



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

Tel 314 298 8566
Fax 314 298 8757
www.stl-inc.com

ANALYTICAL REPORT

PROJECT NO. 200 UPI IAM GW

C01-037

Lot #: FIG200264
SDG #: W03560

Joan Kessner

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

SEVERN TRENT LABORATORIES, INC.

RECEIVED
JAN 24 2002

EDMC

M Ward

MARTI WARD
Project Manager

August 22, 2001





CASE NARRATIVE

STL St. Louis

Bechtel Hanford Incorporated
 3190 George Washington Way
 Richland, Washington 99352

August 22, 2001
 Attention: Joan Kessner

Project Number	:	43149
SDG	:	W03560
Number of Samples	:	one
SAF	:	C01-037
Sample Matrix	:	water
Data Deliverable	:	Summary
Date SDG Closed	:	July 31, 2001

II. Introduction

On July 19, 2001, one water sample was received by STL-St. Louis for chemical analysis. The sample was received at a temperature of 22 degrees C. Review the COC and CUR forms for any variations in sample temperature or condition when received at the lab. See the attached Sample Summary sheet for the client and lab Ids for these samples.

III. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits. This report is incomplete without the Case Narrative. Samples are reported "as received"; i.e. wet weight, unless otherwise noted on the data sheets.

Analyses requested: see attached Methods Summary Sheet

Deviation from Request: Method 82608 was performed in place of 8240.

IV. Definitions

The following codes are used to denote laboratory quality control samples and can be found in the data summary section of this report:

QCBLK- Quality Control Blank, Method Blank
 QLCS- Quality Control Laboratory Control Sample, Blank Spike
 MS- Matrix Spike
 DUP- Matrix Duplicate
 MSD- Matrix Spike Duplicate



STL St. Louis

Bechtel Hanford Incorporated
August 22, 2001
Project Number: 43149
SDG: W03560
Page 2

V. Comments

General:

The term "Detection Limit" used in the analytical data reports refers to either the lab's standard reporting limits or contractually required reporting limits, whichever is applicable.

Please refer to the attached cross-reference table for the standard preparation methods used at Quanterra, St. Louis.

VOA:

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

The initial analysis of the sample, done in holding time, showed levels of Carbon Tetrachloride that exceeded the calibration range of the instrument. The sample was re-analyzed, with dilution, outside of holding time. The two runs match; the holding time violation did not affect the analysis.

I certify that this Data package 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:

A handwritten signature in black ink that reads "Marti Ward".

Marti Ward
St. Louis Project Manager

SAMPLE SUMMARY

FIG200264

<u>WO #</u>	<u>SAMPLE#</u>	<u>CLIENT SAMPLE ID</u>	<u>SAMPLED DATE</u>	<u>SAMP TIME</u>
EGPRO	001	B126N9	07/17/01	09:52

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

FIG200264

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Volatile Organics by GC/MS	SW846 8260B	SW846 5030B/826

References:

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

PSL20300
Page 1

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

Run Date: 7/20/01
Time: 15:14:24
User Id.: WILSONS

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 200 UPI IAM GW
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: C01-037
AMOUNT REC'D: 3X40
STORAGE LOC: V4E
LOT COMMENTS:
MATRIX: WATER
SAMPLE ID: B126N9
QC PACKAGE: Report
SAMPLE COMMENTS:

QUOTE/SAR #: 43149
LAB ID: F-1G200264-001
WORK ORDER: EGPRO
RECEIVING DATE: 7/19/01
SAMPLING DATE: 7/17/01
ANALYTICAL DUE DATE: 8/17/01N
REPORT DUE DATE: 8/31/01
PRIORITY: 29
SAMPLING TIME: 9:52
RECEIVING TIME: 8:10
SDG# : W03560

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****

WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
------------	-----------------	------------------------	----------------------

06	7/20/01	0/00/00	7/31/01
----	---------	---------	---------

QC Program: CLIENT: HANFORD

Fax message/cover sheet



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

Tel 314 298 8566
Fax 314 298 8757
www.st-inc.com

To: ^{Joan Kessner} Dot Stewart
Company:
From: m Ward
Date: 7.24.01

Fax:
Subject:
Pages:

COC for W03560

COI-037-4 received @
St Louis 7-19-01

Confidentiality Notice: The information contained in the Facsimile message is privileged and confidential information intended only for the use of the addressee. If the reader of this message is not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone and please return the original message to us at the above address via the U.S. Postal Service.

STL St. Louis is a part of Severn Trent Laboratories, Inc.



Lot No.: FIG200264
W03560

Condition Upon Receipt Form
St. Louis Laboratory

Client: PNNL
Quote No: 43149
Shipper/No: 10464827052 Quinn

Date: 07/19/01 Time: 0810
Initiated by: [Signature]
COC/RFA Numbers: 001-037-4

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

1. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample received in undamaged condition.	5. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample volume sufficient for analysis.
2. <input type="radio"/> Y <input checked="" type="radio"/> N	Sample received within 4°C ± 2°C* Record temperature: <u>22</u>	6. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample received with Chain of Custody.
3. <input type="radio"/> Y <input checked="" type="radio"/> N <input checked="" type="radio"/> N/A	Sample received with proper pH**.	7. <input checked="" type="radio"/> Y <input type="radio"/> N	Chain of Custody matches sample IDs on containers.
4. <input checked="" type="radio"/> Y <input type="radio"/> N	Sample received in proper containers.	8. <input checked="" type="radio"/> Y <input type="radio"/> N	Custody seal received intact and tamper evident on cooler.
		9. <input checked="" type="radio"/> Y <input type="radio"/> 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: No ice in cooler

Corrective Action:

- Client's Name: _____ Informed verbally on: _____ By: _____
- Client's Name: _____ Informed in writing on: _____ By: _____
- Sample(s) processed "as is". _____
- Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor (or designate) Review: [Signature] Date: 07/19/01

Project Management Review: [Signature] Date: 7/24/01

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

VOLATILE ORGANICS

BECHTEL HANFORD, INC.

Client Sample ID: B126N9

GC/MS Volatiles

Lot-Sample #...: F1G200264-001 Work Order #...: EGPR01AA Matrix.....: WATER

NOTE(S):

- J Estimated result. Result is less than RL.
- B Method blank contamination. The associated method blank contains the target analyte at a reportable level.
- E Estimated result. Result concentration exceeds the calibration range.

BECHTEL HANFORD, INC.

B126N9

GC/MS Volatiles

Lot-Sample #: F1G200264-001

Work Order #: EGPR01AA

Matrix: WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

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

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #....: F1G200264 Work Order #....: EGPR01AC-MS Matrix.....: WATER
 MS Lot-Sample #: F1G200264-001 EGPR01AD-MSD
 Date Sampled...: 07/17/01 Date Received...: 07/19/01
 Prep Date.....: 07/24/01 Analysis Date...: 07/24/01
 Prep Batch #...: 1206263 Analysis Time...: 19:48
 Dilution Factor: 1

PARAMETER	SAMPLE SPIKE MEASRD			UNITS	PERCENT		METHOD
	AMOUNT	AMT	AMOUNT		RECOVERY	RPD	
Benzene	ND	10.0	10.6	ug/L	106		SW846 8260B
	ND	10.0	10.7	ug/L	107	1.2	SW846 8260B
Toluene	ND	10.0	11.3	ug/L	113		SW846 8260B
	ND	10.0	10.8	ug/L	108	4.4	SW846 8260B
Trichloroethene	3.7	10.0	13.6	ug/L	99		SW846 8260B
	3.7	10.0	13.5	ug/L	98	1.1	SW846 8260B

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
4-Bromofluorobenzene	95	(72 - 116)
	92	(72 - 116)
Toluene-d8	112	(79 - 124)
	106	(79 - 124)
Dibromofluoromethane	102	(71 - 128)
	104	(71 - 128)
1,2-Dichloroethane-d4	102	(65 - 126)
	106	(65 - 126)

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: B126N9

GC/MS Volatiles

Lot-Sample #...: F1G200264-001 Work Order #...: EGPR02AA Matrix.....: WATER

NOTE(S):

J Estimated result. Result is less than RL.

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

BECHTEL HANFORD, INC.

B126N9

GC/MS Volatiles

Lot-Sample #: F1G200264-001

Work Order #: EGPR02AA

Matrix: WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

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

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: F1G200264 Work Order #...: EGPR01AE-MS Matrix.....: WATER
 MS Lot-Sample #: F1G200264-001 EGPR01AF-MSD
 Date Sampled...: 07/17/01 Date Received...: 07/19/01
 Prep Date.....: 08/02/01 Analysis Date...: 08/03/01
 Prep Batch #...: 1215339 Analysis Time...: 08:20
 Dilution Factor: 5

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT		METHOD
					RECOVERY	RPD	
Trichloroethene	3.4	50.0	54.6	ug/L	103		SW846 8260B
	3.4	50.0	54.4	ug/L	102	0.38	SW846 8260B
Benzene	ND	50.0	52.9	ug/L	106		SW846 8260B
	ND	50.0	51.0	ug/L	102	3.6	SW846 8260B
Toluene	ND	50.0	51.1	ug/L	102		SW846 8260B
	ND	50.0	52.9	ug/L	106	3.4	SW846 8260B

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
4-Bromofluorobenzene	106	(72 - 116)
	108	(72 - 116)
Toluene-d8	101	(79 - 124)
	105	(79 - 124)
Dibromofluoromethane	102	(71 - 128)
	103	(71 - 128)
1,2-Dichloroethane-d4	107	(65 - 126)
	105	(65 - 126)

NOTE (S) :

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

Bold print denotes control parameters

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: FIG200264
 MB Lot-Sample #: FIG250000-263
 Analysis Date...: 07/24/01
 Dilution Factor: 1

Work Order #...: EGV791AA
 Prep Date.....: 07/24/01
 Prep Batch #...: 1206263

Matrix.....: WATER
 Analysis Time...: 14:16

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	METHOD
Ethylbenzene	ND	5.0	ug/L	SW846 8260B
Acetone	ND	20	ug/L	SW846 8260B
Benzene	ND	5.0	ug/L	SW846 8260B
2-Butanone	ND	10	ug/L	SW846 8260B
Carbon disulfide	ND	5.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	5.0	ug/L	SW846 8260B
Chloroform	ND	5.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	10	ug/L	SW846 8260B
1,2-Dichloroethane	ND	5.0	ug/L	SW846 8260B
Methylene chloride	1.1 J	5.0	ug/L	SW846 8260B
Methyl isobutyl ketone	ND	10	ug/L	SW846 8260B
Tetrachloroethene	ND	5.0	ug/L	SW846 8260B
Toluene	ND	5.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	5.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	5.0	ug/L	SW846 8260B
Trichloroethene	ND	5.0	ug/L	SW846 8260B
Vinyl chloride	ND	10	ug/L	SW846 8260B
Xylenes (total)	ND	10	ug/L	SW846 8260B
Bromodichloromethane	ND	5.0	ug/L	SW846 8260B
Bromoform	ND	5.0	ug/L	SW846 8260B
Bromomethane	0.97 J	10	ug/L	SW846 8260B
Chlorobenzene	ND	5.0	ug/L	SW846 8260B
Dibromochloromethane	ND	5.0	ug/L	SW846 8260B
Chloroethane	ND	10	ug/L	SW846 8260B
Chloromethane	0.57 J	10	ug/L	SW846 8260B
1,1-Dichloroethene	ND	10	ug/L	SW846 8260B
1,2-Dichloroethene (total)	ND	10	ug/L	SW846 8260B
1,2-Dichloropropane	ND	5.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	5.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	5.0	ug/L	SW846 8260B
2-Hexanone	ND	20	ug/L	SW846 8260B
Styrene	ND	5.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L	SW846 8260B

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
4-Bromofluorobenzene	95	(72 - 116)
Toluene-d8	94	(79 - 124)
Dibromofluoromethane	96	(71 - 128)
1,2-Dichloroethane-d4	91	(65 - 126)

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: F1G200264

Work Order #...: EGV791AA

Matrix.....: WATER

NOTE(S):

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

J Estimated result. Result is less than RL.

BECKETL HANFORD, INC.

Method Blank Report

GC/MS Volatiles

Lot-Sample #: F1G250000-263 B Work Order #: EGV791AA

Matrix: WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: F1G200264 Work Order #...: EGV791AC Matrix.....: WATER
 LCS Lot-Sample#: F1G250000-263
 Prep Date.....: 07/24/01 Analysis Date...: 07/24/01
 Prep Batch #...: 1206263 Analysis Time...: 14:52
 Dilution Factor: 1

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCENT RECOVERY</u>	<u>METHOD</u>
Benzene	10.0	10.3	ug/L	103	SW846 8260B
Toluene	10.0	10.0	ug/L	100	SW846 8260B
Trichloroethene	10.0	9.86	ug/L	99	SW846 8260B

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
4-Bromofluorobenzene	92	(72 - 116)
Toluene-d8	100	(79 - 124)
Dibromofluoromethane	103	(71 - 128)
1,2-Dichloroethane-d4	99	(65 - 126)

NOTE (S) :

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

Bold print denotes control parameters

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: F1G200264
 MB Lot-Sample #: F1H030000-339

Work Order #...: EHGC11AA

Matrix.....: WATER

Analysis Date...: 08/03/01

Prep Date.....: 08/02/01

Analysis Time...: 04:41

Dilution Factor: 1

Prep Batch #...: 1215339

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	METHOD
Acetone	ND	100	ug/L	SW846 8260B
Benzene	ND	25	ug/L	SW846 8260B
Bromodichloromethane	ND	25	ug/L	SW846 8260B
Bromoform	ND	25	ug/L	SW846 8260B
Bromomethane	ND	50	ug/L	SW846 8260B
2-Butanone	ND	50	ug/L	SW846 8260B
Carbon disulfide	ND	25	ug/L	SW846 8260B
Carbon tetrachloride	ND	25	ug/L	SW846 8260B
Chlorobenzene	ND	25	ug/L	SW846 8260B
Dibromochloromethane	ND	25	ug/L	SW846 8260B
Chloroethane	ND	50	ug/L	SW846 8260B
Chloroform	ND	25	ug/L	SW846 8260B
Chloromethane	ND	50	ug/L	SW846 8260B
1,1-Dichloroethane	ND	50	ug/L	SW846 8260B
1,2-Dichloroethane	ND	25	ug/L	SW846 8260B
1,1-Dichloroethene	ND	50	ug/L	SW846 8260B
1,2-Dichloroethene	ND	50	ug/L	SW846 8260B
(total)				
1,2-Dichloropropane	ND	25	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	25	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	25	ug/L	SW846 8260B
Ethylbenzene	ND	25	ug/L	SW846 8260B
2-Hexanone	ND	100	ug/L	SW846 8260B
Methylene chloride	1.4 J	25	ug/L	SW846 8260B
Methyl isobutyl ketone	ND	50	ug/L	SW846 8260B
Styrene	ND	25	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	25	ug/L	SW846 8260B
Tetrachloroethene	ND	25	ug/L	SW846 8260B
Toluene	ND	25	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	25	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	25	ug/L	SW846 8260B
Trichloroethene	ND	25	ug/L	SW846 8260B
Vinyl chloride	ND	50	ug/L	SW846 8260B
Xylenes (total)	ND	50	ug/L	SW846 8260B

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
4-Bromofluorobenzene	97	(72 - 116)
Toluene-d8	94	(79 - 124)
Dibromofluoromethane	97	(71 - 128)
1,2-Dichloroethane-d4	102	(65 - 126)

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #....: F1G200264

Work Order #....: EHGC11AA

Matrix.....: WATER

NOTE (S) :

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

J Estimated result. Result is less than RL.

BECHTEL HANFORD, INC.

Method Blank Report

GC/MS Volatiles

Lot-Sample #: F1H030000-339 B Work Order #: EHGC11AA Matrix: WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: F1G200264 Work Order #...: EHG11AC-LCS Matrix.....: WATER
 LCS Lot-Sample#: F1H030000-339 EHG11AD-LCSD
 Prep Date.....: 08/02/01 Analysis Date...: 08/03/01
 Prep Batch #...: 1215339 Analysis Time...: 05:17
 Dilution Factor: 1

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCENT RECOVERY</u>	<u>RPD</u>	<u>METHOD</u>
Benzene	10.0	10.4	ug/L	104		SW846 8260B
	10.0	10.5	ug/L	105	0.47	SW846 8260B
Toluene	10.0	10.2	ug/L	102		SW846 8260B
	10.0	10.6	ug/L	106	3.4	SW846 8260B
Trichloroethene	10.0	10.6	ug/L	106		SW846 8260B
	10.0	10.8	ug/L	108	1.2	SW846 8260B

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
4-Bromofluorobenzene	101	(72 - 116)
	105	(72 - 116)
Toluene-d8	100	(79 - 124)
	103	(79 - 124)
Dibromofluoromethane	100	(71 - 128)
	102	(71 - 128)
1,2-Dichloroethane-d4	102	(65 - 126)
	102	(65 - 126)

NOTE (S) :

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

Bold print denotes control parameters

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 26 Pages

Report No.: 17877

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
W03560	C01-037	B126N9	J1G170277-1	EGG8C1AC	9EGG8C10	1220383
		B126N9	J1G170277-1	EGG8C2AA	9EGG8C20	1270535





CERTIFICATE OF ANALYSIS

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

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

Tel: 509 375 3131
Fax: 509 375 5590
www.stl-inc.com

October 9, 2001

Attention: Joan Kessner

SAF Number	:	C01-037
Date SDG Closed	:	July 31, 2001
Number of Samples	:	One (1)
Sample Type	:	Water
SDG Number	:	W03560
Data Deliverable	:	45-Day / Summary

I. Introduction

On July 31, 2001, one water sample was received at STL Richland (STLR) for radiochemical analysis. Upon receipt, the sample was assigned the following laboratory ID number to correspond with the Bechtel Hanford, Inc. (BHI) specific ID:

<u>STLR ID#</u>	<u>BHI ID#</u>	<u>MATRIX</u>	<u>DATE OF RECEIPT</u>
9EGG8C10	B126N9	WATER	7/17/01

II. Analytical Results/Methodology

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

The requested analyses were:

- Liquid Scintillation Counting**
- Technetium-99 by method RICH-RC-5078
- Total Uranium**
- Total Uranium by method RICH-RC-5058

Bechtel Hanford, Inc.
October 9, 2001
Page 2

III. Quality Control

The analytical results for each analysis performed under SDG W03560 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

Liquid Scintillation Counting

Technetium-99 by method RICH-RC-5078:

The LCS, batch blank, sample, sample duplicate (B126N9) and sample matrix spike (B126N9) results are within contractual requirements.

Total Uranium

Total Uranium by method RICH-RC-5058:

The batch blank result was greater than the CRDL; the batch was reanalyzed. The LCS, batch blank, sample, sample duplicate (B126N9) and sample matrix spike (B126N9) results for the reanalysis batch are within contractual requirements, and the data are accepted for reporting.

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

Reviewed and approved:



Jackie Waddell
Project Manager

Drinking Water Method Cross References

DRINKING WATER ASTM METHOD CROSS REFERENCES		
Referenced Method	Isotope(s)	STL Richland's SOP number
EPA 901.1	Cs-134, I-131	RICH-RC-5017
EPA 900.0	Alpha & Beta	RICH-RC-5014
EPA 903.1	Ra-226	RICH-RC-5005
EPA 904.0	Ra-228	RICH-RC-5005
EPA 905.0	Sr89/90	RICH-RC-5006
ASTM D2460	Total Radium	RICH-RC-5027
Standard Method 7500-U-C & ASTM D57174	Uranium	RICH-RC-5058
EPA 906.0	Tritium	RICH-RC-5007
NOTE:		
The Gross Alpha LCS is prepared with Am-241 (unless otherwise specified in the case narrative)		
The Gross Beta LCS is prepared with Sr/Y-90 (unless otherwise specified in the case narrative)		

Uncertainty Estimation

STL Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, $R = \text{constants} * f(x,y,z,\dots)$. 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/\sqrt{n}), 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 $(\text{Result}/\text{Expected})-1$ 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%. $Lc = (1.645 * \text{Sqrt}(2 * (\text{BkgndCnt}/\text{BkgndCntMin})/\text{SCntMin})) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol}) * \text{IngrFct})$. 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%. $MDC = (4.65 * \text{Sqrt}((\text{BkgndCnt}/\text{BkgndCntMin})/\text{SCntMin}) + 2.71/\text{SCntMin}) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol}) * \text{IngrFct})$. 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 = $(S-D)/[\text{sqrt}(\text{TPUs}^2 + \text{TPUD}^2)]$ 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

Date: 09-Oct-01

STL Richland STLRL

Ordered by Client Sample ID, Batch No.

Report No. : 17877

SDG No: W03560

Client ID	Work Order Number	Parameter	Result +- Uncertainty	Qual	Units	Yield	MDC MDA	RER	
B126N9	EGG8C1AC	TC-99	9.89E+01 +- 1.8E+01 (2s)		pCi/L	100.00%	1.14E+01		
B126N9	EGG8C2AA	TOTAL-URANIUM	1.17E+00 +- 1.9E-01 (2s)		ug/L		9.78E-03		
B126N9 DUP	EGG8C1AG	TC-99	1.02E+02 +- 1.8E+01 (2s)		pCi/L	100.00%	1.14E+01		
B126N9 DUP	EGG8C1AH	TOTAL-URANIUM	1.25E+00 +- 2.0E-01 (2s)		ug/L		9.78E-03		
Number of Results:		4							

QC Results Summary
STL Richland STLRL
 Ordered by QC Type, Batch No.

Date: 09-Oct-01

Report No. : 17877

SDG No.: W03560

QC Type	Work Order Number	Parameter	Result +/- Uncertainty	Qual	Units	Yield	Recovery	Bias	MDC MDA
MATRIX SPIK	EGG8C1AF	TC-99	3.54E+03 +- 3.0E+02 (2s)		pCi/L	100.00%	98.01%	0.0	1.14E+01
MATRIX SPIK	EGG8C1AJ	TOTAL-URANIUM	9.74E+00 +- 2.6E+00 (2s)		ug/L		105.93%	0.1	9.78E-03
BLANK QC	EHM331AA	TC-99	1.61E+00 +- 1.1E+01 (2s)	U	pCi/L	100.00%			1.14E+01
BLANK QC	EK78R1AA	TOTAL-URANIUM	2.29E-03 +- 6.7E-04 (2s)	U	ug/L				9.78E-03
LCS	EHM331AC	TC-99	5.21E+02 +- 5.2E+01 (2s)		pCi/L	100.00%	96.19%	0.0	1.14E+01
LCS	EK78R1AC	TOTAL-URANIUM	8.84E-01 +- 1.4E-01 (2s)		ug/L		97.40%	0.0	9.78E-03

Number of Results: 6

FORM I

Date: 09-Oct-01

SAMPLE RESULTS

Lab Name: STL Richland

SDG: W03560

Collection Date: 7/17/01 9:52:00 AM

Lot-Sample No.: J1G170277-1

Report No. : 17877

Received Date: 7/17/01 2:50:00 PM

Client Sample ID: B126N9

COC No. : C01-037-4

Matrix: WATER LIQUID

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1220383	Work Order: EGG8C1AC		Report DB ID: 9EGG8C10									
TC-99	9.89E+01		6.9E+00	1.8E+01	1.14E+01	pCi/L	100.00%	(8.7)	8/18/01 03:39 a		0.125	TC99CHEMLSC
						5.54E+00	1.50E+01	(10.9)			L	LSC4
Batch: 1270535	Work Order: EGG8C2AA		Report DB ID: 9EGG8C20									
TOTAL-URANIUM	1.17E+00			1.9E-01	9.78E-03	ug/L		(119.8)	10/4/01 01:04 p	100.0	100.0	UKPA
						3.46E-03	1.00E-01	(12.3)		ML	ML	LIP3

Number of Results: 2

Comments:

800000

FORM II

Date: 09-Oct-01

DUPLICATE RESULTS

Lab Name: STL Richland
 Lot-Sample No.: J1G170277-1
 Client Sample ID: B126N9 DUP

SDG: W03560
 Report No. : 17877
 COC No. : C01-037-4

Collection Date: 7/17/01 9:52:00 AM
 Received Date: 7/17/01 2:50:00 PM
 Matrix: WATER LIQUID

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1220383	Work Order: EGG8C1AG				Report DB ID: EGG8C1GR	Orig Sa DB ID: 9EGG8C10						
TC-99	1.02E+02		6.9E+00	1.8E+01	1.14E+01	pCi/L	100.00%	(9.)	8/18/01 05:43 a		0.125	TC99CHEMLSC
	9.89E+01	RER	0.3			1.50E+01		(11.1)			L	LSC4
Batch: 1270535	Work Order: EGG8C1AH				Report DB ID: EGG8C1HR	Orig Sa DB ID: 9EGG8C20						
TOTAL-URANIUM	1.25E+00			2.0E-01	9.78E-03	ug/L		(127.7)	10/4/01 12:53 p	100.0	100.0	UKPA
	1.17E+00	RER	0.6			1.00E-01		(12.3)		ML	ML	LIP3

Number of Results: 2

Comments:

600000

FORM II

Date: 09-Oct-01

BLANK RESULTS

Lab Name: STL Richland

SDG: W03560

Lot-Sample No.: J1H080000-383

Report No.: 17877

Matrix: WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1220383	Work Order: EHM331AA		Report DB ID: EHM331AB									
TC-99	1.61E+00	U	4.8E+00	1.1E+01	1.14E+01	pCi/L	100.00%	0.14	8/18/01 06:45 a		0.125	TC99CHEMLSC
					5.54E+00	1.50E+01		0.29			L	LSC4

Number of Results: 1

Comments:

000010

FORM II

Date: 09-Oct-01

BLANK RESULTS

Lab Name: STL Richland
 Lot-Sample No.: J11270000-535

SDG: W03560
 Report No. : 17877

Matrix: WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Analy Method, Primary Detector
Batch: 1270535	Work Order: EK78R1AA		Report DB ID: EK78R1AB									
TOTAL-URANIUM	2.29E-03	U		6.7E-04	9.78E-03	ug/L		0.23	10/4/01 12:42 p	100.0	100.0	UKPA
					3.46E-03	1.00E-01		(6.8)		ML	ML	LIP3

Number of Results: 1

Comments:

000011

FORM II

Date: 09-Oct-01

LCS RESULTS

Lab Name: STL Richland

SDG: W03560

Lot-Sample No.: J1H080000-383

Report No. : 17877

Matrix: WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector	
Batch: 1220383	Work Order: EHM331AC		Report DB ID: EHM331CS											
TC-99	5.21E+02		1.2E+01	5.2E+01	1.14E+01	pCi/L	100.00%	5.42E+02	8.4E+00	96.19%	8/18/01 07:46 a	0.125	TC99CHEMLSC	
Rec Limits:								70.	130.	0.0			L	LSC4

Number of Results: 1

Comments:

000012

FORM II

Date: 09-Oct-01

LCS RESULTS

Lab Name: STL Richland

SDG: W03560

Lot-Sample No.: J11270000-535

Report No. : 17877

Matrix: WATER

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1270535	Work Order: EK78R1AC		Report DB ID: EK78R1CS										
TOTAL-URANIUM	8.84E-01			1.4E-01	9.78E-03	ug/L		9.08E-01	6.3E-03	97.40%	10/4/01 12:45 p	100.0	UKPA
							Rec Limits:	70.	130.	0.0		ML	LIP3

Number of Results: 1

Comments:

000013

FORM II

Date: 09-Oct-01

MATRIX SPIKE RESULTS

Lab Name: STL Richland

SDG: W03560

Lot-Sample No.: J1G170277-1

Report No. : 17877

Matrix: WATER LIQUID

Parameter	SpikeResult, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC MDA	Rpt Unit, CRDL	Yield	Rec- overy	Exp- ected	Exp Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 1220383	Work Order: EGG8C1AF			Report DB ID: EGG8C1FW		Orig Sa DB ID: 9EGG8C10							
TC-99	3.54E+03		3.0E+01	3.0E+02	1.14E+01	pCi/L	100.00%	98.01%	3.61E+03	.4E+01	8/18/01 04:41 a	0.125	TC99CHEMLSC
	9.89E+01	RER	23.3									L	LSC4
Batch: 1270535	Work Order: EGG8C1AJ			Report DB ID: EGG8C1JW		Orig Sa DB ID: 9EGG8C20							
TOTAL-URANIUM	9.74E+00			2.6E+00	9.78E-03	ug/L		105.93%	9.20E+00	1.6E-01	10/4/01 01:01 p	98.2	UKPA
	1.17E+00	RER	6.5									ML	LIP3

Number of Results: 2

Comments:

000014

SEVERN**TRENT****SERVICES**Data Review Checklist
RADIOCHEMISTRY

Lot Number: <u>31G 170277</u>				
Client ID: <u>BHF</u>				
Due Date: <u>8-31-01</u>				
QC Batch Number: <u>1220383</u>			SDG Number: <u>3560</u>	
Method Test Parameter: <u>TC-99</u>				
Matrix: <u>Water</u>				
Review Item	Yes (✓)	No (✓)	N/A (✓)	2 nd Level Review (✓)
A. Calibration				
1. Is the calibration documentation included where applicable?			X-	✓
B. Sample Analysis				
1. Are the sample yields within acceptance criteria?			X	
2. Were all sample holding times met?			X	
3. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	X			
C. QC Samples				
1. Is the blank yield within acceptance criteria?			X	
2. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	X			
3. Does the blank result meet the Contract criteria?	X			
4. Is the blank result < the Contract Detection Limit?	X			
5. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			X	
6. Is the LCS result within acceptance criteria?	X			
7. Is the LCS yield within acceptance criteria?	X			
8. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	X			
9. Do the MS/MSD results and yields meet acceptance criteria?	X			
10. Do the duplicate sample results and yields meet acceptance criteria?	X			
D. Other				
1. Are all Nonconformances included and noted?			X	
2. Are all required forms filled out?	X			
3. Was the correct methodology used?	X			
4. Was transcription checked?	X			
5. Were all calculations checked at a minimum frequency?	X			
6. Were units checked?	X			✓

Comments on any "No" response: _____

First Level Review: Thomas E. MelantDate: 8/2/01Second Level Review: Julie WaddellDate: 8/21/01

Data Review Checklist
RADIOCHEMISTRY
First Level Review

Lot Number: J16170277
 Client ID: DGW
 Due Date: 8-31-01
 QC Batch Number: 1290535
 Method Test Parameter: uranium
 Matrix: water
 SDG Number: W03560

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

Comments on any "No" response: Blank ok on qc batch J04246

First Level Review: Pam Keitzel Date: 10-7-01



Data Review Checklist
 RADIOCHEMISTRY
 Second Level Review

QC Batch Number: 1270535

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

Comments on any "No" response: Reprep of 1220380 due to failed blank
Data acceptable

Second Level Review: Kuron Gill Date: 10-9-01

Clouseau Nonconformance Memo



NCM #: J04246	Classification: Anomaly
NCM Initiated By: Pam Kenitzer	Status: QAREVIEW
Date Opened: 10/08/01	Production Area: Environmental - Prep
Date Closed: N/A	Tests: UNat by KPA
Nonconformance: Blank result above Contract Limit	Lot #'s (Sample #'s): J1G170277 (1); J1I270000 (535)
Subcategory: Unknown	QC Batch: 1270535

Problem Description / Root Cause

Name	Date	Description
Pam Kenitzer	10/08/01	Blank was high on initial extraction. Reextraction was OK. Sample data for both batches near the same. Data accepted.

Corrective Action

Name	Date	Corrective Action
Pam Kenitzer	10/08/01	Samples reextracted.

Client Notification Summary

Client	Project Manager	Date Notified	Response Date	How Notified
BECHTEL HANFORD, INC.	Jackie Waddell	10/09/01	10/09/01	by narrative
	<u>Response</u>	<u>Response Details</u>		
	No response saved			

Approval History

Name	Date Approved:	Position
Pam Kenitzer	10/08/01	
David Harbinson	10/09/01	
Jackie Waddell	10/09/01	

0018

CHAIN OF CUSTODY

000019



STL Richland
Sample Check-in List

Date/Time Received: 7-17 1450

Client: BHI

SDG #: W03560 NA

Work Order Number: 116170217

SAF #: C01-037 NA

Shipping Container ID: 8m2-002

Chain Of Custody #: C01-037-4

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: 40 NA
5. Vermiculite/packing materials is NA Wet Dry
6. Number of samples in shipping container: 8
7. Sample holding times exceeded? NA Yes No
8. Samples have:
 - tape hazard labels
 - custody seals appropriate samples labels
9. Samples are:
 - in good condition leaking
 - broken have air bubbles
 (Only for samples requiring head space)
10. Sample pH taken? NA pH<2 pH>2
11. Were any anomalies identified in sample receipt? Yes No
12. Description of anomalies (include sample numbers): _____

Sample Custodian: [Signature] Date: 7-17-01

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on _____ by _____ Person contacted _____

No action necessary; process as is.

Project Manager _____ Date _____

Client Sample Screening Results

20-Jul-01

CLIENT CODE	ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B				
BHI	B126N9EGG8C		7/19/01 10:30:00 AM	QUAD21B	7/19/01 2:45:54 PM	B126N9EGG8C	30	5	0.088333333	51	0.81166667				
	EGG8C	LIQUID		Bkg:	7/19/01 2:15:55 AM		600	47	0.078333333	533	0.88833333				
Anl Date:	7/19/01	Tot Sa, Alq:	3.50E+00	,	1.00E+01	Alp; (Dpm/	2.59E-01	(uCi/	4.08E-05	(pCi/	1.17E+01	± 2.1E+01	CAT	2.1E+00	Lab
Ppt mg:	2.8	Units:	L	,	ml	Bet; Alq:	1.52E+00	Sa):	2.40E-04	L g):	6.87E+01	± 2.1E+01	I	7.3E-01	Alq L g

6/20
7/20/01

000022

RQC053

Severn Trent Laboratories, Inc.
Information Sheet Rad Prep

Run Date: 8/15/01
Time: 10:29:33

Parent Batch:
Associated Batches:

*
* QC BATCH: 1220383 *
*

Page: 1

S5: Technetium-99 by Liquid Scint
FP: Tc-99 Prp/SepRC5065
5I: CLIENT: HANFORD

Analytical Due Date: 8/31/01

Project Manager: JW2

Lot# Work Order	Analyt Due Client Matrix	Client Name Aliquot Geometry	Count	Time	Mid/Ave Date/Time	Tracer ID Spike ID	CRDL	Units	Screen Info - (Ci) Alpha Beta	PM Bin
J1G170277-001 EGG8C-1-AC WATER Comments: WATER	8/31/01	Bechtel Hanford, .0000	.000		7/17/01 9:52		15	pCi/L	1.17E-14 6.87E-14 J1G170277	JW2
J1G170277-001 S EGG8C-1-AF WATER Comments: WATER	8/31/01	Bechtel Hanford, .0000	.000		7/17/01 9:52			pCi/L	1.17E-14 6.87E-14 J1G170277	JW2
J1G170277-001 X EGG8C-1-AG WATER Comments: WATER	8/31/01	Bechtel Hanford, .0000	.000		7/17/01 9:52		15	pCi/L	1.17E-14 6.87E-14 J1G170277	JW2
J1H080000-383 B EHM33-1-AA WATER Comments:	8/31/01	Bechtel Hanford,			7/17/01 9:52		15	pCi/L	**NA **NA	JW2
J1H080000-383 C EHM33-1-AC WATER Comments:	8/31/01	Bechtel Hanford,			7/17/01 9:52		15	pCi/L	**NA **NA	JW2
J1H080000-383 B EHM33-1-AD WATER Comments:	8/31/01	Bechtel Hanford,			7/17/01 9:52		15	pCi/L	**NA **NA	JW2

Total Number of Samples In Batch: 00006

Batch Information:

Dry Wt: N

Decay Correct: Y

Blank Sub: None

Call In:

Uncert: Both

Sigma: 1.960

ODR: Target List + Other Detected

BLANK CRDL
Technetium 99 15

Tracer Yield

Type
RPD

QC Control Limits

** NYS = Not Yet Screened

** NA = Not Applicable

** Other = Other than Gross Alpha or Gross Beta

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

000023

ICOC Fraction Transfer/Status Report

ByDate: 7/22/01, 8/22/01, Batch: '1220383', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
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1220383

InCnt1	DOWNEYS	8/15/01 10:29:35 AM		
	DOWNEYS	InSep1	8/15/01 10:29:35 AM	RICH-RC-5065 REVISION 3
	BlackCL	InCnt1	8/17/01 11:06:28 AM	RICH-RD-0001 REVISION 1
	BlackCL	8/17/01 11:06:28 AM		

000024

RQC053

Severn Trent Laboratories, Inc.
Information Sheet Rad Prep

Run Date: 9/27/01
Time: 15:34:55

Parent Batch:
Associated Batches:

* QC BATCH: 1270535 *

Page: 1

SS: Total Uranium by KPA
DR: UNat Laser PrpRC5015
SI: CLIENT: HANFORD

Analytical Due Date: 8/31/01
Project Manager: JW2

Lot# Work Order	Analyt Due Client Matrix	Client Name Aliquot Geometry	Count	Time	Mid/Ave Date/Time	Tracer ID Spike ID	CRDL	Units	Screen Info - (Ci) Alpha Beta	PM Bin
J1G170277-001 X EGG8C-1-AH WATER Comments: WATER	8/31/01	Bechtel Hanford, .0000	.000		7/17/01 9:52		0.1	pCi/L	1.17E-14 6.87E-14 J1G170277	JW2
J1G170277-001 S EGG8C-1-AJ WATER Comments: WATER	8/31/01	Bechtel Hanford, .0000	.000		7/17/01 9:52			pCi/L	1.17E-14 6.87E-14 J1G170277	JW2
J1G170277-001 EGG8C-2-AA WATER Comments: WATER	8/31/01	Bechtel Hanford, .0000	.000		7/17/01 9:52		0.1	pCi/L	1.17E-14 6.87E-14 J1G170277	JW2
J1I270000-535 B EK78R-1-AA WATER Comments:	8/31/01	Bechtel Hanford,			7/17/01 9:52		0.1	pCi/L	**NA **NA	JW2
J1I270000-535 C EK78R-1-AC WATER Comments:	8/31/01	Bechtel Hanford,			7/17/01 9:52		0.1	pCi/L	**NA **NA	JW2

Total Number of Samples In Batch: 00005

Batch Information:

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

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

BLANK CRDL Tracer Yield Type QC Control Limits
Uranium 0.1 RPD

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

000025

10/8/01 8:21:45 AM

ICOC Fraction Transfer/Status Report

ByDate: 9/8/01, 10/9/01, Batch: '1270535', User: *All Order by BatchNbr,WorkOrderNbr,DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
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1270535

InCnt1	SILLIMANT	9/28/01 12:52:11 PM		
	SILLIMANT	InPrep	9/28/01 12:52:11 PM	RICH-RC-5015 REVISION 2
	MONROEJ	InCnt1	10/4/01 10:42:32 AM	RICH-RC-5058 REVISION 4
	MONROEJ	10/4/01 10:42:32 AM		

000026