V61DX				
PU-238	0.00E+00	U	0.0E+00	2.0E-02	2.23E-02	pCi/g	39%	0.	5/24/03 07:56 a		2.01	ALP43
						1.00E+00		0.			G	
PU239/40	1.57E-01		7.2E-02	7.7E-02	2.23E-02	pCi/g	39%	(7.)	5/24/03 07:56 a		2.01	ALP43
						1.00E+00		(4.1)			G	
Batch: 3139255	AMCMISO_EIE_PLT_AEA			**Work Order:**	FN0V71AA		**Report DB ID:**	FN0V71AB				
AM-241	4.65E-03	U	1.2E-02	1.2E-02	2.78E-02	pCi/g	77%	0.17	5/26/03 10:19 a		2.0	ALP128
					6.05E-03	1.00E+00		0.78			G	
Batch: 3139255	AMCMISO_EIE_PLT_AEA			**Work Order:**	FN0V71AD		**Report DB ID:**	FN0V71DX				
AM-241	-9.77E-04	U	2.0E-03	2.0E-03	2.34E-02	pCi/g	85%	-0.04	5/26/03 10:20 a		2.01	ALP130
					5.08E-03	1.00E+00		-1.			G	
Batch: 3139256	UISO_IE_PLATE_AEA			**Work Order:**	FN0V81AA		**Report DB ID:**	FN0V81AB				
U-234	-2.69E-03	U	1.1E-02	1.1E-02	3.53E-02	pCi/g	86%	-0.08	5/23/03 06:17 p		2.0	ALP3
					1.31E-02	1.00E+00		-0.5			G	

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

FORM II

BLANK RESULTS

Date: 30-May-03

Lab Name: STL Richland

Matrix: SOIL

SDG: W04047

Report No. : 22732

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MDA,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
U-235	4.04E-03	U	9.9E-03	9.9E-03	2.31E-02	pCi/g	86%	0.17	5/23/03 06:17 p		2.0	ALP3
					7.00E-03	1.00E+00		0.81			G	
U-238	2.02E-02	U	1.8E-02	1.8E-02	2.48E-02	pCi/g	86%	0.82	5/23/03 06:17 p		2.0	ALP3
					7.83E-03	1.00E+00		(2.2)			G	
Batch: 3139257	GAMMA_GS			**Work Order:**	FN0WA1AA	**Report DB ID:**	FN0WA1AB					
CO-60	-2.47E-03	U	7.4E-03	7.4E-03	1.27E-02	pCi/g		-0.19	5/21/03 06:51 p		348.0	GER5$1
						5.00E-02		-0.67			g	
CS-137	-2.45E-03	U	8.4E-03	8.4E-03	1.43E-02	pCi/g		-0.17	5/21/03 06:51 p		348.0	GER5$1
						1.00E-01		-0.58			g	
EU-152	-8.94E-03	U	2.2E-02	2.2E-02	3.75E-02	pCi/g		-0.24	5/21/03 06:51 p		348.0	GER5$1
						1.00E-01		-0.81			g	
EU-154	-3.72E-03	U	2.2E-02	2.2E-02	3.80E-02	pCi/g		-0.1	5/21/03 06:51 p		348.0	GER5$1
						1.00E-01		-0.34			g	
EU-155	1.49E-02	U	1.7E-02	1.7E-02	2.97E-02	pCi/g		0.5	5/21/03 06:51 p		348.0	GER5$1
						1.00E-01		(1.7)			g	
Batch: 3139258	SRTOT_SEP_PRECIP_GPC			**Work Order:**	FN0WC1AA	**Report DB ID:**	FN0WC1AB					
STRONTIUM	1.82E-02	U	6.5E-02	6.5E-02	1.51E-01	pCi/g	77%	0.12	5/21/03 06:51 p		6.0	GPC26C
					6.93E-02			0.56			G	

No. of Results: 16 **Comments:**

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

FORM II

LCS RESULTS

Date: 30-May-03

Lab Name: STL Richland

Matrix: SOIL

SDG: W04047

Report No. : 22732

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 3139256	7196_CR6			**Work Order:**	FN0WF1AC		**Report DB ID:**	FN0WF1AS					
HEXCHROME	3.97E+01			0.0E+00	3.50E-01	mg/kg	N/A	4.00E+01		99%	5/20/03	2.5	
							Rec Limits:	80	120	0.0		G	
Batch: 3139253	PUISO_PLATE_AEA			**Work Order:**	FN0V61AC		**Report DB ID:**	FN0V61CS					
PU239/40	3.53E+00		3.3E-01	7.1E-01	2.10E-02	pCi/g	40%	3.44E+00	1.8E-01	102%	5/24/03 07:56 a	2.0	ALP41
							Rec Limits:	70	130	0.0		G	
Batch: 3139253	PUISO_PLATE_AEA			**Work Order:**	FN0V61AE		**Report DB ID:**	FN0V61EM					
PU239/40	3.49E+00		2.9E-01	6.5E-01	2.85E-02	pCi/g	56%	3.44E+00	1.8E-01	101%	5/24/03 07:57 a	2.0	ALP47
							Rec Limits:	70	130	0.0		G	
Batch: 3139255	AMCMISO_EIE_PLT_AEA			**Work Order:**	FN0V71AC		**Report DB ID:**	FN0V71CS					
AM-241	3.64E+00		2.4E-01	6.6E-01	2.27E-02	pCi/g	104%	4.56E+00	1.5E-01	80%	5/26/03 10:20 a	2.0	ALP129
							Rec Limits:	70	130	-0.2		G	
Batch: 3139255	AMCMISO_EIE_PLT_AEA			**Work Order:**	FN0V71AE		**Report DB ID:**	FN0V71EM					
AM-241	4.07E+00		3.1E-01	7.9E-01	1.57E-02	pCi/g	74%	4.55E+00	1.5E-01	89%	5/26/03 10:20 a	2.0	ALP131
							Rec Limits:	70	130	-0.1		G	
Batch: 3139256	UISO_IE_PLATE_AEA			**Work Order:**	FN0V81AC		**Report DB ID:**	FN0V81CS					
U-234	1.64E+00		1.4E-01	3.1E-01	3.13E-02	pCi/g	94%	1.65E+00	1.0E-02	99%	5/23/03 06:17 p	2.0	ALP4
							Rec Limits:	20	105	0.0		G	
U-238	1.59E+00		1.4E-01	3.0E-01	2.82E-02	pCi/g	94%	1.73E+00	1.1E-02	92%	5/23/03 06:17 p	2.0	ALP4
							Rec Limits:	20	105	-0.1		G	
Batch: 3139257	GAMMA_GS			**Work Order:**	FN0WA1AC		**Report DB ID:**	FN0WA1CS					
CS-137	2.99E-01		5.3E-02	5.3E-02	3.82E-02	pCi/g		2.84E-01	1.3E-02	105%	5/21/03 06:52 p	200.01	GER4$1
							Rec Limits:	70	130	0.1		g	

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

rptSTLRchLcs
V4.03 A97

FORM II

LCS RESULTS

Date: 30-May-03

Lab Name: STL Richland

Matrix: SOIL

SDG: W04047

Report No. : 22732

Parameter	Result	Qual	Count Error (2s)	Total Uncert(2 s)	MDC | MD	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
K-40	2.11E+01		2.7E+00	2.7E+00	3.05E-01	pCi/g		1.95E+01	1.9E+00	108%	5/21/03 06:52 p	200.01	GER4$1
							Rec Limits:	70	130	0.1		g	
RA-226	1.06E+00		1.7E-01	1.7E-01	6.30E-02	pCi/g		1.15E+00	5.2E-02	92%	5/21/03 06:52 p	200.01	GER4$1
							Rec Limits:	70	130	-0.1		g	
RA-228	2.10E+00		3.2E-01	3.2E-01	1.27E-01	pCi/g		1.59E+00	8.1E-02	133%	5/21/03 06:52 p	200.01	GER4$1
							Rec Limits:	70	130	0.3		g	
U-238DHP	1.22E+00	U	1.1E+00	1.1E+00	1.71E+00	pCi/g		1.05E+00	5.4E-02	116%	5/21/03 06:52 p	200.01	GER4$1
							Rec Limits:	70	130	0.2		g	
Batch: 3139258	SRTOT_SEP_PRECIP_GPC			**Work Order:**	FN0WC1AC		**Report DB ID:**	FN0WC1CS					
STRONTIUM	1.04E+00		1.5E-01	3.1E-01	1.42E-01	pCi/g	80%	1.14E+00	2.2E-02	91%	5/21/03 06:51 p	6.0	GPC26D
							Rec Limits:	20	105	-0.1		G	

No. of Results: 13 **Comments:**

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 II

MATRIX SPIKE RESULTS

Date: 30-May-03

Lab Name: STL Richland **SDG:** W04047

Lot-Sample No.: J3E160341-1 **Report No. :** 22732 **Matrix:** SOIL

Parameter	SpikeResult, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC | MD	Rpt Unit, CRDL	Yield	Rec-overy	Exp-ected	Exp Uncert	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 3139256	7196_CR6			Work Order: FNW3E1AA			Report DB ID: FNW3E1PW			Orig Sa DB ID:			
HEXCHROME	3.17E+01			0.0E+00	3.50E-01	mg/kg	N/A	78.55%	4.03E+01		5/20/03	2.5	
		RPD										G	

No. of Results: 1 Comments:

STL Richland RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
rptSTLRchMs Bias - (Result/Expected)-1 as defined by ANSI N13.30.
V4.03 A97

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
First Level Review

P

Lot Number: JBE16034
Client ID: BHI
Due Date: 5/26/03
QC Batch Number: 313955
Method Test Parameter: SX-Am
Matrix: SOIL
SDG Number: NA WO4047

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?	✓		
6. Are worksheet entries complete and correct?	✓		

Comments on any "No" response:

First Level Review: Pam Anderson Date: 5-27-03

LS-038A, Rev. 9, 8/02

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 31392.55

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: [signature] Date: 5/27/03

LS-038B, Rev. 10, 8/02

SEVERN TRENT STL

P

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J3E160341
Client ID: BHI
Due Date: 5/26/2003
QC Batch Number: 3139253
Method Test Parameter: SO PLUTONIUM-238,239/240
Matrix: Soil
SDG Number: W04047

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?	✓		
6. Are worksheet entries complete and correct?	✓		

Comments on any "No" response: Sample fails 17.1% yield. Dup ok at 32% yield CRDL still met, QC OK. Sample is a nondetect 5/18/03

First Level Review: Pam Anderson Date: 5-27-03

LS-038A, Rev. 9, 8/02

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 313253

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: [signature] Date: 5/30/03

23

Clouseau
Nonconformance Memo

SEVERN TRENT SERVICES

NCM #:	J08022	Classification:	**Anomaly**
NCM Initiated By:	Pam Anderson	Status:	**PMREVIEW**
Date Opened:	05/30/03	Production Area:	Environmental - Sep
Date Closed:	N/A	Tests:	Pulso by ALP
		Lot #'s (Sample #'s):	J3E160341 (1)
		QC Batch:	3139253
Nonconformance:	Tracer yield out of limits		
Subcategory:	Matrix effect		

Problem Description / Root Cause

Name	Date	Description
Pam Anderson	05/30/03	Sample fails at 17.1% yield. The dup is OK at 32 % yield, the CRDL is met and the QC are OK. Sample is a non detect.

Corrective Action

Name	Date	Corrective Action
Pam Anderson	05/30/03	Client contacted. Report data as is.

Approval History

Name	Date Approved:	Position
Pam Anderson	05/30/03	Group Leader

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
First Level Review

P

Lot Number: J3E160341
Client ID: BHI
Due Date: 5/26/03
QC Batch Number: 3135256
Method Test Parameter: SR-UTSD
Matrix: SOIL
SDG Number: W04047

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?	✓		
6. Are worksheet entries complete and correct?	✓		

Comments on any "No" response:

First Level Review: Pam Anderson Date: 5-27-03

LS-038A, Rev. 9, 8/02

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 3139256

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: [signature] Date: 5/27/03

LS-038B, Rev. 10, 8/02

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J3E160341
Client ID: BHI
Due Date: 5-26-03
QC Batch Number: 3139257
Method Test Parameter: GAMMA
Matrix: Soil
SDG Number: W04047

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? J07971	✓		
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. Are worksheet entries complete and correct?	✓		

Comments on any "No" response:

First Level Review: [signature] Date: 5-23-03

LS-038A, Rev. 9, 8/02

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 3139257

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: Ra-228 out

Second Level Review: [signature] Date: 5/23/03

28

Clouseau
Nonconformance Memo

SEVERN TRENT SERVICES

NCM #:	J07971	Classification:	**Anomaly**
NCM Initiated By:	Dale OConnell	Status:	**PMREVIEW**
Date Opened:	05/23/03	Production Area:	Counting
Date Closed:	N/A	Tests:	Gamma by GER
		Lot #'s (Sample #'s):	J3E160341 (1); J3E190000 (257)
		QC Batch:	3139257
Nonconformance:	Batch Result Out of Limits		
Subcategory:	LCS result outside acceptance limits		

Problem Description / Root Cause

Name	Date	Description
Dale OConnell	05/23/03	...for Ra-228. Cause: Probably counting statistics.

Corrective Action

Name	Date	Corrective Action
Dale OConnell	05/23/03	Radionuclides with recoveries at key-line energies less than and above that of Ra-228 (911 keV) are within limits. Will monitor for trends. Report results.

Approval History

Name	Date Approved:	Position
Dale OConnell	05/23/03	Group Leader

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: JE160341
Client ID: BHI
Due Date: 5/26/2003
QC Batch Number: 3139258
Method Test Parameter: TH TOTAL STRONTIUM
Matrix: SOIL
SDG Number: 4104047

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?	✓		
6. Are worksheet entries complete and correct?	✓		

Comments on any "No" response:

First Level Review: Pam Anderson Date: 5-23-03

LS-038A, Rev. 9, 8/02

SEVERN TRENT STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: 3/39258

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: [signature] Date: 5/23/03

LS-038B, Rev. 10, 8/02

SEVERN TRENT STL

Richland Laboratory
Data Review Check List
METALS

Work Order Number(s): W04047 BATCH: 3139259
Lab Sample Numbers or SDG: FNW3E, FNOWF
Method/Test/Parameter: RICHWC5005 REV. 6 CR+6 SOIL

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
A. Initial Calibration				
1. Performed at required frequency with 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:

Analyst: J. Dobecki Date: 5/21/03

Second-Level Review: [illegible] Date: 5/21/03

CHAIN OF CUSTODY

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B03-024-02	Page 1 of 1

Collector Renee Nielson	Company Contact Rikki Thoren	Telephone No. 521-8003	Project Coordinator KESSNER, JH
Project Designation 118-C-4 Horizontal Rod Cave Soil Sampling - Verification	Sampling Location 118-C-4 Rod Cave		SAF No. B03-024
Ice Chest No. CRC 01026	Field Logbook No. EL-1516-2	COA R118CD200C	Method of Shipment Hand deliver - Govt vehicle
Shipped To Severn Trent Incorporated, Richland Richland	Offsite Property No. N/A		Bill of Lading/Air Bill No. N/A

Price Code 8J

Data Turnaround 7 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

Special Handling and/or Storage

SDG W04047

Due 5-23

SAMPLE ANALYSIS J3E160341

Preservation	None RJNS 1/16/03	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C				
Type of Container	~~aG~~ P	aG	aG	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1				
Volume	1000mL	60mL	60mL	250mL	60mL	120mL				
	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	PCBs - 8082	VOA - 8260A (TCL)	Semi-VOA - 8270A (TCL)				

Sample No.	Matrix *	Sample Date	Sample Time										
J00NV0 FNW3E	SOIL	5-15-03	0815	X	X								

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From Renee Nielson / R Nielson	5/15/03 1200	Received By/Stored In Ref# 3C 3728	5-15-03 1200
Relinquished By/Removed From REF 3C 3728	51603 1000	Received By/Stored In S Gale	51603 1000
Relinquished By/Removed From CRC S Gale	51603 1415	Received By/Stored In T. Heidelberg STC	5-16-03 1415
Relinquished By/Removed From		Received By/Stored In L100CP	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Americium-241; Isotopic Plutonium; Strontium-89,90 – Total Sr; Isotopic Uranium
(2) ICP Metals - 6010A (Add-on) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV)

Personnel not available to relinquish samples from the 3728 Ref # 3C on 5/16/03

Matrix *

S=Soil
SE=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 (03/01/2002)

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2197

7771-001 J00MW8

DATA SHEET

SDG	7771	Client/Case no	Hanford SDG H2197
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R305046-01	Client sample id	J00MW8
Dept sample id	7771-001	Location/Matrix	118-C-4 Horiz. Rod Cave SOLID
Received	05/08/03	Collected/Weight	05/06/03 09:00 724.6 g
% solids	100.0	Custody/SAF No	B03-023-01 B03-023

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Cobalt 60	10198-40-0	U		0.048	0.050	U	GAM
Cesium 137	10045-97-3	U		0.049	0.10	U	GAM
Europium 152	14683-23-9	U		0.12	0.10	U	GAM
Europium 154	15585-10-1	U		0.16	0.10	U	GAM
Europium 155	14391-16-3	U		0.11	0.10	U	GAM
Americium 241	14596-10-2	U		0.062		U	GAM

118-C-4 Horizontal Rod Cave Soil Smp

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	05/12/03

SEVERN TRENT SERVICES

Sample Check-in List

Date/Time Received: 5-16 1415

Client: BAEI SDG #: W04047 NA [ ] SAF #: B03-024 NA [ ]

Work Order Number: J3E160341 Chain of Custody # B03-024-02

Shipping Container ID: ERC01020 Air Bill # na

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

Sample Custodian: [signature] Date: 5-16-03

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on _____ by _____ Person contacted _____

[ ] No action necessary; process as is.

Project Manager _____ Date _____

LS-023, 9/01, Rev. 4

5/21/03 7:43:21 AM W04047

Sample Preparation/Analysis

Balance Id:1120373922

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

6I PuAm PrpRC5013/RC5019, SepRC5080(5003)/RC5010(5039)
SX Americium-241 by Alpha Spec
5I CLIENT: HANFORD

PRIORITY

Pipet #: NA

Report Due: ~~05/23/2003~~ 05/26/2003 05-20-03 gk

Sep1 DT/Tm Tech:

Batch: 3139255 SOIL pCi/g PM, Quote: BG1, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: 3139253, 6ISO 3139253, 6ISO

Prep Tech: WAGNERJ,KNUTSONG

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 FNW3E-1-AF J3E160341-1-SAMP		2.01g,in	PATB2922 04/03/03 01/21/03,r		200			
05/15/2003 08:15	Mid Pnt: 05/12/03 15:37	AmtRec: LP,60G	#Containers: 2			Scr Rst:	Alpha: 3.41E+01 pCi/g	Beta: 6.51E+00 pCi/g
2 FNW3E-1-AK-X J3E160341-1-DUP		2.02g,in	PATB2923 04/03/03 01/21/03,r					
05/15/2003 08:15	Mid Pnt: 05/12/03 15:37	AmtRec: LP,60G	#Containers: 2			Scr Rst:	Alpha: 3.41E+01 pCi/g	Beta: 6.51E+00 pCi/g
3 FN0V7-1-AA-B J3E190000-255-BLK		2.0g,in	PATB2924 04/03/03 01/21/03,r					
05/15/2003 08:15		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:
4 FN0V7-1-AC-C J3E190000-255-LCS		2.0g,in	AMSJ0174 01/31/03 11/15/02,r					
05/15/2003 08:15		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:
5 FN0V7-1-AD-BX J3E190000-255-MBLK		2.01g,in	PATB2925 04/03/03 01/21/03,r					
05/15/2003 08:15		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:
6 FN0V7-1-AE-CM J3E190000-255-MLCS		2.0g,in	AMSJ0175 01/31/03 11/15/02,r					
05/15/2003 08:15		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:

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Sample Preparation/Analysis

6I PuAm PrpRC5013/RC5019, SepRC5080(5003)/RC5010(5039)
SX Americium-241 by Alpha Spec
5I CLIENT: HANFORD

PRIORITY

Balance Id:1120373922
Pipet #: NA

Report Due: 05/23/2003

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Batch: 3139255 pCi/g

SEQ Batch, Test: None

Prep Tech: ,KNUTSONG

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

Comments: Samples were muffled. 05-20-03 gsh
LCS & MLCS contain two spike vials. 05-20-03 gsh
Ottawa sand used for samples FN0V7-BX & CM. 05-20-03

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

FNW3E1AF-SAMP Constituent List:

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

FN0V71AA-BLK:

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

FN0V71AC-LCS:

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

FN0V71AD-MBLK:

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

FN0V71AE-MLCS:

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

FNW3E1AF-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
FN0V71AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
FN0V71AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
FN0V71AD-MBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
FN0V71AE-MLCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

5/27/03 4:43:42 PM

ICOC Fraction Transfer/Status Report

ByDate: 4/27/03, 5/28/03, Batch: '3139255', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3139255						
AC		InCnt1	WAGNERJ	5/19/03 7:45:29 PM		
SC			wagarr	IsBatched	5/19/03 8:55:00 AM	ICOC_RADCALC v4.708
SC			WAGNERJ	InPrep	5/19/03 7:45:29 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	Prep1C	5/19/03 7:45:49 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep2	5/19/03 7:46:24 PM	RICH-RC-5019 REVISION 4
SC			KNUTSONG	Prep2C	5/21/03 11:43:14 AM	RICH-RC-5019 REVISION 4
SC			DOWNEYS	InSep2	5/26/03 5:28:01 AM	RICH-RC-5003 REVISION 4
SC			DOWNEYS	Sep2C	5/26/03 6:20:23 AM	RICH-RC-5003 REVISION 4
SC			BlackCL	InCnt1	5/26/03 6:46:04 AM	RICH-RD-0008 REVISION 2
AC			WAGNERJ	5/19/03 7:45:49 PM		
AC			WAGNERJ	5/19/03 7:46:24 PM		
AC			KNUTSONG	5/21/03 11:43:14 AM		
AC			DOWNEYS	5/26/03 5:28:01 AM		
AC			DOWNEYS	5/26/03 6:20:23 AM		
AC			BlackCL	5/26/03 6:46:04 AM		

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AC: Accepting Entry; SC: Status Change

W04047

Sample Preparation/Analysis

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

Report Due: ~~05/23/2003~~ 05/26/2003 05-20-03 yah

6I PuAm PrpRC5013/RC5019, SepRC5080(5003)/RC5010(5039)
SO Plutonium-238,239/40 by Alpha Spec
5I CLIENT: HANFORD

PRIORITY

Balance Id:1120373922
Pipet #: NA
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:

Batch: 3139253 SOIL pCi/g PM, Quote: BG1, 27038

SEQ Batch, Test: 3139255, 6ISX 3139255, 6ISX

Prep Tech: WAGNERJ,KNUTSONG

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 FNW3E-1-AE J3E160341-1-SAMP		2.01g,in	PATB2922 04/03/03 01/21/03,r		200			
05/15/2003 08:15	Mid Pnt: 05/12/03 15:37	AmtRec: LP,60G	#Containers: 2			Scr Rst:	Alpha: 3.41E+01 pCi/g	Beta: 6.51E+00 pCi/g
2 FNW3E-1-AJ-X J3E160341-1-DUP		2.02g,in	PATB2923 04/03/03 01/21/03,r					
05/15/2003 08:15	Mid Pnt: 05/12/03 15:37	AmtRec: LP,60G	#Containers: 2			Scr Rst:	Alpha: 3.41E+01 pCi/g	Beta: 6.51E+00 pCi/g
3 FN0V6-1-AA-B J3E190000-253-BLK		2.0g,in	PATB2924 04/03/03 01/21/03,r					
05/15/2003 08:15		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:
4 FN0V6-1-AC-C J3E190000-253-LCS		2.0g,in	PUSK0529 03/18/03 01/21/03,r					
05/15/2003 08:15		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:
5 FN0V6-1-AD-BX J3E190000-253-MBLK		2.01g,in	PATB2925 04/03/03 01/21/03,r					
05/15/2003 08:15		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:
6 FN0V6-1-AE-CM J3E190000-253-MLCS		2.0g,in	PUSK0530 03/18/03 01/21/03,r					
05/15/2003 08:15		AmtRec:	#Containers: 1			Scr Rst:	Alpha:	Beta:

Sample Preparation/Analysis

6I PuAm PrpRC5013/RC5019, SepRC5080(5003)/RC5010(5039)
SO Plutonium-238,239/40 by Alpha Spec
5I CLIENT: HANFORD

Balance Id:1120373922
Pipet #: _____
PRIORITY
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech: ,KNUTSONG

Report Due: 05/23/2003

Batch: 3139253 pCi/g

SEQ Batch, Test: None

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

Comments: Samples were muffled. 05-20-03 gek
LCS & MLCS contain two spike vials. 05-20-03 gek
Ottawa sand used for samples FN0V6 BX & CM. 5-20-03

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

FNW3E1AE-SAMP Constituent List:

PU-238	RDL:1	pCi/g	LCL:	UCL:	RPD:	PU-239	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35
Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35						
FN0V61AA-BLK:											
PU-238	RDL:1	pCi/g	LCL:	UCL:	RPD:	PU-239	RDL:1	pCi/g	LCL:	UCL:	RPD:
Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35						
FN0V61AC-LCS:											
PU-239	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35
FN0V61AD-MBLK:											
PU-238	RDL:1	pCi/g	LCL:	UCL:	RPD:	PU-239	RDL:1	pCi/g	LCL:	UCL:	RPD:
Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35						
FN0V61AE-MLCS:											
PU-239	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35	Pu-242	RDL:	pCi/g	LCL:20	UCL:105	RPD:35

FNW3E1AE-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
FN0V61AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
FN0V61AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
FN0V61AD-MBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
FN0V61AE-MLCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

5/30/03 10:54:03 AM

ICOC Fraction Transfer/Status Report

ByDate: 4/30/03, 5/31/03, Batch: '3139253', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3139253						
AC		CalcC	WAGNERJ	5/19/03 7:45:35 PM		
SC			wagarr	IsBatched	5/19/03 8:55:00 AM	ICOC_RADCALC v4.708
SC			WAGNERJ	InPrep	5/19/03 7:45:35 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	Prep1C	5/19/03 7:45:52 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep2	5/19/03 7:46:27 PM	RICH-RC-5019 REVISION 4
SC			KNUTSONG	Prep2C	5/21/03 11:43:20 AM	RICH-RC-5019 REVISION 4
SC			McPHERONC	InSep2	5/23/03 6:34:50 PM	RICH-RC-5039 REVISION 3
SC			McPHERONC	Sep2C	5/23/03 6:35:02 PM	RICH-RC-5039 REVISION 3
SC			DAWKINSO	InCnt1	5/23/03 6:50:58 PM	RICH-RD-0008 REVISION 2
SC			BlackCL	CalcC	5/24/03 10:35:00 AM	RICH-RD-0008 REVISION 2
AC			WAGNERJ	5/19/03 7:45:52 PM		
AC			WAGNERJ	5/19/03 7:46:27 PM		
AC			KNUTSONG	5/21/03 11:43:20 AM		
AC			McPHERONC	5/23/03 6:34:50 PM		
AC			McPHERONC	5/23/03 6:35:02 PM		
AC			DAWKINSO	5/23/03 6:50:58 PM		
AC			BlackCL	5/24/03 10:35:00 AM		

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C: Accepting Entry; SC: Status Change

5/21/03 7:41:27 AM W0404+

Sample Preparation/Analysis

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

Report Due: ~~05/23/2003~~ 05/26/2003 05-20-03 gch

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

Balance Id:1120373922

PRIORITY

Pipet #: NA

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: WAGNERJ,KNUTSONG

Batch: 3139256 SOIL pCi/g PM, Quote: BG1, 27038

SEQ Batch, Test: None All Tests: 3139253 6ISO, 3139255 6ISX, 3139256 7SSR, 3139257 AXTA, 3139258 CHTH, 3139259 DWEA, 3139260
88OV,

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 FNW3E-1-AC J3E160341-1-SAMP		2.06g,in	UITC9154 03/14/03 12/16/02,r		200			
05/15/2003 08:15	Mid Pnt: 05/12/03 15:37	AmtRec: LP,60G	#Containers: 2				Scr Rst: Alpha: 3.41E+01 pCi/g	Beta: 6.51E+00 pCi/g
2 FNW3E-1-AL-X J3E160341-1-DUP		2.0g,in	UITC9155 03/14/03 12/16/02,r					
05/15/2003 08:15	Mid Pnt: 05/12/03 15:37	AmtRec: LP,60G	#Containers: 2				Scr Rst: Alpha: 3.41E+01 pCi/g	Beta: 6.51E+00 pCi/g
3 FN0V8-1-AA-B J3E190000-256-BLK		2.0g,in	UITC9156 03/14/03 12/16/02,r					
05/15/2003 08:15		AmtRec:	#Containers: 1				Scr Rst: Alpha:	Beta:
4 FN0V8-1-AC-C J3E190000-256-LCS		2.0g,in	UISH0182 05/01/03 10/05/02,r					
05/15/2003 08:15		AmtRec:	#Containers: 1				Scr Rst: Alpha:	Beta:

Comments: Samples were muffled. 05-19-03 gch
Samples were converted 3x w/ Con HCl. 05-21-03 gch

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

FNW3E1AC-SAMP Constituent List:

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

FN0V81AA-BLK:

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

5/27/03 4:44:11 PM

ICOC Fraction Transfer/Status Report

ByDate: 4/27/03, 5/28/03, Batch: '3139256', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3139256						
AC		CalcC	WAGNERJ	5/19/03 7:45:26 PM		
SC			wagarr	IsBatched	5/19/03 8:55:00 AM	ICOC_RADCALC v4.708
SC			WAGNERJ	InPrep	5/19/03 7:45:26 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	Prep1C	5/19/03 7:45:46 PM	+RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep2	5/19/03 7:46:19 PM	RICH-RC-5019 REVISION 4
SC			KNUTSONG	Prep2C	5/21/03 11:24:34 AM	RICH-RC-5019 REVISION 4
SC			HAMMERL	InSep1	5/21/03 3:45:08 PM	RICH-RC-5079 REVISION 1
SC			HAMMERL	Sep1C	5/22/03 3:44:36 PM	RICH-RC-5079 REVISION 1
SC			DOWNEYS	Sep2C	5/23/03 12:50:40 PM	RICH-RC-5039 REVISION 3
SC			BlackCL	InCnt1	5/23/03 1:07:58 PM	RICH-RD-0008 REVISION 2
SC			BlackCL	CalcC	5/24/03 7:44:05 AM	RICH-RD-0008 REVISION 2
AC			WAGNERJ	5/19/03 7:45:46 PM		
AC			WAGNERJ	5/19/03 7:46:19 PM		
AC			KNUTSONG	5/21/03 11:24:34 AM		
AC			HAMMERL	5/21/03 3:45:08 PM		
AC			HAMMERL	5/22/03 3:44:36 PM		
AC			DOWNEYS	5/23/03 12:50:40 PM		
AC			BlackCL	5/23/03 1:07:58 PM		
AC			BlackCL	5/24/03 7:44:05 AM		

AC: Accepting Entry; SC: Status Change

5/19/03 6:53:36 PM

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

Sample Preparation/Analysis

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

PRIORITY

Balance Id:1120421763
Pipet #: _____

Report Due: ~~05/23/2003~~ 05/26/2003 WO 0/0 17
5-19-03

Sep1 DT/Tm Tech:

Batch: 3139257 SOIL pCi/g PM, Quote: BG1, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

(g)

Prep Tech: ,WAGNERJ

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 FNW3E-1-AH J3E160341-1-SAMP		348.2g,in				S·200	600	G5	1654	5/21/03
05/15/2003 08:15	Mid Pnt: 05/12/03 15:37	AmtRec: LP,60G	#Containers: 2					Scr Rst:	Alpha: 3.41E+01 pCi/g	Beta: 6.51E+00 pCi/g
2 FNW3E-1-AM-X J3E160341-1-DUP		353.3g,in						G4	1656	
05/15/2003 08:15	Mid Pnt: 05/12/03 15:37	AmtRec: LP,60G	#Containers: 2					Scr Rst:	Alpha: 3.41E+01 pCi/g	Beta: 6.51E+00 pCi/g
3 FN0WA-1-AA-B J3E190000-257-BLK		348.0g,in						G5	5/22 0451	5/21/2003
05/15/2003 08:15		AmtRec:	#Containers: 1					Scr Rst:	Alpha:	Beta:
4 FN0WA-1-AC-C J3E190000-257-LCS		200.01g,in	CAL491 01/01/03 01/01/02 r					G4	5/22 0452	
5-1-03 ~~05/15/2003 08:15~~		AmtRec:	#Containers: 1					Scr Rst:	Alpha:	Beta:

5-19-03

Comments:

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

FNW3E1AH-SAMP Constituent List:

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

FN0WA1AA-BLK:

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

Sample Preparation/Analysis

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

PRIORITY

Balance Id:1120421763
Pipet #: _____

Report Due: 05/23/2003

Sep1 DT/Tm Tech:

Batch: 3139257 pCi/g

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,WAGNERJ

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

```
 Eu-154      RDL:1.00E-01   pCi/g   LCL:      UCL:      RPD:      Eu-155      RDL:1.00E-01   pCi/g   LCL:      UCL:      RPD:

FN0WA1AC-LCS:
 Cs-137      RDL:0.1        pCi/g   LCL:70    UCL:130   RPD:35    Cs-137DA    RDL:0.1        pCi/g   LCL:70    UCL:130   RPD:35
 K-40        RDL:--         pCi/g   LCL:70    UCL:130   RPD:35    Ra-226      RDL:0.1        pCi/g   LCL:70    UCL:130   RPD:35
 RA-228      RDL:0.2        pCi/g   LCL:70    UCL:130   RPD:35    RA-228DA    RDL:0.2        pCi/g   LCL:70    UCL:130   RPD:35
 U-238       RDL:           pCi/g   LCL:70    UCL:130   RPD:35
FNW3E1AH-SAMP Calc Info:
    Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
FN0WA1AA-BLK:
    Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
FN0WA1AC-LCS:
    Uncert Level (#s).: 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: B
```

5/23/03 11:55:24 AM

ICOC Fraction Transfer/Status Report

ByDate: 4/23/03, 5/24/03, Batch: '3139257', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3139257						
4C		CalcC	WAGNERJ	5/19/03 6:52:45 PM		
SC			wagarr	IsBatched	5/19/03 8:55:00 AM	ICOC_RADCALC v4.708
SC			WAGNERJ	InPrep	5/19/03 6:52:45 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep	5/19/03 6:52:53 PM	RICH-RC-5017 REVISION 4
SC			WAGNERJ	Prep1C	5/19/03 7:07:43 PM	RICH-RC-5017 REVISION 4
SC			DAWKINSO	InCnt1	5/19/03 8:36:32 PM	RICH-RD-0007 REVISION 3
SC			BlackCL	CalcC	5/22/03 12:09:07 PM	RICH-RD-0007 REVISION 3
4C			WAGNERJ	5/19/03 6:52:53 PM		
4C			WAGNERJ	5/19/03 7:07:43 PM		
4C			DAWKINSO	5/19/03 8:36:32 PM		
4C			BlackCL	5/22/03 12:09:07 PM		

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C: Accepting Entry; SC: Status Change

5/20/03 6:33:12 AM

Sample Preparation/Analysis

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

Report Due: ~~05/23/2003~~ 05/26/2003 W04047 05-10-03 gk

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

PRIORITY

Balance Id:1120373922 , #02
Pipet #: NA
Sep1 DT/Tm Tech: 5/21/03 3:26
Sep2 DT/Tm Tech: NA
Prep Tech: WAGNERJ,KNUTSONG

Batch: 3139258 SOIL pCi/g PM, Quote: BG1, 27038

SEQ Batch, Test: None All Tests: 3139253 6ISO, 3139255 6ISX, 3139256 7SSR, 3139257 AXTA, 3139258 CHTH, 3139259 DWEA, 3139260 88OV,

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry (MG)	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 FNW3E-1-AD J3E160341-1-SAMP		6.01g,in	SRTA8934 01/16/03 11/25/02,r			71.9	50	26A	1916	5/21/2003
05/15/2003 08:15	Mid Pnt: 05/12/03 15:37	AmtRec: LP,60G	#Containers: 2				Scr Rst:	Alpha: 3.41E+01 pCi/g	Beta: 6.51E+00 pCi/g	
2 FNW3E-1-AN-X J3E160341-1-DUP		6.0g,in	SRTA8935 01/16/03 11/25/02,r			68.0		26B	1916	5/21/2003
05/15/2003 08:15	Mid Pnt: 05/12/03 15:37	AmtRec: LP,60G	#Containers: 2				Scr Rst:	Alpha: 3.41E+01 pCi/g	Beta: 6.51E+00 pCi/g	
3 FN0WC-1-AA-B J3E190000-258-BLK		6.0g,in	SRTA8936 01/16/03 11/25/02,r			76.5		26C	1916	5/21/2003
05/15/2003 08:15		AmtRec:	#Containers: 1				Scr Rst:	Alpha:	Beta:	
4 FN0WC-1-AC-C J3E190000-258-LCS		6.0g,in	STSB0700 01/15/03 11/25/02,r			79.6		26D		
05/15/2003 08:15		AmtRec:	#Containers: 1				Scr Rst:	Alpha:	Beta:	

Comments:

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

FNW3E1AD-SAMP Constituent List:

Sr-90	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35

FN0WC1AA-BLK:

Sr-90	RDL:1	pCi/g	LCL:	UCL:	RPD:

FN0WC1AC-LCS:

Sr-90	RDL:1	pCi/g	LCL:70	UCL:130	RPD:35

FNW3E1AD-SAMP Calc Info:

5/23/03 10:13:48 AM

ICOC Fraction Transfer/Status Report

ByDate: 4/23/03, 5/24/03, Batch: '3139258', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3139258						
AC		CalcC	WAGNERJ	5/19/03 7:45:19 PM		
SC			wagarr	IsBatched	5/19/03 8:55:00 AM	ICOC_RADCALC v4.708
SC			WAGNERJ	InPrep	5/19/03 7:45:19 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	Prep1C	5/19/03 7:45:44 PM	RICH-RC-5013 REVISION 4
SC			WAGNERJ	InPrep2	5/19/03 7:46:11 PM	RICH-RC-5013 REVISION 4
SC			KNUTSONG	InPrep2	5/20/03 6:41:24 AM	RICH-RC-5013 REVISION 4
SC			KNUTSONG	Prep2C	5/21/03 7:32:53 AM	RICH-RC-5013 REVISION 4
SC			FABREM	InSep1	5/21/03 8:23:36 AM	RICH-RC-5006 REVISION 5
SC			FABREM	Sep1C	5/21/03 4:47:21 PM	RICH-RC-5006 REVISION 5
SC			DAWKINSO	InCnt1	5/21/03 5:16:55 PM	RICH-RD-0003 REVISION 3
SC			DAWKINSO	CalcC	5/21/03 9:01:26 PM	RICH-RD-0003 REVISION 3
AC			WAGNERJ	5/19/03 7:45:44 PM		
AC			WAGNERJ	5/19/03 7:46:11 PM		
AC			KNUTSONG	5/20/03 6:41:24 AM		
AC			KNUTSONG	5/21/03 7:32:53 AM		
AC			FABREM	5/21/03 8:23:36 AM		
AC			FABREM	5/21/03 4:47:21 PM		
AC			DAWKINSO	5/21/03 5:16:55 PM		
AC			DAWKINSO	5/21/03 9:01:26 PM		

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AC: Accepting Entry; SC: Status Change

WWW+

Sample Preparation/Analysis

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

PRIORITY

Report Due: ~~05/23/2003~~ 5-26-03 5-19-03

DW Alkaline Digestion by method 3060A
EA Chromium, Hexavalent (7196A)
5I CLIENT: HANFORD

Balance Id:
Pipet #:
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech:

Batch: 3139259 SOIL mg/kg PM, Quote: BG1, 27038

SEQ Batch, Test: None

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	QC Vial 2 Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date
1 FNW3E-1-AA J3E160341-1-SAMP										
05/15/2003 08:15	Mid Pnt: 05/12/03 15:37	AmtRec: LP,60G	#Containers: 2				Scr Rst:		Alpha:	Beta:
2 FNW3E-1-AP-S J3E160341-1-MS										
05/15/2003 08:15	Mid Pnt: 05/12/03 15:37	AmtRec: LP,60G	#Containers: 2				Scr Rst:		Alpha:	Beta:
3 FNW3E-1-AQ-X J3E160341-1-DUP										
05/15/2003 08:15	Mid Pnt: 05/12/03 15:37	AmtRec: LP,60G	#Containers: 2				Scr Rst:		Alpha:	Beta:
4 FNW3E-1-AR-S J3E160341-1-MS										
05/15/2003 08:15	Mid Pnt: 05/12/03 15:37	AmtRec: LP,60G	#Containers: 2				Scr Rst:		Alpha:	Beta:
5 FN0WF-1-AA-B J3E190000-259-BLK										
05/15/2003 08:15		AmtRec:	#Containers: 1				Scr Rst:		Alpha:	Beta:
6 FN0WF-1-AC-C J3E190000-259-LCS										
05/15/2003 08:15		AmtRec:	#Containers: 1				Scr Rst:		Alpha:	Beta:

STL Richland Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2
Richland Wa. r - Reference date, ec-Enrichment Cell, ct-Cocktailed Added

WO Cnt: 6
ICOC v4.708

Sample Preparation/Analysis

PRIORITY

DW Alkaline Digestion by method 3060A
EA Chromium, Hexavalent (7196A)
5I CLIENT: HANFORD

Report Due: 05/23/2003

Batch: 3139259 mg/kg

SEQ Batch, Test: None

Balance Id:

Pipet #:

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech:

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

Comments:

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

FNW3E1AA-SAMP Constituent List:
HEXCHROME RDL:0.35 mg/kg LCL:80 UCL:120 RPD:20
FNW3E1AP-MS Constituent List:
HEXCHROME RDL:0.35 mg/kg LCL:75 UCL:125 RPD:20
FNW3E1AR-MS:
HEXCHROME RDL:0.35 mg/kg LCL:75 UCL:125 RPD:20
FN0WF1AA-BLK:
HEXCHROME RDL:0.35 mg/kg LCL: UCL: RPD:
FN0WF1AC-LCS:
HEXCHROME RDL:0.35 mg/kg LCL:80 UCL:120 RPD:20

FNW3E1AA-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
FNW3E1AP-MS Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
FNW3E1AR-MS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
FN0WF1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
FN0WF1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

5/21/03 2:10:41 PM

ICOC Fraction Transfer/Status Report

ByDate: 4/21/03, 5/22/03, Batch: '3139259', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
3139259						
AC		Sep1C	DobeckiT	5/20/03 9:00:17 AM		
SC			wagarr	IsBatched	5/19/03 8:55:00 AM	ICOC_RADCALC v4.708
SC			DobeckiT	InSep1	5/20/03 9:00:17 AM	RICH-WC-5005 REVISION 6
SC			DobeckiT	Sep1C	5/21/03 9:00:59 AM	RICH-WC-5005 REVISION 6
AC			DobeckiT	5/21/03 9:00:59 AM		

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C: Accepting Entry; SC: Status Change