WCH-42
Rev. 1

River Corridor
Closure Contract

Annual Report for Gravity Collection Lysimeter Monitoring Plan – ERDF Cells 5 and 6

December 2006

Washington Closure Hanford

Prepared for the U.S. Department of Energy, Richland Operations Office
Office of Assistant Manager for River Corridor

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Title: Annual Report for Gravity Collection Lysimeter Monitoring Plan – ERDF Cells 5 and 6

Author Name: W. E. Remsen

Approval: J. E. Rugg, Environmental Lead

Signature 12/18/06 Date

A. R. Michael, Project Engineer, Waste Operations Project

Signature 12/18/06 Date

The approval signatures on this page indicate that this document has been authorized for information release to the public through appropriate channels. No other forms or signatures are required to document this information release.

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Annual Report for Gravity Collection Lysimeter Monitoring Plan – ERDF Cells 5 and 6

December 2006

Author:
W. E. Remsen

Washington Closure Hanford

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REVISION HISTORY

Revision	Date	Reason for revision	Revision initiator
0	06/2006	Initial issuance	NA
1	12/2006	Section 3.0 was revised to reflect the second round of dewatering completed in June and July 2006.	W.E. Remsen

1.0 PURPOSE AND SCOPE

This report has been prepared in accordance with the *Gravity Collection Lysimeter Monitoring Plan – ERDF Cells 5 and 6* (Monitoring Plan), dated March 30, 2005. As identified in Section 4 of the Monitoring Plan, the objectives of the annual report are to:

- Describe changes in the volume of liquid seen in each lysimeter (if any).
- Describe concentrations and changes or trends in the concentrations of leachate-indicator constituents in any liquids accumulated in each lysimeter.
- Summarize the finding in regard to the presence or absence of leachate in each lysimeter.
- Make recommendations, if any, limited to vadose-zone study-related variables.

The data and analyses contained in this report reflect the initial characterization of construction and consolidation water in Cells 5 and 6 lysimeters. Therefore, the scope of this report will be to establish constituent levels and document dewatering activities completed to date.

2.0 MONITORING AND SAMPLING

Initial sampling and analysis efforts on lysimeters in Cells 5 and 6 at ERDF took place August 23, 24, and 25, 2005. The samples were analyzed for the following four constituents:

- Chloride
- Gross Alpha
- Technicium 99
- Gross Beta.

The analysis (included as Appendix A) was conducted in order to establish a baseline representative of the construction and consolidation water present in the lysimeters. If water is discovered during future monitoring activities (after dewatering is complete) a representative sample will be taken, analyzed for the constituents identified above, and compared to the initial baseline.

3.0 DEWATERING

The Monitoring Plan recommends the lysimeters be dewatered. The Monitoring Plan also recognizes the fact that the construction water will fully draw down and come to equilibrium very slowly due to the fairly low hydraulic conductivity of the backfill, especially near the bottom of the prism and because of the very low head that will be driving the last volumes of construction water. Because of these conditions, recharge is occurring at an unknown rate and full drying of the lysimeters will not occur until full equilibrium is reached. Therefore, dewatering of the

lysimeters at Cells 5 and 6 will occur over time through a series of pumping activities, anticipated to take place in the spring and fall of each year. Once it is determined that all water that can be removed via pumping has occurred, a follow on drying activity will take place with rags or some other innovative means to fully dry the lysimeters.

The initial dewatering effort was met with a number of challenges. The cold weather made pumping activities difficult due to freezing of water transport lines and compressor equipment. In addition, the weather lead to technical difficulties with the pump, leading to unanticipated stops. Lastly, it was determined that the amount of water contained within the lysimeters was a great deal more than first estimated.

The initial dewatering effort for the Cell 6 lysimeter began December 6, 2005, and ended on December 20, 2005. A total of 2,302 gal were removed from the Cell 6 lysimeter. Dewatering of Cell 5 lysimeter began January 4, 2006, and ended January 5, 2006. A total of 1,651 gal were removed from the Cell 5 lysimeter.

A second round of dewatering was conducted during the summer of 2006. A total of 1890 gal of water were removed from Cell 5 beginning on June 27, 2006 and ending on July 6, 2006. A total of 273 gal were removed from Cell 6 beginning on July 6, 2006 and ending on July 14, 2006.

It is anticipated that the next dewatering round for both Cells 5 and 6 will begin in the spring of 2007. The Monitoring Plan states that routine lysimeter inspections and sampling of any wet lysimeters be conducted semi-annually for the first two years and then annually thereafter. Due to the ongoing dewatering efforts planned, the semi-annual/annual sampling efforts will not begin until all dewatering series are completed.

APPENDIX A

SAF-B05-039
ERDF LYSIMETER SAMPLING
FINAL DATA PACKAGE

EBERLINE
SERVICES

October 7, 2005

Ms. Joan Kessner
Bechtel Hanford Inc.
3190 George Washington Way
MSIN H9-02
Richland, WA 99352

Reference: **P.O. #630**
Eberline Services R5-08-231-7300, SDG H3340

Dear Ms. Kessner:

Enclosed is a data report for one water sample designated under SAF No. B05-039 received at Eberline Services on August 29, 2005. The sample was analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
Senior Program Manager

MCM/

Enclosure: Data Package

Analytical Services
2030 Wright Avenue
P.O. Box 4040
Richmond, California 94804-0040
(510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

Eberline Services
W.O. No. R5-08-231-7300

Bechtel Hanford Inc.
SDG H3340

Case Narrative

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H3340 was composed of one water sample designated under SAF No. B05-039 with a Project Designation of: ERDF Lysimeter Sampling.

Equal parts (by weight) of sample J03X89 (water) and J03X90 (soil) were thoroughly mixed together for four hours. The slurry was than filtered using 0.45-micron filters and than analyzed for gross alpha/beta and Tc-99. The filtered slurry sample was called J03X89.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-mail on October 5, 2005.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

No problems were encountered during the course of the analyses.

2.2 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"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 obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Mel Mann
Melissa C. Mannion
Senior Program Manager

10/7/5
Date

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP H3340

SDG	7300
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 630
Case no	SDG H3340

S U M M A R Y D A T A S E C T I O N

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Melissa Mann
Prepared by

Melissa Mann
Reviewed by

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	09/28/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

SDG 7300
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H3340

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/28/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

SDG 7300
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H3340

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/28/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

LAB SAMPLE SUMMARY

SDG 7300
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H3340

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R508231-01	J03X89	ERDF Add-Mix/Raw Water	WATER		B05-039	B05-039-2	05/25/05 10:45
R508231-02	Lab Control Sample		WATER		B05-039		
R508231-03	Method Blank		WATER		B05-039		
R508231-04	Duplicate (R508231-01)	ERDF Add-Mix/Raw Water	WATER		B05-039		05/25/05 10:45

LAB SUMMARY
Page 1
SUMMARY DATA SECTION
Page 3

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 09/28/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

SDG 7300
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG H3340

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7300	B05-039-2	J03X89	WATER		0.98 L		08/29/05	96	R508231-01	7300-001
		Method Blank	WATER						R508231-03	7300-003
		Lab Control Sample	WATER						R508231-02	7300-002
		Duplicate (R508231-01)	WATER		0.98 L		08/29/05	96	R508231-04	7300-004

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 09/28/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

SDG 7300
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H3340

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Beta Counting												
TC	WATER	Technetium 99 in Water	7136-100	10.0	1			1	1	1/1		
Gas Proportional Counting												
93A	WATER	Gross Alpha in Water	7136-100	20.0	1			1	1	1/1		
93B	WATER	Gross Beta in Water	7136-100	15.0	1			1	1	1/1		

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

PREP BATCH SUMMARY
Page 1
SUMMARY DATA SECTION
Page 5

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 09/28/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

LAB WORK SUMMARY

SDG 7300
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H3340

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R508231-01	J03X89			7300-001	93A/93		09/27/05	09/28/05	MWT	Gross Alpha in Water
05/25/05	ERDF Add-Mix/Raw Water		WATER	7300-001	93B/93		09/27/05	09/28/05	MWT	Gross Beta in Water
08/29/05	B05-039-2	B05-039		7300-001	TC		09/19/05	09/28/05	MWT	Technetium 99 in Water
R508231-02	Lab Control Sample			7300-002	93A/93		09/27/05	09/28/05	MWT	Gross Alpha in Water
			WATER	7300-002	93B/93		09/27/05	09/28/05	MWT	Gross Beta in Water
		B05-039		7300-002	TC		09/19/05	09/28/05	MWT	Technetium 99 in Water
R508231-03	Method Blank			7300-003	93A/93		09/27/05	09/28/05	MWT	Gross Alpha in Water
			WATER	7300-003	93B/93		09/27/05	09/28/05	MWT	Gross Beta in Water
		B05-039		7300-003	TC		09/19/05	09/28/05	MWT	Technetium 99 in Water
R508231-04	Duplicate (R508231-01)			7300-004	93A/93		09/27/05	09/28/05	MWT	Gross Alpha in Water
05/25/05	ERDF Add-Mix/Raw Water		WATER	7300-004	93B/93		09/27/05	09/28/05	MWT	Gross Beta in Water
08/29/05		B05-039		7300-004	TC		09/20/05	09/28/05	MWT	Technetium 99 in Water

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
93A/93	B05-039	Gross Alpha in Water	900.0_ALPHABETA_GPC	1			1	1	1	4
93B/93	B05-039	Gross Beta in Water	900.0_ALPHABETA_GPC	1			1	1	1	4
TC	B05-039	Technetium 99 in Water	TC99_TR_SEP_LSC	1			1	1	1	4
TOTALS				3			3	3	3	12

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 09/28/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

7300-003 Method Blank

METHOD BLANK

SDG	7300	Client/Case no	Hanford SDG H3340
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R508231-03	Client sample id	Method Blank
Dept sample id	7300-003	Material/Matrix	WATER
		SAF No	B05-039

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-0.163	0.59	1.4	3.0	U	93A
Gross Beta	12587-47-2	0.638	1.1	1.9	4.0	U	93B
Technetium 99	14133-76-7	-1.64	1.4	5.4	15	U	TC

ERDF Lysimeter Sampling

QC-BLANK 54349

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/28/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

7300-002

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7300
Contact Melissa C. Mannion

Client/Case no Hanford SDG H3340
Contract No. 630

Lab sample id R508231-02
Dept sample id 7300-002

Client sample id Lab Control Sample
Material/Matrix WATER
SAF No B05-039

ANALYTE	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	27.1	3.6	1.3	3.0		93A	34.0	1.4	80	71-129	70-130
Gross Beta	35.1	2.6	2.0	4.0		93B	33.1	1.3	106	73-127	80-120
Technetium 99	1070	71	5.9	15		TC	1090	44	98	81-119	80-120

ERDF Lysimeter Sampling

QC-LCS 54348

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 09/28/05

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

7300-004 J03X89

DUPLICATE

SDG	7300			Client/Case no	Hanford SDG H3340
Contact	Melissa C. Mannion			Contract	No. 630
DUPLICATE		ORIGINAL			
Lab sample id	R508231-04	Lab sample id	R508231-01	Client sample id	J03X89
Dept sample id	7300-004	Dept sample id	7300-001	Location/Matrix	ERDF Add-Mix/Raw Water WATER
		Received	08/29/05	Collected/Volume	05/25/05 10:45 0.98 L
				Custody/SAF No	B05-039-2 B05-039

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
Gross Alpha	0.086	1.3	2.8	3.0	U	93A	2.12	1.6	1.8		184	286	
Gross Beta	5.12	1.4	2.0	4.0		93B	4.87	1.5	2.0		5	69	
Technetium 99	1.45	2.2	4.7	15	U	TC	-0.607	1.4	3.9	U	-		

ERDF Lysimeter Sampling

QC-DUP#1 54350

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Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	09/28/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

7300-001 J03X89

DATA SHEET

SDG	7300	Client/Case no	Hanford	SDG H3340	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R508231-01	Client sample id	J03X89		
Dept sample id	7300-001	Location/Matrix	ERDF Add-Mix/Raw Water	WATER	
Received	08/29/05	Collected/Volume	05/25/05 10:45	0.98 L	
		Custody/SAF No	B05-039-2	B05-039	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	2.12	1.6	1.8	3.0		93A
Gross Beta	12587-47-2	4.87	1.5	2.0	4.0		93B
Technetium 99	14133-76-7	-0.607	1.4	3.9	15	U	TC

ERDF Lysimeter Sampling

DATA SHEETS
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Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/28/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

Test TC Matrix WATER
SDG 7300
Contact Melissa C. Mannion

LAB METHOD SUMMARY

TECHNETIUM 99 IN WATER
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H3340

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Technetium 99	
Preparation batch 7136-100						
R508231-01			7300-001	J03X89	U	
R508231-02			7300-002	LCS (QC ID=54348)	ok	
R508231-03			7300-003	BLK (QC ID=54349)	U	
R508231-04			7300-004	Duplicate (R508231-01)	-	U
Nominal values and limits from method				RDLs (pCi/L)	15	

ERDF Lysimeter Sampling

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7136-100			2σ prep error 10.0 %	Reference Lab Notebook 7136 pg. 100												
R508231-01			J03X89	3.9	0.100			95		100			117	09/13/05	09/19	GRB-204
R508231-02			LCS (QC ID=54348)	5.9	0.100			91		50				09/13/05	09/19	GRB-201
R508231-03			BLK (QC ID=54349)	5.4	0.100			95		50				09/13/05	09/19	GRB-202
R508231-04			Duplicate (R508231-01) (QC ID=54350)	4.7	0.100			94		66			118	09/13/05	09/20	GRB-221
Nominal values and limits from method				15	0.100			20-105		50			180			

PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
	CP-431	Technetium-99 Purification of Soil or Resin by Extraction Chromatography, rev 2
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 5.0 ± 1.7
YIELD 94 ± 4

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/28/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

Test 93A Matrix WATER
SDG 7300
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H3340

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha	
Preparation batch 7136-100						
R508231-01	93		7300-001	J03X89	2.12	
R508231-02	93		7300-002	LCS (QC ID=54348)	ok	
R508231-03	93		7300-003	BLK (QC ID=54349)	U	
R508231-04	93		7300-004	Duplicate (R508231-01)	ok	U
Nominal values and limits from method				RDLs (pCi/L)	3.0	
ERDF Lysimeter Sampling						

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7136-100			2σ prep error 20.0 %	Reference Lab Notebook 7136 pg. 100												
R508231-01	93		J03X89	1.8	0.290			150		100			125	09/27/05	09/27	GRB-216
R508231-02	93		LCS (QC ID=54348)	1.3	0.300			60		100				09/27/05	09/27	GRB-105
R508231-03	93		BLK (QC ID=54349)	1.4	0.300			58		100				09/27/05	09/27	GRB-210
R508231-04	93		Duplicate (R508231-01) (QC ID=54350)	2.8	0.290			150		100			125	09/27/05	09/27	GRB-211
Nominal values and limits from method				3.0	0.300			5-250		100			180			

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC
SPP-120 Gross Alpha and Gross Beta in Water, rev 0

AVERAGES ± 2 SD MDA 1.8 ± 1.4
FOR 4 SAMPLES RESIDUE 104 ± 105

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/28/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

Test 93B Matrix WATER
SDG 7300
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H3340

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
Preparation batch 7136-100					
R508231-01	93		7300-001	J03X89	4.87
R508231-02	93		7300-002	LCS (QC ID=54348)	ok
R508231-03	93		7300-003	BLK (QC ID=54349)	U
R508231-04	93		7300-004	Duplicate (R508231-01)	ok
Nominal values and limits from method				RDLs (pCi/L)	4.0

ERDF Lysimeter Sampling

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7136-100			2σ prep error 15.0 %	Reference Lab Notebook 7136 pg. 100												
R508231-01	93		J03X89	2.0	0.290			150		100			125	09/27/05	09/27	GRB-216
R508231-02	93		LCS (QC ID=54348)	2.0	0.300			60		100				09/27/05	09/27	GRB-105
R508231-03	93		BLK (QC ID=54349)	1.9	0.300			58		100				09/27/05	09/27	GRB-210
R508231-04	93		Duplicate (R508231-01) (QC ID=54350)	2.0	0.290			150		100			125	09/27/05	09/27	GRB-211
Nominal values and limits from method				4.0	0.300			5-250		100			180			

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC
SPP-120 Gross Alpha and Gross Beta in Water, rev 0

AVERAGES ± 2 SD MDA 2.0 ± 0.10
FOR 4 SAMPLES RESIDUE 104 ± 105

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/28/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

SDG 7300
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H3340

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

* LAB SAMPLE ID is the lab's primary identification for a sample.

* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.

* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.

* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

  QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/28/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

SDG 7300
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H3340

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

* The preparation batches are shown in the same order as the Method Summary Reports are printed.

* Only analyses of planchets relevant to the SDG are included.

* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.

* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

  These qualifiers should be reviewed as follows:

  X Some data has been manually entered or modified. Transcription errors are possible.

  P One or more results are 'preliminary'. The data is not ready for final reporting.

  2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

  Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/28/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

SDG 7300
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H3340

WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.

* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.

* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.

* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.

* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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REPORT GUIDE

Client Hanford
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DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.

* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

  The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

* ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.

* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.

* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

SDG 7300
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H3340

DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H Similar to 'L' except the recovery was high.

P The RESULT is 'preliminary'.

X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

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Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
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DATA SHEET

* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.

* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.

* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.

* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

  An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The error of RESULT, including that introduced by rounding the result prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits for the recovery.

* The recovery is underlined if it is outside either of these ranges.

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DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

  If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

  For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

  If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

  This value reported for this limit is at most 999.

* The second limit for the RPD is the larger of:

  1. A fixed percentage specified in the protocol.

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DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

* The RPD is underlined if it is greater than either limit.

* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

  Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

  An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits

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SDG 7300 Contact Melissa C. Mannion	GUIDE, cont.	Client Hanford Contract No. 630 Case no SDG H3340

MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

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SDG 7300
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H3340

METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

  There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

  The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

  The J and X flags are as on the data sheet.

* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.

* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.

* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

  MDAs are underlined if greater than the printed RDL.

* Aliquots are underlined if less than the nominal value specified for the method.

* Prepareation factors are underlined if greater than the nominal value specified for the method.

* Dilution factors are underlined if greater than the nominal value specified for the method.

* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.

* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.

* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

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METHOD SUMMARY

* Count times are underlined if less than the nominal value specified for the method.

* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.

* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.

* Days Held are underlined if greater than the holding time specified in the protocol.

* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1÷3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

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GUIDE, cont.

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

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"Weiss, Richard L"
<richard.weiss@wch-rcc.com
>

09/01/2005 07:30 AM

To "'mmannion@eberlineservices.com'"
<mmannion@eberlineservices.com>
cc "Kessner, Joan H" <joan.kessner@wch-rcc.com>
bcc
Subject "Mud Pie" Sample

History: This message has been forwarded.

Melissa,

This applies to samples J03X89 and J03X90 on SAF B05-039.

I did get information from the project, but we cannot match the true "field" conditions. The field specification is for 20% moisture and that would not yield any usable liquid for testing.

So, the following is based on the typical protocols for determining things like pH and soluble ions in soil samples.

Perform the contact using a 1:1 liquid/solid ratio based on weight. If you can get this mixture to stir using a beaker and stir-bar, do that for 1 hour. If the beaker method doesn't work, mix the liquid and solid in a jar, shake and continue shaking to thoroughly a couple times an hour for 4 hours. Then separate the liquid from the solid (any process is acceptable) and analyze the liquid. Use sample number J03X89 for the analysis results. Please remember that you need to ship a least 100ml off to Lionville for chloride analysis.

If any of this doesn't make sense, let me know.

Rich Weiss
509-372-9631

Also, did you need my input on something else?

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B05-039-2	Page 1 of 1
Collector SJ, GALE	Company Contact KESSNER, JH Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code Data Turnaround 45 Days
Project Designation ERDF Lysimeter Sampling	Sampling Location ERDF ADD-MIX/RAW WATER H3340 (7299)	SAF No. B05-039	Air Quality ☐
Ice Chest No. AF504 029	Field Logbook No. EL-1518-2 COA RERDF22560	Method of Shipment FED EX	
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A050402	Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

NONE

Special Handling and/or Storage

NONE

Preservation	None	None									
Type of Container	G/P	P									
No. of Container(s)	~~1~~ 2	1									
Volume	~~1000mL~~ 1000mL SEE INSTRUCTIONS	500mL									
SAMPLE ANALYSIS	Gross Alpha; Gross Beta; Technetium-99	IC Anions - 300.0 (Chloride)									

Sample No.	Matrix *	Sample Date	Sample Time										
~~J03X89~~	~~WATER~~	~~8-25-05~~	~~1045~~	~~X1~~									
J03X90	SOIL ~~WATER~~	8-25-05	1050	X2									

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS CONTACT JOAN KESSNER UPON RECEIPT.

X1 = 5 GALLONS IN CUBITAINER

X2 = 3 LITERS IN POLY BAG

NOTE: UPON COMPLETION OF ANALYSIS TRANSHIP TO LIONVILLE FOR FURTHER ANALYSIS.

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

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

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

EBERLINE SERVICES

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Client: B HANFORD City: RICHLAND State: WA

Date/Time received: 08/29/05 9:22 CoC No. B05-039-2

Container I.D. No. AES-04-003 Requested TAT (Days) 45 P.O. Received Yes [ ] No [ ]

INSPECTION

1 Custody seals on shipping container intact? Yes [X] No [ ] N/A [ ]

2 Custody seals on shipping container dated & signed? Yes [X] No [ ] N/A [ ]

3 Custody seals on sample containers intact? Yes [X] No [ ] N/A [ ]

4 Custody seals on sample containers dated & signed? Yes [X] No [ ] N/A [ ]

5 Packing material is: Wet [ ] Dry [X]

6. Number of samples in shipping container: 1 Sample Matrix: W

7 Number of containers per sample: 1 (Or see CoC _____)

8 Samples are in correct container Yes [X] No [ ]

9 Paperwork agrees with samples? Yes [X] No [ ]

10 Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [X]

11 Samples are In good condition [X] Leaking [ ] Broken Container [ ] Missing [ ]

12 Samples are: Preserved [ ] Not preserved [X] pH _____ Preservative _____

13 Describe any anomalies:

14 Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____

15 Inspected by MFM Date: 08/29/05 Time: 10:30

Customer Sample No.	cpm	mR/hr	Wipe	Customer Sample No.	cpm	mR/hr	wipe

Ion Chamber Ser. No. _____ Calibration date _____
Alpha Meter Ser. No _____ Calibration date _____
Beta/Gamma Meter Ser. No. _____ Calibration date _____

Form SCP-D1.2, D1-23-04

"over 55 years of quality nuclear services"

EBERLINE
SERVICES

October 7, 2005

Ms. Joan Kessner
Bechtel Hanford Inc.
3190 George Washington Way
MSIN H9-02
Richland, WA 99352

Reference: **P.O. #630**
Eberline Services R5-08-192-7298, SDG H3340

Dear Ms. Kessner:

Enclosed is a data report for four water samples designated under SAF No. B05-039 received at Eberline Services on August 25, 2005. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
Senior Program Manager

MCM/njv

Enclosure: Data Package

Analytical Services
2030 Wright Avenue
P.O. Box 4040
Richmond, California 94804-0040
(510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

Eberline Services
W.O. No. R5-08-192-7298

Bechtel Hanford Inc.
SDG H3340

Case Narrative

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H3340 was composed of four water samples designated under SAF No. B05-039 with a Project Designation of: ERDF Lysimeter Sampling.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-mail on September 29, 2005.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

No problems were encountered during the course of the analyses.

2.2 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"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 obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Mel Mann
Melissa C. Mannion
Senior Program Manager

10/7/5
Date

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H3340

SDG	7298
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 630
Case no	SDG H3340

SUMMARY DATA SECTION

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Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	09/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

SDG 7298
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H3340

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

SDG 7298 Contact Melissa C. Mannion	GUIDE, cont.	Client Hanford Contract No. 630 Case no SDG H3340

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-RG
Version	3.06
Report date	09/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

LAB SAMPLE SUMMARY

SDG 7298
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H3340

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R508192-01	J03X48	ERDF Cells 5&6	WATER		B05-039	B05-039-1	08/24/05 08:30
R508192-02	J03X49	ERDF Cells 5&6	WATER		B05-039	B05-039-1	08/24/05 08:40
R508192-03	J03X50	ERDF Cells 5&6	WATER		B05-039	B05-039-1	08/24/05 10:45
R508192-04	J03X51	ERDF Cells 5&6	WATER		B05-039	B05-039-1	08/24/05 10:55
R508192-05	Lab Control Sample		WATER		B05-039		
R508192-06	Method Blank		WATER		B05-039		
R508192-07	Duplicate (R508192-01)	ERDF Cells 5&6	WATER		B05-039		08/24/05 08:30

LAB SUMMARY
Page 1
SUMMARY DATA SECTION
Page 3

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 09/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

SDG 7298
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG H3340

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7298	B05-039-1	J03X48	WATER		2.0 L		08/25/05	1	R508192-01	7298-001
		J03X49	WATER		1.1 L		08/25/05	1	R508192-02	7298-002
		J03X50	WATER		2.0 L		08/25/05	1	R508192-03	7298-003
		J03X51	WATER		1.3 L		08/25/05	1	R508192-04	7298-004
		Method Blank	WATER						R508192-06	7298-006
		Lab Control Sample	WATER						R508192-05	7298-005
		Duplicate (R508192-01)	WATER		2.0 L		08/25/05	1	R508192-07	7298-007

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 09/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

SDG 7298
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H3340

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Beta Counting												
TC	WATER	Technetium 99 in Water	7136-098	10.0	4			1	1	1/1		
Gas Proportional Counting												
93A	WATER	Gross Alpha in Water	7136-098	20.0	4			1	1	1/1		
93B	WATER	Gross Beta in Water	7136-098	15.0	4			1	1	1/1		

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

PREP BATCH SUMMARY
Page 1
SUMMARY DATA SECTION
Page 5

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 09/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

SDG 7298
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG H3340

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R508192-01	J03X48			7298-001	93A/93		09/27/05	09/29/05	MWT	Gross Alpha in Water
08/24/05	ERDF Cells 5&6		WATER	7298-001	93B/93		09/27/05	09/29/05	MWT	Gross Beta in Water
08/25/05	B05-039-1	B05-039		7298-001	TC		09/13/05	09/29/05	MWT	Technetium 99 in Water
R508192-02	J03X49			7298-002	93A/93		09/27/05	09/29/05	MWT	Gross Alpha in Water
08/24/05	ERDF Cells 5&6		WATER	7298-002	93B/93		09/27/05	09/29/05	MWT	Gross Beta in Water
08/25/05	B05-039-1	B05-039		7298-002	TC		09/13/05	09/29/05	MWT	Technetium 99 in Water
R508192-03	J03X50			7298-003	93A/93		09/27/05	09/29/05	MWT	Gross Alpha in Water
08/24/05	ERDF Cells 5&6		WATER	7298-003	93B/93		09/27/05	09/29/05	MWT	Gross Beta in Water
08/25/05	B05-039-1	B05-039		7298-003	TC		09/13/05	09/29/05	MWT	Technetium 99 in Water
R508192-04	J03X51			7298-004	93A/93		09/27/05	09/29/05	MWT	Gross Alpha in Water
08/24/05	ERDF Cells 5&6		WATER	7298-004	93B/93		09/27/05	09/29/05	MWT	Gross Beta in Water
08/25/05	B05-039-1	B05-039		7298-004	TC		09/12/05	09/29/05	MWT	Technetium 99 in Water
R508192-05	Lab Control Sample			7298-005	93A/93		09/28/05	09/29/05	MWT	Gross Alpha in Water
			WATER	7298-005	93B/93		09/28/05	09/29/05	MWT	Gross Beta in Water
		B05-039		7298-005	TC		09/12/05	09/29/05	MWT	Technetium 99 in Water
R508192-06	Method Blank			7298-006	93A/93		09/27/05	09/29/05	MWT	Gross Alpha in Water
			WATER	7298-006	93B/93		09/27/05	09/29/05	MWT	Gross Beta in Water
		B05-039		7298-006	TC		09/13/05	09/29/05	MWT	Technetium 99 in Water
R508192-07	Duplicate (R508192-01)			7298-007	93A/93		09/27/05	09/29/05	MWT	Gross Alpha in Water
08/24/05	ERDF Cells 5&6		WATER	7298-007	93B/93		09/27/05	09/29/05	MWT	Gross Beta in Water
08/25/05		B05-039		7298-007	TC		09/13/05	09/29/05	MWT	Technetium 99 in Water

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
93A/93	B05-039	Gross Alpha in Water	900.0_ALPHABETA_GPC	4			1	1	1	7
93B/93	B05-039	Gross Beta in Water	900.0_ALPHABETA_GPC	4			1	1	1	7
TC	B05-039	Technetium 99 in Water	TC99_TR_SEP_LSC	4			1	1	1	7
TOTALS				12			3	3	3	21

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 09/29/05

WORK SUMMARY
Page 1
SUMMARY DATA SECTION
Page 6

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

7298-006 Method Blank

METHOD BLANK

SDG	7298	Client/Case no	Hanford	SDG H3340	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R508192-06	Client sample id	Method Blank		
Dept sample id	7298-006	Material/Matrix		WATER	
		SAF No	B05-039		

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.502	0.80	1.4	3.0	U	93A
Gross Beta	12587-47-2	0.045	1.1	1.9	4.0	U	93B
Technetium 99	14133-76-7	0.090	1.6	5.5	15	U	TC

ERDF Lysmeter Sampling

QC-BLANK 54234

METHOD BLANKS
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SUMMARY DATA SECTION
Page 7

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

7298-005

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7298
Contact Melissa C. Mannion

Client/Case no Hanford SDG H3340
Contract No. 630

Lab sample id R508192-05
Dept sample id 7298-005

Client sample id Lab Control Sample
Material/Matrix WATER
SAF No B05-039

ANALYTE	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	52.4	5.0	1.4	3.0		93A	71.3	2.9	73	75-125	70-130
Gross Beta	63.8	3.4	2.0	4.0		93B	66.3	2.7	96	76-124	80-120
Technetium 99	1060	27	5.6	15		TC	1090	44	97	84-116	80-120

ERDF Lysmeter Sampling

QC-LCS 54233

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 09/29/05

LAB CONTROL SAMPLES
Page 1
SUMMARY DATA SECTION
Page 8

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

7298-007 J03X48

DUPLICATE

SDG	7298			Client/Case no	Hanford SDG H3340
Contact	Melissa C. Mannion			Contract	No. 630
DUPLICATE		ORIGINAL			
Lab sample id	R508192-07	Lab sample id	R508192-01	Client sample id	J03X48
Dept sample id	7298-007	Dept sample id	7298-001	Location/Matrix	ERDF Cells 5&6 WATER
		Received	08/25/05	Collected/Volume	08/24/05 08:30 2.0 L
				Custody/SAF No	B05-039-1 B05-039

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
Gross Alpha	-0.121	2.1	4.4	3.0	U	93A	0.361	2.1	3.8	U	-		
Gross Beta	14.2	2.0	2.3	4.0		93B	16.9	2.3	2.5		17	43	
Technetium 99	-0.588	1.6	5.5	15	U	TC	-0.617	1.4	3.8	U	-		

ERDF Lysmeter Sampling

QC-DUP#1 54235

DUPLICATES
Page 1
SUMMARY DATA SECTION
Page 9

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	09/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

7298-001 J03X48

DATA SHEET

SDG	7298	Client/Case no	Hanford	SDG H3340
Contact	Melissa C. Mannion	Contract	No. 630	
Lab sample id	R508192-01	Client sample id	J03X48	
Dept sample id	7298-001	Location/Matrix	ERDF Cells 5&6	WATER
Received	08/25/05	Collected/Volume	08/24/05 08:30	2.0 L
		Custody/SAF No	B05-039-1	B05-039

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.361	2.1	3.8	3.0	U	93A
Gross Beta	12587-47-2	16.9	2.3	2.5	4.0		93B
Technetium 99	14133-76-7	-0.617	1.4	3.8	15	U	TC

ERDF Lysmeter Sampling

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/29/05

DATA SHEETS
Page 1
SUMMARY DATA SECTION
Page 10

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

7298-002 J03X49

DATA SHEET

SDG	7298	Client/Case no	Hanford SDG H3340
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R508192-02	Client sample id	J03X49
Dept sample id	7298-002	Location/Matrix	ERDF Cells 5&6 WATER
Received	08/25/05	Collected/Volume	08/24/05 08:40 1.1 L
		Custody/SAF No	B05-039-1 B05-039

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-0.908	1.5	3.5	3.0	U	93A
Gross Beta	12587-47-2	16.1	2.4	2.7	4.0		93B
Technetium 99	14133-76-7	-3.33	2.1	6.5	15	U	TC

ERDF Lysmeter Sampling

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

7298-003 J03X50

DATA SHEET

SDG	7298	Client/Case no	Hanford SDG H3340
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R508192-03	Client sample id	J03X50
Dept sample id	7298-003	Location/Matrix	ERDF Cells 5&6 WATER
Received	08/25/05	Collected/Volume	08/24/05 10:45 2.0 L
		Custody/SAF No	B05-039-1 B05-039

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.262	2.2	4.1	3.0	U	93A
Gross Beta	12587-47-2	15.4	2.4	2.8	4.0		93B
Technetium 99	14133-76-7	0.230	1.6	3.8	15	U	TC

ERDF Lysmeter Sampling

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

7298-004 J03X51

DATA SHEET

SDG	7298	Client/Case no	Hanford	SDG H3340	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R508192-04	Client sample id	J03X51		
Dept sample id	7298-004	Location/Matrix	ERDF Cells 5&6	WATER	
Received	08/25/05	Collected/Volume	08/24/05 10:55	1.3 L	
		Custody/SAF No	B05-039-1	B05-039	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-0.345	1.7	3.6	3.0	U	93A
Gross Beta	12587-47-2	15.2	2.4	2.7	4.0		93B
Technetium 99	14133-76-7	-0.629	1.6	5.6	15	U	TC

ERDF Lysmeter Sampling

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	09/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

Test	TC
Matrix	WATER
SDG	7298
Contact	Melissa C. Mannion

LAB METHOD SUMMARY

TECHNETIUM 99 IN WATER

BETA COUNTING

Client	Hanford
Contract No.	630
Contract	SDG H3340

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Technetium 99	
Preparation batch 7136-098						
R508192-01			7298-001	J03X48	U	
R508192-02			7298-002	J03X49	U	
R508192-03			7298-003	J03X50	U	
R508192-04			7298-004	J03X51	U	
R508192-05			7298-005	LCS (QC ID=54233)	ok	
R508192-06			7298-006	BLK (QC ID=54234)	U	
R508192-07			7298-007	Duplicate (R508192-01)	-	U

Nominal values and limits from method RDLs (pCi/L) 15

ERDF Lysmeter Sampling

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7136-098			2σ prep error 10.0 % Reference Lab Notebook 7136 pg. 098													
R508192-01			J03X48	3.8	0.100			93		100			20	09/08/05	09/13	GRB-218
R508192-02			J03X49	6.5	0.100			60		100			20	09/08/05	09/13	GRB-219
R508192-03			J03X50	3.8	0.100			92		100			20	09/08/05	09/13	GRB-220
R508192-04			J03X51	5.6	0.100			91		50			19	09/08/05	09/12	GRB-220
R508192-05			LCS (QC ID=54233)	5.6	0.100			92		50				09/08/05	09/12	GRB-221
R508192-06			BLK (QC ID=54234)	5.5	0.100			91		50				09/08/05	09/13	GRB-222
R508192-07			Duplicate (R508192-01) (QC ID=54235)	5.5	0.100			92		50			20	09/08/05	09/13	GRB-223
Nominal values and limits from method				15	0.100			20-105		50			180			

PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
	CP-431	Technetium-99 Purification of Soil or Resin by Extraction Chromatography, rev 2
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD	MDA	5.2	± 2.0
FOR 7 SAMPLES	YIELD	87	± 24

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	09/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

Test 93A Matrix WATER
SDG 7298
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS ALPHA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H3340

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Alpha
Preparation batch 7136-098					
R508192-01	93		7298-001	J03X48	U
R508192-02	93		7298-002	J03X49	U
R508192-03	93		7298-003	J03X50	U
R508192-04	93		7298-004	J03X51	U
R508192-05	93		7298-005	LCS (QC ID=54233)	LOW
R508192-06	93		7298-006	BLK (QC ID=54234)	U
R508192-07	93		7298-007	Duplicate (R508192-01)	- U

Nominal values and limits from method RDLs (pCi/L) 3.0
ERDF Lysmeter Sampling

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7136-098			2σ prep error 20.0 %	Reference Lab Notebook 7136 pg. 098												
R508192-01	93		J03X48	3.8	0.275			240		100			34	09/27/05	09/27	GRB-105
R508192-02	93		J03X49	3.5	0.225			177		100			34	09/27/05	09/27	GRB-109
R508192-03	93		J03X50	4.1	0.260			230		100			34	09/27/05	09/27	GRB-110
R508192-04	93		J03X51	3.6	0.225			201		100			34	09/27/05	09/27	GRB-111
R508192-05	93		LCS (QC ID=54233)	1.4	0.300			59		100				09/27/05	09/28	GRB-105
R508192-06	93		BLK (QC ID=54234)	1.4	0.300			59		100				09/27/05	09/27	GRB-210
R508192-07	93		Duplicate (R508192-01) (QC ID=54235)	4.4	0.275			238		100			34	09/27/05	09/27	GRB-211
Nominal values and limits from method				3.0	0.300			5-250		100			180			

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC
SPP-120 Gross Alpha and Gross Beta in Water, rev 0

AVERAGES ± 2 SD MDA 3.2 ± 2.5
FOR 7 SAMPLES RESIDUE 172 ± 161

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/29/05

METHOD SUMMARIES
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SUMMARY DATA SECTION
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SAMPLE DELIVERY GROUP H3340

Test 93B Matrix WATER
SDG 7298
Contact Melissa C. Mannion

LAB METHOD SUMMARY

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H3340

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Gross Beta
Preparation batch 7136-098					
R508192-01	93		7298-001	J03X48	16.9
R508192-02	93		7298-002	J03X49	16.1
R508192-03	93		7298-003	J03X50	15.4
R508192-04	93		7298-004	J03X51	15.2
R508192-05	93		7298-005	LCS (QC ID=54233)	ok
R508192-06	93		7298-006	BLK (QC ID=54234)	U
R508192-07	93		7298-007	Duplicate (R508192-01)	ok
Nominal values and limits from method				RDLs (pCi/L)	4.0
ERDF Lysmeter Sampling					

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7136-098			2σ prep error 15.0 % Reference Lab Notebook 7136 pg. 098													
R508192-01	93		J03X48	2.5	0.275			240		100			34	09/27/05	09/27	GRB-105
R508192-02	93		J03X49	2.7	0.225			177		100			34	09/27/05	09/27	GRB-109
R508192-03	93		J03X50	2.8	0.260			230		100			34	09/27/05	09/27	GRB-110
R508192-04	93		J03X51	2.7	0.225			201		100			34	09/27/05	09/27	GRB-111
R508192-05	93		LCS (QC ID=54233)	2.0	0.300			59		100				09/27/05	09/28	GRB-105
R508192-06	93		BLK (QC ID=54234)	1.9	0.300			59		100				09/27/05	09/27	GRB-210
R508192-07	93		Duplicate (R508192-01) (QC ID=54235)	2.3	0.275			238		100			34	09/27/05	09/27	GRB-211
Nominal values and limits from method				4.0	0.300			5-250		100			180			

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC
SPP-120 Gross Alpha and Gross Beta in Water, rev 0

AVERAGES ± 2 SD FOR 7 SAMPLES
MDA 2.4 ± 0.72
RESIDUE 172 ± 161

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

SDG	7298
Contact	Melissa C. Mannion

REPORT GUIDE

Client	Hanford
Contract	No. 630
Case no	SDG H3340

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

* LAB SAMPLE ID is the lab's primary identification for a sample.

* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.

* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.

* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

  QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3340

SDG 7298 Contact Melissa C. Mannion	REPORT GUIDE	Client Hanford Contract No. 630 Case no SDG H3340

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

* The preparation batches are shown in the same order as the Method Summary Reports are printed.

* Only analyses of planchets relevant to the SDG are included.

* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.

* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

  These qualifiers should be reviewed as follows:

  X Some data has been manually entered or modified. Transcription errors are possible.

  P One or more results are 'preliminary'. The data is not ready for final reporting.

  2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

  Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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SDG	7298
Contact	Melissa C. Mannion

REPORT GUIDE

Client	Hanford
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WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.

* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.

* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.

* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.

* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.

* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

  The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

* ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.

* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.

* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

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GUIDE, cont.

Client Hanford
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Case no SDG_H3340

DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H Similar to 'L' except the recovery was high.

P The RESULT is 'preliminary'.

X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

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DATA SHEET

* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.

* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.

* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.

* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

  An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The error of RESULT, including that introduced by rounding the result prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits for the recovery.

* The recovery is underlined if it is outside either of these ranges.

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DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

  If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

  For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

  If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

  This value reported for this limit is at most 999.

* The second limit for the RPD is the larger of:

  1. A fixed percentage specified in the protocol.

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DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

* The RPD is underlined if it is greater than either limit.

* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

  Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

  An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits

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MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

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METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

  There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

  The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

  The J and X flags are as on the data sheet.

* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.

* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.

* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

  MDAs are underlined if greater than the printed RDL.

* Aliquots are underlined if less than the nominal value specified for the method.

* Prepareation factors are underlined if greater than the nominal value specified for the method.

* Dilution factors are underlined if greater than the nominal value specified for the method.

* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.

* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.

* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

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METHOD SUMMARY

* Count times are underlined if less than the nominal value specified for the method.

* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.

* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.

* Days Held are underlined if greater than the holding time specified in the protocol.

* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1÷3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

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METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

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Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B05-039-1	Page 1 of 1
llector SJ, GALE	Company Contact KESSNER, JH	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code / Data Turnaround 45 Days
oject Designation ERDF Lysimeter Sampling	Sampling Location ERDF CELLS 5&6 H3340 (7298)		SAF No. B05-039	Air Quality ☐
e Chest No. ERC 01 030	Field Logbook No. EL-1518-2	COA RERDF22560	Method of Shipment FED EX	
ipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A050310		Bill of Lading/Air Bill No. SEE OSPC	

OSSIBLE SAMPLE HAZARDS/REMARKS
ICIDIC

pecial Handling and/or Storage
ONE

Preservation	HNO3 to pH <2	Cool 4C									
Type of Container	G/P	P									
No. of Container(s)	2	1									
Volume	1000mL	500mL									
SAMPLE ANALYSIS	Gross Alpha; Gross Beta; Technetium-99	IC Anions - 300.0 (Chloride)									

Sample No.	Matrix *	Sample Date	Sample Time										
03X48	WATER	8-24-05	0830	X	X								
~~03X49~~	~~WATER~~												
~~03X50~~	~~WATER~~												
~~03X51~~	~~WATER~~												

CHAIN OF POSSESSION	Sign/Print Names		
linquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
GALE	82405 1400 ERC	FED EX	
linquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
FED EX	08/25/05		08/25/05 9:20
linquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
linquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
linquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
linquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

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

ABORATORY SECTION	Received By	Title	Date/Time
INAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B05-039-1	Page 1 of 1

Collector SJ, GALE	Company Contact KESSNER, JH	Telephone No. 375-4688	Project Coordinator KESSNER, JH
Project Designation ERDF Lysimeter Sampling	Sampling Location ERDF CELLS 5&6 H3340 (7298)		SAF No. B05-039
Ice Chest No. ~~ERC~~ C 01 030	Field Logbook No. EL-1518-2	COA RERDF22560	Method of Shipment FED EX
Shipped To EBERLINE SERVICES/ LIONVILLE	Offsite Property No. A050 310		Bill of Lading/Air Bill No. SEE OSPC

Price Code: Air Quality ☐

Data Turnaround: 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

~~ACIDIC~~ NONE 4/D 82305

Special Handling and/or Storage

NONE

Preservation	NONE ~~HNO3 to pH <2~~	Cool 4C									
Type of Container	G/P	P									
No. of Container(s)	2	1									
Volume	1000mL	~~500mL~~ 1 L 4/D 82305									
SAMPLE ANALYSIS	Gross Alpha; Gross Beta; Technetium-99	IC Anions - 300.0 (Chloride)									

Sample No.	Matrix *	Sample Date	Sample Time										
~~J03X48~~ 4/D 82305	~~WATER~~												
J03X49	WATER	8-24-05	0840	X									
~~J03X50~~ 4/D 82305	WATER												
J03X51	~~WATER~~												

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time ERC	Received By/Stored In	Date/Time
S JOBLE	82405 1400	FED EX	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
FED EX	08/25/05	RFM	08/25/05 9:20
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

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

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

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B05-039-1	Page 1 of 1

Collector SJ, GALE	Company Contact KESSNER, JH	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code Air Quality ☐	Data Turnaround 45 Days
Project Designation ERDF Lysimeter Sampling	Sampling Location ERDF CELLS 5&6 H3340 (7298)		SAF No. B05-039		
Ice Chest No. 01 030 ERC ~~050 340~~	Field Logbook No. EL-1518-2	COA RERDF22560	Method of Shipment FED EX		
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A050 310		Bill of Lading/Air Bill No. SEE OSPC		

POSSIBLE SAMPLE HAZARDS/REMARKS
ACIDIC

Special Handling and/or Storage
NONE

Preservation	HNO3 to pH <2	Cool 4C									
Type of Container	G/P	P									
No. of Container(s)	2	1									
Volume	1000mL	500mL									
SAMPLE ANALYSIS	Gross Alpha; Gross Beta; Technetium-99	IC Anions - 300.0 (Chloride)									

Sample No.	Matrix *	Sample Date	Sample Time										
~~J03X48~~	WATER												
J03X49	~~WATER~~												
J03X50	WATER	8-24-05	1045	X									
~~J03X51~~	~~WATER~~												

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS
Relinquished By/Removed From: SJ GALE Date/Time: ERC 82405 1400	Received By/Stored In: FED EX Date/Time:	
Relinquished By/Removed From: FED EX Date/Time: 08/25/05	Received By/Stored In: MFM Date/Time: 08/25/05 9:20	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:	

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

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

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B05-039-1	Page 1 of 1
Collector SJ, GALE	Company Contact KESSNER, JH	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code Air Quality ☐
Data Turnaround **45 Days**				
Project Designation ERDF Lysimeter Sampling	Sampling Location ERDF CELLS 5&6 H3340 (7298)		SAF No. B05-039	
Ice Chest No. ERC 01 030	Field Logbook No. EL-1518-2	COA RERDF22560	Method of Shipment FED EX	
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A050 310		Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

~~ACIDIC~~ NONE AJP 82305

Special Handling and/or Storage

NONE

Preservation	~~HNO3 to pH<2~~ NONE AJP 82305	Cool 4C									
Type of Container	G/P	P									
No. of Container(s)	2	1									
Volume	1000mL	~~500mL~~ 1L AJP 82305									
SAMPLE ANALYSIS	Gross Alpha; Gross Beta; Technetium-99	IC Anions - 300.0 (Chloride)									

Sample No.	Matrix *	Sample Date	Sample Time										
J03X48	WATER												
J03X49 AJP 82305	WATER												
~~J03X50~~	WATER												
J03X51	WATER	8-24-05	1055	X									

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From [signature]	82405 1400 ERC	Received By/Stored In FED EX	
Relinquished By/Removed From FED EX	08/25/05	Received By/Stored In MEM	08/25/05 9:20
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

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

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

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

EBERLINE SERVICES

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Client: B. HANFORD City: RICHLAND State: WA

Date/Time received: 08/25/05 9:20 CoC No.: B05-039-1

Container I.D. No: ERC-01 030 Requested TAT (Days): 45 P.O. Received Yes [ ] No [ ]

INSPECTION

1. Custody seals on shipping container intact? Yes [Y] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [X] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [X] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [X] No [ ] N/A [ ]
5. Packing material is Wet [ ] Dry [X]
6. Number of samples in shipping container: 4 Sample Matrix: W
7. Number of containers per sample: 2 (Or see CoC ____)
8. Samples are in correct container Yes [X] No [ ]
9. Paperwork agrees with samples? Yes [X] No [ ]
10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [X]
11. Samples are: In good condition [X] Leaking [ ] Broken Container [ ] Missing [ ]
12. Samples are: Preserved [X] Not preserved [X] pH 1/6 Preservative ____
13. Describe any anomalies: ____
14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date ____
15. Inspected by: MFW Date: 08/25/05 Time: 10:30

Customer Sample No.	cpm	mR/hr	Wipe	Customer Sample No	cpm	mR/hr	wipe

Ion Chamber Ser. No ____ Calibration date: ____
Alpha Meter Ser. No. ____ Calibration date: ____
Beta/Gamma Meter Ser. No ____ Calibration date: ____

Form SCP-01.2, 01-23-04 "over 55 years of quality nuclear services"

LIONVILLE LABORATORY INC.

27 September 2005

Joan Kessner
Bechtel-Hanford, Inc.
3190 Washington Way
MSIN H9-03
Richland, WA 99352

Subject: Contract No. 630
Analytical Data Package

Dear Ms. Kessner:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0508L223
SDG #	H3340
SAF #	~~B05-004~~ B05-039 nB 10/4/05
Date Received	8-25-05
# Samples	4
Matrix	Water
Volatiles	
Semivolatiles	
Pest/PCB	
PAH	
DRO/KRO/GRO	
GC Alcohols	
Herbicides	
Metals	
Inorganics	X

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager
r:\group\pm\orlette\tnu-hanford\data\b_ltrs.doc

208 Welsh Pool Road • Exton, PA 19341- 1313 • (610) 280-3000 • Fax (610) 280-3041

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B05-039 H3340

DATE RECEIVED: 08/25/05 LVL LOT # :0508L223

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J03X48						
CHLORIDE BY IC	001	W	05LICA67	08/24/05	09/06/05	09/06/05
CHLORIDE BY IC	001 REP	W	05LICA67	08/24/05	09/06/05	09/06/05
CHLORIDE BY IC	001 MS	W	05LICA67	08/24/05	09/06/05	09/06/05
J03X49						
CHLORIDE BY IC	002	W	05LICA67	08/24/05	09/06/05	09/06/05
J03X50						
CHLORIDE BY IC	003	W	05LICA67	08/24/05	09/06/05	09/06/05
J03X51						
CHLORIDE BY IC	004	W	05LICA67	08/24/05	09/06/05	09/06/05
LAB QC:						
CHLORIDE BY IC	MB1	W	05LICA67	N/A	09/06/05	09/06/05
CHLORIDE BY IC	MB1 BS	W	05LICA67	N/A	09/06/05	09/06/05

01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B05-039 H3340
LVL#: 0508L223

W.O.#: 11343-606-001-9999-00
Date Received: 08-25-05

INORGANIC NARRATIVE

1. This narrative covers the analysis of 4 water samples.

2. The samples were prepared and analyzed in accordance with the method checked on the attached glossary.

   LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

3. Sample holding times as required by the method and/or contract were met.

4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.

5. The method blank was within the method criteria.

6. The Laboratory Control Sample (LCS) was within the laboratory control limits.

7. The matrix spike recovery was within the 75-125% control limits.

8. The replicate analysis was within the 20% Relative Percent Difference (RPD) control limit.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

9/13/05
Date

njp\i08-223

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 14 pages.

02

208 Welsh Pool Road • Exton, PA 19341- 1313 • (610) 280-3000 • Fax (610) 280-3041

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR WATER SAMPLE ANALYSIS

	EPA /600	SW846	OTHER
Acidity	___ 305.1		
___Alkalinity ___Bicarbonate ___Carbonate	___ 310.1		
BOD	___ 405.1		___ 5210B (b)
Ion Chromatography:			
___Bromide ✓ Chloride ___Fluoride	✓ 300.0	___ 9056	
___Nitrate ___Nitrite ___Phosphate	___ 300.0	___ 9056	
___Sulfate ___Formate ___Acetate ___Oxalate	___ 300.0	___ 9056	
Chloride	___ 325.2	___ 9251	
Chorine, Residual	___ 330.5 (mod)		
Cyanide, Amenable to Chlorination	___ 335.2	___ 9010B	
Cyanide, Total	___ 335.2	___ 9010B ___ 9014	___ ILMO4.0 (e)
Cyanide, Weak Acid Dissociable		___	___ 412 (a) ___ 4500CN-I (b)
COD	___ 410.4(mod)		___ 5220C (b)
Color	___ 110.2		
Corrosivity by Coupon		___ 1110(mod)	
Chromium VI		___ 7196A	___ 3500Cr-D (b)
Fluoride	___ 340.2		___ 4500-FC
Hardness, Calcium	___ 215.2		
Hardness, Total	___ 130.2		
Iodide			___ ASTM D19P202 (1)
Surfactant	___ 425.1		
___Nitrate-Nitrite ___Nitrate ___Nitrite	___ 353.2		
Ammonia	___ 350.3		
Total___ Kjeldahl ___ Organic Nitrogen	___ 351.3		
Total___ Organic ___ Inorganic Carbon	___ 415.1	___ 9060	
Oil & Grease	___ 413.1	___ 9070	
___ pH ____ pH; paper	___ 150.1	___ 9040B ___ 9041A	
Petroleum Hydrocarbons, Total Recoverable	___ 418.1		
Phenol	___ 420.1 ___ 420.2	___ 9065 ___ 9066	
___Ortho ___Total Phosphate	___ 365.2		___ 4500-P B ___ C
Salinity			___ 210A (a) ___ 2520 (b)
Settleable Solids	___ 160.5		
Sulfide	___ 376.1	___ 9030B/9034 (acid soluble)	
Reactive ___Cyanide ___Sulfide		___ Section 7.3 (__9014__9030B)	
Silica	___ 370.1		
Sulfite	___ 377.1		
Sulfate	___ 375.4	___ 9038	
Specific Conductance	___ 120.1	___ 9050A	
Specific Gravity			___ D5057-90 ___ 213E (a)
Synthetic Precipitation Leach	___ 1312		
Total ___Dissolved __Suspended ___Solids	160 ___.1 ___.2 ___.3		
Total Organic Halides	___ 450.1	___ 9020B	
Turbidity	___ 180.1		
Volatile Solids:			
__Total __Dissolved __Suspended	___ 160.4		

Other: **Method:**

03

L-WI-034/A-01/01

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/09/05

CLIENT: TNUHANFORD B05-039 H3340 LVL LOT #: 0508L223
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J03X48	Chloride by IC	62.8	MG/L	2.5	10.0
-002	J03X49	Chloride by IC	79.0	MG/L	2.5	10.0
-003	J03X50	Chloride by IC	23.8	MG/L	2.5	10.0
-004	J03X51	Chloride by IC	30.6	MG/L	2.5	10.0

05

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 09/09/05

CLIENT: TNUHANFORD B05-039 H3340 LVL LOT #: 0508L223
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	05LICA67-MB1	Chloride by IC	0.25 u	MG/L	0.25	1.0

06

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 09/09/05

CLIENT: TNUHANFORD B05-039 H3340
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0508L223

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J03X48	Chloride by IC	160	62.8	100	97.5	20.0
BLANK10	05LICA67-MB1	Chloride by IC	4.7	0.25u	5.0	94.7	1.0

07

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 09/09/05

CLIENT: TNUHANFORD B05-039 H3340 LVL LOT #: 0508L223
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J03X48	Chloride by IC	62.8	57.4	9.0	10.0

08

Lionville Laboratory Use Only
0508L223

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

A See SRC 60

Client: TNU Hanford 305-039
Est. Final Proj. Sampling Date:
Project #: 11343-006-001-9999-00
Project Contact/Phone #:
Lionville Laboratory Project Manager: DJ
QC: Spec Del: Std TAT: 30 Days
Date Rec'd: 8/25/05 Date Due: 9/24/05

Refrigerator #									3								
#/Type Container	Liquid / Solid								1PL								
Volume	Liquid / Solid								500/1L								
Preservatives									—								
ANALYSES REQUESTED →		ORGANIC								INORG							
		VOA	BNA	Pest/PCB	Herb					Metal	CN						
		↓ Lionville Laboratory Use Only ↓															
									ICL								

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected															
001	J03X48			W	8/24/05	0830							1								
002	49			(SO)	↓	0840							1								
003	50			W	↓	0845							1								
004	51			(SO)	↓	1055							1								

Special Instructions:
002, 004 are solids
002, 004 - Longed at water - analyze water portion.

RUN MATRIX QC.

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
FedEx	[illegible]	8/25/05	0905

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
"COMPOSITE WASTE"	ORIGINAL REWRITTEN		

WCH-42
Rev. 1

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B05-039-1	Page 1 of 1
Collector SJ, GALE	Company Contact KESSNER, JH Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code Air Quality ☐
Project Designation ERDF Lysimeter Sampling	Sampling Location ERDF CELLS 5&6	SAF No. B05-039	Data Turnaround 45 Days
Ice Chest No. GFE 02 501	Field Logbook No. EL-1518-2 COA RERDF22560	Method of Shipment FED EX	
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A050361	Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

ACIDIC

Special Handling and/or Storage

NONE

Preservation	HNO3 to pH <2	Cool 4C									
Type of Container	G/P	P									
No. of Container(s)	2	1									
Volume	1000mL	500mL									
SAMPLE ANALYSIS	Gross Alpha; Gross Beta; Technetium-99	IC Anions - 300.0 (Chloride)									

Sample No.	Matrix *	Sample Date	Sample Time										
J03X48	WATER	8-24-05	0830		X								
~~J03X49~~ MA 82305	~~WATER~~												
~~J03X50~~ MA 82305	~~WATER~~												
~~J03X51~~ MA 82305	~~WATER~~												

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From SJ GALE / FED EX	82405 1400	Received By/Stored In FED EX	
Relinquished By/Removed From FED EX		Received By/Stored In [illegible]	8/25/05 0905
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

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

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

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B05-039-1	Page 1 of 1
Collector SJ, GALE	Company Contact KESSNER, JH	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code Air Quality ☐
Project Designation ERDF Lysimeter Sampling	Sampling Location ERDF CELLS 5&6		SAF No. B05-039	Data Turnaround 45 Days
Ice Chest No. ERC 02 501	Field Logbook No. EL-1518-2	COA RERDF22560	Method of Shipment FED EX	
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A050361		Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

~~ACIDIC~~ NONE 4/D 82303

Special Handling and/or Storage

NONE

Preservation	NaOH ~~HNO3 to pH <2~~ 4/D 8230	Cool 4C									
Type of Container	G/P	P									
No. of Container(s)	2	1									
Volume	1000mL	~~500mL~~ 1 L 4/D 82305									
SAMPLE ANALYSIS	Gross Alpha; Gross Beta; Technetium-99	IC Anions - 300.0 (Chloride)									

Sample No.	Matrix *	Sample Date	Sample Time										
~~J03X48~~ 4/D 82303	~~WATER~~												
J03X49	WATER	8-24-05	0840		X								
~~J03X50~~ 4/D 82304	WATER												
J03X51	~~WATER~~												

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From SJ GALE	8/24/05 1400 ERC	Received By/Stored In FED EX	
Relinquished By/Removed From FedEx		Received By/Stored In	8/25/05 0905
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

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

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

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B05-039-1	Page 1 of 1
Collector SJ, GALE	Company Contact KESSNER, JH	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code Data Turnaround 45 Days
Project Designation ERDF Lysimeter Sampling	Sampling Location ERDF CELLS 5&6		SAF No. B05-039	Air Quality ☐
Ice Chest No. ERC 02 501	Field Logbook No. EL-1518-2	COA RERDF22560	Method of Shipment FED EX	
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A050361		Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

ACIDIC

Special Handling and/or Storage

NONE

Preservation	HNO3 to pH <2	Cool 4C										
Type of Container	G/P	P										
No. of Container(s)	2	1										
Volume	1000mL	500mL										
SAMPLE ANALYSIS	Gross Alpha; Gross Beta; Technetium-99	IC Anions - 300.0 (Chloride)										

Sample No.	Matrix *	Sample Date	Sample Time										
~~J03X48~~	WATER												
J03X49	~~WATER~~												
J03X50	WATER	8 24 05	1045		X								
~~J03X51~~	~~WATER~~												

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From SJ GALE	8 24 05 1400	Received By/Stored In FED EX	
Relinquished By/Removed From Fed Ex		Received By/Stored In J Kessner	8/25/05 0905
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

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

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

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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B05-039-1	Page 1 of 1
Collector SJ, GALE	Company Contact KESSNER, JH	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code Air Quality ☐
Project Designation ERDF Lysimeter Sampling	Sampling Location ERDF CELLS 5&6		SAF No. B05-039	Data Turnaround 45 Days
Ice Chest No. ERC 02 501	Field Logbook No. EL-1518-2	COA RERDF22560	Method of Shipment FED EX	
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A050361		Bill of Lading/Air Bill No. SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

~~ACIDIC~~ NONE 8/25/05

Special Handling and/or Storage

NONE

Preservation	NONE ~~HNO3 to pH 2~~	Cool 4C									
Type of Container	G/P	P									
No. of Container(s)	2	1									
Volume	1000mL	~~500mL~~ 1L 8/25/05									
SAMPLE ANALYSIS	Gross Alpha; Gross Beta; Technetium-99	IC Anions - 300.0 (Chloride)									

Sample No.	Matrix *	Sample Date	Sample Time										
J03X48	WATER												
J03X49 8/25/05	WATER												
~~J03X50~~	WATER												
J03X51	WATER	8-24-05	1055		X								

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From Vance Stark	Date/Time ERC 82405 1400	Received By/Stored In FED EX	Date/Time
Relinquished By/Removed From FedEx	Date/Time	Received By/Stored In [illegible]	Date/Time 8/25/05 0905
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

Matrix *
S=Soil
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SO=Solid
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WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

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

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hanford **Date:** 8/25/05

Purchase Order / Project# / SAF# / SOW# / Release #: B05-039

LvLI Batch # : 0508L223 **Sample Custodian:** [illegible]

NOTE: EXPLAIN ALL DISCREPANCIES

1.	Samples Hand Delivered or Shipped	Carrier FedEx		Airbill# 7925 0983 5512	
2.	Custody seals on coolers or shipping container intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	Comments
3.	Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No		
4.	All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?	☑ Yes	☐ No		
5.	Samples received cooled or ambient?	Temp 1.9 °C		Cooler # ERC-02-~~054~~ 501 JP 8/25/05	
6.	Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals	
7.	coc signed and dated?	☑ Yes	☐ No		
8.	Sample containers are intact?	☑ Yes	☐ No		
9.	All samples on coc received? All samples received on coc?	☑ Yes	☐ No		
10.	All sample label information matches coc?	~~☑ Yes~~ JP 8/25/05	☑ No	002, 004 - COC says matrix is water, samples are solids	
11.	Samples properly preserved?	☑ Yes	☐ No		
12.	Samples received within hold times? Short holds taken to wet lab?	☑ Yes	☐ No		
13.	VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A	water absorbed in "foam"
14.	QC stickers placed on bottles designated by client?	☐ Yes	☐ No	☑ N/A	
15.	Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)	☑ Yes	~~☑ No~~ JP 9-12-05		liquid analyzed
16.	Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)	☑ Yes	☐ No	☐ No Discrepancies	

SR-002-B

LVLI LIONVILLE LABORATORY INC.

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