0059176

SAF-B00-056
100-NR-1 TSD Sites R. A.
Sampling - Water
FINAL DATA PACKAGE

FAX RESULTS TO:

Rick Kerkow 373-1395 N/A
INITIAL/DATE

VERIFICATION OF CLIENT RECEIPT:

Phone or CC:Mail to Rick Kerkow N/A
INITIAL/DATE

COMPLETE COPY OF DATA PACKAGE TO:

Rick Kerkow X9-06 B L 1/28/03
INITIAL/DATE

Jeanette Duncan B L 1/28/03
INITIAL/DATE

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

SDG (H2038) SAF-B00-056

Rad only Chem only X Rad & Chem

X Complete Partial

Waste Site: 100-NR-1

EBERLINE
SERVICES

January 20, 2003

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

Reference: **P.O. #630**
Eberline Services R3-01-020-7752, SDG H2038

Dear Ms. Kessner:

Enclosed is the data report for two water samples designated under SAF No. B00-056 received at Eberline Services on January 8, 2003. The samples were analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

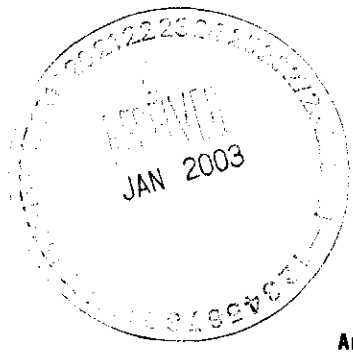
Sincerely,

Melissa Mannion

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
www.eberlineservices.com

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H2038 was composed of two water samples designated under SAF No. B00-056 with a Project Designation of: 100-NR-1 TSD Sites R.A. Sampling – Water.

The samples were 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 January 15, 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 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.3 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 Mannion

Melissa C. Mannion
Program Manager

1/20/3

Date

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP H2038

SDG 7752
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H2038

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

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 01/15/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2038

SDG 7752
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H2038

ABOUT THE DATA SUMMARY SECTION

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

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

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

PREPARATION BATCH SUMMARY

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

WORK SUMMARY

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

METHOD BLANKS

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

LAB CONTROL SAMPLES

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

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/15/03

SDG 7752
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG_H2038

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 01/15/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2038

SAMPLE SUMMARY

SDG 7752
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H2038

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
J00FD7	100-NR-1 "wet-blast" Sum	WATER		R301020-01	B00-056	B00-056-045	01/06/03 09:45
J00FD8	100-NR-1 "wet-blast" Sum	WATER		R301020-02	B00-056	B00-056-045	01/06/03 10:00
Method Blank		WATER		R301020-04	B00-056		
Lab Control Sample		WATER		R301020-03	B00-056		
Duplicate (R301020-01)	100-NR-1 "wet-blast" Sum	WATER		R301020-05	B00-056		01/06/03 09:45

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 01/15/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2038

QC SUMMARY

SDG 7752
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H2038

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7752	B00-056-045	J00FD7	WATER		1.0 L		01/08/03	2	R301020-01	7752-001
		J00FD8	WATER		1.0 L		01/08/03	2	R301020-02	7752-002
		Method Blank	WATER						R301020-04	7752-004
		Lab Control Sample	WATER						R301020-03	7752-003
		Duplicate (R301020-01)	WATER		1.0 L		01/08/03	2	R301020-05	7752-005

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 01/15/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2038

SDG 7752
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H2038

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Beta Counting												
SR	WATER	Total Strontium in Water	7032-154	10.0	2			1	1	1/1		
Gas Proportional Counting												
93A	WATER	Gross Alpha in Water	7032-154	20.0	2			1	1	1/1		
93B	WATER	Gross Beta in Water	7032-154	15.0	2			1	1	1/1		
Gamma Scan												
GAM	WATER	Gamma Emitters	7032-154	15.0	2			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 01/15/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2038

WORK SUMMARY

SDG 7752
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H2038

CLIENT SAMPLE ID / LOCATION / CUSTODY	MATRIX / SAF No	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
J00FD7		R301020-01	7752-001	93A/93		01/15/03	01/15/03	MCM	Gross Alpha in Water
100-NR-1 "wet-blast" Sum	WATER	01/06/03	7752-001	93B/93		01/15/03	01/15/03	MCM	Gross Beta in Water
B00-056-045	B00-056	01/08/03	7752-001	GAM		01/13/03	01/15/03	MCM	Gamma Emitters
			7752-001	SR		01/14/03	01/15/03	MCM	Total Strontium in Water
J00FD8		R301020-02	7752-002	93A/93		01/15/03	01/15/03	MCM	Gross Alpha in Water
100-NR-1 "wet-blast" Sum	WATER	01/06/03	7752-002	93B/93		01/15/03	01/15/03	MCM	Gross Beta in Water
B00-056-045	B00-056	01/08/03	7752-002	GAM		01/13/03	01/15/03	MCM	Gamma Emitters
			7752-002	SR		01/14/03	01/15/03	MCM	Total Strontium in Water
Method Blank		R301020-04	7752-004	93A/93		01/15/03	01/15/03	MCM	Gross Alpha in Water
	WATER		7752-004	93B/93		01/15/03	01/15/03	MCM	Gross Beta in Water
	B00-056		7752-004	GAM		01/13/03	01/15/03	MCM	Gamma Emitters
			7752-004	SR		01/14/03	01/15/03	MCM	Total Strontium in Water
Lab Control Sample		R301020-03	7752-003	93A/93		01/15/03	01/15/03	MCM	Gross Alpha in Water
	WATER		7752-003	93B/93		01/15/03	01/15/03	MCM	Gross Beta in Water
	B00-056		7752-003	GAM		01/13/03	01/15/03	MCM	Gamma Emitters
			7752-003	SR		01/14/03	01/15/03	MCM	Total Strontium in Water
Duplicate (R301020-01)		R301020-05	7752-005	93A/93		01/15/03	01/15/03	MCM	Gross Alpha in Water
100-NR-1 "wet-blast" Sum	WATER	01/06/03	7752-005	93B/93		01/15/03	01/15/03	MCM	Gross Beta in Water
	B00-056	01/08/03	7752-005	GAM		01/14/03	01/15/03	MCM	Gamma Emitters
			7752-005	SR		01/14/03	01/15/03	MCM	Total Strontium in Water

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	2			1	1	1	5
93B/93	B00-056	Gross Beta in Water	900.0_ALPHABETA_GPC	2			1	1	1	5
GAM	B00-056	Gamma Emitters	GAMMA_GS	2			1	1	1	5
SR	B00-056	Total Strontium in Water	SRTOT_SEP_PRECIP_GPC	2			1	1	1	5
TOTALS				8			4	4	4	20

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 01/15/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2038

R301020-04 **Method Blank**

METHOD BLANK

SDG 7752 Client/Case no Hanford SDG H2038
Contact Melissa C. Mannion Contract No. 630

Lab sample id R301020-04 Client sample id Method Blank
Dept sample id 7752-004 Material/Matrix WATER
SAF No B00-056

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-0.911	1.4	3.3	3.0	U	93A
Gross Beta	12587-47-2	-2.08	4.0	7.0	4.0	U	93B
Total Strontium	SR-RAD	0.165	1.1	2.3	2.0	U	SR
Potassium 40	13966-00-2	U		71		U	GAM
Cobalt 60	10198-40-0	U		6.1	25	U	GAM
Cesium 137	10045-97-3	U		5.9	15	U	GAM
Radium 226	13982-63-3	U		11		U	GAM
Radium 228	15262-20-1	U		24		U	GAM
Europium 152	14683-23-9	U		15	50	U	GAM
Europium 154	15585-10-1	U		17	50	U	GAM
Europium 155	14391-16-3	U		13	50	U	GAM
Thorium 228	14274-82-9	U		8.3		U	GAM
Thorium 232	TH-232	U		24		U	GAM
Uranium 235	15117-96-1	U		21		U	GAM
Uranium 238	U-238	U		690		U	GAM
Americium 241	14596-10-2	U		17		U	GAM

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

QC-BLANK 43592

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 01/15/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2038

R301020-03

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7752
Contact Melissa C. Mannion

Client/Case no Hanford SDG H2038
Contract No. 630

Lab sample id R301020-03
Dept sample id 7752-003

Client sample id Lab Control Sample
Material/Matrix WATER
SAF No B00-056

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	203	15	2.7	3.0		93A	200	8.0	102	67-133	70-130
Gross Beta	215	11	7.6	4.0		93B	212	8.5	101	75-125	70-130
Total Strontium	157	6.9	2.3	2.0		SR	141	5.6	111	81-119	80-120
Cobalt 60	470	31	17	25		GAM	464	19	101	74-126	80-120
Cesium 137	464	27	23	15		GAM	468	19	99	75-125	80-120

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

QC-LCS 43591

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 01/15/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2038

R301020-05 J00FD7

DUPLICATE

SDG 7752 Client/Case no Hanford SDG H2038

Contact Melissa C. Mannion Contract No. 630

DUPLICATE	ORIGINAL	
Lab sample id R301020-05	Lab sample id R301020-01	Client sample id J00FD7
Dept sample id 7752-005	Dept sample id 7752-001	Location/Matrix 100-NR-1 "wet-blast" Sum WATER
	Received 01/08/03	Collected/Volume 01/06/03 09:45 1.0 L
		Custody/SAF No B00-056-045 B00-056

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	1.72	1.8	2.3	3.0	U	93A	0.640	1.4	2.2	U	-	
Gross Beta	6.83	4.2	6.5	4.0		93B	9.26	3.6	5.1		30	108
Total Strontium	3.45	1.6	2.5	2.0		SR	3.91	1.6	2.4		12	95
Potassium 40	U		190		U	GAM	U		180	U	-	
Cobalt 60	U		10	25	U	GAM	U		9.9	U	-	
Cesium 137	U		9.3	15	U	GAM	U		9.2	U	-	
Radium 226	U		19		U	GAM	U		18	U	-	
Radium 228	U		41		U	GAM	U		100	U	-	
Europium 152	U		25	50	U	GAM	U		25	U	-	
Europium 154	U		29	50	U	GAM	U		26	U	-	
Europium 155	U		28	50	U	GAM	U		28	U	-	
Thorium 228	U		13		U	GAM	U		14	U	-	
Thorium 232	U		41		U	GAM	U		100	U	-	
Uranium 235	U		40		U	GAM	U		41	U	-	
Uranium 238	U		1100		U	GAM	U		1100	U	-	
Americium 241	U		59		U	GAM	U		61	U	-	

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

QC-DUP#1 43593

Note: Sample pH - 6.0

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 01/15/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2038

R301020-01 **J00FD7**

DATA SHEET

SDG	7752	Client/Case no	Hanford SDG H2038
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R301020-01	Client sample id	J00FD7
Dept sample id	7752-001	Location/Matrix	100-NR-1 "wet-blast" Sum WATER
Received	01/08/03	Collected/Volume	01/06/03 09:45 1.0 L
		Custody/SAF No	B00-056-045 B00-056

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.640	1.4	2.2	3.0	U	93A
Gross Beta	12587-47-2	9.26	3.6	5.1	4.0		93B
Total Strontium	SR-RAD	3.91	1.6	2.4	2.0		SR
Potassium 40	13966-00-2	U		180		U	GAM
Cobalt 60	10198-40-0	U		9.9	25	U	GAM
Cesium 137	10045-97-3	U		9.2	15	U	GAM
Radium 226	13982-63-3	U		18		U	GAM
Radium 228	15262-20-1	U		100		U	GAM
Europium 152	14683-23-9	U		25	50	U	GAM
Europium 154	15585-10-1	U		26	50	U	GAM
Europium 155	14391-16-3	U		28	50	U	GAM
Thorium 228	14274-82-9	U		14		U	GAM
Thorium 232	TH-232	U		100		U	GAM
Uranium 235	15117-96-1	U		41		U	GAM
Uranium 238	U-238	U		1100		U	GAM
Americium 241	14596-10-2	U		61		U	GAM

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

Note: Sample pH - 6.0

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 01/15/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2038

R301020-02 **J00FD8**

DATA SHEET

SDG 7752 Client/Case no Hanford SDG H2038
Contact Melissa C. Mannion Contract No. 630

Lab sample id R301020-02 Client sample id J00FD8
Dept sample id 7752-002 Location/Matrix 100-NR-1 "wet-blast" Sum WATER
Received 01/08/03 Collected/Volume 01/06/03 10:00 1.0 L
Custody/SAF No B00-056-045 B00-056

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	22.5	17	18	3.0		93A
Gross Beta	12587-47-2	227	28	29	4.0		93B
Total Strontium	SR-RAD	73.9	8.1	6.0	2.0		SR
Potassium 40	13966-00-2	U		270		U	GAM
Cobalt 60	10198-40-0	132	17	14	25		GAM
Cesium 137	10045-97-3	77.5	12	12	15		GAM
Radium 226	13982-63-3	U		22		U	GAM
Radium 228	15262-20-1	U		50		U	GAM
Europium 152	14683-23-9	U		26	50	U	GAM
Europium 154	15585-10-1	U		30	50	U	GAM
Europium 155	14391-16-3	U		20	50	U	GAM
Thorium 228	14274-82-9	U		13		U	GAM
Thorium 232	TH-232	U		50		U	GAM
Uranium 235	15117-96-1	U		34		U	GAM
Uranium 238	U-238	U		1300		U	GAM
Americium 241	14596-10-2	U		11		U	GAM

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

Note: Sample pH - 6.0

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 01/15/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2038

Test SR Matrix WATER
SDG 7752
Contact Melissa C. Mannion

METHOD SUMMARY

TOTAL STRONTIUM IN WATER
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H2038

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium
Preparation batch 7032-154					
J00FD7	R301020-01			7752-001	3.91
J00FD8	R301020-02			7752-002	73.9
BLK (QC ID=43492)	R301020-04			7752-004	U
LCS (QC ID=43491)	R301020-03			7752-003	ok
Duplicate (R301020-01)	R301020-05			7752-005	ok
Nominal values and limits from method				RDLs (pCi/L)	2.0
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	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7032-154	2σ prep error 10.0 %	Reference Lab Notebook 7032 pg. 154														
J00FD7	R301020-01			2.4	0.150			80	100				8	01/14/03	01/14	GRB-217
J00FD8	R301020-02			6.0	0.0500			93	100				8	01/14/03	01/14	GRB-218
BLK (QC ID=43492)	R301020-04			2.3	0.150			81	100					01/14/03	01/14	GRB-220
LCS (QC ID=43491)	R301020-03			2.3	0.150			84	100					01/14/03	01/14	GRB-219
Duplicate (R301020-01) (QC ID=43493)	R301020-05			2.5	0.150			79	100				8	01/14/03	01/14	GRB-221
Nominal values and limits from method				2.0	0.150					100			180			

PROCEDURES REFERENCE SRTOT_SEP_PRECIP_GPC
CP-501 Strontium in Water Samples, rev 4

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 3.1 ± 3.2
YIELD 83 ± 11

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/15/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2038

Test 93A Matrix WATER
SDG 7752
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS ALPHA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H2038

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha	
Preparation batch 7032-154						
J00FD7	R301020-01	93		7752-001	U	
J00FD8	R301020-02	93		7752-002	22.5	
BLK (QC ID=43592)	R301020-04	93		7752-004	U	
LCS (QC ID=43591)	R301020-03	93		7752-003	ok	
Duplicate (R301020-01)	R301020-05	93		7752-005	-	U
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	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7032-154	2σ prep error 20.0 %	Reference Lab Notebook 7032 pg. 154														
J00FD7	R301020-01	93		2.2	0.100			3	100				9	01/13/03	01/15	GRB-101
J00FD8	R301020-02	93		18	0.0200			50	100				9	01/13/03	01/15	GRB-102
BLK (QC ID=43592)	R301020-04	93		3.3	0.100			16	100					01/13/03	01/15	GRB-115
LCS (QC ID=43591)	R301020-03	93		2.7	0.100			23	100					01/13/03	01/15	GRB-114
Duplicate (R301020-01) (QC ID=43593)	R301020-05	93		2.3	0.100			2	100				9	01/13/03	01/15	GRB-105
Nominal values and limits from method				3.0	0.100			5-250	100				180			

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

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 5.7 ± 14
RESIDUE 19 ± 39

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 01/15/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2038

Test 93B Matrix WATER
SDG 7752
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H2038

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Beta
Preparation batch 7032-154					
J00FD7	R301020-01	93		7752-001	9.26
J00FD8	R301020-02	93		7752-002	227
BLK (QC ID=43592)	R301020-04	93		7752-004	U
LCS (QC ID=43591)	R301020-03	93		7752-003	ok
Duplicate (R301020-01)	R301020-05	93		7752-005	ok
Nominal values and limits from method				RDLs (pCi/L)	4.0
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	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7032-154	2σ prep error 15.0 %	Reference Lab Notebook 7032 pg. 154														
J00FD7	R301020-01	93		5.1	0.100			3	100				9	01/13/03	01/15	GRB-101
J00FD8	R301020-02	93		29	0.0200			50	100				9	01/13/03	01/15	GRB-102
BLK (QC ID=43592)	R301020-04	93		7.0	0.100			16	100					01/13/03	01/15	GRB-115
LCS (QC ID=43591)	R301020-03	93		7.6	0.100			23	100					01/13/03	01/15	GRB-114
Duplicate (R301020-01) (QC ID=43593)	R301020-05	93		6.5	0.100			2	100				9	01/13/03	01/15	GRB-105
Nominal values and limits from method				4.0	0.100			5-250	100				180			

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

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 11 ± 20
RESIDUE 19 ± 39

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 H2038

Test GAM Matrix WATER
SDG 7752
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA EMITTERS
GAMMA SCAN

Client Hanford
Contract No. 630
Contract SDG H2038

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60		Cesium 137	
Preparation batch 7032-154								
J00FD7	R301020-01			7752-001	U		U	
J00FD8	R301020-02			7752-002	132		77.5	
BLK (QC ID=43592)	R301020-04			7752-004	U		U	
LCS (QC ID=43591)	R301020-03			7752-003	ok		ok	
Duplicate (R301020-01)	R301020-05			7752-005	-	U	-	U
Nominal values and limits from method				RDLs (pCi/L)	25		15	
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	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7032-154 2σ prep error 15.0 % Reference Lab Notebook 7032 pg. 154																
J00FD7	R301020-01			46	0.500					713			7	01/09/03	01/13	MB,05,00
J00FD8	R301020-02			42	0.500					713			7	01/09/03	01/13	MB,07,00
BLK (QC ID=43592)	R301020-04			22	0.500					714				01/09/03	01/13	01,04,00
LCS (QC ID=43591)	R301020-03			23	0.500					714				01/09/03	01/13	01,03,00
Duplicate (R301020-01) (QC ID=43593)	R301020-05			45	0.500					714			8	01/09/03	01/14	MB,05,00
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 FOR 5 SAMPLES
MDA 36 ± 24
YIELD ____ ± ____

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

SAMPLE DELIVERY GROUP H2038

SDG 7752
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REPORT GUIDE

Client Hanford
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SAMPLE SUMMARY

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

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

The following notes apply to these reports:

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

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

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

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

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

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

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SDG 7752
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Client Hanford
Contract No. 630
Case no SDG H2038

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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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2038

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Client Hanford
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WORK SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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DATA SHEET

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

The following notes apply to this report:

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

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

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

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

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

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

The following qualifiers are defined by the DVD system:

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

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DATA SHEET

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

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

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

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

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

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

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

P The RESULT is 'preliminary'.

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

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

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

The following values are underlined to indicate possible problems:

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

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DATA SHEET

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

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

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

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LAB CONTROL SAMPLE

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

The following notes apply to this report:

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

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

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DUPLICATE

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

The following notes apply to this report:

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

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

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

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

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

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

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

  This value reported for this limit is at most 999.

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

  1. A fixed percentage specified in the protocol.

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DUPLICATE

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

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

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

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

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

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MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

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MATRIX SPIKE

for the recovery.

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

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

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METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

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

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

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

  MDAs are underlined if greater than the printed RDL.

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

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

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

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

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

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

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METHOD SUMMARY

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

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

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

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

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

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

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

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

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

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

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METHOD SUMMARY

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

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

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

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

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Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-056-045	Page 1 of 1

Collector	Company Contact / Telephone No.	Project Coordinator	Price Code / Data Turnaround
R.B. Kerkow	R.B. Kerkow 372-2187	KESSNER, JH	7G / Air Quality ☐ 15 Days
Project Designation	**Sampling Location**	**SAF No.**	
100-NR-1 TSD Sites R. A. Sampling - Water	100-NR-1 "wet-blast" sump (1) H2038 (7427)	B00-056	
Ice Chest No.	**Field Logbook No.** / **COA**	**Method of Shipment**	
ERC 01-014	EL-1524-3 / R1301N2600	FedEx	
Shipped To	**Offsite Property No.**	**Bill of Lading/Air Bill No.**	
TMA/~~RECRA~~ RK 1-6-03	A030 114	7928 0288 3481	

POSSIBLE SAMPLE HAZARDS/REMARKS

Potentially Radioactive

Tie To Reports Listed Below

Special Handling and/or Storage

None

Preservation	NONE ~~HNO3 to pH <2~~ RK 1-6-03										
Type of Container	P										
No. of Container(s)	~~2~~ 1 RK 1-6-03										
Volume	1L										
SAMPLE ANALYSIS	See item (1) in Special Instructions.								TIE TO. //		

Sample No.	Matrix *	Sample Date	Sample Time									
J00FD7	WATER	1-6-03	0945	X							J00FD5	WEST
J00FD8	WATER	1-6-03	1000	X							J00FD6	EAST

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/~~Removed From~~	Date/Time 1130 1-6-03	~~Received By~~/Stored In RK REF 1A RK	Date/Time 1130 1-6-03
Relinquished By/Removed From 1A 3728	Date/Time 1200 01-07-03	Received By/Stored In R. Fahlberg	Date/Time 1200 01-07-03
Relinquished By/Removed From ERC R. Fahlberg	Date/Time 1200 01-07-03	Received By/Stored In Fed Ex	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In Ken C	Date/Time 1000 1-8-03
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

Lab COA: R1301N2F00

(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-89,90 -- Total Sr; ~~Nickel-63, Isotopic Uranium~~ RK 1-6-03

DELETE: ISOTOPIC Pu, Am^{241}, Ni63, ISOTOPIC U.

ADD: pH TEST AT TMA. RK 1-6-03

Personnel not available to relinquish samples from the 3728 Ref # 1A on 01/07/03

Matrix *

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

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

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

EBERLINE SERVICES **ANALYTICAL SERVICES GROUP**

Richmond, CA Laboratory

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: BHI Date/Time received 1000 - 1-8-03

CoC No. B00-056-045

Container I.D. No. ERC-01-014 Requested TAT (Days) 15 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: 2			
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 Ken C Ah	Date: 1-8-03	Time: _____	

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 _____