

CASE NARRATIVE

Bechtel Hanford Incorporated
3190 George Washington Way
Richland, Washington 99352

December 11, 2000
Attention: Joan Kessner

Project Number	:	38953
SDG	:	W03348
Number of Samples	:	six
SAF	:	C01-001
Sample Matrix	:	water
Data Deliverable	:	Summary
Date SDG Closed	:	November 16, 2000

II. Introduction

On November 2, 2000, six water samples were received by STL-St. Louis for chemical analysis. The samples were received within temperature criteria. 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.

Analyses requested: 300.0 Anions IC - Sulfate
 6010 ICP Metals

Deviation from Request: There were no deviations.

IV. Definitions

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

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

V. Comments

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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.

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

The Anions for were received at the St. Louis lab on the day the holding time expired. The samples were run on 11/3/00 but some required dilutions. The dilutions were analyzed outside of holding time.

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

The Iron recovery of the MS/MSD for sample B10JR2 was below the 75% criteria. The data was flagged with an "N" qualifier. LCS recoveries were acceptable.

The Zinc CRI was above the 125% control limit at 126%.

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:



Marti Ward
St. Louis Project Manager

SAMPLE SUMMARY

FOK030278

<u>WO #</u>	<u>SAMPLE#</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
DPCF9	001	B10JR7	11/01/00	14:20
DPCGV	002	B10JT8	11/01/00	14:20
DPCG3	003	B10JR3	11/01/00	13:30
DPCG4	004	B10JT4	11/01/00	13:30
DPCG5	005	B10JR5	11/01/00	13:00
DPCG9	006	B10JT6	11/01/00	13:00

NOTE (S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, rain filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

METHODS SUMMARY

F0K030278

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Chloride	MCAWW 300.0A	MCAWW 300.0A
Fluoride	MCAWW 300.0A	MCAWW 300.0A
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3010A
Nitrate as N	MCAWW 300.0A	MCAWW 300.0A
Nitrite as N	MCAWW 300.0A	MCAWW 300.0A
Sulfate	MCAWW 300.0A	MCAWW 300.0A

References:

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

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

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

Run Date: 11/03/00
Time: 16:08:01
User Id.: WATSONJ

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100HR3(2)SEEP
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: C01-001
AMOUNT REC'D: 2X500P
STORAGE LOC: METALS,S39
LOT COMMENTS: QC is billable
MATRIX: WATER
SAMPLE ID: B10JR7
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:
ANIONS REQUIRE DUP
Beginning Depth: .00 Ending Depth: .00

QUOTE/SAR #: 38953
LAB ID: F-0K030278-001
WORK ORDER: DPCF9
RECEIVING DATE: 11/02/00
SAMPLING DATE: 11/01/00
ANALYTICAL DUE DATE: 12/04/00N
REPORT DUE DATE: 12/18/00
PRIORITY: 31
SAMPLING TIME: 14:20
RECEIVING TIME: 9:00
SDG# : W0-3348

***** ANALYSIS *****

	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Chloride (300.0, Ion Chromatography) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (I-88-CX-5I) DPCF9-1-AA Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	11/29/00
Inductively Coupled Plasma (6010B) METALS, TOTAL - Waters M6010_L AG,AL,BA,BE,CA,CD,CO,CR,CU,FE,KX,MG,MN,NA,NI,SB,SR,VX,ZN (I-05-QO-5I) DPCF9 Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	4/30/01
Fluoride (300.0, Ion Chromatography) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (I-88-C8-5I) DPCF9-1-A0 Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	11/29/00
Nitrate as N (300.0, Ion Chromatography) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (I-88-C9-5I) DPCF9-1-A1 Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	11/03/00
Nitrite as N (300.0, Ion Chromatography) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (I-88-GO-5I) DPCF9-1-A2 Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	11/03/00
Sulfate (300.0, Ion Chromatography) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (I-88-CY-5I) DPCF9-1-A3 Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	11/29/00

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

Run Date: 11/03/00
Time: 16:08:01
User Id.: WATSONJ

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100HR3(2)SEEP
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: C01-001
AMOUNT REC'D: 2X500P
STORAGE LOC: METALS,S39
LOT COMMENTS: QC is billable
MATRIX: WATER
SAMPLE ID: B10JR7
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:
ANIONS REQUIRE DUP
Beginning Depth: .00 Ending Depth: .00

QUOTE/SAR #: 38953
LAB ID: F-0K030278-001-D
WORK ORDER: DPCF9 MSD
RECEIVING DATE: 11/02/00
SAMPLING DATE: 11/01/00
ANALYTICAL DUE DATE: 12/04/00N
REPORT DUE DATE: 12/18/00
PRIORITY: 31
SAMPLING TIME: 14:20
RECEIVING TIME: 9:00
SDG# : W0-3348

***** ANALYSIS *****

WRK	REQUEST	EXTRACTION	ANALYSIS
LOC	DATE	EXP DATE	EXP DATE

Inductively Coupled Plasma (6010B)	06	11/03/00	0/00/00	4/30/01
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METALS, TOTAL - Waters

M6010_L AG,AL,BA,BE,CA,CD,CO,CR,CU,FE,KK,MG,MN,NA,NI,SB,SR,VX,ZN

(I-05-Q0-51) DPCF9 Protocol: A QC Program: CLIENT: HANFORD

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

Run Date: 11/03/00
Time: 16:08:01
User Id.: WATSONJ

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100HR3(2)SEEP
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: C01-001
AMOUNT REC'D: 2X500P
STORAGE LOC: METALS,S39
LOT COMMENTS: QC is billable
MATRIX: WATER
SAMPLE ID: B10JR7
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:
ANIONS REQUIRE DUP
Beginning Depth: .00 Ending Depth: .00

QUOTE/SAR #: 38953
LAB ID: F-0K030278-001-9
WORK ORDER: DPCP9 MS
RECEIVING DATE: 11/02/00
SAMPLING DATE: 11/01/00
ANALYTICAL DUE DATE: 12/04/00N
REPORT DUE DATE: 12/18/00
PRIORITY: 31
SAMPLING TIME: 14:20
RECEIVING TIME: 9:00
SDG# : W0-3348

***** ANALYSIS *****

	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Fluoride (300.0, Ion Chromatography) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (I-88-C8-5I) DPCF9-1-A4 Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	11/29/00
Nitrate as N (300.0, Ion Chromatography) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (I-88-C9-5I) DPCF9-1-A5 Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	11/03/00
Nitrite as N (300.0, Ion Chromatography) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (I-88-G0-5I) DPCF9-1-A6 Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	11/03/00
Sulfate (300.0, Ion Chromatography) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (I-88-CY-5I) DPCF9-1-A7 Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	11/29/00
Chloride (300.0, Ion Chromatography) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (I-88-CX-5I) DPCF9-1-A8 Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	11/29/00
Inductively Coupled Plasma (6010B) METALS, TOTAL - Waters M6010_L AG,AL,BA,BE,CA,CD,CO,CR,CU,FE,KX,MG,MN,NA,NI,SB,SR,VX,ZN (I-05-Q0-5I) DPCF9 Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	4/30/01

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

Run Date: 11/03/00
Time: 16:08:01
User Id.: WATSONJ

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100HR3(2)SEEP
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: C01-001
AMOUNT REC'D: 500P
STORAGE LOC: METALS
LOT COMMENTS: QC is billable
MATRIX: WATER
SAMPLE ID: B10JT8
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:

QUOTE/SAR #: 38953
LAB ID: F-0K030278-002
WORK ORDER: DPCGV
RECEIVING DATE: 11/02/00
SAMPLING DATE: 11/01/00
ANALYTICAL DUE DATE: 12/04/00N
REPORT DUE DATE: 12/18/00
PRIORITY: 31
SAMPLING TIME: 14:20
RECEIVING TIME: 9:00
SDG# : W0-3348

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****

WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
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Inductively Coupled Plasma (6010B)	06	11/03/00	0/00/00	4/30/01
METALS, FILTERED (DISS) -> TOTAL				
M6010DS AG,AL,BA,BE,CA,CD,CO,CR,CU,FE,KK,MG,MN,NA,NI,SB,SR,VX,ZN				
(I-55-QO-5I) DPCGV Protocol: A QC Program: CLIENT: HANFORD				

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

Run Date: 11/03/00
Time: 16:08:01
User Id.: WATSONJ

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100HR3(2)SEEP
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBS-A-19981
SITE: C01-001
AMOUNT REC'D: 2X500P
STORAGE LOC: METALS,S39
LOT COMMENTS: QC is billable
MATRIX: WATER
SAMPLE ID: B10JR3
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:

QUOTE/SAR #: 38953
LAB ID: F-0K030278-003
WORK ORDER: DPCG3
RECEIVING DATE: 11/02/00
SAMPLING DATE: 11/01/00
ANALYTICAL DUE DATE: 12/04/00N
REPORT DUE DATE: 12/18/00
PRIORITY: 31
SAMPLING TIME: 13:30
RECEIVING TIME: 9:00
SDG# : W0-3348

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Chloride (300.0, Ion Chromatography) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (I-88-CX-5I) DPCG3-1-AA Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	11/29/00
Inductively Coupled Plasma (6010B) METALS, TOTAL - Waters M6010_L AG,AL,BA,BE,CA,CD,CO,CR,CU,FE,KX,MG,MN,NA,NI,SB,SR,VX,ZN (I-05-Q0-5I) DPCG3 Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	4/30/01
Fluoride (300.0, Ion Chromatography) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (I-88-C8-5I) DPCG3-1-A0 Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	11/29/00
Nitrate as N (300.0, Ion Chromatography) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (I-88-C9-5I) DPCG3-1-A1 Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	11/03/00
Nitrite as N (300.0, Ion Chromatography) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (I-88-G0-5I) DPCG3-1-A2 Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	11/03/00
Sulfate (300.0, Ion Chromatography) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (I-88-CY-5I) DPCG3-1-A3 Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	11/29/00

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

Run Date: 11/03/00
Time: 16:08:01
User Id.: WATSONJ

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100HR3(2)SEEP
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: C01-001
AMOUNT REC'D: 500P
STORAGE LOC: METALS
LOT COMMENTS: QC is billable
MATRIX: WATER
SAMPLE ID: B10JT4
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:

QUOTE/SAR #: 38953
LAB ID: F-0K030278-004
WORK ORDER: DPCG4
RECEIVING DATE: 11/02/00
SAMPLING DATE: 11/01/00
ANALYTICAL DUE DATE: 12/04/00N
REPORT DUE DATE: 12/18/00
PRIORITY: 31
SAMPLING TIME: 13:30
RECEIVING TIME: 9:00
SDG# : W0-3348

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****

WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
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Inductively Coupled Plasma (6010B)	06	11/03/00	0/00/00	4/30/01
METALS, FILTERED (DISS) -> TOTAL				
M6010DS AG,AL,BA,BE,CA,CD,CO,CR,CU,FE,KX,MG,MN,NA,NI,SB,SR,VX,ZN				
(I-55-Q0-5I) DPCG4 Protocol: A QC Program: CLIENT: HANFORD				

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

Run Date: 11/03/00
Time: 16:08:01
User Id.: WATSONJ

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100HR3(2)SEEP
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: C01-001
AMOUNT REC'D: 2X500P
STORAGE LOC: METALS,S39
LOT COMMENTS: QC is billable
MATRIX: WATER
SAMPLE ID: B10JR5
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:

QUOTE/SAR #: 38953
LAB ID: F-0K030278-005
WORK ORDER: DPCG5
RECEIVING DATE: 11/02/00
SAMPLING DATE: 11/01/00
ANALYTICAL DUE DATE: 12/04/00N
REPORT DUE DATE: 12/18/00
PRIORITY: 31
SAMPLING TIME: 13:00
RECEIVING TIME: 9:00
SDG# : W0-3348

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****	WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
Chloride (300.0, Ion Chromatography) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (I-88-CX-5I) DPCG5-1-AA Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	11/29/00
Inductively Coupled Plasma (6010B) METALS, TOTAL - Waters M6010_L AG,AL,BA,BE,CA,CD,CO,CR,CU,FE,KX,MG,MN,NA,NI,SB,SR,VX,ZN (I-05-QO-5I) DPCG5 Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	4/30/01
Fluoride (300.0, Ion Chromatography) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (I-88-C8-5I) DPCG5-1-A0 Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	11/29/00
Nitrate as N (300.0, Ion Chromatography) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (I-88-C9-5I) DPCG5-1-A1 Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	11/03/00
Nitrite as N (300.0, Ion Chromatography) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (I-88-GO-5I) DPCG5-1-A2 Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	11/03/00
Sulfate (300.0, Ion Chromatography) NO SAMPLE PREPARATION PERFORMED / DIRECT INJECTION (I-88-CY-5I) DPCG5-1-A3 Protocol: A QC Program: CLIENT: HANFORD	06	11/03/00	0/00/00	11/29/00

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

Run Date: 11/03/00
Time: 16:08:01
User Id.: WATSONJ

CLIENT: 127642 BECHTEL HANFORD, INC.
PROJECT MANAGER: MARTI WARD
PROJECT #: 100HR3(2)SEEP
REPORT TO: Joan Kessner
P.O. NUMBER: MRC-SBB-A-19981
SITE: C01-001
AMOUNT REC'D: 500P
STORAGE LOC: METALS
LOT COMMENTS: QC is billable
MATRIX: WATER
SAMPLE ID: B10JT6
QC PACKAGE: Special Report - see checklist
SAMPLE COMMENTS:

QUOTE/SAR #: 38953
LAB ID: P-0K030278-006
WORK ORDER: DPCG9
RECEIVING DATE: 11/02/00
SAMPLING DATE: 11/01/00
ANALYTICAL DUE DATE: 12/04/00N
REPORT DUE DATE: 12/18/00
PRIORITY: 31
SAMPLING TIME: 13:00
RECEIVING TIME: 9:00
SDG# : W0-3348

Beginning Depth: .00 Ending Depth: .00

***** ANALYSIS *****

WRK LOC	REQUEST DATE	EXTRACTION EXP DATE	ANALYSIS EXP DATE
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Inductively Coupled Plasma (6010B)	06	11/03/00	0/00/00	4/30/01
METALS, FILTERED (DISS) -> TOTAL				
M6010DS AG,AL,BA,BE,CA,CD,CO,CR,CU,FE,KX,MG,MN,NA,NI,SB,SR,VX,ZN				
(I-55-Q0-5I) DPCG9 Protocol: A QC Program: CLIENT: HANFORD				

LDT #F0K030278

0-27023

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STL St. Louis

PNNL	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # C01-001-12
		Page 1 of 1

Collector <i>E. Radford</i>	Contact/Requester JH KESSNER	Telephone No. (314) 375-4688	MSRN FAX
SAF No. C01-001	Sampling Origin HANFORD SITE	Purchase Order/Charge Code	
Project Title 100HR3(2) SHEEP SAMPLING, OCTOBER 2000	Logbook No.	Ice Chest No.	Temp.
Shipped To (Lab) Severn Trust Incorporated	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No.	
Protocol CERCLA	Data Turnaround 45 Days	Other Property No.	

POSSIBLE SAMPLE HAZARDS/REMARKS SDA W03348 JOK020171	SPECIAL INSTRUCTIONS Hold Time Submit deliverables & invoices to JH Kessner FAX STL log-in to JH Kessner (372-9487) & DL Stewart (372-1704) Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10JR7		W	11/1/00	14:20	1x500-mL G/P	6010_METALS_ICP: List-1 (19)	HNO3 to pH <2
B10JR7		W			1x500-mL P	300.0_AMONIS_IC: List-1 (8)	Cool 4C
B10JR7		W			1x1000-mL P	8310_ALPHABETA_GPC: Alpha + Beta (2)	HNO3 to pH <2
B10JR7		W			1x20-mL P	Activity Scan	None
B10JR7		W			1x1000-mL P	TRITIUM_DIST_LSC: H-S (1)	None
B10JT8 (F)		W			1x500-mL G/P	6010_METALS_ICP: List-1 (19)	HNO3 to pH <2

DN8DC

Relinquished By <i>E. Radford & Charles</i>	Print <i>Signature</i>	Sign <i>Signature</i>	Date/Time <i>11/7/00 14:20</i>	Received By <i>locked storage</i>	Print <i>Signature</i>	Sign <i>Signature</i>	Date/Time <i>11/1/00 14:20</i>	Matrix * S = Soil DS = Drum Solid SE = Sediment DL = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By <i>locked storage</i>			Date/Time <i>11-2-00 07:30</i>	Received By <i>E. Radford & Charles</i>			Date/Time <i>11-2-00 07:30</i>	
Relinquished By <i>E. Radford & Charles</i>			Date/Time <i>11-2-00 07:45</i>	Received By <i>K. Schindler</i>			Date/Time <i>11-2-00</i>	
Relinquished By <i>K. Schindler</i>			Date/Time <i>11-2-00 1600</i>	Received By <i>Jel Clarke</i>			Date/Time <i>110300 0900</i>	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)						Disposed By	Date/Time

LOT #F0K030278

CUR 1380

STL St. Louis

PNNL W03348	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C.# C01-001-8
		Page 1 of 1

Collector E. Radford	Contact/Requester H. KESSNER	Telephone No. MSRN FAX (509) 375-4688
SAF No. C01-001	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title 100HR301 SHEP SAMPLING, OCTOBER 2000	Logbook No.	Ice Chest No. Temp.
Shipped To (Lab) Severn Trent Incorporated	Method of Shipment GOVT VEHICLE	Bill of Lading/Air Bill No.
Protocol CERCLA	Date Turnaround 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS * *	SPECIAL INSTRUCTIONS Held Time Submit deliverables & invoices to RH Kessner FAX STL log-in to RH Kessner (372-9487) & DL Stewart (372-1784)
	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10JR3		W	11/01/00	1330	1x500-ml. GP	6010_METALS_ICP: List-1 (10) ✓	HNO3 to pH <2
B10JR3		W			1x500-ml. P	300.0_ANIONS_IC: List-1 (9) ✓	Cool 4C
B10JR3		W			1x1000-ml. P	8910_ALPHA_BETA_GPC: Alpha + Beta (2)	HNO3 to pH <2
B10JR3		W			1x20-ml. P	Activity Scan	None
B10JR3		W			1x1800-ml. P	TRITIUM_DIST_LBC: H-3 (1)	None
B10JT4 (F)		W			1x500-ml. GP	6010_METALS_ICP: List-1 (10) ✓	HNO3 to pH <2
						DN8DM	

Relinquished By E. Radford <i>ER</i> 11-1-00 13:30	Received By Locked Storage <i>LS</i> 11/01/00 15:30	Matrix * S = Soil DS = Drum Solid SE = Sediment DL = Drum Liqui SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By Locked Storage <i>LS</i> 11-2-00 07:30	Received By E. Radford <i>ER</i> 11-2-00 02:30	
Relinquished By E. Radford <i>ER</i> 11-2-00 07:45	Received By K. DeHendriks <i>KD</i> 11-2-00 11:25	
Relinquished By K. DeHendriks <i>KD</i> 11-2-00 16:00	Received By Jill Clarke <i>JC</i> 11-2-00 09:02	

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By Jill Clarke
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CUR 1380

PNNL W03348	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C.# C01-001-10
Page 1 of 1		

Collector <i>E. Radford</i>	Contact/Requester JH KESSNER	Telephone No. MSN FAX (509) 375-4688
SAF No. C01-001	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title 100HR32) SEEP SAMPLING OCTOBER 2000	Logbook No.	Ice Chest No. Temp.
Shipped To (Lab) Severn Trent Incorporated	Method of Shipment GOVT VEHICLE	Bill of Lading/Air Bill No.
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS	SPECIAL INSTRUCTIONS Hold Time Submit deliverables & invoices to JH Kessner FAX STL log-in to JH Kessner (372-9487) & DL Stewart (372-1794)
Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10JR5		W	11/01/00	13:00	1x500-mL GP	6010_METALS_JCP: List-1 (10)	HNO3 to pH <2
B10JR5		W	↓	↓	1x500-mL P	300.0_ANIONS_IC: List-1 (6)	Cool 4C
B10JR5		W	↓	↓	1x1000-mL P	8310_ALPHABETA_GPC: Alpha + Beta (2)	HNO3 to pH <2
B10JR5		W	↓	↓	1x20-mL P	Activity Scan	None
B10JR5		W	↓	↓	1x1000-mL P	TRITIUM_DIST_LSC: H-3 (1)	None
B10JT6 (F)		W	↓	↓	1x500-mL GP	6010_METALS_JCP: List-1 (10)	HNO3 to pH <2
DU8DN							

Relinquished By <i>E. Radford</i> <i>Bladlow</i> 11/1/00 15:00	Received By locked storage <i>Sienna</i> 11-1-00 13:00	Matrix * S - Soil DS - Deam Solid SE - Sediment DL - Deam Liqui SO - Solid T - Tissue SL - Sludge WI - Wipe W - Water L - Liquid O - Oil V - Vegetation A - Air X - Other
Relinquished By locked storage 11/2/00 09:30	Received By <i>E. Radford</i> <i>Bladlow</i> 11-2-00 07:30	
Relinquished By <i>E. Radford</i> <i>Bladlow</i> 11/2/00 07:45	Received By <i>K. Schenck</i> 11-2-00 07:45	
Relinquished By <i>K. Schenck</i> 11-2-00 1600	Received By Jee Clarke 11-2-00 0900	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By Date/Time

Figure 1. Sample Check-in List

Date/Time Received: 11-2-00 745am SDG#: W03348

Work Order Number: JOK020171 SAF#: COI-001

Shipping Container ID: odd marked Chain of Custody #: COI-001-12
COI-001-8, COI-001-10

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

10. Samples have: <input checked="" type="checkbox"/> tape <input checked="" type="checkbox"/> custody seals	<input type="checkbox"/> hazard labels <input type="checkbox"/> appropriate sample labels
11. Samples are: <input checked="" type="checkbox"/> in good condition <input type="checkbox"/> broken	<input type="checkbox"/> leaking <input type="checkbox"/> have air bubbles

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

Sample Custodian/Laboratory: K. J. [Signature] Date: 11-2-00

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



Lot No.: F0K030278
W03348

Condition Upon Receipt Variance Report
St. Louis Laboratory

Client: STL Richland
Quote No: 38953
Shipper/No: 002663537 240 Airborne

Date: 110300 Time: 0900
Initiated by: Jill Clark
RFA/COC Numbers: 001-001-10
-812

Condition/Variance (Check all that apply):

- | | |
|---|--|
| 1. <input type="checkbox"/> Sample received broken/leaking. | 8. <input type="checkbox"/> Sample ID on container does not match sample ID on paperwork. Explain: _____ |
| 2. <input type="checkbox"/> Sample received without proper preservative.
<input type="checkbox"/> Cooler temperature not within 4C ± 2C
Record temperature: _____
<input type="checkbox"/> pH _____
<input type="checkbox"/> other: _____ | 9. <input type="checkbox"/> All coolers on airbill not received with shipment. |
| 3. <input type="checkbox"/> Sample received in improper container. | 10. <input type="checkbox"/> Sample volume insufficient for analysis |
| 4. <input type="checkbox"/> Sample received without proper paperwork. Explain: _____ | 11. <input type="checkbox"/> Other (explain below) _____ |
| 5. <input type="checkbox"/> Paperwork received without sample. | |
| 6. <input type="checkbox"/> No sample ID on sample container. | |
| 7. <input type="checkbox"/> Custody tape disturbed/broken/missing/not tamper evident type (circle all that apply). | |

- No variances were noted during sample receipt.
- Cooler Temperature Upon Receipt in °C: _____

Temperature Variance Does Not Affect the Following Analyses: _____

Notes: Did not receive DN8DC, DN8DM, DN8DN - rad samples remain in Richland
MW 11.6.00

Corrective Action:

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

Sample Control Supervisor Review: (or designate) Jill Clark Date: 110300

Project Management Review: MW Date: 11.6.00

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 HIS/HER INITIALS AND THE DATE NEXT TO THAT ITEM

BECHTEL HANFORD, INC.

Client Sample ID: B10JT8

DISSOLVED Metals

Lot-Sample #...: F0K030278-002

Date Sampled...: 11/01/00

Date Received...: 11/02/00

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...	0325476					
Aluminum	ND	200	ug/L	SW846 6010B	11/20-11/26/00	DPCGV1AA
		Dilution Factor: 1		MDL.....: 89.9		
Antimony	ND	60.0	ug/L	SW846 6010B	11/20-11/26/00	DPCGV1AC
		Dilution Factor: 1		MDL.....: 2.8		
Barium	21.6 B	200	ug/L	SW846 6010B	11/20-11/26/00	DPCGV1AD
		Dilution Factor: 1		MDL.....: 3.4		
Beryllium	ND	5.0	ug/L	SW846 6010B	11/20-11/26/00	DPCGV1AE
		Dilution Factor: 1		MDL.....: 0.30		
Cadmium	ND	5.0	ug/L	SW846 6010B	11/20-11/26/00	DPCGV1AF
		Dilution Factor: 1		MDL.....: 4.3		
Calcium	20800	5000	ug/L	SW846 6010B	11/20-11/26/00	DPCGV1AG
		Dilution Factor: 1		MDL.....: 189		
Chromium	ND	10.0	ug/L	SW846 6010B	11/20-11/26/00	DPCGV1AH
		Dilution Factor: 1		MDL.....: 4.1		
Cobalt	ND	50.0	ug/L	SW846 6010B	11/20-11/26/00	DPCGV1AJ
		Dilution Factor: 1		MDL.....: 4.3		
Copper	7.6 B	25.0	ug/L	SW846 6010B	11/20-11/26/00	DPCGV1AK
		Dilution Factor: 1		MDL.....: 4.1		
Iron	ND N	100	ug/L	SW846 6010B	11/20-11/26/00	DPCGV1AL
		Dilution Factor: 1		MDL.....: 34.9		
Magnesium	4360 B	5000	ug/L	SW846 6010B	11/20-11/26/00	DPCGV1AM
		Dilution Factor: 1		MDL.....: 180		
Manganese	ND	15.0	ug/L	SW846 6010B	11/20-11/26/00	DPCGV1AN
		Dilution Factor: 1		MDL.....: 1.2		
Nickel	ND	40.0	ug/L	SW846 6010B	11/20-11/26/00	DPCGV1AP
		Dilution Factor: 1		MDL.....: 19.9		
Potassium	ND	5000	ug/L	SW846 6010B	11/20-11/27/00	DPCGV1AQ
		Dilution Factor: 1		MDL.....: 1700		

(Continued on next page)

BECHTEL HANFORD, INC.

Client Sample ID: B10478

DISSOLVED METALS

Lot-Sample # : F0K030278-002

Matrix : WATER

PARAMETER	RESULT	LIMIT	UNITS	METHOD	ANALYSIS DATE	ORDER #	PREPARATION- WORK
Silver	ND	10.0	ug/L	SM846 6010B	11/20-11/26/00	DPCGV1AR	
Dilution Factor: 1							
Sodium	2400 B	5000	ug/L	SM846 6010B	11/20-11/27/00	DPCGV1AT	
Dilution Factor: 1							
Strontium	114	50.0	ug/L	SM846 6010B	11/20-11/26/00	DPCGV1AU	
Dilution Factor: 1							
Vanadium	ND	20.0	ug/L	SM846 6010B	11/20-11/26/00	DPCGV1AV	
Dilution Factor: 1							
Zinc	ND	20.0	ug/L	SM846 6010B	11/20-11/26/00	DPCGV1AW	
Dilution Factor: 1							

NOTE (S) :

B Estimated result. Result is less than RL.

N Spiked analysis recovery is outside stated control limits.

BECHTEL HANFORD, INC.

Client Sample ID: B10JT4

DISSOLVED Metals

Lot-Sample #...: F0K030278-004

Matrix.....: WATER

Date Sampled...: 11/01/00

Date Received...: 11/02/00

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
		LIMIT	UNITS			
Prep Batch #...: 0325476						
Aluminum	ND	200	ug/L	SW846 6010B	11/20-11/26/00	DPCG41AA
		Dilution Factor: 1		MDL.....: 89.9		
Antimony	ND	60.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG41AC
		Dilution Factor: 1		MDL.....: 2.8		
Barium	20.5 B	200	ug/L	SW846 6010B	11/20-11/26/00	DPCG41AD
		Dilution Factor: 1		MDL.....: 3.4		
Beryllium	ND	5.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG41AE
		Dilution Factor: 1		MDL.....: 0.30		
Cadmium	ND	5.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG41AF
		Dilution Factor: 1		MDL.....: 4.3		
Calcium	21600	5000	ug/L	SW846 6010B	11/20-11/26/00	DPCG41AG
		Dilution Factor: 1		MDL.....: 189		
Chromium	12.8	10.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG41AH
		Dilution Factor: 1		MDL.....: 4.1		
Cobalt	ND	50.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG41AJ
		Dilution Factor: 1		MDL.....: 4.3		
Copper	ND	25.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG41AK
		Dilution Factor: 1		MDL.....: 4.1		
Iron	ND N	100	ug/L	SW846 6010B	11/20-11/26/00	DPCG41AL
		Dilution Factor: 1		MDL.....: 34.9		
Magnesium	5160	5000	ug/L	SW846 6010B	11/20-11/26/00	DPCG41AM
		Dilution Factor: 1		MDL.....: 180		
Manganese	ND	15.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG41AN
		Dilution Factor: 1		MDL.....: 1.2		
Nickel	ND	40.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG41AP
		Dilution Factor: 1		MDL.....: 19.9		
Potassium	1890 B	5000	ug/L	SW846 6010B	11/20-11/27/00	DPCG41AQ
		Dilution Factor: 1		MDL.....: 1700		

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BECHTEL HANFORD, INC.

Client Sample ID: B10JT4

DISSOLVED Metals

Lot-Sample #...: F0K030278-004

Matrix.....: WATER

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Silver	ND	10.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG41AR
		Dilution Factor: 1		MDL.....: 5.2		
Sodium	5700	5000	ug/L	SW846 6010B	11/20-11/27/00	DPCG41AT
		Dilution Factor: 1		MDL.....: 143		
Strontium	116	50.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG41AU
		Dilution Factor: 1		MDL.....: 1.1		
Vanadium	ND	20.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG41AV
		Dilution Factor: 1		MDL.....: 5.6		
Zinc	ND	20.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG41AW
		Dilution Factor: 1		MDL.....: 14.3		

NOTE(S):

- B Estimated result. Result is less than RL.
- N Spiked analyte recovery is outside stated control limits.

BECHTEL HANFORD, INC.

Client Sample ID: B10JT6

DISSOLVED Metals

Lot-Sample #...: FOK030278-006

Matrix.....: WATER

Date Sampled...: 11/01/00

Date Received...: 11/02/00

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 0325476						
Aluminum	ND	200	ug/L	SW846 6010B	11/20-11/26/00	DPCG91AA
		Dilution Factor: 1		MDL.....: 89.9		
Antimony	ND	60.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG91AC
		Dilution Factor: 1		MDL.....: 2.8		
Barium	33.5 B	200	ug/L	SW846 6010B	11/20-11/26/00	DPCG91AD
		Dilution Factor: 1		MDL.....: 3.4		
Beryllium	ND	5.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG91AE
		Dilution Factor: 1		MDL.....: 0.30		
Cadmium	ND	5.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG91AF
		Dilution Factor: 1		MDL.....: 4.3		
Calcium	22800	5000	ug/L	SW846 6010B	11/20-11/26/00	DPCG91AG
		Dilution Factor: 1		MDL.....: 189		
Chromium	5.6 B	10.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG91AH
		Dilution Factor: 1		MDL.....: 4.1		
Cobalt	ND	50.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG91AJ
		Dilution Factor: 1		MDL.....: 4.3		
Copper	18.0 B	25.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG91AK
		Dilution Factor: 1		MDL.....: 4.1		
Iron	ND N	100	ug/L	SW846 6010B	11/20-11/26/00	DPCG91AL
		Dilution Factor: 1		MDL.....: 34.9		
Magnesium	5390	5000	ug/L	SW846 6010B	11/20-11/26/00	DPCG91AM
		Dilution Factor: 1		MDL.....: 180		
Manganese	ND	15.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG91AN
		Dilution Factor: 1		MDL.....: 1.2		
Nickel	ND	40.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG91AP
		Dilution Factor: 1		MDL.....: 19.9		
Potassium	ND	5000	ug/L	SW846 6010B	11/20-11/27/00	DPCG91AQ
		Dilution Factor: 1		MDL.....: 1700		

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BECETEL HANFORD, INC.

Client Sample ID: B10JT6

DISSOLVED Metals

Lot-Sample #...: FOK030278-006

Matrix.....: WATER

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
		LIMIT	UNITS			
Silver	ND	10.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG91AR
		Dilution Factor: 1		MDL.....: 5.2		
Sodium	4290 B	5000	ug/L	SW846 6010B	11/20-11/27/00	DPCG91AT
		Dilution Factor: 1		MDL.....: 143		
Strontium	128	50.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG91AU
		Dilution Factor: 1		MDL.....: 1.1		
Vanadium	ND	20.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG91AV
		Dilution Factor: 1		MDL.....: 5.6		
Zinc	44.5	20.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG91AW
		Dilution Factor: 1		MDL.....: 14.3		

NOTE(S):

- B Estimated result. Result is less than RL.
- N Spiked analyte recovery is outside stated control limits.

METHOD BLANK REPORT

DISSOLVED Metals

Client Lot #...: FOK030278

Matrix.....: WATER

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
MB Lot-Sample #: FOK200000-476 Prep Batch #...: 0325476						
Aluminum	ND	200	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1AA
		Dilution Factor: 1				
Antimony	ND	60.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1AC
		Dilution Factor: 1				
Barium	ND	200	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1AD
		Dilution Factor: 1				
Beryllium	ND	5.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1AE
		Dilution Factor: 1				
Cadmium	ND	5.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1AF
		Dilution Factor: 1				
Calcium	ND	5000	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1AG
		Dilution Factor: 1				
Chromium	ND	10.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1AH
		Dilution Factor: 1				
Cobalt	ND	50.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1AJ
		Dilution Factor: 1				
Copper	ND	25.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1AK
		Dilution Factor: 1				
Iron	ND	100	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1AL
		Dilution Factor: 1				
Magnesium	ND	5000	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1AM
		Dilution Factor: 1				
Manganese	ND	15.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1AN
		Dilution Factor: 1				
Nickel	ND	40.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1AP
		Dilution Factor: 1				
Potassium	ND	5000	ug/L	SW846 6010B	11/20-11/27/00	DP7XN1AQ
		Dilution Factor: 1				
Silver	ND	10.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1AR
		Dilution Factor: 1				

(Continued on next page)

METHOD BLANK REPORT

DISSOLVED Metals

Client Lot #...: F0K030278

Matrix.....: WATER

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>		<u>METHOD</u>	<u>PREPARATION-</u>	<u>WORK</u>
		<u>LIMIT</u>	<u>UNITS</u>		<u>ANALYSIS DATE</u>	<u>ORDER #</u>
Sodium	ND	5000	ug/L	SW846 6010B	11/20-11/27/00	DP7XN1AT
		Dilution Factor: 1				
Strontium	ND	50.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1AU
		Dilution Factor: 1				
Vanadium	ND	20.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1AV
		Dilution Factor: 1				
Zinc	ND	20.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1AW
		Dilution Factor: 1				

NOTE(S) :

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

LABORATORY CONTROL SAMPLE DATA REPORT

DISSOLVED Metals

Client Lot #...: FOK030278

Matrix.....: WATER

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCENT RECVRY</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>	
LCS Lot-Sample#: FOK200000-476 Prep Batch #...: 0325476								
Aluminum	1000	1200	ug/L	120	SW846 6010B	11/20-11/26/00	DP7XN1CX	
			Dilution Factor: 1					
Antimony	1000	1050	ug/L	105	SW846 6010B	11/20-11/26/00	DP7XN1C0	
			Dilution Factor: 1					
Barium	1000	1060	ug/L	106	SW846 6010B	11/20-11/26/00	DP7XN1C1	
			Dilution Factor: 1					
Beryllium	1000	1110	ug/L	111	SW846 6010B	11/20-11/26/00	DP7XN1C2	
			Dilution Factor: 1					
Cadmium	1000	1060	ug/L	106	SW846 6010B	11/20-11/26/00	DP7XN1C3	
			Dilution Factor: 1					
Calcium	20000	20700	ug/L	103	SW846 6010B	11/20-11/26/00	DP7XN1C4	
			Dilution Factor: 1					
Chromium	1000	1040	ug/L	104	SW846 6010B	11/20-11/26/00	DP7XN1C5	
			Dilution Factor: 1					
Cobalt	1000	1020	ug/L	102	SW846 6010B	11/20-11/26/00	DP7XN1C6	
			Dilution Factor: 1					
Copper	1000	1060	ug/L	106	SW846 6010B	11/20-11/26/00	DP7XN1C7	
			Dilution Factor: 1					
Iron	1000	909	ug/L	91	SW846 6010B	11/20-11/26/00	DP7XN1C8	
			Dilution Factor: 1					
Magnesium	20000	20700	ug/L	104	SW846 6010B	11/20-11/26/00	DP7XN1C9	
			Dilution Factor: 1					
Manganese	1000	1060	ug/L	106	SW846 6010B	11/20-11/26/00	DP7XN1DA	
			Dilution Factor: 1					
Nickel	1000	1040	ug/L	104	SW846 6010B	11/20-11/26/00	DP7XN1DC	
			Dilution Factor: 1					
Potassium	20000	18800	ug/L	94	SW846 6010B	11/20-11/27/00	DP7XN1DD	
			Dilution Factor: 1					

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

DISSOLVED Metals

Client Lot #....: F0K030278

Matrix.....: WATER

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCNT RECVRY</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Silver	250	254	ug/L	102	SW846 6010B	11/20-11/26/00	DP7XN1DE
			Dilution Factor: 1				
Sodium	20000	20100	ug/L	100	SW846 6010B	11/20-11/27/00	DP7XN1DF
			Dilution Factor: 1				
Strontium	1000	1110	ug/L	111	SW846 6010B	11/20-11/26/00	DP7XN1DG
			Dilution Factor: 1				
Vanadium	1000	1050	ug/L	105	SW846 6010B	11/20-11/26/00	DP7XN1DH
			Dilution Factor: 1				
Zinc	1000	1000	ug/L	100	SW846 6010B	11/20-11/26/00	DP7XN1DJ
			Dilution Factor: 1				

NOTE (S):

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

BECHTEL HANFORD, INC.

Client Sample ID: B10JR7

TOTAL Metals

Lot-Sample #...: FOK030278-001

Matrix.....: WATER

Date Sampled...: 11/01/00

Date Received...: 11/02/00

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Prep Batch #...: 0325476						
Aluminum	ND	200	ug/L	SW846 6010B	11/20-11/26/00	DPCF91AC
		Dilution Factor: 1		MDL.....: 89.9		
Antimony	ND	60.0	ug/L	SW846 6010B	11/20-11/26/00	DPCF91AD
		Dilution Factor: 1		MDL.....: 2.8		
Barium	22.7 B	200	ug/L	SW846 6010B	11/20-11/26/00	DPCF91AE
		Dilution Factor: 1		MDL.....: 3.4		
Beryllium	ND	5.0	ug/L	SW846 6010B	11/20-11/26/00	DPCF91AF
		Dilution Factor: 1		MDL.....: 0.30		
Cadmium	ND	5.0	ug/L	SW846 6010B	11/20-11/26/00	DPCF91AG
		Dilution Factor: 1		MDL.....: 4.3		
Calcium	21200	5000	ug/L	SW846 6010B	11/20-11/26/00	DPCF91AH
		Dilution Factor: 1		MDL.....: 189		
Chromium	ND	10.0	ug/L	SW846 6010B	11/20-11/26/00	DPCF91AJ
		Dilution Factor: 1		MDL.....: 4.1		
Cobalt	ND	50.0	ug/L	SW846 6010B	11/20-11/26/00	DPCF91AK
		Dilution Factor: 1		MDL.....: 4.3		
Copper	ND	25.0	ug/L	SW846 6010B	11/20-11/26/00	DPCF91AL
		Dilution Factor: 1		MDL.....: 4.1		
Iron	186 N	100	ug/L	SW846 6010B	11/20-11/26/00	DPCF91AM
		Dilution Factor: 1		MDL.....: 34.9		
Magnesium	4470 B	5000	ug/L	SW846 6010B	11/20-11/26/00	DPCF91AN
		Dilution Factor: 1		MDL.....: 180		
Manganese	11.1 B	15.0	ug/L	SW846 6010B	11/20-11/26/00	DPCF91AP
		Dilution Factor: 1		MDL.....: 1.2		
Nickel	ND	40.0	ug/L	SW846 6010B	11/20-11/26/00	DPCF91AQ
		Dilution Factor: 1		MDL.....: 19.9		
Potassium	ND	5000	ug/L	SW846 6010B	11/20-11/27/00	DPCF91AR
		Dilution Factor: 1		MDL.....: 1700		

(Continued on next page)

BECHTEL HANFORD, INC.

Client Sample ID: B10JR7

TOTAL Metals

Lot-Sample #...: FOK030278-001

Matrix.....: WATER

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION-	WORK
		LIMIT	UNITS		ANALYSIS DATE	ORDER #
Silver	ND	10.0	ug/L	SW846 6010B	11/20-11/26/00	DPCF91AT
		Dilution Factor: 1		MDL.....: 5.2		
Sodium	2430 B	5000	ug/L	SW846 6010B	11/20-11/27/00	DPCF91AU
		Dilution Factor: 1		MDL.....: 143		
Strontium	117	50.0	ug/L	SW846 6010B	11/20-11/26/00	DPCF91AV
		Dilution Factor: 1		MDL.....: 1.1		
Vanadium	ND	20.0	ug/L	SW846 6010B	11/20-11/26/00	DPCF91AW
		Dilution Factor: 1		MDL.....: 5.6		
Zinc	25.3	20.0	ug/L	SW846 6010B	11/20-11/26/00	DPCF91AX
		Dilution Factor: 1		MDL.....: 14.3		

NOTE(S):

B Estimated result. Result is less than RL.

N Spike sample recovery is outside control limits.

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: FOK030278

Matrix.....: WATER

Date Sampled...: 11/01/00

Date Received...: 11/02/00

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RFD	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: FOK030278-001 Prep Batch #...: 0325476									
Aluminum									
ND	2000	2260	ug/L	113			SW846 6010B	11/20-11/26/00	DPCF91A9
ND	2000	2250	ug/L	112	0.48		SW846 6010B	11/20-11/26/00	DPCF91CA
Dilution Factor: 1									
Antimony									
ND	500	512	ug/L	102			SW846 6010B	11/20-11/26/00	DPCF91CC
ND	500	505	ug/L	101	1.3		SW846 6010B	11/20-11/26/00	DPCF91CD
Dilution Factor: 1									
Barium									
22.7	2000	2140	ug/L	106			SW846 6010B	11/20-11/26/00	DPCF91CE
22.7	2000	2130	ug/L	105	0.80		SW846 6010B	11/20-11/26/00	DPCF91CF
Dilution Factor: 1									
Beryllium									
ND	50.0	56.0	ug/L	112			SW846 6010B	11/20-11/26/00	DPCF91CG
ND	50.0	55.6	ug/L	111	0.68		SW846 6010B	11/20-11/26/00	DPCF91CH
Dilution Factor: 1									
Cadmium									
ND	50.0	51.4	ug/L	103			SW846 6010B	11/20-11/26/00	DPCF91CJ
ND	50.0	50.9	ug/L	102	0.87		SW846 6010B	11/20-11/26/00	DPCF91CK
Dilution Factor: 1									
Calcium									
21200	50000	72400	ug/L	102			SW846 6010B	11/20-11/26/00	DPCF91CL
21200	50000	71600	ug/L	101	1.1		SW846 6010B	11/20-11/26/00	DPCF91CM
Dilution Factor: 1									
Chromium									
ND	200	211	ug/L	106			SW846 6010B	11/20-11/26/00	DPCF91CN
ND	200	213	ug/L	106	0.62		SW846 6010B	11/20-11/26/00	DPCF91CP
Dilution Factor: 1									
Cobalt									
ND	500	499	ug/L	100			SW846 6010B	11/20-11/26/00	DPCF91CQ
ND	500	495	ug/L	99	0.81		SW846 6010B	11/20-11/26/00	DPCF91CR
Dilution Factor: 1									
Copper									
ND	250	267	ug/L	107			SW846 6010B	11/20-11/26/00	DPCF91CT
ND	250	265	ug/L	106	0.80		SW846 6010B	11/20-11/26/00	DPCF91CU
Dilution Factor: 1									

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: FOK030278

Matrix.....: WATER

Date Sampled...: 11/01/00

Date Received...: 11/02/00

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Iron									
	186	1000	888 N	ug/L	70		SW846 6010B	11/20-11/26/00	DPCF91CV
	186	1000	872 N	ug/L	69	1.9	SW846 6010B	11/20-11/26/00	DPCF91CW
Dilution Factor: 1									
Magnesium									
	4470	50000	55900	ug/L	103		SW846 6010B	11/20-11/26/00	DPCF91CX
	4470	50000	55400	ug/L	102	0.79	SW846 6010B	11/20-11/26/00	DPCF91C0
Dilution Factor: 1									
Manganese									
	11.1	500	532	ug/L	104		SW846 6010B	11/20-11/26/00	DPCF91C1
	11.1	500	528	ug/L	103	0.71	SW846 6010B	11/20-11/26/00	DPCF91C2
Dilution Factor: 1									
Nickel									
	ND	500	516	ug/L	103		SW846 6010B	11/20-11/26/00	DPCF91C3
	ND	500	512	ug/L	102	0.60	SW846 6010B	11/20-11/26/00	DPCF91C4
Dilution Factor: 1									
Potassium									
	ND	50000	53000	ug/L	106		SW846 6010B	11/20-11/27/00	DPCF91C5
	ND	50000	52500	ug/L	105	0.81	SW846 6010B	11/20-11/27/00	DPCF91C6
Dilution Factor: 1									
Silver									
	ND	50.0	45.6	ug/L	91		SW846 6010B	11/20-11/26/00	DPCF91C7
	ND	50.0	44.3	ug/L	89	3.0	SW846 6010B	11/20-11/26/00	DPCF91C8
Dilution Factor: 1									
Sodium									
	2430	50000	52400	ug/L	100		SW846 6010B	11/20-11/27/00	DPCF91C9
	2430	50000	51900	ug/L	99	0.97	SW846 6010B	11/20-11/27/00	DPCF91DA
Dilution Factor: 1									
Strontium									
	117	1000	1240	ug/L	112		SW846 6010B	11/20-11/26/00	DPCF91DC
	117	1000	1230	ug/L	112	0.69	SW846 6010B	11/20-11/26/00	DPCF91DD
Dilution Factor: 1									
Vanadium									
	ND	500	526	ug/L	105		SW846 6010B	11/20-11/26/00	DPCF91DE
	ND	500	522	ug/L	104	0.66	SW846 6010B	11/20-11/26/00	DPCF91DF
Dilution Factor: 1									

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: F0K030278

Matrix.....: WATER

Date Sampled...: 11/01/00

Date Received...: 11/02/00

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Zinc	25.3	500	498	ug/L	95		SW846 6010B	11/20-11/26/00	DPCF91DG
	25.3	500	494	ug/L	94	0.80	SW846 6010B	11/20-11/26/00	DPCF91DH

Dilution Factor: 1

NOTE(S) :

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

N Spiked analyte recovery is outside stated control limits.

BECHTEL HANFORD, INC.

Client Sample ID: B10JR3

TOTAL Metals

Lot-Sample #...: FOK030278-003

Matrix.....: WATER

Date Sampled...: 11/01/00

Date Received...: 11/02/00

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION-	WORK
		LIMIT	UNITS		ANALYSIS DATE	ORDER #
Prep Batch #...: 0325476						
Aluminum	ND	200	ug/L	SW846 6010B	11/20-11/26/00	DPCG31AC
		Dilution Factor: 1		MDL.....: 89.9		
Antimony	ND	60.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG31AD
		Dilution Factor: 1		MDL.....: 2.8		
Barium	20.7 B	200	ug/L	SW846 6010B	11/20-11/26/00	DPCG31AE
		Dilution Factor: 1		MDL.....: 3.4		
Beryllium	ND	5.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG31AF
		Dilution Factor: 1		MDL.....: 0.30		
Cadmium	ND	5.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG31AG
		Dilution Factor: 1		MDL.....: 4.3		
Calcium	21200	5000	ug/L	SW846 6010B	11/20-11/26/00	DPCG31AH
		Dilution Factor: 1		MDL.....: 189		
Chromium	13.8	10.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG31AJ
		Dilution Factor: 1		MDL.....: 4.1		
Cobalt	ND	50.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG31AK
		Dilution Factor: 1		MDL.....: 4.3		
Copper	5.5 B	25.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG31AL
		Dilution Factor: 1		MDL.....: 4.1		
Iron	81.4 B,N	100	ug/L	SW846 6010B	11/20-11/26/00	DPCG31AN
		Dilution Factor: 1		MDL.....: 34.9		
Magnesium	5050	5000	ug/L	SW846 6010B	11/20-11/26/00	DPCG31AN
		Dilution Factor: 1		MDL.....: 180		
Manganese	2.6 B	15.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG31AP
		Dilution Factor: 1		MDL.....: 1.2		
Nickel	ND	40.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG31AQ
		Dilution Factor: 1		MDL.....: 19.9		
Potassium	ND	5000	ug/L	SW846 6010B	11/20-11/27/00	DPCG31AR
		Dilution Factor: 1		MDL.....: 1700		

(Continued on next page)

BECHTEL HANFORD, INC.

Client Sample ID: B10JR3

TOTAL Metals

Lot-Sample #...: FOK030278-003

Matrix.....: WATER

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION-	WORK
		LIMIT	UNITS		ANALYSIS DATE	ORDER #
Silver	ND	10.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG31AT
		Dilution Factor: 1		MDL.....: 5.2		
Sodium	5640	5000	ug/L	SW846 6010B	11/20-11/27/00	DPCG31AU
		Dilution Factor: 1		MDL.....: 143		
Strontium	113	50.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG31AV
		Dilution Factor: 1		MDL.....: 1.1		
Vanadium	ND	20.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG31AW
		Dilution Factor: 1		MDL.....: 5.6		
Zinc	22.6	20.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG31AX
		Dilution Factor: 1		MDL.....: 14.3		

NOTE(S):

- B Estimated result. Result is less than RL.
- N Spike sample recovery is outside control limits.

BECHTEL HANFORD, INC.

Client Sample ID: B10JR5

TOTAL Metals

Lot-Sample #...: FOK030278-005

Date Sampled...: 11/01/00

Date Received...: 11/02/00

Matrix.....: WATER

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
		LIMIT	UNITS			
Prep Batch #...: 0325476						
Aluminum	ND	200	ug/L	SW846 6010B	11/20-11/26/00	DPCG51AC
		Dilution Factor: 1		MDL.....: 89.9		
Antimony	ND	60.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG51AD
		Dilution Factor: 1		MDL.....: 3.8		
Barium	33.6 B	200	ug/L	SW846 6010B	11/20-11/26/00	DPCG51AE
		Dilution Factor: 1		MDL.....: 3.4		
Beryllium	ND	5.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG51AF
		Dilution Factor: 1		MDL.....: 0.30		
Cadmium	ND	5.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG51AG
		Dilution Factor: 1		MDL.....: 4.3		
Calcium	22800	5000	ug/L	SW846 6010B	11/20-11/26/00	DPCG51AH
		Dilution Factor: 1		MDL.....: 189		
Chromium	ND	10.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG51AJ
		Dilution Factor: 1		MDL.....: 4.1		
Cobalt	ND	50.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG51AK
		Dilution Factor: 1		MDL.....: 4.3		
Copper	ND	25.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG51AL
		Dilution Factor: 1		MDL.....: 4.1		
Iron	68.6 B,N	100	ug/L	SW846 6010B	11/20-11/26/00	DPCG51AM
		Dilution Factor: 1		MDL.....: 34.9		
Magnesium	5380	5000	ug/L	SW846 6010B	11/20-11/26/00	DPCG51AN
		Dilution Factor: 1		MDL.....: 180		
Manganese	1.8 B	15.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG51AP
		Dilution Factor: 1		MDL.....: 1.2		
Nickel	ND	40.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG51AQ
		Dilution Factor: 1		MDL.....: 19.9		
Potassium	ND	5000	ug/L	SW846 6010B	11/20-11/27/00	DPCG51AR
		Dilution Factor: 1		MDL.....: 1700		

(Continued on next page)

BECHTEL HANFORD, INC.

Client Sample ID: B10JR5

TOTAL Metals

Lot-Sample #...: F0K030278-005

Matrix.....: WATER

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION-	WORK
		LIMIT	UNITS		ANALYSIS DATE	ORDER #
Silver	ND	10.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG51AT
		Dilution Factor: 1		MDL.....: 5.2		
Sodium	4240 B	5000	ug/L	SW846 6010B	11/20-11/27/00	DPCG51AU
		Dilution Factor: 1		MDL.....: 143		
Strontium	128	50.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG51AV
		Dilution Factor: 1		MDL.....: 1.1		
Vanadium	ND	20.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG51AW
		Dilution Factor: 1		MDL.....: 5.6		
Zinc	ND	20.0	ug/L	SW846 6010B	11/20-11/26/00	DPCG51AX
		Dilution Factor: 1		MDL.....: 14.3		

NOTE(S):

B Estimated result. Result is less than RL.

N Spike sample recovery is outside control limits.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #....: F0K030278

Matrix.....: WATER

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
MB Lot-Sample #: F0K200000-476 Prep Batch #....: 0325476						
Aluminum	ND	200	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1AX
		Dilution Factor: 1				
Antimony	ND	60.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1A0
		Dilution Factor: 1				
Barium	ND	200	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1A1
		Dilution Factor: 1				
Beryllium	ND	5.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1A2
		Dilution Factor: 1				
Cadmium	ND	5.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1A3
		Dilution Factor: 1				
Calcium	ND	5000	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1A4
		Dilution Factor: 1				
Chromium	ND	10.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1A5
		Dilution Factor: 1				
Cobalt	ND	50.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1A6
		Dilution Factor: 1				
Copper	ND	25.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1A7
		Dilution Factor: 1				
Iron	ND	100	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1A8
		Dilution Factor: 1				
Magnesium	ND	5000	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1A9
		Dilution Factor: 1				
Manganese	ND	15.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1CA
		Dilution Factor: 1				
Nickel	ND	40.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1CC
		Dilution Factor: 1				
Potassium	ND	5000	ug/L	SW846 6010B	11/20-11/27/00	DP7XN1CD
		Dilution Factor: 1				
Silver	ND	10.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1CE
		Dilution Factor: 1				

(Continued on next page)

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: F0K030278

Matrix.....: WATER

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Sodium	ND	5000	ug/L	SW846 6010B	11/20-11/27/00	DP7XN1CF
		Dilution Factor: 1				
Strontium	ND	50.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1CG
		Dilution Factor: 1				
Vanadium	ND	20.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1CH
		Dilution Factor: 1				
Zinc	ND	20.0	ug/L	SW846 6010B	11/20-11/26/00	DP7XN1CJ
		Dilution Factor: 1				

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: FOK030278

Matrix.....: WATER

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCNT RECVRY</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>	
LCS Lot-Sample#: FOK200000-476 Prep Batch #...: 0325476								
Aluminum	1000	1200	ug/L	120	SW846 6010B	11/20-11/26/00	DP7XN1DK	
			Dilution Factor: 1					
Antimony	1000	1050	ug/L	105	SW846 6010B	11/20-11/26/00	DP7XN1DL	
			Dilution Factor: 1					
Barium	1000	1060	ug/L	106	SW846 6010B	11/20-11/26/00	DP7XN1DM	
			Dilution Factor: 1					
Beryllium	1000	1110	ug/L	111	SW846 6010B	11/20-11/26/00	DP7XN1DN	
			Dilution Factor: 1					
Cadmium	1000	1060	ug/L	106	SW846 6010B	11/20-11/26/00	DP7XN1DP	
			Dilution Factor: 1					
Calcium	20000	20700	ug/L	103	SW846 6010B	11/20-11/26/00	DP7XN1DQ	
			Dilution Factor: 1					
Chromium	1000	1040	ug/L	104	SW846 6010B	11/20-11/26/00	DP7XN1DR	
			Dilution Factor: 1					
Cobalt	1000	1020	ug/L	102	SW846 6010B	11/20-11/26/00	DP7XN1DT	
			Dilution Factor: 1					
Copper	1000	1060	ug/L	106	SW846 6010B	11/20-11/26/00	DP7XN1DU	
			Dilution Factor: 1					
Iron	1000	909	ug/L	91	SW846 6010B	11/20-11/26/00	DP7XN1DV	
			Dilution Factor: 1					
Magnesium	20000	20700	ug/L	104	SW846 6010B	11/20-11/26/00	DP7XN1DW	
			Dilution Factor: 1					
Manganese	1000	1060	ug/L	106	SW846 6010B	11/20-11/26/00	DP7XN1DX	
			Dilution Factor: 1					
Nickel	1000	1040	ug/L	104	SW846 6010B	11/20-11/26/00	DP7XN1D0	
			Dilution Factor: 1					
Potassium	20000	18800	ug/L	94	SW846 6010B	11/20-11/27/00	DP7XN1D1	
			Dilution Factor: 1					

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #....: FOK030278

Matrix.....: WATER

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCENT RECVRY</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Silver	250	254	ug/L	102	SW846 6010B	11/20-11/26/00	DP7XN1D2
			Dilution Factor: 1				
Sodium	20000	20100	ug/L	100	SW846 6010B	11/20-11/27/00	DP7XN1D3
			Dilution Factor: 1				
Strontium	1000	1110	ug/L	111	SW846 6010B	11/20-11/26/00	DP7XN1D4
			Dilution Factor: 1				
Vanadium	1000	1050	ug/L	105	SW846 6010B	11/20-11/26/00	DP7XN1D5
			Dilution Factor: 1				
Zinc	1000	1000	ug/L	100	SW846 6010B	11/20-11/26/00	DP7XN1D6
			Dilution Factor: 1				

NOTE(S):

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

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: FOK030278

Work Order #...: DPCF9-SMP
DPCF9-DUP

Matrix.....: WATER

Date Sampled...: 11/01/00

Date Received...: 11/02/00

<u>PARAM</u>	<u>RESULT</u>	<u>DUPLICATE</u> <u>RESULT</u>	<u>UNITS</u>	<u>RPD</u> <u>RPD</u>	<u>RPD</u> <u>LIMIT</u>	<u>METHOD</u>	<u>PREPARATION-</u> <u>ANALYSIS DATE</u>	<u>PREP</u> <u>BATCH #</u>
Chloride	1.1	1.1	mg/L	0.74	(0-20)	SD Lot-Sample #: FOK030278-001 MCAWW 300.0A	11/07/00	0322196
			Dilution Factor: 2					
Fluoride	0.21	0.22	mg/L	2.4	(0-20)	SD Lot-Sample #: FOK030278-001 MCAWW 300.0A	11/03/00	0322197
			Dilution Factor: 2					
Nitrate	0.52	11.0	mg/L	182	(0-20)	SD Lot-Sample #: FOK030278-001 MCAWW 300.0A	11/03/00	0322198
			Dilution Factor: 2					
Nitrite	ND	ND	mg/L	0	(0-20)	SD Lot-Sample #: FOK030278-001 MCAWW 300.0A	11/07/00	0340305
			Dilution Factor: 2					
Sulfate	10.8	10.8	mg/L	0.019	(0-20)	SD Lot-Sample #: FOK030278-001 MCAWW 300.0A	11/07/00	0340306
			Dilution Factor: 2					

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: FOK030278

Matrix.....: WATER

Date Sampled...: 11/01/00

Date Received...: 11/02/00

PARAMETER	SAMPLE SPIKE		MEASURED		PERCENT RECOVERY	METHOD	PREPARATION- PREP	
	AMOUNT	AMT	AMOUNT	UNITS			ANALYSIS DATE	BATCH #
Chloride	1.1	20.0	Work Order #...: DPCF91A8		105	MCAWW 300.0A	MS Lot-Sample #: FOK030278-001	
			22.0	mg/L			11/03/00	0322196
			Dilution Factor: 10					
Fluoride	0.21	2.00	Work Order #...: DPCF91A4		84	MCAWW 300.0A	MS Lot-Sample #: FOK030278-001	
			1.89	mg/L			11/03/00	0322197
			Dilution Factor: 1					
Nitrate	0.52	2.00	Work Order #...: DPCF91A5		120	MCAWW 300.0A	MS Lot-Sample #: FOK030278-001	
			2.92	mg/L			11/03/00	0322198
			Dilution Factor: 10					
Nitrite	ND	2.00	Work Order #...: DPCF91A6		102	MCAWW 300.0A	MS Lot-Sample #: FOK030278-001	
			2.05	mg/L			11/06/00	0340305
			Dilution Factor: 10					
Sulfate	10.8	20.0	Work Order #...: DPCF91A7		108	MCAWW 300.0A	MS Lot-Sample #: FOK030278-001	
			32.3	mg/L			11/06/00	0340306
			Dilution Factor: 10					

NOTE(S):

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

BECHTEL HANFORD, INC.

Client Sample ID: B10JR3

General Chemistry

Lot-Sample #...: F0K030278-003 Work Order #...: DPCG3 Matrix.....: WATER
 Date Sampled...: 11/01/00 Date Received...: 11/02/00

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Chloride	15.8	2.0	mg/L	MCAWW 300.0A MDL.....: 0.35	11/03/00	0322196
				Dilution Factor: 10		
Fluoride	1.8	1.0	mg/L	MCAWW 300.0A MDL.....: 0.10	11/03/00	0322197
				Dilution Factor: 10		
Nitrate	5.8	0.20	mg/L	MCAWW 300.0A MDL.....: 0.11	11/03/00	0322198
				Dilution Factor: 10		
Nitrite	ND	0.20	mg/L	MCAWW 300.0A MDL.....: 0.074	11/03/00	0322199
				Dilution Factor: 10		
Sulfate	147	5.0	mg/L	MCAWW 300.0A MDL.....: 1.1	11/03/00	0322200
				Dilution Factor: 10		

BECHTEL HANFORD, INC.

Client Sample ID: B10JR5

General Chemistry

Lot-Sample #...: FOK030278-005
 Date Sampled...: 11/01/00

Work Order #...: DPCG5
 Date Received...: 11/02/00

Matrix.....: WATER

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Chloride	47.9	4.0	mg/L	MCAWW 300.0A MDL.....: 0.69	11/03/00	0322196
		Dilution Factor: 20				
Fluoride	2.4	2.0	mg/L	MCAWW 300.0A MDL.....: 0.21	11/03/00	0322197
		Dilution Factor: 20				
Nitrate	19.6	0.40	mg/L	MCAWW 300.0A MDL.....: 0.21	11/03/00	0322198
		Dilution Factor: 20				
Nitrite	ND	0.40	mg/L	MCAWW 300.0A MDL.....: 0.15	11/03/00	0322199
		Dilution Factor: 20				
Sulfate	290	10.0	mg/L	MCAWW 300.0A MDL.....: 2.2	11/03/00	0322200
		Dilution Factor: 20				

METHOD BLANK REPORT

General Chemistry

Client Lot #...: FOK030278

Matrix.....: WATER

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
		LIMIT	UNITS			
Chloride	ND	Work Order #: DP2W41AA 0.20	mg/L	MB Lot-Sample #: FOK170000-196 MCAWW 300.0A	11/03/00	0322196
		Dilution Factor: 1				
Fluoride	ND	Work Order #: DP20M1AA 0.10	mg/L	MB Lot-Sample #: FOK170000-197 MCAWW 300.0A	11/03/00	0322197
		Dilution Factor: 1				
Nitrate	ND	Work Order #: DP2031AA 0.020	mg/L	MB Lot-Sample #: FOK170000-198 MCAWW 300.0A	11/03/00	0322198
		Dilution Factor: 1				
Nitrite	ND	Work Order #: DP2091AA 0.020	mg/L	MB Lot-Sample #: FOK170000-199 MCAWW 300.0A	11/03/00	0322199
		Dilution Factor: 1				
Nitrite	ND	Work Order #: DQTSV1AA 0.040	mg/L	MB Lot-Sample #: FOL050000-305 MCAWW 300.0A	11/07/00	0340305
		Dilution Factor: 1				
Sulfate	ND	Work Order #: DP21E1AA 0.50	mg/L	MB Lot-Sample #: FOK170000-200 MCAWW 300.0A	11/03/00	0322200
		Dilution Factor: 1				
Sulfate	ND	Work Order #: DQTSX1AA 1.0	mg/L	MB Lot-Sample #: FOL050000-306 MCAWW 300.0A	11/07/00	0340306
		Dilution Factor: 1				

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: FOK030278

Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #	
Chloride									
							WO#:DP2W41AC-LCS/DP2W41AD-LCSD LCS Lot-Sample#: FOK170000-196		
	1.00	0.962	mg/L	96		MCAWW 300.0A	11/03/00	0322196	
	1.00	0.988	mg/L	99	2.7	MCAWW 300.0A	11/03/00	0322196	
				Dilution Factor: 1					
Fluoride									
							WO#:DP20M1AC-LCS/DP20M1AD-LCSD LCS Lot-Sample#: FOK170000-197		
	1.00	0.938	mg/L	94		MCAWW 300.0A	11/03/00	0322197	
	1.00	1.04	mg/L	104	10	MCAWW 300.0A	11/03/00	0322197	
				Dilution Factor: 1					
Nitrate									
							WO#:DP2031AC-LCS/DP2031AD-LCSD LCS Lot-Sample#: FOK170000-198		
	0.200	0.204	mg/L	102		MCAWW 300.0A	11/03/00	0322198	
	0.200	0.208	mg/L	104	1.9	MCAWW 300.0A	11/03/00	0322198	
				Dilution Factor: 1					
Nitrite									
							WO#:DP2091AC-LCS/DP2091AD-LCSD LCS Lot-Sample#: FOK170000-199		
	0.0800	0.0800	mg/L	100		MCAWW 300.0A	11/03/00	0322199	
	0.0800	0.0810	mg/L	101	1.2	MCAWW 300.0A	11/03/00	0322199	
				Dilution Factor: 1					
Nitrite									
							WO#:DQT8V1AC-LCS/DQT8V1AD-LCSD LCS Lot-Sample#: FOL050000-305		
	0.0800	0.0840	mg/L	105		MCAWW 300.0A	11/07/00	0340305	
	0.0800	0.0830	mg/L	104	1.2	MCAWW 300.0A	11/07/00	0340305	
				Dilution Factor: 1					
Sulfate									
							WO#:DP21E1AC-LCS/DP21E1AD-LCSD LCS Lot-Sample#: FOK170000-200		
	4.00	3.70	mg/L	93		MCAWW 300.0A	11/03/00	0322200	
	4.00	3.77	mg/L	94	2.0	MCAWW 300.0A	11/03/00	0322200	
				Dilution Factor: 1					
Sulfate									
							WO#:DQT8X1AC-LCS/DQT8X1AD-LCSD LCS Lot-Sample#: FOL050000-306		
	4.00	3.87	mg/L	97		MCAWW 300.0A	11/07/00	0340306	
	4.00	3.88	mg/L	97	0.28	MCAWW 300.0A	11/07/00	0340306	
				Dilution Factor: 1					

NOTE(S):

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

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
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December 20, 2000

Attention: Joan Kessner

SAF Number : C01-001
Date SDG Closed : November 16, 2000
Number of Samples : Three (3)
Sample Type : Water
SDG Number : W03348
Data Deliverable : 45-Day / Summary



I. Introduction

On November 2, 2000, three water samples were received at STL Richland (STLR) for radiochemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Bechtel Hanford, Inc. (BHI) specific IDs:

<u>STLR ID#</u>	<u>BHI ID#</u>	<u>MATRIX</u>	<u>DATE OF RECEIPT</u>
9DN8DC10	B10JR7	WATER	11/2/00
9DN8DM10	B10JR3	WATER	11/2/00
9DN8DN10	B10JR5	WATER	11/2/00

II. Analytical Results/Methodology

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

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The requested analyses were:

- Gas Proportional Counting**
- Gross Alpha by method RICH-RC-5014
- Gross Beta by method RICH-RC-5014
- Liquid Scintillation Counting**
- Tritium by method RICH-RC-5007

III. Quality Control

The analytical results for each analysis performed under SDG W03348 includes a minimum of one laboratory control sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

IV. Comments

Gas Proportional Counting

Gross Alpha by method RICH-RC-5014:

The LCS, batch blank, samples and sample duplicate (B10JR3) results are within contractual requirements.

Gross Beta by method RICH-RC-5014:

The LCS, batch blank, samples and sample duplicate (B10JR5) results are within contractual requirements.

Liquid Scintillation Counting

Tritium by method RICH-RC-5007:

The LCS, batch blank, samples, and sample duplicate (B10JR7) results are within contractual requirements.

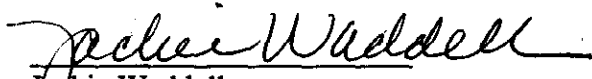
Pacific Northwest National Laboratories

December 20, 2000

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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

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Drinking Water Method Cross References

DRINKING WATER 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 D2460-70	Total Radium	RICH-RC-5027
Standard Method 7500-U-C & ASTM D57174-91	Uranium	RICH-RC-5058
Tritium	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, $R = \text{constants} * f(x,y,z,...)$. 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.

SAMPLE RESULTS

LAB NAME: STL Richland

SDG: /RPT GRP: W03348 / 12230

LOT,RPT DB ID: J0K020171-2 9DN8DM10

MATRIX: WATER

CLIENT ID: B10JR3

DATE RECEIVED: 11/2/00 7:45:00 AM

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/IDL	RPT UNIT	YIELD	METHOD NUMBER	WORK ORDE	BAT- CH
ALPHA	1.04E+00	U	8.3E-01	8.6E-01	1.04E+00	pCi/L	100.00%	RICHRC5014	DN8DM	0333267
BETA	3.80E+00	J	1.5E+00	1.6E+00	2.66E+00	pCi/L	100.00%	RICHRC5014	DN8DM	0333268
H-3	4.29E+02		1.6E+02	2.4E+02	3.41E+02	pCi/L	100.00%	RICHRC5007	DN8DM	0333264

Number of Results:

DUPLICATE RESULTS

LAB NAME: STL Richland SDG: /RPT GRP: W03348 / 12230
 LOT,RPT DB ID: J0K020171-1 DN8DC1ER MATRIX: WATER
 CLIENT ID: B10JR7 DUP DATE RECEIVED: 11/2/00 7:45:00 AM
 ORIG LAB ID: 9DN8DC10

ANALYTE	DUP RESULT	COUNTING Q ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
H-3	2.46E+02	U 1.5E+02	2.3E+02	3.41E+02	pCi/L	100.00%	RICHRC5007	2.06E+02	17.50%

Number of Results:

DUPLICATE RESULTS

LAB NAME: STL Richland SDG: /RPT GRP: W03348 / 12230
 LOT,RPT DB ID: J0K020171-3 DN8DN1ER MATRIX: WATER
 CLIENT ID: B10JR5 DUP DATE RECEIVED: 11/2/00 7:45:00 AM
 ORIG LAB ID: 9DN8DN10

ANALYTE	DUP RESULT	COUNTING Q ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
BETA	2.53E+00	J 1.3E+00	1.4E+00	2.51E+00	pCi/L	100.00%	RICHRC5014	9.24E-01	92.99%

Number of Results:

BLANK RESULTS

LAB NAME: STL Richland SDG /RPT GRP: W03348 / 12230
 LOT,RPT DB ID: J0K280000-264 DQFN91DB MATRIX: WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA/IDL	RPT UNIT	YIELD	METHOD NUMBER	WORK ORDE	BAT- CH
H-3	-4.21E+01	U	1.3E+02	2.0E+02	3.44E+02	pCi/L	100.00%	RICHRC5007	DQFN9	0333264

Number of Results:

Result = IDL When Not Detected
 (Q)ualifiers: U = Analyte result < MDA/IDL,
 J = No U qualifier and result < RDL

LABORATORY CONTROL SAMPLE

LAB NAME: STL Richland SDG: /RPT GRP: W03348 / 12230
 LAB SAMPLE ID: DQFN91CS MATRIX: WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
H-3	2.76E+03		2.6E+02	4.0E+02	3.42E+02	pCi/L	100.00%	2.73E+03	101.15%

Number of Results:

LABORATORY CONTROL SAMPLE

LAB NAME: STL Richland SDG: /RPT GRP: W03348 / 12230
 LAB SAMPLE ID: DQFN91EM MATRIX: WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
H-3	2.76E+03		2.6E+02	4.0E+02	3.44E+02	pCi/L	100.00%	2.73E+03	101.09%

Number of Results:

LABORATORY CONTROL SAMPLE

LAB NAME: STL Richland SDG: /RPT GRP: W03348 / 12230
 LAB SAMPLE ID: DQFPC1CS MATRIX: WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
ALPHA	2.26E+01		3.0E+00	5.7E+00	9.28E-01	pCi/L	100.00%	2.28E+01	99.12%

Number of Results:

LABORATORY CONTROL SAMPLE

LAB NAME: STL Richland SDG: /RPT GRP: W03348 / 12230
 LAB SAMPLE ID: DQFPD1CS MATRIX: WATER

ANALYTE	RESULT	Q	COUNTING ERROR (2 s)	TOTAL ERROR (2 s)	MDA/ IDL	REPORT UNIT	YIELD	EXPECTED	RECOVERY
BETA	2.23E+01		2.4E+00	3.9E+00	2.60E+00	pCi/L	100.00%	2.26E+01	98.33%

Number of Results:

**SEVERN
TRENT
SERVICES**

Data Review Checklist
RADIOCHEMISTRY

Lot Number: JOK020171				
Client ID: BHZ				
Due Date: 12-18-00				
QC Batch Number: 0333267			SDG Number: W03348	
Method Test Parameter: <u> </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?			✓	✓
B. Sample Analysis			✓	
1. Are the sample yields within acceptance criteria?			✓	
2. Were all sample holding times met?	✓		✓	
3. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓			
C. QC Samples			✓	
1. Is the blank yield within acceptance criteria?			✓	
2. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓			
3. Does the blank result meet the Contract criteria?	✓			
4. Is the blank result < the Contract Detection Limit?	✓			
5. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓	
6. Is the LCS result within acceptance criteria?	✓		✓	
7. Is the LCS yield within acceptance criteria?			✓	
8. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		✓	
9. Do the MS/MSD results and yields meet acceptance criteria?			✓	
10. Do the duplicate sample results and yields meet acceptance criteria?	✓			
D. Other			✓	
1. Are all Nonconformances included and noted?	✓			
2. Are all required forms filled out?	✓			
3. Was the correct methodology used?	✓			
4. Was transcription checked?	✓			
5. Were all calculations checked at a minimum frequency?	✓			
6. Were units checked?	✓			✓

Comments on any "No" response: _____

First Level Review: *Debra King* Date: 12-18-00
 Second Level Review: *Karen Bull* Date: 12-19-00

**SEVERN
TRENT
SERVICES**

Data Review Checklist
RADIOCHEMISTRY

Lot Number: <u>30K020171</u>				
Client ID: <u>BNI</u>				
Due Date: <u>12-18-00</u>				
QC Batch Number: <u>0333268</u>			SDG Number: <u>W03348</u>	
Method Test Parameter: <u>Beta</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?			✓	✓
B. Sample Analysis			✓	
1. Are the sample yields within acceptance criteria?			✓	
2. Were all sample holding times met?			✓	
3. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓			
C. QC Samples			✓	
1. Is the blank yield within acceptance criteria?			✓	
2. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓			
3. Does the blank result meet the Contract criteria?	✓			
4. Is the blank result < the Contract Detection Limit?	✓			
5. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓	
6. Is the LCS result within acceptance criteria?	✓			
7. Is the LCS yield within acceptance criteria?			✓	
8. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓			
9. Do the MS/MSD results and yields meet acceptance criteria?			✓	
10. Do the duplicate sample results and yields meet acceptance criteria?	✓			
D. Other			✓	
1. Are all Nonconformances included and noted?			✓	
2. Are all required forms filled out?	✓			
3. Was the correct methodology used?	✓			
4. Was transcription checked?	✓			
5. Were all calculations checked at a minimum frequency?	✓			
6. Were units checked?	✓			✓

Comments on any "No" response: _____

First Level Review: David Harding Date: 12-18-00
 Second Level Review: Karen Spall Date: 12-19-00

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

Lot Number: <u>JOK000171</u>				
Client ID: <u>BHI</u>				
Due Date: <u>12-18-00</u>				
QC Batch Number: <u>0333264</u>			SDG Number: <u>W03348</u>	
Method Test Parameter: <u>Tritium</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: _____

Date: 12/15/00

Second Level Review: _____

Date: 12-19-00

CHAIN OF CUSTODY

W-21023

PNNL	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # C01-001-12
Page 1 of 1		

Collector <i>E. Radford</i>	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688
SAF No. C01-001	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title 100HR3(2) SEEP SAMPLING, OCTOBER 2006	Logbook No.	Ice Chest No. Temp.
Shipped To (Lab) Sewer Trent Incorporated	Method of Shipment GOVT VEHICLE	Bill of Lading/Air Bill No.
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS

SDG
W03348 *JOK020171*

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes No
 Submit deliverables & invoices to JH Kessner
 FAX STL log-in to JH Kessner (372-9487) & DL Stewart (372-1704)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10JR7		W	<i>11/01/00</i>	<i>14:20</i>	1x500-mL G/P	6010_METALS_ICP: List-1 (19)	HNO3 to pH <2
B10JR7		W	<i>↓</i>	<i>↓</i>	1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool 4C
B10JR7		W	<i>↓</i>	<i>↓</i>	1x1000-mL P	9310_ALPHABETA_GPC: Alpha + Beta (2)	HNO3 to pH <2
B10JR7		W	<i>↓</i>	<i>↓</i>	1x20-mL P	Activity Scan	None
B10JR7		W	<i>↓</i>	<i>↓</i>	1x1000-mL P	TRITIUM_DIST_LSC: H-3 (1)	None
B10JT8 (F)		W	<i>↓</i>	<i>↓</i>	1x500-mL G/P	6010_METALS_ICP: List-1 (19)	HNO3 to pH <2

> DN8DC

Relinquished By <i>E. Radford & Colford</i> <i>11/1/00 14:20</i>	Received By <i>locked storage</i> <i>11/1/00 14:20</i>	Matrix * S = Soil DS = Drum Solid SE = Sediment DL = Drum Liqui SO = Solid T = Tissue SL = Sludge WL = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By <i>Locked Storage</i> <i>11-2-00 07:30</i>	Received By <i>E. Radford & Colford</i> <i>11-2-00 07:30</i>	
Relinquished By <i>E. Radford & Colford</i> <i>11-2-00 07:45</i>	Received By <i>H. Anderson</i> <i>11-2-00</i>	
Relinquished By <i>0</i>	Received By	

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
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4

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

C01-001-8

Page 1 of 1

Collector <i>E. Radford</i>	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688	MSIN FAX
SAF No. C01-001	Sampling Origin HANFORD SITE	Purchase Order/Charge Code	
Project Title 100HR3(2) SEEP SAMPLING OCTOBER 2000	Logbook No.	Ice Chest No.	Temp.
Shipped To (Lab) Severn Trent Incorporated	Method of Shipment GOVT VEHICLE	Bill of Lading/Air Bill No.	
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.	

POSSIBLE SAMPLE HAZARDS/REMARKS
.. ..

SPECIAL INSTRUCTIONS Hold Time
Submit deliverables & invoices to JH Kessner
FAX STL log-in to JH Kessner (372-9487) & DL Stewart (372-1704)

Total Activity Exemption: Yes No

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B10JR3		W	11/01/00	1330	1x500-mL G/P	6010_METALS_ICP: List-1 (19)	HNO3 to pH <2
B10JR3		W	↓	↓	1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool 4C
B10JR3		W	↓	↓	1x1000-mL P	9310_ALPHABETA_GPC: Alpha + Beta (2)	HNO3 to pH <2
B10JR3		W	↓	↓	1x20-mL P	Activity Scan	None
B10JR3		W	↓	↓	1x1000-mL P	TRITIUM_DIST_LSC: H-3 (1)	None
B10JT4 (F)		W	↓	↓	1x500-mL G/P	6010_METALS_ICP: List-1 (19)	HNO3 to pH <2

DNR/IDM

Relinquished By <i>E. Radford</i>	Print	Sign <i>E Radford</i>	Date/Time 11-1-00 13:30	Received By <i>locked storage</i>	Print	Sign <i>Sigma 5</i>	Date/Time 11/1/00 13:30	Matrix * S = Soil DS = Drum Solid SE = Sediment DL = Drum Liqui SO = Solid T = Tissue SL = Sludge W = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By <i>locked storage</i>		Sign <i>Sigma 5</i>	Date/Time 11-2-00 07:30	Received By <i>E. Radford</i>		Sign <i>E Radford</i>	Date/Time 11-2-00 07:30	
Relinquished By <i>E. Radford</i>		Sign <i>E Radford</i>	Date/Time 11-2-00 07:45	Received By <i>K. Johnson</i>		Sign <i>K Johnson</i>	Date/Time 11-2-00 07:45	
Relinquished By		Sign	Date/Time	Received By		Sign	Date/Time	

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
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000005

Figure 1. Sample Check-in List

Date/Time Received: 11-2-00 745 AM SDG#: W03348

Work Order Number: JOK 020171 SAF#: COI-001

Shipping Container ID: not marked Chain of Custody #: COI-001-12
COI-001-8, COI-001-10

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

10. Samples have: <input checked="" type="checkbox"/> tape <input checked="" type="checkbox"/> custody seals	<input type="checkbox"/> hazard labels <input type="checkbox"/> appropriate sample labels
11. Samples are: <input checked="" type="checkbox"/> in good condition <input type="checkbox"/> broken	<input type="checkbox"/> leaking <input type="checkbox"/> have air bubbles

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

Sample Custodian/Laboratory: K. Stanley Date: 11-2-00

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

11/7/00

CLIENT CODE	ID	MATRIX	RECEIVED	DETECTOR	ACQ DATE	SAMPLE	MINUTES	CNTS A	NET CPM A	CNTS B	NET CPM B			
PGW	B10DK7DPCL0		11/6/00 10:12:00 AM	QUAD24A	11/6/00 4:05:19 PM	B10DK7DPCL0	30	10	0.201666667	63	1.10833333			
	DPCL0	LIQUID		Bkg:	11/4/00 1:45:59 AM		600	79	0.131666667	595	0.99166667			
Anl Date:	11/7/00	Tot Sa, Alq:	4.00E+00	1.00E+01	Alp; (Dpm/	6.10E-01	(uCi/	1.10E-04	(pCi/	2.75E+01	+ 2.4E+01	CAT	9.1E-01	Lab
Ppt mg:	2.2	Units:	1.	ml	Bet; Alq:	2.05E+00	Sa):	3.69E-04	Ljg):	9.22E+01	+ 2.4E+01	I	5.4E-01	Alq Ljg
PGW	B10DT9DPE85	LIQUID	11/6/00 3:30:00 PM	QUAD21D	11/6/00 4:04:09 PM	B10DT9DPE85	30	7	0.091666667	61	1.03166667			
	DPE85	LIQUID		Bkg:	11/4/00 1:45:53 AM		600	85	0.141666667	601	1.00166667			
Anl Date:	11/6/00	Tot Sa, Alq:	1.00E+00	1.00E+00	Alp; (Dpm/	2.51E-01	(uCi/	1.13E-04	(pCi/	1.13E+02	+ 2.2E+02	CAT	2.2E-01	Lab
Ppt mg:	0	Units:	1.	ml	Bet; Alq:	1.97E+00	Sa):	8.88E-04	Ljg):	8.88E+02	+ 2.4E+02	I	5.6E-02	Alq Ljg
PGW	B10DT9DPE85	LIQUID	11/6/00 3:30:00 PM	QUAD21D	11/6/00 8:09:07 PM	B10DT9DPE85	30.01	7	0.091588915	61	1.03098911			
	DPE85	LIQUID		Bkg:	11/4/00 1:45:53 AM		600	85	0.141666667	601	1.00166667			
PGW	B10J25DN9LK		11/6/00 10:12:00 AM	QUAD24B	11/6/00 4:05:19 PM	B10J25DN9LK	30	10	0.215	29	-0.1016667			
	DN9LK	LIQUID		Bkg:	11/4/00 1:45:59 AM		600	71	0.118333333	641	1.06833333			
Anl Date:	11/7/00	Tot Sa, Alq:	6.00E+00	1.00E+01	Alp; (Dpm/	6.60E-01	(uCi/	1.78E-04	(pCi/	2.97E+01	+ 2.4E+01	CAT	8.4E-01	Lab
Ppt mg:	1.9	Units:	1.	ml	Bet; Alq:	-3.27E-01	Sa):	-8.84E-05	Ljg):	-1.47E+01	+ 1.9E+01	I	6.0E+00	Alq Ljg
PGW	B10JR3DN8DM		11/6/00 10:12:00 AM	QUAD24C	11/6/00 4:05:19 PM	B10JR3DN8DM	30	3	-0.02666667	35	0.17666667			
	DN8DM	LIQUID		Bkg:	11/4/00 1:45:59 AM		600	76	0.126666667	594	0.99			
Anl Date:	11/7/00	Tot Sa, Alq:	2.00E+00	1.00E+01	Alp; (Dpm/	-8.62E-02	(uCi/	-7.77E-06	(pCi/	-3.88E+00	+ 2.1E+01	CAT	2.0E+00	Lab
Ppt mg:	1.3	Units:	1.	ml	Bet; Alq:	3.49E-01	Sa):	3.15E-05	Ljg):	1.57E+01	+ 1.8E+01	I	3.2E+00	Alq Ljg
PGW	B10JR5DN8DN		11/6/00 10:12:00 AM	QUAD24D	11/6/00 4:05:19 PM	B10JR5DN8DN	30	10	0.236666667	51	0.40833333			
	DN8DN	LIQUID		Bkg:	11/4/00 1:45:59 AM		600	58	0.096666667	775	1.29166667			
Anl Date:	11/7/00	Tot Sa, Alq:	2.00E+00	1.00E+01	Alp; (Dpm/	7.10E-01	(uCi/	6.39E-05	(pCi/	3.20E+01	+ 2.6E+01	CAT	7.8E-01	Lab
Ppt mg:	0.9	Units:	1.	ml	Bet; Alq:	6.57E-01	Sa):	5.92E-05	Ljg):	2.96E+01	+ 2.1E+01	I	1.7E+00	Alq Ljg
PGW	B10JR7DN8DC		11/6/00 10:12:00 AM	QUAD21D	11/6/00 8:39:45 PM	B10JR7DN8DC	30	10	0.191666667	33	0.09833333			
	DN8DC	LIQUID		Bkg:	11/4/00 1:45:53 AM		600	85	0.141666667	601	1.00166667			
Anl Date:	11/7/00	Tot Sa, Alq:	2.00E+00	1.00E+01	Alp; (Dpm/	5.93E-01	(uCi/	5.35E-05	(pCi/	2.67E+01	+ 2.4E+01	CAT	9.4E-01	Lab
Ppt mg:	1.1	Units:	1.	ml	Bet; Alq:	8.28E-02	Sa):	7.46E-06	Ljg):	3.73E+00	+ 1.8E+01	I	1.3E+01	Alq Ljg

11-7-00

00028

RQC053

Severn Trent Laboratories, Inc.
Information Sheet Rad Prep

Run Date: 11/28/00
Time: 10:18:28

Parent Batch:
Associated Batches:

*
* QC BATCH: 0333267 *
*

Page: 1

H3
α, β

W03348
S7: Gross Alpha by GPC using Am-241 curve
AZ: Gross Alpha PpRC5014
SI: CLIENT: HANFORD

Analytical Due Date: 12/18/00
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
JOK020171-001 DN8DC-1-AA WATER Comments: WATER	12/18/00	Bechtel Hanford, .0000	.000	11/01/00 14:20		3	pCi/L	2.67E-14 3.73E-15 120-11/00	JW2	
JOK020171-002 DN8DM-1-AA WATER Comments: WATER	12/18/00	Bechtel Hanford, .0000	.000	11/01/00 13:30		3	pCi/L	0.0E+00 1.57E-14 120-11/00	JW2	
JOK020171-002 X DN8DM-1-AE WATER Comments: WATER	12/18/00	Bechtel Hanford, .0000	.000	11/01/00 13:30		3	pCi/L	0.0E+00 1.57E-14 120-11/00	JW2	
JOK020171-003 DN8DN-1-AA WATER Comments: WATER	12/18/00	Bechtel Hanford, .0000	.000	11/01/00 13:00		3	pCi/L	3.20E-14 2.96E-14 120-11/00	JW2	
JOK280000-267 B DQFPC-1-AA WATER Comments:	12/18/00	Bechtel Hanford,		11/01/00 13:30		3	pCi/L	**NA **NA	JW2	
JOK280000-267 C DQFPC-1-AC WATER Comments:	12/18/00	Bechtel Hanford,		11/01/00 13:30			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
Alpha

3

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.

00029

RQC053

Severn Trent Laboratories, Inc.
Information Sheet Rad Prep

Run Date: 11/28/00
Time: 10:19:13

Parent Batch:
Associated Batches:

H3
α, ρ

* QC BATCH: 0333268 *

Page: 1

W03348
S8: Gross Beta by GPC using Sr/Y-90 curve
BC: Gross Beta PpRC5014
SI: CLIENT: HANFORD

Analytical Due Date: 12/18/00
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
JOK020171-001 DN8DC-1-AC WATER Comments: WATER	12/18/00	Bechtel Hanford, .0000	.000	11/01/00 14:20		4	pCi/L	2.67E-14 3.73E-15 120-11/00	JW2	
JOK020171-002 DN8DM-1-AC WATER Comments: WATER	12/18/00	Bechtel Hanford, .0000	.000	11/01/00 13:30		4	pCi/L	0.0E+00 1.57E-14 120-11/00	JW2	
JOK020171-003 DN8DN-1-AC WATER Comments: WATER	12/18/00	Bechtel Hanford, .0000	.000	11/01/00 13:00		4	pCi/L	3.20E-14 2.96E-14 120-11/00	JW2	
JOK020171-003 X DN8DN-1-AE WATER Comments: WATER	12/18/00	Bechtel Hanford, .0000	.000	11/01/00 13:00		4	pCi/L	3.20E-14 2.96E-14 120-11/00	JW2	
JOK280000-268 B DQFPD-1-AA WATER Comments:	12/18/00	Bechtel Hanford,		11/01/00 13:00		4	pCi/L	**NA **NA	JW2	
JOK280000-268 C DQFPD-1-AC WATER Comments:	12/18/00	Bechtel Hanford,		11/01/00 13:00			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
Beta

4

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.

00030

RQC053

Severn Trent Laboratories, Inc.
Information Sheet Rad Prep

Run Date: 11/28/00
Time: 10:17:43

Parent Batch:
Associated Batches:

* QC BATCH: 0333264 *

Page: 1

H3
α, β

S6: Tritium by Liquid Scint
AR: H-3 Prp/SepRCS007
5I: CLIENT: HANFORD

Analytical Due Date: 12/18/00
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
J0K020171-001 DN8DC-1-AD Comments: WATER	12/18/00 WATER	Bechtel Hanford, .0000	.000	11/01/00 14:20		400	pCi/L	2.67E-14 3.73E-15 120-11/00	JW2	
J0K020171-001 X DN8DC-1-AE Comments: WATER	12/18/00 WATER	Bechtel Hanford, .0000	.000	11/01/00 14:20		400	pCi/L	2.67E-14 3.73E-15 120-11/00	JW2	
J0K020171-002 DN8DM-1-AD Comments: WATER	12/18/00 WATER	Bechtel Hanford, .0000	.000	11/01/00 13:30		400	pCi/L	0.0E+00 1.57E-14 120-11/00	JW2	
J0K020171-003 DN8DN-1-AD Comments: WATER	12/18/00 WATER	Bechtel Hanford, .0000	.000	11/01/00 13:00		400	pCi/L	3.20E-14 2.96E-14 120-11/00	JW2	
J0K280000-264 B DQFN9-1-AA Comments:	12/18/00 WATER	Bechtel Hanford,		11/01/00 14:20		400	pCi/L	**NA **NA	JW2	
J0K280000-264 C DQFN9-1-AC Comments:	12/18/00 WATER	Bechtel Hanford,		11/01/00 14:20		400	pCi/L	**NA **NA	JW2	
J0K280000-264 B DQFN9-1-AD Comments:	12/18/00 WATER	Bechtel Hanford,		11/01/00 14:20		400	pCi/L	**NA **NA	JW2	
J0K280000-264 C DQFN9-1-AE Comments:	12/18/00 WATER	Bechtel Hanford,		11/01/00 14:20		400	pCi/L	**NA **NA	JW2	
J0K280000-264 B DQFN9-1-AF Comments:	12/18/00 WATER	Bechtel Hanford,		11/01/00 14:20		400	pCi/L	**NA **NA	JW2	

1003348

00031

 *
 * QC BATCH: 0333264 *
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<u>Lot#</u>	<u>Analyt Due</u>	<u>Client Name</u>	<u>Count Time</u>	<u>Mid/Ave Date/Time</u>	<u>Tracer ID</u>	<u>CRDL</u>	<u>Units</u>	<u>Screen Info - (Ci)</u>	<u>PM Bin</u>	
<u>Work Order</u>	<u>Client Matrix</u>	<u>Aliquot</u>	<u>Geometry</u>		<u>Spike ID</u>			<u>Alpha</u>	<u>Beta</u>	
JOK280000-264 B	12/18/00	Bechtel Hanford,		11/01/00 14:20		400	pCi/L	**NA	**NA	JW2
DQFN9-1-AG WATER										
Comments:										

Total Number of Samples In Batch: 00010

<u>Batch Information:</u>	Dry Wt: N	Decay Correct: Y	Blank Sub: None	Call In:
	Uncert: Both	Sigma: 1.960	ODR: Target List + Other Detected	
<u>BLANK CRDL</u>		<u>Tracer Yield</u>	<u>Type</u>	<u>QC Control Limits</u>
<u>Tritium</u>	400		<u>RPD</u>	

** 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.

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