



EBERLINE SERVICES

RECEIVED SEPTEMBER 17, 2009

REVISION 1

EBERLINE ANALYTICAL CORPORATION

2030 Wright Avenue

Richmond, California 94804-3849

Phone (510) 235-2633 Fax (510) 235-0438

Toll Free (800) 841-5487

www.eberlineservices.com

September 9, 2009 (original)
September 16, 2009 (revised)

Mr. Michael Neely
CH2M Hill Plateau Remediation Company
P.O. Box 1600
Mail Stop – B6-06
Richland, WA 99352

Reference: **P.O. #33677**
Eberline Analytical R9-08-053-7438, SDG H4031

Dear Mr. Neely:

Enclosed is a revised data report for two solid (soil) samples designated under SAF No. F09-049 received at Eberline Analytical on August 14, 2009.

Please call if you have any questions concerning this report.

Sincerely,

N. Joseph Verville
Client Services Manager

NJV/ljb

Enclosure: Data Package

1.0 GENERAL

CH2M Hill Plateau Remediation Company (CHPRC) Sample Delivery Group H4031 was composed of two solid (soil) samples designated under SAF No. F09-049 with a Project Designation of: BC Controlled Area Remediation – Verification Soil Sampling.

The samples were received as stated on the chain-of-custody documents. Any discrepancies are noted on the Eberline Analytical Sample Receipt Checklist.

2.0 ANALYSIS NOTES

2.1 Total Strontium Analysis

The results for both the original and duplicate analyses were less than their respective MDA's, therefore no RPD is calculated, and there is no associated control limit. No problems were encountered during the course of the analyses.

2.2 Gamma Spectroscopy

The Eu-154 and Eu-155 MDA's for both samples were between 0.1 and 0.2 pCi/g, greater than the RDL's of 0.1 and 0.1 pCi/g, respectively. Europium activities were not detected greater than the respective sample MDA's. The europium MDA's were slightly elevated due to the interference in the gamma spectra from K-40. The results for both the original and duplicate analyses were less than their respective MDA's, therefore no RPD is calculated, and there is no associated control limit. No problems were encountered during the course of the analyses.

3.0 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."



N. Joseph Verville
Client Services Manager

9/14/09

Date

Problem and Discrepancy Report**Eberline****SDG H4031**

1. The data package has the following issues:

a) Narrative, discuss why MDAs exceed RDLs.

Resolution: *Provide discussion.***Lab Response:** **Discussion provided in revised narrative.**

b) Lab sample summary, B21T5, collected date and time are incorrect. Should be 8/6/2009 at 12:35.

Resolution: *Provide correction.***Lab Response:** **The sample ID above is incorrect it should be B218T5. Corrected date and time.**

Please correct the issues and resubmit the hard copy data package.

Uploaded revised EDD to reflect collection date and time.

EBERLINE SERVICES / RICHMOND
 SAMPLE DELIVERY GROUP H4031

SDG 7438
 Contact N. Joseph Verville

Client CHPRC
 Contract No. 33677
 Case no SDG_H4031

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

T A B L E O F C O N T E N T S				
About this section	.	.	.	1
Sample Summaries	.	.	.	3
Prep Batch Summary	.	.	.	5
Work Summary	.	.	.	6
Method Blanks	.	.	.	7
Lab Control Samples	.	.	.	8
Duplicates	.	.	.	9
Data Sheets	.	.	.	10
Method Summaries	.	.	.	12
Report Guides	.	.	.	14
End of Section	.	.	.	28

VB

Prepared by _____

Reviewed by _____

Lab id EBRLNE
 Protocol CHPRC
 Version Ver 1.0
 Form DVD-TOC
 Version 3.06
 Report date 09/16/09

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H4031

SDG 7438
Contact N. Joseph Verville

REPORT GUIDE

Client CHPRC
Contract No. 33677
Case no SDG_H4031

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.

REPORT GUIDES

Page 1

SUMMARY DATA SECTION

Page 1

Lab id EBRLNE
Protocol CHPRC
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/16/09

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H4031

SDG 7438
 Contact N. Joseph Verville

GUIDE, cont.

Client CHPRC
 Contract No. 33677
 Case no SDG H4031

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.

REPORT GUIDES

Page 2

SUMMARY DATA SECTION

Page 2

Lab id EBRLNE
 Protocol CHPRC
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 09/16/09

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H4031

SDG 7438

Contact N. Joseph Verville

LAB SAMPLE SUMMARY

Client CHPRC

Contract No. 33677

Case no SDG H4031

LAB						CHAIN OF	
SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CUSTODY	COLLECTED
R908053-01	B218T5	BCCA SU-1-13SP	SOLID		F09-049	F09-049-016	08/06/09 12:35
R908053-02	B21FF7	BCCA SU-2-13SP	SOLID		F09-049	F09-049-040	08/07/09 08:42
R908053-03	Lab Control Sample		SOLID		F09-049		
R908053-04	Method Blank		SOLID		F09-049		
R908053-05	Duplicate (R908053-01)	BCCA SU-1-13SP	SOLID		F09-049		08/06/09 12:35

LAB SUMMARY

Page 1

SUMMARY DATA SECTION

Page 3

Lab id	<u>EBRLNE</u>
Protocol	<u>CHPRC</u>
Version	<u>Ver 1.0</u>
Form	<u>DVD-LS</u>
Version	<u>3.06</u>
Report date	<u>09/16/09</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H4031

SDG 7438

Contact N. Joseph Verville

QC SUMMARY

Client CHPRC

Contract No. 33677

Case no SDG H4031

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7438	F09-049-016	B218T5	SOLID	99.4	1097 g		08/14/09 8	R908053-01		7438-001
	F09-049-040	B21FF7	SOLID	99.2	997 g		08/14/09 7	R908053-02		7438-002
		Method Blank	SOLID					R908053-04		7438-004
		Lab Control Sample	SOLID					R908053-03		7438-003
		Duplicate (R908053-01)	SOLID	99.4	1097 g		08/14/09 8	R908053-05		7438-005

QC SUMMARY

Page 1

SUMMARY DATA SECTION

Page 4

Lab id EBRLNE

Protocol CHPRC

Version Ver 1.0

Form DVD-QS

Version 3.06

Report date 09/16/09

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H4031

SDG 7438
 Contact N. Joseph Verville

PREP BATCH SUMMARY

Client CHPRC
 Contract No. 33677
 Case no SDG H4031

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED				QUALI-
			BATCH	2σ %	CLIENT	MORE	RE BLANK	LCS	
Beta Counting									
SR	SOLID	Total Strontium in Solids	7211-197	10.4	2		1	1	1/1
Gamma Spectroscopy									
GAM	SOLID	Gamma Scan	7211-197	7.0	2		1	1	1/1

Blank, LCS, Duplicate and Spike planchets are those in the same preparation batch as some Client sample.

Lab id EBRLNE
 Protocol CHPRC
 Version Ver 1.0
 Form DVD-PBS
 Version 3.06
 Report date 09/16/09

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H4031

SDG 7438

Contact N. Joseph Verville

LAB WORK SUMMARY

Client CHPRC

Contract No. 33677

Case no SDG H4031

LAB SAMPLE	CLIENT SAMPLE ID				SUF-					
COLLECTED	LOCATION	MATRIX	PLANCHET	TEST	FIX	ANALYZED	REVIEWED	BY	METHOD	
RECEIVED	CUSTODY	SAF No								
R908053-01	B218T5		7438-001	GAM		08/27/09	09/04/09	CSS	Gamma Scan	
08/06/09	BCCA SU-1-13SP	SOLID	7438-001	SR		09/02/09	09/08/09	BW	Total Strontium in Solids	
08/14/09	F09-049-016	F09-049								
R908053-02	B21FF7		7438-002	GAM		08/27/09	09/04/09	CSS	Gamma Scan	
08/07/09	BCCA SU-2-13SP	SOLID	7438-002	SR		09/02/09	09/08/09	BW	Total Strontium in Solids	
08/14/09	F09-049-040	F09-049								
R908053-03	Lab Control Sample		7438-003	GAM		08/27/09	09/04/09	CSS	Gamma Scan	
		SOLID	7438-003	SR		09/02/09	09/08/09	BW	Total Strontium in Solids	
		F09-049								
R908053-04	Method Blank		7438-004	GAM		08/27/09	09/04/09	CSS	Gamma Scan	
		SOLID	7438-004	SR		09/02/09	09/08/09	BW	Total Strontium in Solids	
		F09-049								
R908053-05	Duplicate (R908053-01)		7438-005	GAM		08/28/09	09/04/09	CSS	Gamma Scan	
08/06/09	BCCA SU-1-13SP	SOLID	7438-005	SR		09/02/09	09/08/09	BW	Total Strontium in Solids	
08/14/09		F09-049								

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
GAM	F09-049	Gamma Scan	GAMMA_GS	2			1	1	1		5
SR	F09-049	Total Strontium in Solids	SRTOT_SEP_PRECIP_GPC	2			1	1	1		5
TOTALS				4			2	2	2		10

WORK SUMMARY

Page 1

SUMMARY DATA SECTION

Page 6

Lab id EBRLNE
 Protocol CHPRC
 Version Ver 1.0
 Form DVD-LWS
 Version 3.06
 Report date 09/16/09

EBERLINE SERVICES / RICHMOND
 SAMPLE DELIVERY GROUP H4031

7438-004

Method Blank

METHOD BLANK

SDG <u>7438</u>	Client/Case no <u>CHPRC</u>	<u>SDG_H4031</u>
Contact <u>N. Joseph Verville</u>	Contract No. <u>33677</u>	
Lab sample id <u>R908053-04</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7438-004</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>F09-049</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Total Strontium	SR-RAD	-0.002	0.15	0.306	1.00	U	SR
Beryllium 7	13966-02-4	U		0.048		U	GAM
Potassium 40	13966-00-2	U		0.201		U	GAM
Cobalt 60	10198-40-0	U		0.007	0.050	U	GAM
Ruthenium 106	13967-48-1	U		0.057		U	GAM
Antimony 125	14234-35-6	U		0.016		U	GAM
Cesium 134	13967-70-9	U		0.013		U	GAM
Cesium 137	10045-97-3	U		0.007	0.100	U	GAM
Europium 152	14683-23-9	U		0.019	0.100	U	GAM
Europium 154	15585-10-1	U		0.021	0.100	U	GAM
Europium 155	14391-16-3	U		0.022	0.100	U	GAM
Niobium 94	14681-63-1	U		0.006		U	GAM
Radium 226	13982-63-3	U		0.016		U	GAM
Radium 228	15262-20-1	U		0.033		U	GAM

BC Controlled Area Remediation-Verif

QC-BLANK #70693

Lab id <u>EBRLNE</u>
Protocol <u>CHPRC</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>09/16/09</u>

METHOD BLANKS

Page 1

SUMMARY DATA SECTION

Page 7

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H4031

7438-003

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7438</u>	Client/Case no <u>CHPRC</u>	<u>SDG H4031</u>
Contact <u>N. Joseph Verville</u>	Contract No. <u>33677</u>	
Lab sample id <u>R908053-03</u>	Client sample id <u>Lab Control Sample</u>	
Dept sample id <u>7438-003</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>F09-049</u>	

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMES (TOTAL)	PROTOCOL LIMITS
Total Strontium	9.89	0.60	0.285	1.00	SR	9.95	0.40	99	81-119	80-120
Cobalt 60	0.268	0.035	0.025	0.050	GAM	0.293	0.012	91	79-121	80-120
Cesium 137	0.396	0.035	0.025	0.100	GAM	0.374	0.015	106	81-119	80-120

BC Controlled Area Remediation-Verif

QC-LCS #70692

LAB CONTROL SAMPLES

Page 1

SUMMARY DATA SECTION

Page 8

Lab id <u>EBRLNE</u>
Protocol <u>CHPRC</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>09/16/09</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H4031

7438-005

B218T5

DUPLICATE

SDG <u>7438</u>	Client/Case no <u>CHPRC</u>	<u>SDG H4031</u>
Contact <u>N. Joseph Verville</u>	Contract No. <u>33677</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R908053-05</u>	Lab sample id <u>R908053-01</u>	Client sample id <u>B218T5</u>
Dept sample id <u>7438-005</u>	Dept sample id <u>7438-001</u>	Location/Matrix <u>BCCA SU-1-13SP</u> <u>SOLID</u>
	Received <u>08/14/09</u>	Collected/Weight <u>08/06/09 12:35</u> <u>1097 g</u>
% solids <u>99.4</u>	% solids <u>99.4</u>	Custody/SAF No <u>F09-049-016</u> <u>F09-049</u>

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI- FIERS	RPD %	3σ TOT	DER σ
Total Strontium	0.030	0.13	0.265	1.00	U	SR	0.155	0.17	0.323	U	-		1.2
Beryllium 7	U		0.273		U	GAM	U		0.295	U	-		0.1
Potassium 40	13.9	0.83	0.266			GAM	13.4	0.72	0.297		4	19	0.6
Cobalt 60	U		0.027	0.050	U	GAM	U		0.032	U	-		0.2
Ruthenium 106	U		0.208		U	GAM	U		0.260	U	-		0.3
Antimony 125	U		0.064		U	GAM	U		0.069	U	-		0.1
Cesium 134	U		0.042		U	GAM	U		0.044	U	-		0.1
Cesium 137	0.030	0.023	0.029	0.100		GAM	0.074	0.034	0.035		85	120	2.1
Europium 152	U		0.076	0.100	U	GAM	U		0.080	U	-		0.1
Europium 154	U		0.095	0.100	U	GAM	U		<u>0.106</u>	U	-		0.2
Europium 155	U		0.097	0.100	U	GAM	U		<u>0.117</u>	U	-		0.3
Niobium 94	U		0.023		U	GAM	U		0.027	U	-		0.2
Radium 226	0.609	0.059	0.052			GAM	0.535	0.065	0.061		13	27	1.4
Radium 228	0.868	0.12	0.110			GAM	0.798	0.13	0.127		8	35	0.7

BC Controlled Area Remediation-Verif

QC-DUP#1 70694

DUPLICATES

Page 1

SUMMARY DATA SECTION

Page 9

Lab id <u>EBRLNE</u>
Protocol <u>CHPRC</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>09/16/09</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H4031

7438-001

B218T5

DATA SHEET

SDG <u>7438</u>	Client/Case no <u>CHPRC</u>	<u>SDG_H4031</u>
Contact <u>N. Joseph Verville</u>	Contract <u>No. 33677</u>	
Lab sample id <u>R908053-01</u>	Client sample id <u>B218T5</u>	
Dept sample id <u>7438-001</u>	Location/Matrix <u>BCCA SU-1-13SP</u>	<u>SOLID</u>
Received <u>08/14/09</u>	Collected/Weight <u>08/06/09 12:35</u>	<u>1097 g</u>
% solids <u>99.4</u>	Custody/SAF No <u>F09-049-016</u>	<u>F09-049</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Total Strontium	SR-RAD	0.155	0.17	0.323	1.00	U	SR
Beryllium 7	13966-02-4	U		0.295		U	GAM
Potassium 40	13966-00-2	13.4	0.72	0.297			GAM
Cobalt 60	10198-40-0	U		0.032	0.050	U	GAM
Ruthenium 106	13967-48-1	U		0.260		U	GAM
Antimony 125	14234-35-6	U		0.069		U	GAM
Cesium 134	13967-70-9	U		0.044		U	GAM
Cesium 137	10045-97-3	0.074	0.034	0.035	0.100		GAM
Europium 152	14683-23-9	U		0.080	0.100	U	GAM
Europium 154	15585-10-1	U		<u>0.106</u>	0.100	U	GAM
Europium 155	14391-16-3	U		<u>0.117</u>	0.100	U	GAM
Niobium 94	14681-63-1	U		0.027		U	GAM
Radium 226	13982-63-3	0.535	0.065	0.061			GAM
Radium 228	15262-20-1	0.798	0.13	0.127			GAM

BC Controlled Area Remediation-Verif

DATA SHEETS

Page 1

SUMMARY DATA SECTION

Page 10

Lab id <u>EBRLNE</u>
Protocol <u>CHPRC</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>09/16/09</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H4031

7438-002

B21FF7

DATA SHEET

SDG <u>7438</u>	Client/Case no <u>CHPRC</u>	<u>SDG_H4031</u>
Contact <u>N. Joseph Verville</u>	Contract <u>No. 33677</u>	
Lab sample id <u>R908053-02</u>	Client sample id <u>B21FF7</u>	
Dept sample id <u>7438-002</u>	Location/Matrix <u>BCCA SU-2-13SP</u>	<u>SOLID</u>
Received <u>08/14/09</u>	Collected/Weight <u>08/07/09 08:42</u>	<u>997 g</u>
% solids <u>99.2</u>	Custody/SAF No <u>F09-049-040</u>	<u>F09-049</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Total Strontium	SR-RAD	0.007	0.17	0.346	1.00	U	SR
Beryllium 7	13966-02-4	U		0.274		U	GAM
Potassium 40	13966-00-2	12.6	0.88	0.356			GAM
Cobalt 60	10198-40-0	U		0.032	0.050	U	GAM
Ruthenium 106	13967-48-1	U		0.266		U	GAM
Antimony 125	14234-35-6	U		0.073		U	GAM
Cesium 134	13967-70-9	U		0.047		U	GAM
Cesium 137	10045-97-3	0.062	0.031	0.035	0.100		GAM
Europium 152	14683-23-9	U		0.086	0.100	U	GAM
Europium 154	15585-10-1	U		<u>0.116</u>	0.100	U	GAM
Europium 155	14391-16-3	U		<u>0.105</u>	0.100	U	GAM
Niobium 94	14681-63-1	U		0.030		U	GAM
Radium 226	13982-63-3	0.525	0.070	0.062			GAM
Radium 228	15262-20-1	0.860	0.16	0.148			GAM

BC Controlled Area Remediation-Verif

DATA SHEETS

Page 2

SUMMARY DATA SECTION

Page 11

Lab id <u>EBRLNE</u>
Protocol <u>CHPRC</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>09/16/09</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H4031

Test SR Matrix SOLID
SDG 7438
Contact N. Joseph Verville

Client CHPRC
Contract No. 33677
Contract SDG H4031

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOLIDS
BETA COUNTING

RESULTS

Table with columns: LAB, RAW, SUF-, PLANCHET, CLIENT SAMPLE ID, Total Strontium. Rows include sample IDs R908053-01 to R908053-05 with their respective results (U, ok, U, - U).

Nominal values and limits from method RDLs (pCi/g) 1.00
BC Controlled Area Remediation-Verif

METHOD PERFORMANCE

Table with columns: LAB, RAW, SUF-, MDA, ALIQ, PREP, DILU-, YIELD, EFF, COUNT, FWHM, DRIFT, DAYS, ANAL- YZED, DETECTOR. Rows include sample IDs R908053-01 to R908053-05 with performance metrics.

Nominal values and limits from method 1.00 1.00 40-110 100 180

PROCEDURES REFERENCE SRTOT_SEP_PRECIP_GPC
SPP-071 Soil Dissolution, > 1.0g Aliquot, rev 1
CP-383 Strontium in Dissolved Solid of < 5.0g Aliquot, rev 1

AVERAGES ± 2 SD MDA 0.305 ± 0.063
FOR 5 SAMPLES YIELD 84 ± 9

METHOD SUMMARIES
Page 1
SUMMARY DATA SECTION
Page 12

Lab id EBRLINE
Protocol CHPRC
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 09/16/09

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H4031

Test GAM Matrix SOLID
 SDG 7438
 Contact N. Joseph Verville

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client CHPRC
 Contract No. 33677
 Contract SDG H4031

RESULTS

LAB RAW SUF-
 SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Cobalt 60 Cesium 137

Preparation batch 7211-197

R908053-01	7438-001	B218T5	U	0.074
R908053-02	7438-002	B21FF7	U	0.062
R908053-03	7438-003	Lab Control Sample	ok	ok
R908053-04	7438-004	Method Blank	U	U
R908053-05	7438-005	Duplicate (R908053-01)	- U	ok

Nominal values and limits from method RDLs (pCi/g) 0.050 0.100

BC Controlled Area Remediation-Verif

METHOD PERFORMANCE

LAB RAW SUF- MDA ALIQ PREP DILU- YIELD EFF COUNT FWHM DRIFT DAYS ANAL-
 SAMPLE ID TEST FIX CLIENT SAMPLE ID pCi/g g FAC TION % % min keV KeV HELD PREPARED YZED DETECTOR

Preparation batch 7211-197 2σ prep error 7.0 % Reference Lab Notebook No. 7211 pg.197

R908053-01	B218T5	7.31	731	118	21	08/25/09	08/27	MB,06,00
R908053-02	B21FF7	7.75	786	104	20	08/25/09	08/27	02,04,00
R908053-03	Lab Control Sample	0.025	730	112		08/25/09	08/27	01,04,00
R908053-04	Method Blank	1.76	730	947		08/25/09	08/27	01,04,00
R908053-05	Duplicate (R908053-01)	6.74	731	101	22	08/25/09	08/28	MB,08,00

Nominal values and limits from method 0.050 730 100 180

PROCEDURES REFERENCE GAMMA_GS
 SPP-100 Preparation of Sample for Gamma Spectroscopy,
 rev 0

AVERAGES ± 2 SD MDA 4.72 ± 7.13
 FOR 5 SAMPLES YIELD _____ ± _____

METHOD SUMMARIES

Page 2

SUMMARY DATA SECTION

Page 13

Lab id EBRLNE
 Protocol CHPRC
 Version Ver 1.0
 Form DVD-LMS
 Version 3.06
 Report date 09/16/09

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H4031

SDG 7438
 Contact N. Joseph Verville

REPORT GUIDE

Client CHPRC
 Contract No. 33677
 Case no SDG_H4031

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.

REPORT GUIDES

Page 1

SUMMARY DATA SECTION

Page 14

Lab id EBRLNE
 Protocol CHPRC
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 09/16/09

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H4031

SDG 7438
Contact N. Joseph Verville

REPORT GUIDE

Client CHPRC
Contract No. 33677
Case no SDG_H4031

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.

REPORT GUIDES

Page 2

SUMMARY DATA SECTION

Page 15

Lab id EBRLINE
Protocol CHPRC
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/16/09

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H4031

SDG 7438
 Contact N. Joseph Verville

REPORT GUIDE

Client CHPRC
 Contract No. 33677
 Case no SDG_H4031

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.

REPORT GUIDES

Page 3

SUMMARY DATA SECTION

Page 16

Lab id EBRLNE
 Protocol CHPRC
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 09/16/09

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H4031

SDG 7438
Contact N. Joseph Verville

REPORT GUIDE

Client CHPRC
Contract No. 33677
Case no SDG H4031

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).

REPORT GUIDES

Page 4

SUMMARY DATA SECTION

Page 17

Lab id EBRLNE
Protocol CHPRC
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/16/09

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H4031

SDG 7438
 Contact N. Joseph Verville

GUIDE , c o n t .

Client CHPRC
 Contract No. 33677
 Case no SDG H4031

D A T A S H E E T

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.

REPORT GUIDES

Page 5

SUMMARY DATA SECTION

Page 18

Lab id EBRLNE
 Protocol CHPRC
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 09/16/09

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H4031

SDG 7438
 Contact N. Joseph Verville

GUIDE, cont.

Client CHPRC
 Contract No. 33677
 Case no SDG_H4031

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.

REPORT GUIDES

Page 6

SUMMARY DATA SECTION

Page 19

Lab id EBRLNE
 Protocol CHPRC
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 09/16/09

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H4031

SDG 7438
 Contact N. Joseph Verville

REPORT GUIDE

Client CHPRC
 Contract No. 33677
 Case no SDG H4031

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.

REPORT GUIDES

Page 7

SUMMARY DATA SECTION

Page 20

Lab id EBRLNE
 Protocol CHPRC
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 09/16/09

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H4031

SDG 7438
Contact N. Joseph Verville

REPORT GUIDE

Client CHPRC
Contract No. 33677
Case no SDG_H4031

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.

REPORT GUIDES

Page 8

SUMMARY DATA SECTION

Page 21

Lab id EBRLNE
 Protocol CHPRC
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 09/16/09

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H4031

SDG 7438
 Contact N. Joseph Verville

GUIDE , c o n t .

Client CHPRC
 Contract No. 33677
 Case no SDG_H4031

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.

REPORT GUIDES

Page 9

SUMMARY DATA SECTION

Page 22

Lab id EBRLNE
 Protocol CHPRC
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 09/16/09

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H4031

SDG 7438
 Contact N. Joseph Verville

REPORT GUIDE

Client CHPRC
 Contract No. 33677
 Case no SDG_H4031

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

REPORT GUIDES

Page 10

SUMMARY DATA SECTION

Page 23

Lab id EBRLNE
 Protocol CHPRC
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 09/16/09

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H4031

SDG 7438
Contact N. Joseph Verville

GUIDE , cont .

Client CHPRC
Contract No. 33677
Case no SDG_H4031

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.

REPORT GUIDES

Page 11

SUMMARY DATA SECTION

Page 24

Lab id EBRLNE
Protocol CHPRC
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 09/16/09

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H4031

SDG 7438
 Contact N. Joseph Verville

REPORT GUIDE

Client CHPRC
 Contract No. 33677
 Case no SDG H4031

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'

Lab id EBRLNE
 Protocol CHPRC
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 09/16/09

REPORT GUIDES

Page 12

SUMMARY DATA SECTION

Page 25

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H4031

SDG 7438
 Contact N. Joseph Verville

GUIDE , cont .

Client CHPRC
 Contract No. 33677
 Case no SDG H4031

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.
- * Preparation 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.

REPORT GUIDES

Page 13

SUMMARY DATA SECTION

Page 26

Lab id EBRLNE
 Protocol CHPRC
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 09/16/09

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H4031

SDG 7438
 Contact N. Joseph Verville

GUIDE , cont .

Client CHPRC
 Contract No. 33677
 Case no SDG_H4031

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

REPORT GUIDES

Page 14

SUMMARY DATA SECTION

Page 27

Lab id EBRLNE
 Protocol CHPRC
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 09/16/09

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H4031

SDG 7438
 Contact N. Joseph Verville

GUIDE , cont .

Client CHPRC
 Contract No. 33677
 Case no SDG_H4031

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.

REPORT GUIDES

Page 15

SUMMARY DATA SECTION

Page 28

Lab id EBRLNE
 Protocol CHPRC
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 09/16/09

PRICE CODE 8N
 AIR QUALITY
 METHOD OF SHIPMENT
 FEDERAL EXPRESS

PROJECT COORDINATOR
 WIDRIG, DL
 SAF NO.
 F09-049
 COA
 302222ES10

TELEPHONE NO.
 376-2858
 PROJECT DESIGNATION
 BC Controlled Area Remediation - Verification Soil Sampling

COMPANY CONTACT
 WIDRIG, DL
 PROJECT LOGBOOK NO.
 ANF-N-585-3
 OFFSITE PROPERTY NO.
 SEE PTR

CH2M Hill Plateau Remediation Company
 COLLECTOR
 Fulford
 SAMPLING LOCATION
 BCCA SU-1-13SP
 ICE CHEST NO.
 GSDWC-1
 SHIPPED TO
 Eberline Services

BILL OF LADING/AIR BILL NO.
 SEE PTR 7978 4576 0714

MATRIX*	PRESERVATION	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	None	G/P	1	500ml	Gamma Spectroscopy (Cesium-137)
	None	G/P	1	120ml	Strontium-89,90 -- Total Sr;

SPECIAL HANDLING AND/OR STORAGE
 B218T3

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B218T5	SOIL	8-6-09	1235

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM CF Fulford	RECEIVED BY/STORED IN MAY 413 SSV R2	RECEIVED BY/STORED IN MAY 413 SSV R2	DATE/TIME 8-6-09 1415
RELINQUISHED BY/REMOVED FROM MAY 413 SSV R2	RECEIVED BY/STORED IN CHPRC	RECEIVED BY/STORED IN CHPRC	DATE/TIME 8-13-09
RELINQUISHED BY/REMOVED FROM CHPRC	RECEIVED BY/STORED IN FED EX	RECEIVED BY/STORED IN FED EX	DATE/TIME 8-13-09
RELINQUISHED BY/REMOVED FROM FED EX	RECEIVED BY/STORED IN P.F. WATKINS	RECEIVED BY/STORED IN P.F. WATKINS	DATE/TIME 08/14/09 0915
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.

ORIGINAL

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION <td>DISPOSAL METHOD <td>DISPOSED BY <td>DATE/TIME</td> </td></td>	DISPOSAL METHOD <td>DISPOSED BY <td>DATE/TIME</td> </td>	DISPOSED BY <td>DATE/TIME</td>	DATE/TIME

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
 PROJECT COORDINATOR WIDRIG, DL
 SAF NO. F09-049
 COA 302222ES10
 BILL OF LADING/AIR BILL NO. 7978 4576 0714
 SEE PTR

COMPANY CONTACT WIDRIG, DL
 TELEPHONE NO. 376-2858
 PROJECT DESIGNATION ARRA BC Controlled Area Remediation - Verification Soil Sampling
 FIELD LOGBOOK NO. ANFN-585-3
 ACTUAL SAMPLE DEPTH N/A
 OFFSITE PROPERTY NO. H4031 (7438)
 SEE PTR

COLLECTOR Futon
 SAMPLING LOCATION BCCA SU-2-13SP
 ICE CHEST NO. GSWC-1
 SHIPPED TO Eberline Services

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS	SAMPLE DATE	SAMPLE TIME
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)	None G/P 1 500mL Gamma Spectroscopy (Cesium-137) None G/P 1 120mL Strontium-89.90 -- Total Sr	1	500mL	Gamma Spectroscopy (Cesium-137)	08-7-09	0842

SPECIAL HANDLING AND/OR STORAGE
 BAI FAI

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM Futon	NO 413 SSU-R2	8-7-09	0920
RELINQUISHED BY/REMOVED FROM DB Parchen	RECEIVED BY/STORED IN	8-13-09	0915
RELINQUISHED BY/REMOVED FROM DB Parchen	RECEIVED BY/STORED IN	8-13-09	0915
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	8-14-09	0915
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
 ** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GK1 applies to this SAF.

ORIGINAL

LABORATORY SECTION RECEIVED BY DATE/TIME
 FINAL SAMPLE DISPOSITION DISPOSED BY DATE/TIME



RICHMOND, CA LABORATORY
SAMPLE RECEIPT CHECKLIST

Client: CHPRC City MCKEAN State WA
Date/Time received 08/14/09 0915 CoC No. F09-049-016, 040
Container I.D. No. GSWC-1 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: 2 Sample Matrix S
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 [] Not preserved [x] pH Preservative
13. Describe any anomalies: UB 9/9/09

14. Was P.M. notified of any anomalies? Yes [] No [] Date
15. Inspected by IFur Date: 08/14/09 Time: 1100

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	wipe
<u>All Samples</u>	<u>260</u>						

Ion Chamber Ser. No. Calibration date
Alpha Meter Ser. No. Calibration date
Beta/Gamma Meter Ser. No. 99574 Calibration date 27 MAY 09