



EBERLINE
SERVICES

0059110

December 3, 2002

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EDMC

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

Reference: **P.O. #630**
Eberline Services R2-11-086-7732, SDG H1975

Dear Ms. Kessner:

Enclosed is the data report for one water sample designated under SAF No. B00-056 received at Eberline Services on November 19, 2002. The sample was analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
Program Manager

MCM

Enclosure: Data Package



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1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1975 was composed of one water sample designated under SAF No. B00-056 with a Project Designation of: 100-NR-1 TSD Sites R.A. Sampling – Water.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-Fax on November 22, 2002.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

No problems were encountered during the course of the analyses.

2.2 Gamma Spectroscopy Analyses

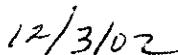
No problems were encountered during the course of the analyses.

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
Program Manager



Date

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1975

SDG 7732
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H1975

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 11/22/02

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1975

SDG 7732
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H1975

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

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 11/22/02

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1975

SDG 7732
Contact Melissa C. Mannion

GUIDE , c o n t .

Client Hanford
Contract No. 630
Case no SDG_H1975

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

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SUMMARY DATA SECTION

Page 2

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 11/22/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1975

SAMPLE SUMMARY

SDG 7732
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Case no SDG_H1975

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
J009K6	100-NR-1 Decon Pad Sump7	WATER		R211086-01	B00-056	B00-056-041	11/14/02 09:20
Method Blank		WATER		R211086-03	B00-056		
Lab Control Sample		WATER		R211086-02	B00-056		
Duplicate (R211086-01)	100-NR-1 Decon Pad Sump7	WATER		R211086-04	B00-056		11/14/02 09:20

SAMPLE SUMMARY

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SUMMARY DATA SECTION

Page 3

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CS
 Version 3.06
 Report date 11/22/02

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1975

SDG 7732
 Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H1975

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL SAMPLE ID	DEPARTMENT SAMPLE ID
7732	B00-056-041	J009K6	WATER		1.125 L		11/19/02 5	R211086-01	7732-001
		Method Blank	WATER					R211086-03	7732-003
		Lab Control Sample	WATER					R211086-02	7732-002
		Duplicate (R211086-01)	WATER		1.125 L		11/19/02 5	R211086-04	7732-004

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-QS
 Version 3.06
 Report date 11/22/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1975

SDG 7732
 Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H1975

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED				QUALI- FIERS	
			BATCH	2σ %	CLIENT	MORE	RE	BLANK		LCS
Gas Proportional Counting										
93A	WATER	Gross Alpha in Water	7032-097	20.0	1			1	1	1/1
93B	WATER	Gross Beta in Water	7032-097	15.0	1			1	1	1/1
Gamma Scan										
GAM	WATER	Gamma Emitters	7032-097	15.0	1			1	1	1/1

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

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-PBS
 Version 3.06
 Report date 11/22/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1975

SDG 7732
 Contact Melissa C. Mannion

WORK SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H1975

CLIENT SAMPLE ID	LAB SAMPLE ID									
LOCATION	MATRIX	COLLECTED	PLANCHET	TEST	SUF-	ANALYZED	REVIEWED	BY	METHOD	
CUSTODY	SAF No	RECEIVED			FIX					
J009K6		R211086-01	7732-001	93A/93		11/21/02	11/22/02	MCM	Gross Alpha in Water	
100-NR-1 Decon Pad Sump7	WATER	11/14/02	7732-001	93B/93		11/21/02	11/22/02	MCM	Gross Beta in Water	
B00-056-041	B00-056	11/19/02	7732-001	GAM		11/21/02	11/22/02	MCM	Gamma Emitters	
Method Blank		R211086-03	7732-003	93A/93		11/21/02	11/22/02	MCM	Gross Alpha in Water	
	WATER		7732-003	93B/93		11/21/02	11/22/02	MCM	Gross Beta in Water	
	B00-056		7732-003	GAM		11/21/02	11/22/02	MCM	Gamma Emitters	
Lab Control Sample		R211086-02	7732-002	93A/93		11/21/02	11/22/02	MCM	Gross Alpha in Water	
	WATER		7732-002	93B/93		11/21/02	11/22/02	MCM	Gross Beta in Water	
	B00-056		7732-002	GAM		11/20/02	11/22/02	MCM	Gamma Emitters	
Duplicate (R211086-01)		R211086-04	7732-004	93A/93		11/21/02	11/22/02	MCM	Gross Alpha in Water	
100-NR-1 Decon Pad Sump7	WATER	11/14/02	7732-004	93B/93		11/22/02	11/22/02	MCM	Gross Beta in Water	
	B00-056	11/19/02	7732-004	GAM		11/20/02	11/22/02	MCM	Gamma Emitters	

COUNTS OF TESTS BY SAMPLE TYPE											
TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
93A/93	B00-056	Gross Alpha in Water	900.0_ALPHABETA_GPC	1			1	1	1		4
93B/93	B00-056	Gross Beta in Water	900.0_ALPHABETA_GPC	1			1	1	1		4
GAM	B00-056	Gamma Emitters	GAMMA_GS	1			1	1	1		4
TOTALS				3			3	3	3		12

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CWS
 Version 3.06
 Report date 11/22/02

EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H1975

R211086-02

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7732</u> Contact <u>Melissa C. Mannion</u> Lab sample id <u>R211086-02</u> Dept sample id <u>7732-002</u>	Client/Case no <u>Hanford</u> <u>SDG H1975</u> Case no <u>No. 630</u> Client sample id <u>Lab Control Sample</u> Material/Matrix _____ <u>WATER</u> SAF No <u>B00-056</u>
---	---

ANALYTE	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	392	28	<u>7.4</u>	3.0	93A	428	17	92	70-130	70-130
Gross Beta	497	23	<u>11</u>	4.0	93B	468	19	106	74-126	70-130
Cobalt 60	451	17	11	25	GAM	400	16	113	73-127	80-120
Cesium 137	570	19	13	15	GAM	516	21	110	74-126	80-120

100-NR-1 TSD Sites R.A. Sampling-H2O

QC-LCS 43176

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>11/22/02</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1975

R211086-04

J009K6

DUPLICATE

SDG <u>7732</u>	Client/Case no <u>Hanford</u>	SDG <u>H1975</u>
Contact <u>Melissa C. Mannion</u>	Case no <u>No. 630</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R211086-04</u>	Lab sample id <u>R211086-01</u>	Client sample id <u>J009K6</u>
Dept sample id <u>7732-004</u>	Dept sample id <u>7732-001</u>	Location/Matrix <u>100-NR-1 Decon Pad Sump7 WATER</u>
	Received <u>11/19/02</u>	Collected/Volume <u>11/14/02 09:20 1.125 L</u>
		Custody/SAF No <u>B00-056-041 B00-056</u>

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI- FIERS	RPD %	3σ PROT TOT LIMIT
Gross Alpha	65.8	13	<u>8.0</u>	3.0		93A	62.7	13	<u>8.0</u>		5	60
Gross Beta	1360	36	<u>16</u>	4.0		93B	1460	37	<u>10</u>		7	32
Potassium 40	U		170		U	GAM	U		170	U	-	
Cobalt 60	392	24	16	25		GAM	434	20	11		10	34
Cesium 137	497	23	<u>19</u>	15		GAM	581	17	10		16	33
Radium 226	U		24		U	GAM	U		21	U	-	
Radium 228	U		62		U	GAM	U		53	U	-	
Europium 152	U		31	50	U	GAM	U		28	U	-	
Europium 154	U		36	50	U	GAM	U		28	U	-	
Europium 155	U		29	50	U	GAM	U		34	U	-	
Thorium 228	U		16		U	GAM	U		15	U	-	
Thorium 232	U		62		U	GAM	U		53	U	-	
Uranium 235	U		41		U	GAM	U		44	U	-	
Uranium 238	U		1800		U	GAM	U		1500	U	-	
Americium 241	U		35	50	U	GAM	U		<u>74</u>	U	-	

100-NR-1 TSD Sites R.A. Sampling-H20

QC-DUP#1 43178

Note: Sample pH - 7.2

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H1975

R211086-01

J009K6

DATA SHEET

<u>SDG 7732</u>	<u>Client/Case no Hanford</u>	<u>SDG H1975</u>
<u>Contact Melissa C. Mannion</u>	<u>Contract No. 630</u>	
<u>Lab sample id R211086-01</u>	<u>Client sample id J009K6</u>	
<u>Dept sample id 7732-001</u>	<u>Location/Matrix 100-NR-1 Decon Pad Sump7 WATER</u>	
<u>Received 11/19/02</u>	<u>Collected/Volume 11/14/02 09:20 1.125 L</u>	
	<u>Custody/SAF No B00-056-041 B00-056</u>	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALIFIERS	TEST
Gross Alpha	12587-46-1	62.7	13	<u>8.0</u>	3.0		93A
Gross Beta	12587-47-2	1460	37	<u>10</u>	4.0		93B
Potassium 40	13966-00-2	U		170		U	GAM
Cobalt 60	10198-40-0	434	20	11	25		GAM
Cesium 137	10045-97-3	581	17	10	15		GAM
Radium 226	13982-63-3	U		21		U	GAM
Radium 228	15262-20-1	U		53		U	GAM
Europium 152	14683-23-9	U		28	50	U	GAM
Europium 154	15585-10-1	U		28	50	U	GAM
Europium 155	14391-16-3	U		34	50	U	GAM
Thorium 228	14274-82-9	U		15		U	GAM
Thorium 232	TH-232	U		53		U	GAM
Uranium 235	15117-96-1	U		44		U	GAM
Uranium 238	U-238	U		1500		U	GAM
Americium 241	14596-10-2	U		<u>74</u>	50	U	GAM

100-NR-1 TSD Sites R.A. Sampling-H2O

Note: Sample pH - 7.2

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 11/22/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1975

METHOD SUMMARY

GROSS ALPHA IN WATER
GAS PROPORTIONAL COUNTING

Test 93A Matrix WATER
SDG 7732
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H1975

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha
Preparation batch 7032-097					
J009K6	R211086-01	93		7732-001	62.7
BLK (QC ID=43177)	R211086-03	93		7732-003	<u>3.51</u> U
LCS (QC ID=43176)	R211086-02	93		7732-002	ok
Duplicate (R211086-01)	R211086-04	93		7732-004	ok
Nominal values and limits from method			RDLs (pCi/L)	3.0	
100-NR-1 TSD Sites R.A. Sampling-H2O					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 7032-097 2σ prep error 20.0 % Reference Lab Notebook 7024 pg. 097															
J009K6	R211086-01	93		<u>8.0</u>	0.0500			44	100				7	11/21/02	11/21 GRB-114
BLK (QC ID=43177)	R211086-03	93		<u>6.7</u>	0.0500			21	100					11/21/02	11/21 GRB-105
LCS (QC ID=43176)	R211086-02	93		<u>7.4</u>	0.0500			21	100					11/21/02	11/21 GRB-115
Duplicate (R211086-01)	R211086-04	93		<u>8.0</u>	0.0500			44	100				7	11/21/02	11/21 GRB-114
(QC ID=43178)															
Nominal values and limits from method				3.0	0.0500			5-250	100				180		

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC
CP-120 Gross Alpha and Gross Beta in Water, rev 5

AVERAGES ± 2 SD MDA 7.5 ± 1.2
FOR 4 SAMPLES RESIDUE 32 ± 27

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 11/22/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1975

METHOD SUMMARY

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Test 93B Matrix WATER
SDG 7732
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H1975

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Beta
Preparation batch 7032-097					
J009K6	R211086-01	93		7732-001	1460
BLK (QC ID=43177)	R211086-03	93		7732-003	<u>6.73</u> U
LCS (QC ID=43176)	R211086-02	93		7732-002	ok
Duplicate (R211086-01)	R211086-04	93		7732-004	ok
Nominal values and limits from method		RDIs (pCi/L)		4.0	
100-NR-1 TSD Sites R.A. Sampling-H20					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 7032-097 2σ prep error 15.0 % Reference Lab Notebook 7024 pg. 097															
J009K6	R211086-01	93		<u>10</u>	0.0500			44	100				7	11/21/02	11/21 GRB-101
BLK (QC ID=43177)	R211086-03	93		<u>13</u>	0.0500			21	100					11/21/02	11/21 GRB-105
LCS (QC ID=43176)	R211086-02	93		<u>11</u>	0.0500			21	100					11/21/02	11/21 GRB-102
Duplicate (R211086-01)	R211086-04	93		<u>16</u>	0.0500			44	100				8	11/21/02	11/22 GRB-114
(QC ID=43178)															
Nominal values and limits from method				4.0	0.0500			5-250	100				180		

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC
CP-120 Gross Alpha and Gross Beta in Water, rev 5

AVERAGES ± 2 SD MDA 12 ± 5.3
FOR 4 SAMPLES RESIDUE 32 ± 27

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 11/22/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1975

METHOD SUMMARY

GAMMA EMITTERS
GAMMA SCAN

Test GAM Matrix WATER
SDG 7732
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG H1975

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW SUF- TEST FIX	PLANCHET	Cobalt 60	Cesium 137
Preparation batch 7032-097					
J009K6	R211086-01		7732-001	434	581
BLK (QC ID=43177)	R211086-03		7732-003	U	U
LCS (QC ID=43176)	R211086-02		7732-002	ok	ok
Duplicate (R211086-01)	R211086-04		7732-004	ok	ok
Nominal values and limits from method			RDIs (pCi/L)	25	15
100-NR-1 TSD Sites R.A. Sampling-H20					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW SUF- TEST FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 7032-097 2σ prep error 15.0 % Reference Lab Notebook 7024 pg. 097														
J009K6	R211086-01		<u>55</u>	0.500					976			7	11/20/02	11/21 MB,05,00
BLK (QC ID=43177)	R211086-03		<u>43</u>	0.500					976				11/20/02	11/21 01,03,00
LCS (QC ID=43176)	R211086-02		13	0.500					1023				11/20/02	11/20 MB,07,00
Duplicate (R211086-01)	R211086-04		<u>52</u>	0.500					1024			6	11/20/02	11/20 01,03,00
(QC ID=43178)														
Nominal values and limits from method			15	0.500					100			180		

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

AVERAGES ± 2 SD MDA 41 ± 38
FOR 4 SAMPLES YIELD _____ ± _____

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 11/22/02

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1975

SDG 7732
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H1975

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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Form DVD-RG
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SDG 7732
Contact Melissa C. Mannion

REPORT GUIDE

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PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

- * The preparation batches are shown in the same order as the Method Summary Reports are printed.
- * Only analyses of planchets relevant to the SDG are included.
- * Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- * The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

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

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WORK SUMMARY

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

The following notes apply to this report:

- * TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- * SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- * The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- * PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- * For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- * The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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DATA SHEET

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

The following notes apply to this report:

- * TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- * The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

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

- * ERRORS can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- * A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- * When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

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

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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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Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B00-056-041		Page 1 of 1	
Collector R.B. Kerkow		Company Contact R.B. Kerkow		Telephone No. 372-2187		Project Coordinator TRENT, SJ		Price Code 7A Data Turnaround	
Project Designation 100-NR-1 TSD Sites R. A. Sampling - Water		Sampling Location 100-NR-1 116-N-3; Decon Pad Sump (7) H1975 (7732)		SAF No. B00-056		Air Quality <input type="checkbox"/>		3 DAYS	
Ice Chest No. ERL 99 010		Field Logbook No. EL-1524-2		COA R1301N2600		Method of Shipment			
Shipped To TMA/RECR ARK 11-14-02		Offsite Property No. A030 051		Bill of Lading/Air Bill No. SCB OSPC					
POSSIBLE SAMPLE HAZARDS/REMARKS <i>Potentially Radioactive</i>				Preservation	None	HNO3 to pH 2			
Special Handling and/or Storage <i>None</i>				Type of Container	P	P			
				No. of Container(s)	1	2 11-14-02			
				Volume	50mL	1L			
SAMPLE ANALYSIS				pH (Water) - 9040	See item (1) in Special Instructions.				TIE TO:
Sample No.	Matrix *	Sample Date	Sample Time						
J009K6	WATER	11-14-02	0920	X	X				J009K4
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *	
Relinquished By/Removed From RB Kerkow / RB Kerkow		Date/Time 1130 11-14-02		Received By/Stored In REF 1A RB Kerkow		Date/Time 1130 11-14-02		Lab COA: R1325N2F00 (1) Gross Alpha; Gross Beta; Gamma Spectroscopy (Water) (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241); Isotopic Plutonium, Americium-241, Strontium-90, Total Sr, Nickel-63, Isotopic Uranium RBK 11-14-02 ADD: PH DELETE: isotopic Pu, Am-241, Sr 89/90, Total Sr, Ni-63, isotopic U. PH AT TMA Personnel not available to relinquish samples from the 3728 Ref # 1A on 11/15/02	
Relinquished By/Removed From REF 1A		Date/Time 111802 0930		Received By/Stored In DIAGNE/S/SEL		Date/Time 111812 0930			
Relinquished By/Removed From SIGALE/Alph		Date/Time 111802 0930		Received By/Stored In FSD EX		Date/Time			
Relinquished By/Removed From FSD SEC		Date/Time 11/18/02 9:35		Received By/Stored In And Barro		Date/Time 11/19/02 9:35			
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			

3 Doug [Signature]

Richmond, CA Laboratory

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Beechtel Hayward Date/Time received 11/19/02 9:35 am

CoC No. B00-056-041

Container I.D. No. ERC99-610 Requested TAT (Days) 3 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: 1

7. Number of containers per sample: 2 (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: 11/19/02 Time: 9:35 am

Customer Sample No.	cpm	mr/hr	wipe	Customer Sample No.	cpm	mr/hr	wipe
<u>0009K6</u>							

Ion Chamber Ser. No. _____ Calibration date _____

Alpha meter Ser. No. _____ Calibration date _____

Survey Meter Ser. No. _____ Calibration date _____