

0059302

SAF-B00-029 100 F Area - Quick Turn FINAL DATA PACKAGE

FAX RESULTS TO:

Mike Stankovich

N/A
INITIAL/DATE

VERIFICATION OF CLIENT RECEIPT:

Phone or CC:Mail to Mike Stankovich

N/A
INITIAL/DATE

COMPLETE COPY OF DATA PACKAGE TO:

Mike Stankovich X9-10

BS 1/29/03
INITIAL/DATE

Jeanette Duncan

BS 1/29/03
INITIAL/DATE

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

SDG H2044

SAF-B00-029

X Rad only

Chem only

Rad & Chem

X Complete

Partial

Waste Site: 100-F-19 Shallow Zone Variance

RECEIVED
MAY 13 2003

EDMC



EBERLINE SERVICES

January 22, 2003

Ms. Joan Kessner
Bechtel Hanford Inc.
3350 George Washington Way
Richland, WA 99352
MSIN: H0-25

Reference: **P.O. #630**
Eberline Services R3-01-041-7755, SDG H2044

Dear Ms. Kessner:

Enclosed is the data report for four solid samples designated under SAF No. B00-029 received at Eberline Services on January 11, 2003. The samples were analyzed according to the accompanying chain-of-custody documents.

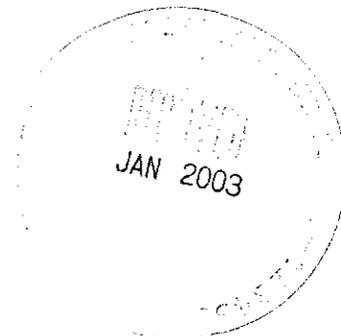
Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
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
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1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H2044 was composed of four solid (soil) samples designated under SAF No. B00-029 with a Project Designation of: 100 F Area – Quick Turn.

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-Fax on January 20, 2003. The electronic data deliverable (EDD) was transmitted to BHI via e-Mail on January 20, 2003.

2.0 ANALYSIS NOTES

2.1 Gamma Screen 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.”

Melissa C. Mannion
Melissa C. Mannion
Program Manager

1/22/13
Date

EBRLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2044

SDG 7755
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H2044

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

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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 01/20/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2044

SDG 7755
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2044

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

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SUMMARY DATA SECTION

Page 1

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/20/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2044

SDG 7755
Contact Melissa C. Mannion

GUIDE , c o n t .

Client Hanford
Contract No. 630
Case no SDG H2044

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 01/20/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2044

SDG 7755
 Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H2044

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
J00F67	100-F-19 Shallow Zone V.	SOLID		R301041-01	B00-029	B00-029-266	01/03/03 09:40
J00F69	100-F-19 Shallow Zone V.	SOLID		R301041-02	B00-029	B00-029-266	01/03/03 09:45
J00F71	100-F-19 Shallow Zone V.	SOLID		R301041-03	B00-029	B00-029-266	01/03/03 09:50
J00F82	100-F-19 Shallow Zone V.	SOLID		R301041-04	B00-029	B00-029-266	01/03/03 09:05
Method Blank		SOLID		R301041-05	B00-029		

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CS
 Version 3.06
 Report date 01/20/03

EBERLINE SERVICES/RICHMOND
 SAMPLE DELIVERY GROUP H2044

SDG 7755
 Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H2044

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
7755	B00-029-266	J00F67	SOLID	100.0	746.2 g		01/11/03	8	R301041-01	7755-001
		J00F69	SOLID	100.0	679.7 g		01/11/03	8	R301041-02	7755-002
		J00F71	SOLID	100.0	899.8 g		01/11/03	8	R301041-03	7755-003
		J00F82	SOLID	100.0	768.7 g		01/11/03	8	R301041-04	7755-004
		Method Blank	SOLID						R301041-05	7755-005

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-QS
 Version 3.06
 Report date 01/20/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2044

SDG 7755
 Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H2044

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED				QUALI-	
			BATCH	2σ %	CLIENT	MORE	RE	BLANK		LCS
Gamma Spectroscopy										
GAM	SOLID	Gamma Scan	7032-165	15.0	4			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.

Lab id EBRLNE
 Protocol Hanford
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 Form DVD-PBS
 Version 3.06
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2044

WORK SUMMARY

SDG 7755
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H2044

CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	LAB SAMPLE ID COLLECTED RECEIVED	PLANCHET	TEST	SUF- FIX	ANALYZED	REVIEWED	BY	METHOD
J00F67 100-F-19 Shallow Zone V. B00-029-266	B00-029	SOLID	R301041-01 01/03/03 01/11/03	7755-001	GAM		01/17/03	01/20/03	MCM	Gamma Scan
J00F69 100-F-19 Shallow Zone V. B00-029-266	B00-029	SOLID	R301041-02 01/03/03 01/11/03	7755-002	GAM		01/17/03	01/20/03	MCM	Gamma Scan
J00F71 100-F-19 Shallow Zone V. B00-029-266	B00-029	SOLID	R301041-03 01/03/03 01/11/03	7755-003	GAM		01/17/03	01/20/03	MCM	Gamma Scan
J00F82 100-F-19 Shallow Zone V. B00-029-266	B00-029	SOLID	R301041-04 01/03/03 01/11/03	7755-004	GAM		01/17/03	01/20/03	MCM	Gamma Scan
Method Blank B00-029		SOLID	R301041-05 01/11/03	7755-005	GAM		01/17/03	01/20/03	MCM	Gamma Scan

COUNTS OF TESTS BY SAMPLE TYPE										
TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
GAM	B00-029	Gamma Scan	GAMMA_GS	4			1			5
TOTALS				4			1			5

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 01/20/03

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2044

R301041-05

Method Blank

METHOD BLANK

SDG <u>7755</u>	Client/Case no <u>Hanford</u>	<u>SDG H2044</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R301041-05</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7755-005</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>B00-029</u>	

ANALYTE	CAS NO	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Cobalt 60	10198-40-0	U		0.034	0.050	U	GAM
Cesium 137	10045-97-3	U		0.026	0.10	U	GAM
Europium 152	14683-23-9	U		0.065	0.10	U	GAM
Europium 154	15585-10-1	U		0.078	0.10	U	GAM
Europium 155	14391-16-3	U		0.071	0.10	U	GAM
Americium 241	14596-10-2	U		0.16		U	GAM

100 F Area - Quick Turn

QC-BLANK 43634

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>01/20/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2044

R301041-01

J00F67

DATA SHEET

SDG <u>7755</u>	Client/Case no <u>Hanford</u>	SDG <u>H2044</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R301041-01</u>	Client sample id <u>J00F67</u>	
Dept sample id <u>7755-001</u>	Location/Matrix <u>100-F-19 Shallow Zone V. SOLID</u>	
Received <u>01/11/03</u>	Collected/Weight <u>01/03/03 09:40 746.2 g</u>	
% solids <u>100.0</u>	Custody/SAF No <u>B00-029-266</u> <u>B00-029</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Cobalt 60	10198-40-0	U		<u>0.074</u>	0.050	U	GAM
Cesium 137	10045-97-3	U		<u>0.066</u>	0.10	U	GAM
Europium 152	14683-23-9	U		<u>0.16</u>	0.10	U	GAM
Europium 154	15585-10-1	U		<u>0.21</u>	0.10	U	GAM
Europium 155	14391-16-3	U		<u>0.15</u>	0.10	U	GAM
Americium 241	14596-10-2	U		<u>0.19</u>		U	GAM

100 F Area - Quick Turn

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>01/20/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2044

R301041-02

J00F69

D A T A S H E E T

SDG <u>7755</u>	Client/Case no <u>Hanford</u>	SDG <u>H2044</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R301041-02</u>	Client sample id <u>J00F69</u>	
Dept sample id <u>7755-002</u>	Location/Matrix <u>100-F-19 Shallow Zone V. SOLID</u>	
Received <u>01/11/03</u>	Collected/Weight <u>01/03/03 09:45 679.7 g</u>	
% solids <u>100.0</u>	Custody/SAF No <u>B00-029-266</u>	<u>B00-029</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Cobalt 60	10198-40-0	U		<u>0.074</u>	0.050	U	GAM
Cesium 137	10045-97-3	U		<u>0.080</u>	0.10	U	GAM
Europium 152	14683-23-9	U		<u>0.20</u>	0.10	U	GAM
Europium 154	15585-10-1	U		<u>0.33</u>	0.10	U	GAM
Europium 155	14391-16-3	U		<u>0.20</u>	0.10	U	GAM
Americium 241	14596-10-2	U		<u>0.48</u>		U	GAM

100 F Area - Quick Turn

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>01/20/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2044

R301041-03

J00F71

DATA SHEET

SDG <u>7755</u>	Client/Case no <u>Hanford</u>	<u>SDG H2044</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R301041-03</u>	Client sample id <u>J00F71</u>	
Dept sample id <u>7755-003</u>	Location/Matrix <u>100-F-19 Shallow Zone V. SOLID</u>	
Received <u>01/11/03</u>	Collected/Weight <u>01/03/03 09:50 899.8 g</u>	
% solids <u>100.0</u>	Custody/SAF No <u>B00-029-266</u>	<u>B00-029</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Cobalt 60	10198-40-0	U		<u>0.060</u>	0.050	U	GAM
Cesium 137	10045-97-3	U		0.054	0.10	U	GAM
Europium 152	14683-23-9	0.218	0.093	0.10	0.10		GAM
Europium 154	15585-10-1	U		<u>0.18</u>	0.10	U	GAM
Europium 155	14391-16-3	U		<u>0.11</u>	0.10	U	GAM
Americium 241	14596-10-2	U		0.069		U	GAM

100 F Area - Quick Turn

DATA SHEETS

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SUMMARY DATA SECTION

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Lab id <u>EBRINE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>01/20/03</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2044

R301041-04

J00F82

DATA SHEET

SDG <u>7755</u>	Client/Case no <u>Hanford</u>	SDG <u>H2044</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R301041-04</u>	Client sample id <u>J00F82</u>	
Dept sample id <u>7755-004</u>	Location/Matrix <u>100-F-19 Shallow Zone V. SOLID</u>	
Received <u>01/11/03</u>	Collected/Weight <u>01/03/03 09:05 768.7 g</u>	
% solids <u>100.0</u>	Custody/SAF No <u>B00-029-266</u>	<u>B00-029</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Cobalt 60	10198-40-0	U		0.046	0.050	U	GAM
Cesium 137	10045-97-3	0.475	0.054	0.046	0.10		GAM
Europium 152	14683-23-9	0.288	0.072	0.094	0.10		GAM
Europium 154	15585-10-1	U		<u>0.15</u>	0.10	U	GAM
Europium 155	14391-16-3	U		<u>0.11</u>	0.10	U	GAM
Americium 241	14596-10-2	U		0.13		U	GAM

100 F Area - Quick Turn

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
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Report date <u>01/20/03</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2044

METHOD SUMMARY

GAMMA SCAN
GAMMA SPECTROSCOPY

Test GAM Matrix SOLID
SDG 7755
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H2044

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Cobalt 60	Cesium 137
Preparation batch 7032-165						
J00F67	R301041-01			7755-001	U	U
J00F69	R301041-02			7755-002	U	U
J00F71	R301041-03			7755-003	U	U
J00F82	R301041-04			7755-004	U	0.475
BLK (QC ID=43634)	R301041-05			7755-005	U	U

Nominal values and limits from method RDLs (pCi/g) 0.050 0.10
100 F Area - Quick Turn

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 7032-165 2σ prep error 15.0 % Reference Lab Notebook 7024 pg. 165																
J00F67	R301041-01			<u>0.074</u>	746					<u>31</u>		14	01/14/03	01/17	02,04,00	
J00F69	R301041-02			<u>0.074</u>	680					<u>31</u>		14	01/14/03	01/17	MB,05,00	
J00F71	R301041-03			<u>0.060</u>	900					<u>32</u>		14	01/14/03	01/17	MB,07,00	
J00F82	R301041-04			0.046	769					<u>63</u>		14	01/14/03	01/17	02,04,00	
BLK (QC ID=43634)	R301041-05			0.034	680					<u>64</u>			01/14/03	01/17	MB,05,00	

Nominal values and limits from method 0.050 680 100 180

PROCEDURES REFERENCE GAMMA_GS
CP-100 Ge(Li) Preparation for Commercial Samples, rev 5

AVERAGES ± 2 SD MDA 0.058 ± 0.035
FOR 5 SAMPLES YIELD _____ ± _____

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2044

SDG 7755
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG H2044

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

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SUMMARY DATA SECTION

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Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2044

SDG 7755
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG_H2044

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 plachets 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 plachet 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
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2044

SDG 7755
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H2044

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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Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/20/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2044

SDG 7755
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG_H2044

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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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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- * 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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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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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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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.

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- * 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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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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Collector Stankovich/Mitchell	Company Contact Mike Stankovich	Telephone No. 531-7620	Project Coordinator TRENT, SJ	Price Code 20	Data Turnaround			
Project Designation 100 F Area - Quick Turn	Sampling Location 100-F-19 Shallow Zone Variance	H2044 (7755)	SAF No. B00-029	Air Quality	<input type="checkbox"/>	7-day		
Ice Chest No. IA2	Field Logbook No. EL-1535-8	COA R05FX2F2C	Method of Shipment FedEx					
Shipped To TMA/RECRA	Offsite Property No. HMSB 000974	Bill of Lading/Air Bill No. NR						
POSSIBLE SAMPLE HAZARDS/REMARKS Radioactive Tic To 500 FPO Special Handling and/or Storage None			Preservation None					
			Type of Container Marinelli					
			No. of Container(s) 1					
			Volume 500mL					
SAMPLE ANALYSIS			See item (I) in Special Instructions.					
Sample No.	Matrix *	Sample Date	Sample Time					
J00F68	SOIL	NO 1-3-3						
J00F69	SOIL	1-3-3	0945	✓				
J00F70	SOIL	NO 1-3-3						
J00F71	SOIL	1-3-3	0950	✓				
J00F72	SOIL	NO 1-3-3						
CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix *
Relinquished By/Removed From MLB mstankovich	Date/Time 1-3-3 1400	Received By/Stored In IB/3728	Date/Time 1-3-3 1400	(1) Gamma Spectroscopy - Screen (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155) Personnel not available to relinquish samples from the 3728 Ref # IB on 1/10/03				S=Soil SE=Settlement SO=Solid SI=Sediment W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From IB 3728	Date/Time 1-10-03 1000	Received By/Stored In R.F. G... R. F. G...	Date/Time 1-10-03 1000					
Relinquished By/Removed From R.F. G... R.F. G...	Date/Time 1-10-03 1000	Received By/Stored In Fed Ex	Date/Time					
Relinquished By/Removed From	Date/Time	Received By/Stored In Ken CA	Date/Time 1-11-03 1100					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time					
LABORATORY SECTION	Received By	Title		Date/Time				
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By		Date/Time				

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B00-029-266		Page 1 of 5			
Collector Stankovich/Mitchell		Company Contact Mike Stankovich		Telephone No. 531-7620		Project Coordinator TRENT, SJ		Price Code 2D Data Turnaround			
Project Designation 100 F Area - Quick Turn		Sampling Location 100-F-19 Shallow Zone Variance		H2044 (7755)		SAF No. B00-029		Air Quality <input type="checkbox"/> 7-day			
Ice Chest No. 1A2		Field Logbook No. EL-1535-8		COA R105FX2F2C		Method of Shipment FedEx					
Shipped To TMA/BCRA		Offsite Property No. HMSR 000974		Bill of Lading/Air Bill No. NA							
POSSIBLE SAMPLE HAZARDS/REMARKS Radioactive Tie To JOOFDO Special Handling and/or Storage None			Preservation	None							
			Type of Container	Marinelli							
			No. of Container(s)	1							
			Volume	500mL							
SAMPLE ANALYSIS			See item (1) in Special Instructions								
Sample No.	Matrix *	Sample Date	Sample Time								
JOOF63	SOIL										
JOOF64	SOIL										
JOOF65	SOIL										
JOOF66	SOIL										
<u>JOOF67</u>	<u>SOIL</u>	<u>1.3.3</u>	<u>0940</u>	<input checked="" type="checkbox"/>							
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		(1) Gamma Spectroscopy - Screen (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155) Personnel not available to relinquish samples from the 3728 Ref # <u>1B</u> on <u>1/10/03</u>			
M. Stankovich		<u>1.3.3</u>		<u>RB/3728</u>		<u>1.3.3 1400</u>					
<u>LB</u>		<u>3728 1-10-03</u>		<u>R. Stankovich</u>		<u>1-10-03</u>					
<u>R. Stankovich</u>		<u>1-10-03</u>		<u>FedEx</u>							
				<u>Ken Ch</u>		<u>1-10-03/100</u>					
LABORATORY SECTION		Received By		Title		Date/Time					
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time					

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					B00-029-266		Page 4 of 4		
Collector Stankovich/Mitchell		Company Contact Mike Stankovich		Telephone No. 531-7620		Project Coordinator TRENT, SJ		Price Code 20		Data Turnaround	
Project Designation 100 F Area - Quick Turn		Sampling Location 100-F-19 Shallow Zone Variance			H2044 (7755)		SAF No. B00-029		Air Quality <input type="checkbox"/> 7-Day		
Ice Chest No. 1A2		Field Logbook No. EL-1535-8		COA R105FY2F2C		Method of Shipment FedEx					
Shipped To TMA/RECRA		Offsite Property No. HMSR 000 974			Bill of Lading/Air Bill No. N/A						
POSSIBLE SAMPLE HAZARDS/REMARKS Radioactive Tie To J00F80				Preservation None	Type of Container Marinelli	No. of Container(s) 1	Volume 500mL				
Special Handling and/or Storage None				See item (1) in Special Instructions							
SAMPLE ANALYSIS											
Sample No.	Matrix *	Sample Date	Sample Time								
J00F78	SOIL	3									
J00F79	SOIL	1.3									
J00F80	SOIL	NO									
J00F81	SOIL		NO 1.3.3								
✓ J00F82	SOIL	1.3.3	09505	✓							
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *			
Relinquished By/Removed From MTH m stankovich		Date/Time 1.3.3 1900		Received By/Stored In IB/3728		Date/Time 1.3.3 1900		(1) Gamma Spectroscopy - Screen (Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155) Personnel not available to relinquish samples from the 3728 Ref # 1B on 1/10/05			S=Soil SE=Sediment SO=Soild SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WJ=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From IB 3728		Date/Time 1.10.03 1000		Received By/Stored In R.F. Kelly R.F. Kelly		Date/Time 1.10.03					
Relinquished By/Removed From R.F. Kelly		Date/Time 1.10.03 1000		Received By/Stored In Fed Ex		Date/Time					
Relinquished By/Removed From		Date/Time		Received By/Stored In Ken C. [Signature]		Date/Time 1-11-03 (10)					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
LABORATORY SECTION	Received By		Title		Date/Time						
FINAL SAMPLE DISPOSITION	Disposal Method		Disposed By		Date/Time						

Richmond, CA Laboratory

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: BH1 Date/Time received 1100 1-11-03

CoC No. B00-029-266

Container I.D. No. PCB SOLID UN2315 Requested TAT (Days) 7 P.O. Received Yes [] No []

INSPECTION

1. Custody seals on shipping container intact? Yes No [] N/A []
2. Custody seals on shipping container dated & signed? Yes No [] N/A []
3. Custody seals on sample containers intact? Yes No [] N/A []
4. Custody seals on sample containers dated & signed? Yes No [] N/A []
5. Packing material is: Wet [] Dry
6. Number of samples in shipping container: 4
7. Number of containers per sample: 1 (Or see CoC _____)
8. Paperwork agrees with samples? Yes No []
9. Samples have: Tape [] Hazard labels [] Rad labels [] Appropriate sample labels
10. Samples are: In good condition Leaking [] Broken Container [] Missing []
11. Describe any anomalies: _____

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

14. Received by [Signature] Date: 1-11-03 Time: 1100

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 _____

Survey Meter Ser. No. _____ Calibration date _____